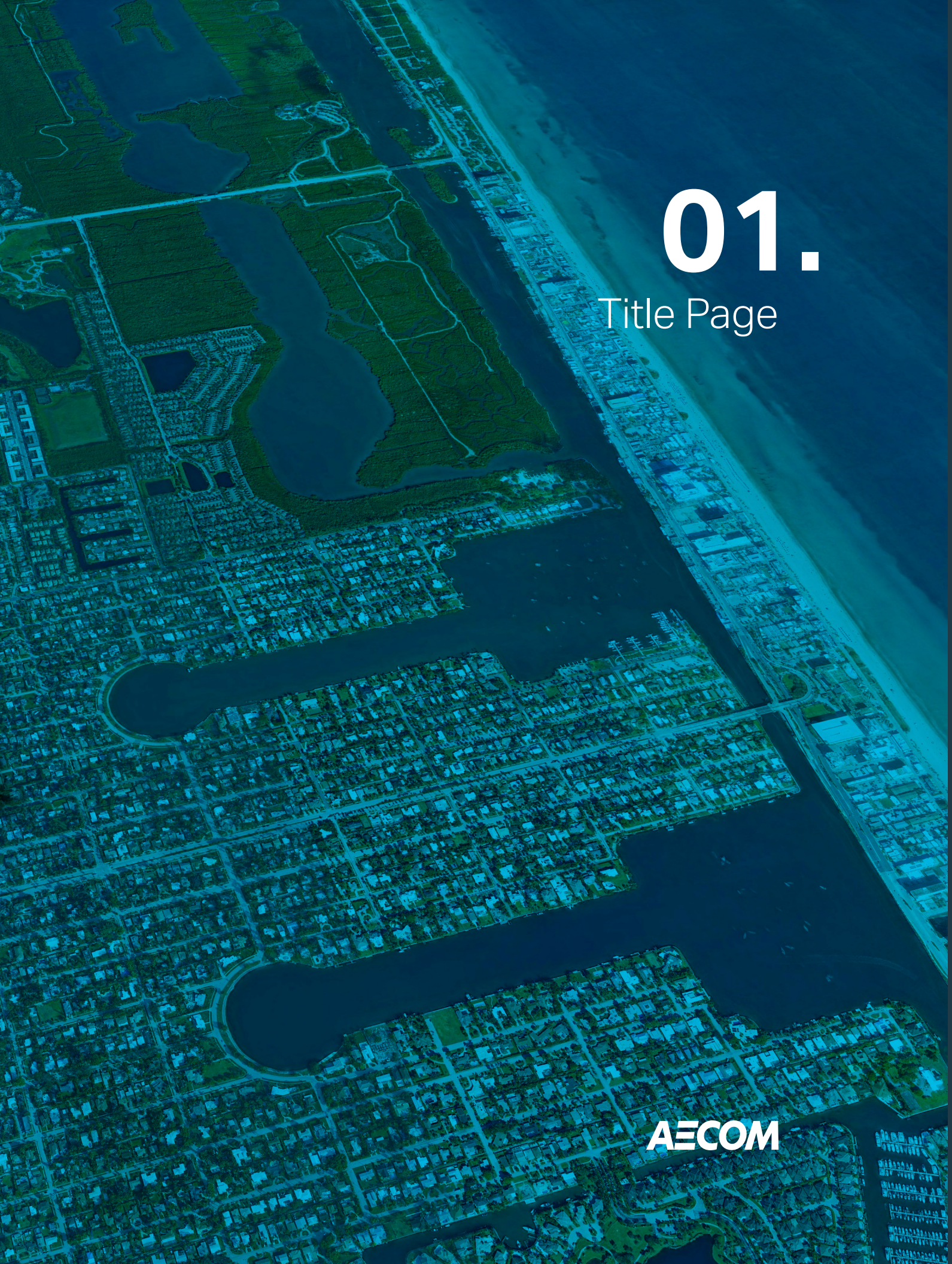
AECOM

CITY OF HOLLYWOOD
Engineering Services for Tidal Flooding Mitigation

Solicitation DCM-19-001187

AECOM



01.

Title Page

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AECOM

STATEMENT OF QUALIFICATIONS

Engineering Services for Tidal Flooding Mitigation
Bid Number DCM-19-001187

Submitted to
City of Hollywood
Office of the City Clerk
2600 Hollywood Blvd., Room 221
Hollywood, Florida 33020

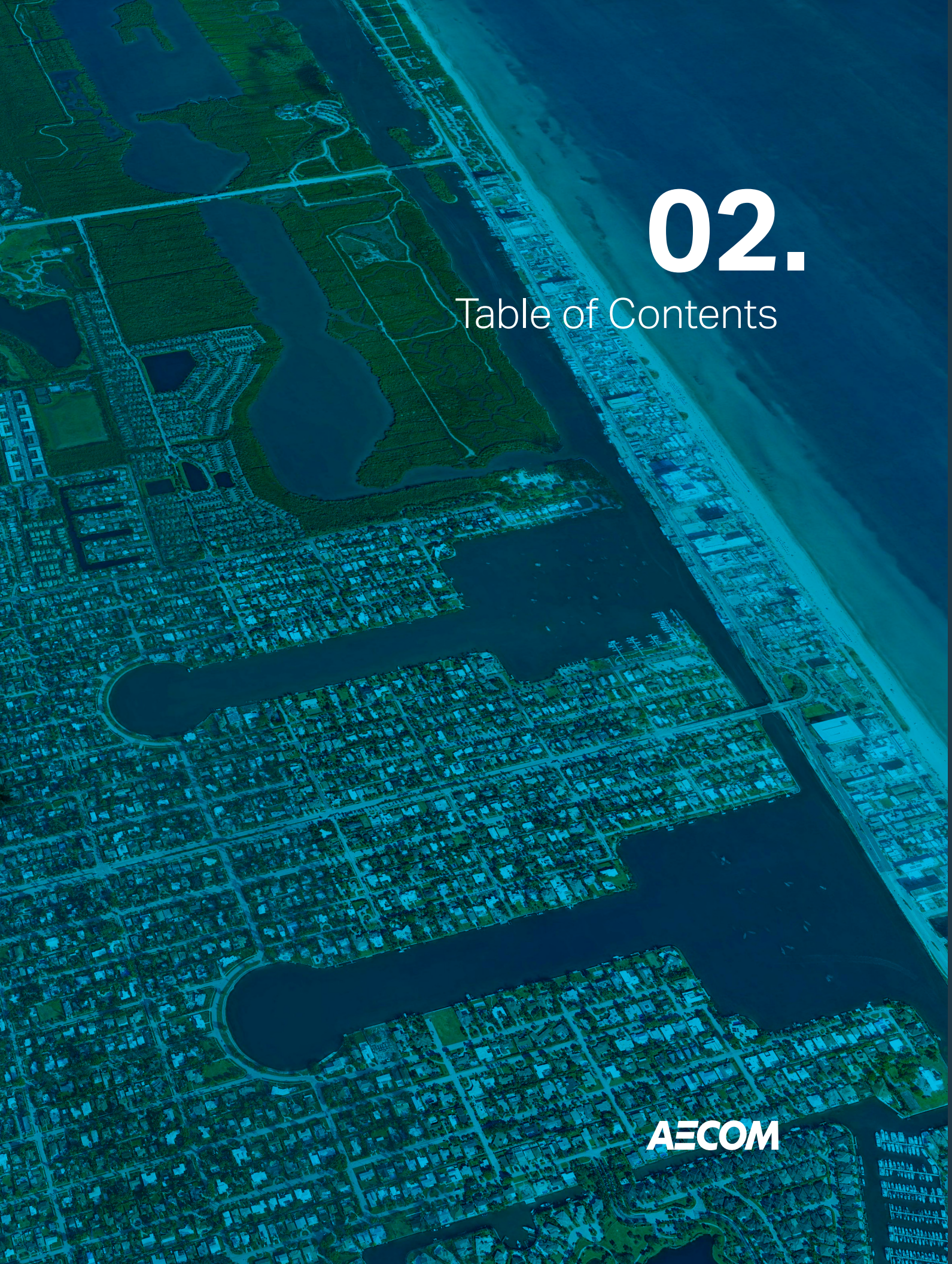
Submitted by

AECOM Technical Services, Inc.
7650 Corporate Center Dr. Suite 400
Miami, Florida 33126

Contacts
Vijay Agrawal, PE
Vice President
AECOM Americas Ports & Marine
D: 305-514-2488
M: 954-288-2671

José Soler, PE
Director Ports & Marine
O: 305-262-7466
M: 786-635-8428

December 10, 2019



02.

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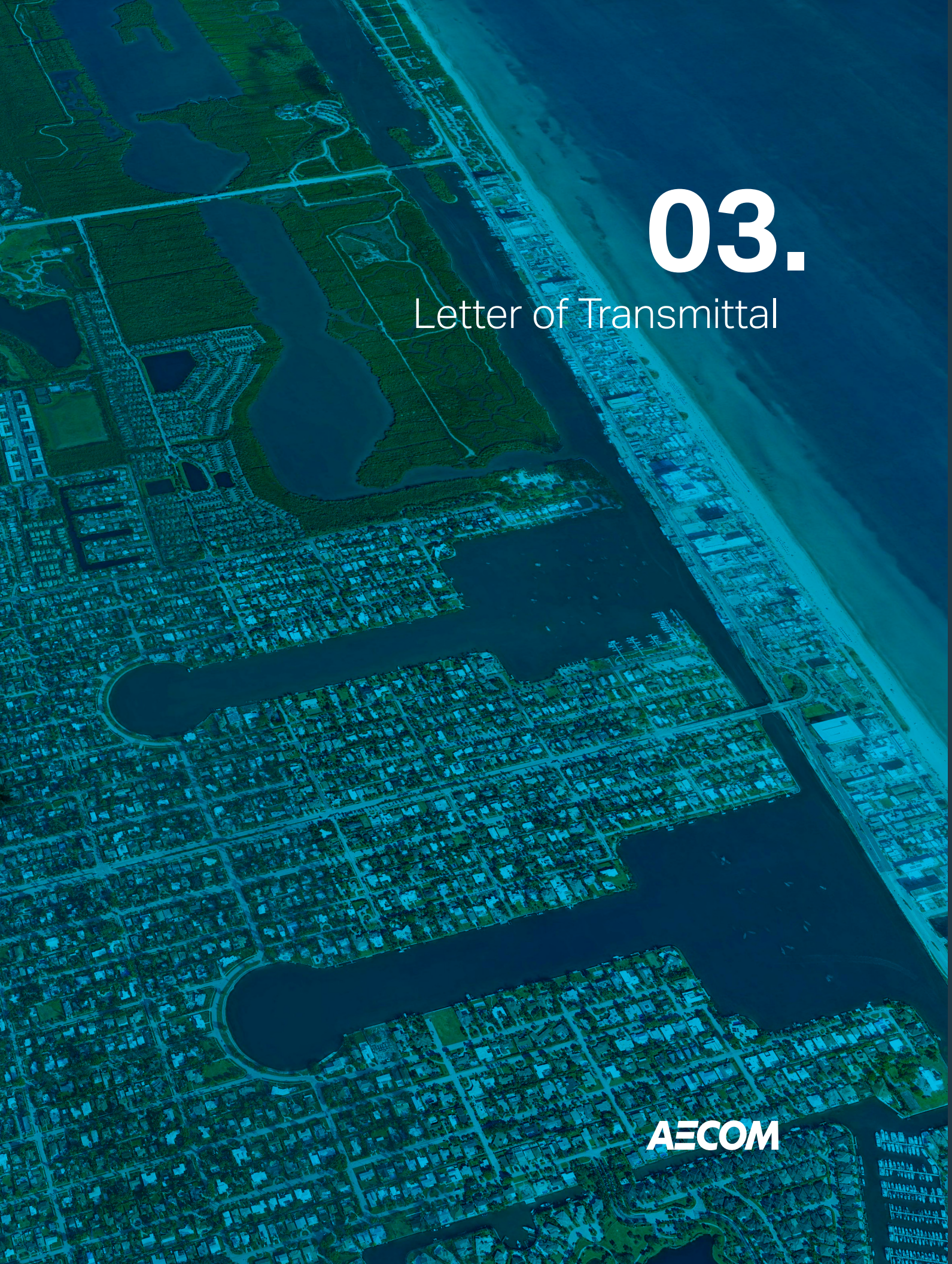


03.

Letter of Transmittal

AECOM


AECOM

AECOM
7650 Corporate Center Dr.
Suite 400
Miami, Florida 33126
www.aecom.com

December 10, 2019

City of Hollywood
Office of the City Clerk
2600 Hollywood Blvd., Room 221
Hollywood, Florida 33020

STATEMENT OF QUALIFICATIONS
Engineering Services for Tidal Flooding Mitigation
Bid Number DCM-19-001187

AECOM Technical Services is pleased to submit this Statement of Qualifications to provide engineering services for tidal flooding mitigation for the City of Hollywood. Eight bound copies and one CD are enclosed.

The City of Hollywood is in an increasing risk of floods due to rising sea levels that are almost certain to affect the City's infrastructure in the future. Flooding may also occur during high intensity rainfall events at certain low-lying areas. This type of flooding may be exacerbated when rain events occur during high tides, king tides or coastal surge conditions. It is important to evaluate the combined effects of the coastal storm surge and rainstorm events, as well as the existing shoreline conditions along the City's inters coastal waterway, North and South Lakes. AECOM has sound understanding and experience in the area of coastal flood study, sea level rise, vulnerability assessment, and mitigation measures. We are the very few coastal practice teams in the U.S. having the capability to develop state of the art model system to couple coastal storm surge model with the urban drainage & sewage model. This coupled model system is ideal to assess the performance and risk for coastal resiliency planning and design projects

AECOM is a recognized leader in resilience and climate adaptation planning efforts across the country and world. We offer experience in planning, design, and construction of resilient infrastructure; vulnerability and risk assessment; natural disaster preparedness planning and response; and climate mitigation and adaptation planning. This deep experience and innovation make us uniquely qualified to partner with the City of Hollywood to incorporate our climate vulnerability approach into our response for Engineering Services for Tidal Flooding Mitigation. Our team will approach this opportunity with efficiency, expertise and commitment.

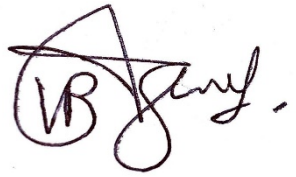
Persons who are authorized to make representations on behalf of AECOM for this project are listed below.

Vijay Agrawal
Vice President
AECOM Americas Ports & Marine
7650 Corporate Center Dr. Suite 400
Miami, Florida 33126
D: 305-514-2488
M: 954-288-2671

José Soler
Director Ports & Marine
7650 Corporate Center Dr. Suite 400
Miami, Florida 33126
O: 305-262-7466
M: 786-635-8428

AECOM acknowledges receipt of Addendum 1 dated November 25, 2019, and Addendum 2 dated December 2, 2019. Signed versions of the addenda are provided after this letter.

Sincerely,
AECOM Technical Services, Inc.



Vijay Agrawal
Vice President

José Soler

Office of Procurement Services

CITY OF Hollywood FLORIDA

tel: 954.921.3299
fax: 954.921.3086

Solicitation Addendum No. 1

To: **All Proposers**

Solicitation No.: DCM-19-001187

Solicitation Title: Engineering Services for Tidal Flooding

Addendum Date: November 25, 2019

The following attachment and responses to questions are made and hereby become a part of this solicitation.

ADDITIONAL DOCUMENT

The Hollywood Seawalls Project Map is incorporated into Addendum No. 1 at Attachment No. 1.

QUESTIONS AND RESPONSES:

Q1. Some of the information included in the SF330 part I will be duplicated in the consultant profile, such as the project descriptions, resumes, and org chart. Would it be possible to submit only part II of the SF330 within the Standard Form 330 section of the proposal, since the other information will be provided in the consultant profile?

R1. *For this RFQ we will require the consultant profile to be fully completed, in the future RFQs the documents will be simplified to prevent a duplication of effort.*

Q2. Do we need to submit the electronic forms found on the BidSync website as part of this RFQ response? They are not mentioned in the RFQ?

R2. *Yes, the electronic forms are in the RFQ Packet and must be submitted with your proposal.*

2600 Hollywood Boulevard
P.O. Box 229045
Hollywood, Florida
33022-9045

hollywoodfl.org

Q3. Could the City provide a description or graphic of the limits of the following items included in Section II. Scope of Services?

-7,300 linear feet of shore line protections, along city owned property immediately west of the inters coastal water way

-2,946 linear feet of seawall repair/replacement

-10,873 linear feet of private seawall repair replacement?

R3. *See the Hollywood Seawalls Projects Map, Attachment No. 1.*

Q4. Do we need full SF 330s from sub-consultants, or will SF 330 resumes and projects suffice?

R4. *Resumes and projects will suffice for sub-consultants.*

Q5. Do sub-consultants also need to submit their litigation summaries?

R5. *The final sub-consultants approved by the City may be required to submit additional information upon request.*

Q6. Was the City consultant's flood vulnerability study completed? If so, can a copy be provided for reference?

R6. *The study has not been completed; though the schedule in their proposal shows it being completed by the end of November, we are now expecting it by the end of February.*

Q7. Please clarify graphically and/or through narrative explanation the location of the 7,300 linear feet of proposed shore protection area referenced in the funded base scope?

R7. *See Attachment No. 1, based on the Hazen-Sawyer Vulnerability Study.*

Q8. What is the 2019 GO bond budget amount that has been designated/estimated for the proposed 7,300 linear feet of shore protection?

R8. *The estimate for the Tidal Flooding Mitigation and Sea Walls is $14,091,065.00.*

Q9. Does the City hold fee simple title to all of the lands on which the shore protection structures are proposed? Are there any easements or other encumbrances on the subject lands?

R9. *Improvements included in this project are proposed only on properties owned by the City; I can find out if there are any easements on said properties, but I need to do some research.*

Q10. Page 4, Item II-1 – Can the City please provide a location map of the requested project locations? Or a more detailed description of the specific project location?

R10. *See Attachment No. 1, based on the Hazen-Sawyer Vulnerability Study.*

Q11. Who will be on the selection committee?

R11. *The members on the selection committee is still pending.*

Q12. Is it acceptable to provide "Profile of Consultant" information in Section H of the SF 330??

R12. *See Question 1.*

Q13. Do the forms found at the end of the Terms and Conditions need to be submitted via BidSync or included solely within the proposal?

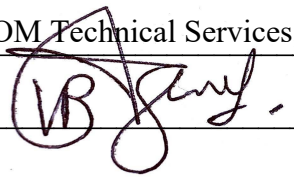
R13. *The forms are to be submitted with your proposal.*

All other specifications, terms and conditions, and requirements of the solicitation remain unchanged**.**

Please sign and return with your response.

DATE: December 10, 2019

COMPANY NAME: AECOM Technical Services, Inc.

PROPOSER'S SIGNATURE: 

Office of Procurement Services

CITY OF Hollywood FLORIDA

tel: 954.921.3299
fax: 954.921.3086

Solicitation Addendum No. 2

To: **All Proposers**

Solicitation No.: DCM-19-001187

Solicitation Title: Engineering Services for Tidal Flooding

Addendum Date: December 2, 2019

The following attachment and responses to questions are made and hereby become a part of this solicitation.

QUESTIONS AND RESPONSES:

Q1. Is there a limit to the number of projects that can be included in Section F of the SF-330?

R1. *There are no limits to the projects that can be included in Section F of Standard Form 330*

Q2. Page 4 of the RFP. When does the City expect to fund the design work for the referenced 2946 LF and 10,873 LF of seawall work under this contract?

R2. *Per the Scope of Services in the RFQ, the City of Hollywood does not have funding for the subject portions of seawall work; nor does it have a an expected date as to when the funds will become available.*

Q3. Page 8 of the RFP. The information requested in the Submittals is duplicative, with SF330 and Profile of Consultant. Can we only submit the requested details mentioned under the Profile of Consultant and not submit SF 330 Form?

R3. *For this RFQ we will require that the consultant's profile be fully complete and the Standard Form 330 be submitted; in future RFQs the documents will be simplified to prevent a duplication of effort.*

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Hollywood, Florida
33022-9045

hollywoodfl.org

Q4. Page 24 of the RFP. Phase I – Programming and Schematic Design. The proposed scope of work does not mention the coastal studies and modeling required to arrive at the possible Seawall height and mitigation of tidal flooding. Has there been any previous studies undertaken by the City which recommended raising the proposed Seawalls? If yes, can City provide the detail report and study findings? If not, can City confirm the proposed scope of work will include detail coastal and flood modeling to arrive at the proposed seawall retrofit solutions.

R4. *Coastal studies have not been performed; a vulnerability Study is being performed by our consultant, which will be available at the end of February. The height of the seawall is being imposed by Broward County at 5 feet. NAVD 88. Any additional information required for the design of this project will be negotiated with the selected consultant.*

Q5. Does City have the AS-BUILT drawings of the existing Seawall? If yes, can City provide the documents?

R5. *No, the City does not have AS-BUILT drawings of the existing seawall(s).*

Q6. Has the City carried out a recent bathymetric survey of the North Lake and South Lake and affected project area? If yes, can City provide a copy of the survey? If not, please confirm if the scope of work will require bathymetric survey of the project affected area.

R6. *Yes, the City does have a recent bathymetric survey of the North Lake and South Lake, that will be provided to the selected consultant.*

Q7. Can the City provide a copy of "Exhibit A" Rate Schedule which is referenced in the Professional Services Agreement under Section 5 Basis of Compensation and Section 6 Payments to the Consultant?

R7. *"Exhibit A" Rate Schedule, will be provided by the selected firm(s) as this information varies with each consulting firm. Upon selection, you will be requested to provide a table showing the different positions in the firm and their hourly rates.* ***Do not submit hourly rates with your proposal, as this will disqualify your submission.***

Q8. Depending on when the answers to the questions posted for this bid are provided by the City, can the City provide an extension for submission of the Submittal, to compensate for the lack of the information and time to address the answers to these questions?

R8. *No, an extension will not be provided, your submittal should be per the original RFQ.*

Q9. There appears to be a conflicting information in the RFQ, we request the City to please clarify. Section IV.3 indicates that after the City has determined the first ranked

consultant, the City will negotiate the contract with the top firm and the resultant contract will incorporate the RFP, the consultant's qualifications and any other term and conditions that the City may allow to be included during negotiation. This provision by itself would appear that contract terms are to be negotiated by the top ranked firm. However, under the General Terms and Conditions (pg. 45 of the pdf), in both Sections 1.1 and 1.4, it appears that exceptions to terms and conditions (if we have any) may need to be submitted with the proposal. That said, Section 1.4 may only be referring to exceptions related to specifications/materials. Can you please confirm?

Additionally, Section 1.21 states that submission of a proposal will constitute incontrovertible representation that the proposal is submitted in compliance with all requirements and full understanding of all terms and conditions of the RFP. It is not clear if the City is wanting a detailed exception list of all terms and conditions to be submitted with the proposal or if a statement that we have exceptions (which would be detailed if we were the awarded consultant) would suffice for the proposal phase. Because there may be terms of the RFP and sample contract that we would not want to readily accept without the ability to discuss further, we need to know if the proposal needs to include "detailed exceptions" with the proposal or not until we are found to be the top ranked proposer.

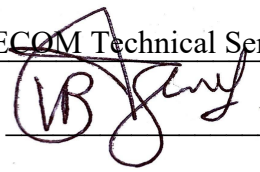
R9. *In Section 1.4 second paragraph refers to any variance to the specifications listed in the solicitation packet the proposer wishes to submits exceptions to, all exceptions must be submitted with the proposal for consideration, and if necessary, negotiation.*

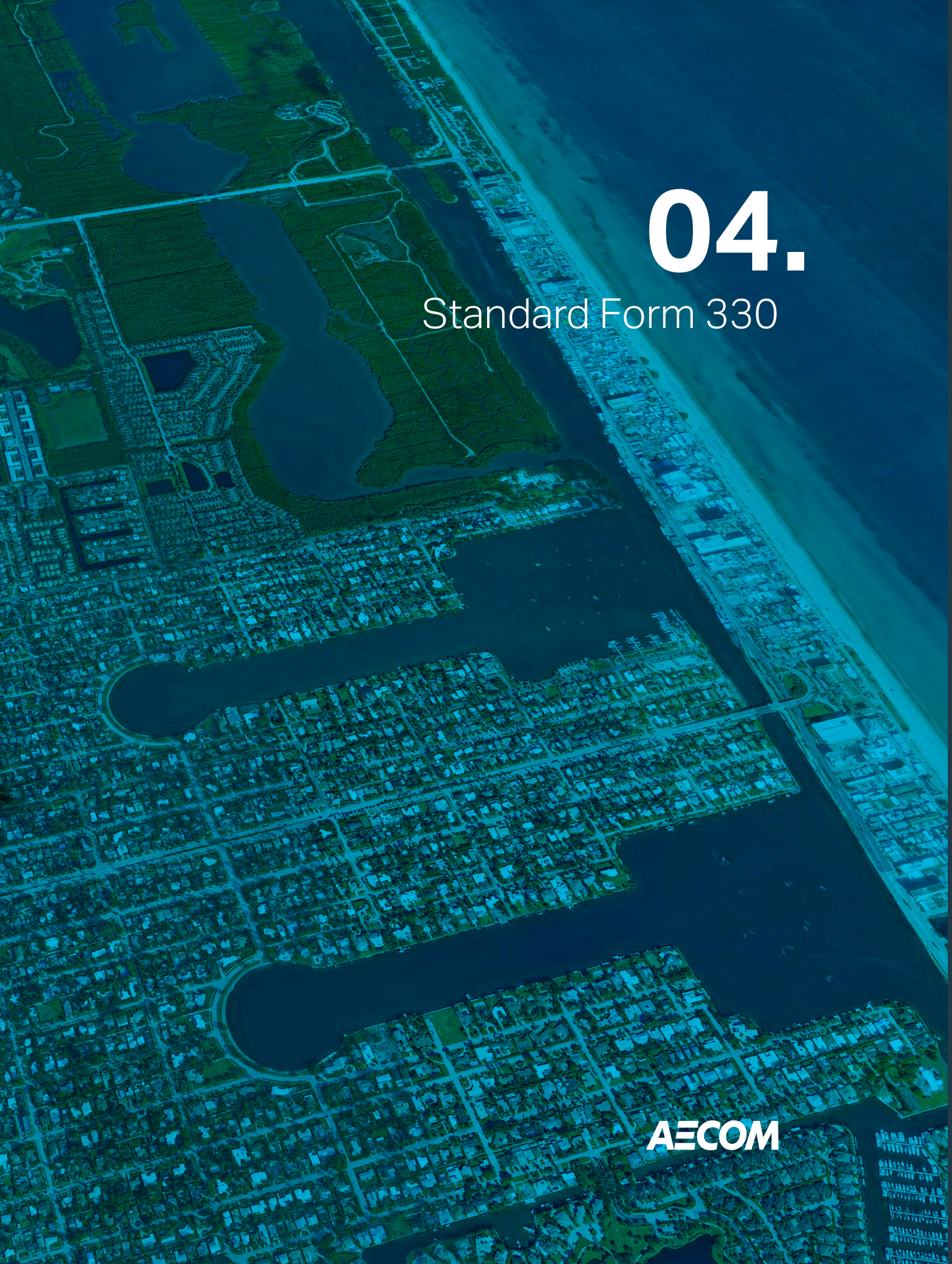
All other specifications, terms and conditions, and requirements of the solicitation remain unchanged.

Please sign and return with your response.

DATE: December 10, 2019

COMPANY NAME: AECOM Technical Services, Inc.

PROPOSER'S SIGNATURE: 



04.

Standard Form 330

AECOM

04.
Standard Form 330

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ARCHITECT – ENGINEER QUALIFICATIONS

PART I – CONTRACT-SPECIFIC QUALIFICATIONS

A. CONTRACT INFORMATION

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

Engineering Services for Tidal Flooding Mitigation, City of Hollywood, Florida

2. PUBLIC NOTICE DATE	3. SOLICITATION OR PROJECT NUMBER
November 5, 2019	**Solicitation DCM-19-001187**

B. ARCHITECT-ENGINEER POINT OF CONTACT

4. NAME AND TITLE

Vijay Agrawal, PE, Vice President

5. NAME OF FIRM

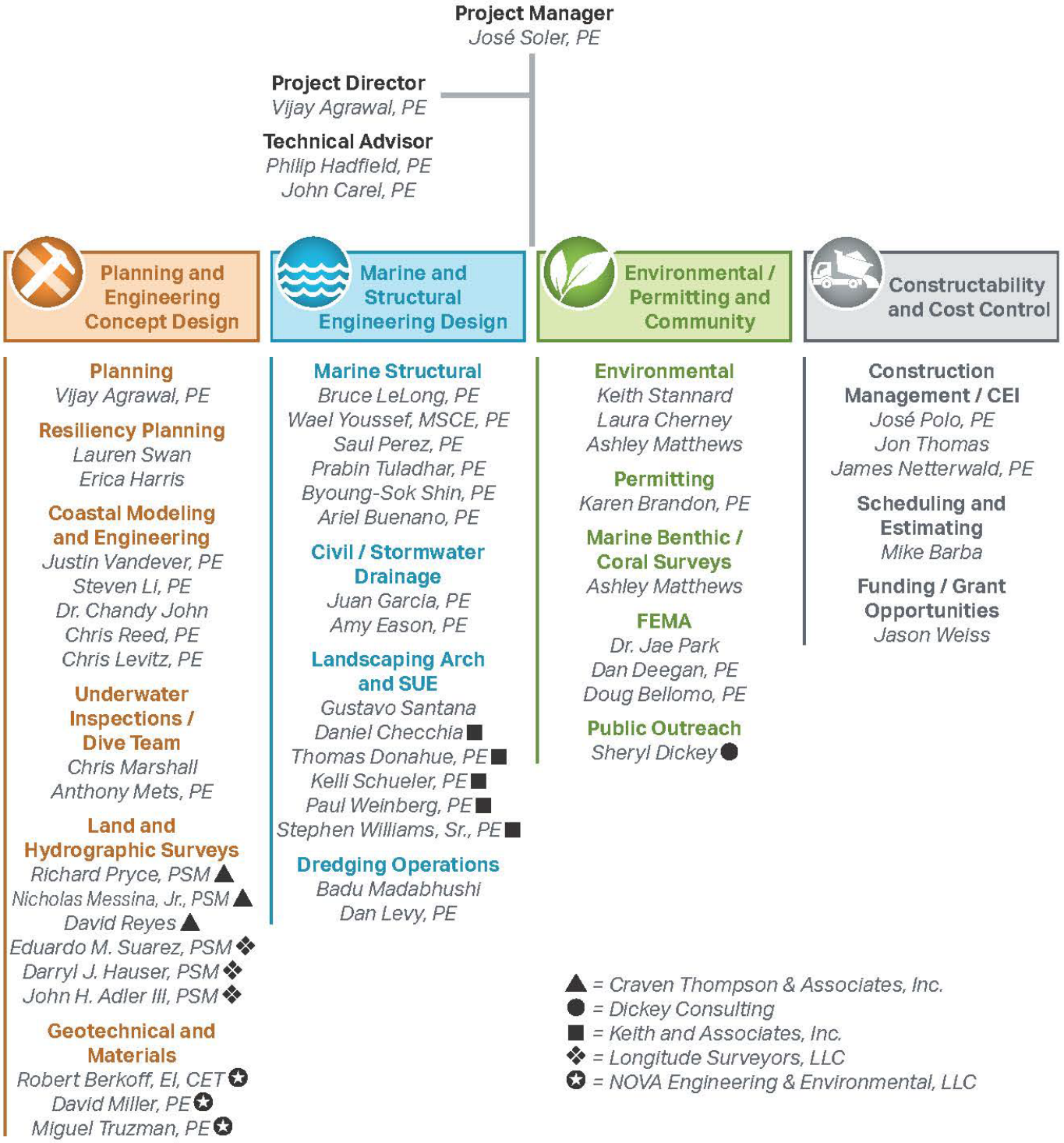
AECOM Technical Services, Inc.

6. TELEPHONE NUMBER	7. FAX NUMBER	8. E-MAIL ADDRESS
305.514.2488	**305.261.4017**	**Vijay.Agrawal@aecom.com**

C. PROPOSED TEAM

	(CHECK) PRIME	(CHECK) J-V PARTNER	(CHECK) SUBCON-TRACTOR	9. FIRM NAME	10. ADDRESS	11. ROLE IN THIS CONTRACT
a.	●			**AECOM** ☒ CHECK IF BRANCH OFFICE	7650 Corporate Center Drive Miami, FL 33126	Project Management
b.	●			**AECOM** ☒ CHECK IF BRANCH OFFICE	800 Douglas Road Coral Gables, FL 33134	Resiliency, Landscape Architecture, Public Outreach Management
c.	●			**AECOM** ☒ CHECK IF BRANCH OFFICE	2090 Palm Beach Lakes Boulevard West Palm Beach, FL 33409	Environmental Permitting
d.	●			**AECOM** ☒ CHECK IF BRANCH OFFICE	1515 Poydras Street New Orleans, LA 70112	Seawall Analysis & Design
e.	●			**AECOM** ☒ CHECK IF BRANCH OFFICE	125 Broad Street New York, NY 10004	Seawall Analysis & Design support
f.	●			**AECOM** ☒ CHECK IF BRANCH OFFICE	300 Lakeside Drive Oakland, CA 94612	Coastal Modeling & Sea Level Rise studies
g.			●	**Craven Thompson & Associates, Inc.** ☐ CHECK IF BRANCH OFFICE	3563 NW 53rd Street Fort Lauderdale, FL 33309	Land & Hydrographic Surveys
h.			●	**Longitude Surveyors, LLC** ☐ CHECK IF BRANCH OFFICE	7769 NW 48 Street Doral, FL 33166	Land & Hydrographic Surveys
i.			●	**NOVA Engineering and Environmental, LLC** ☒ CHECK IF BRANCH OFFICE	4350 Oakes Road Fort Lauderdale, FL 33314	Geotechnical & Materials
j.			●	**Keith and Associates, Inc. (KEITH)** ☒ CHECK IF BRANCH OFFICE	301 E Atlantic Boulevard Pompano Beach, FL 33060	Landscape architecture, SUE and UC services
k.			●	**Dickey Consulting** ☐ CHECK IF BRANCH OFFICE	1033 NW 6th Street Fort Lauderdale, FL 33311	Public Outreach

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


Project Manager
José Soler, PE
Project Director
Vijay Agrawal, PE
Technical Advisor
Philip Hadfield, PE
John Carel, PE
Planning and Engineering Concept Design
Marine and Structural Engineering Design
Environmental / Permitting and Community
Constructability and Cost Control
Planning
Vijay Agrawal, PE
Resiliency Planning
Lauren Swan
Erica Harris
Coastal Modeling and Engineering
Justin Vandever, PE
Steven Li, PE
Dr. Chandy John
Chris Reed, PE
Chris Levitz, PE
Underwater Inspections / Dive Team
Chris Marshall
Anthony Mets, PE
Land and Hydrographic Surveys
Richard Pryce, PSM ▲
Nicholas Messina, Jr., PSM ▲
David Reyes ▲
Eduardo M. Suarez, PSM ❖
Darryl J. Hauser, PSM ❖
John H. Adler III, PSM ❖
Geotechnical and Materials
Robert Berkoff, EI, CET ✪
David Miller, PE ✪
Miguel Truzman, PE ✪
Marine Structural
Bruce LeLong, PE
Wael Youssef, MSCE, PE
Saul Perez, PE
Prabin Tuladhar, PE
Byoung-Sok Shin, PE
Ariel Buenano, PE
Civil / Stormwater Drainage
Juan Garcia, PE
Amy Eason, PE
Landscaping Arch and SUE
Gustavo Santana
Daniel Checchia ■
Thomas Donahue, PE ■
Kelli Schueler, PE ■
Paul Weinberg, PE ■
Stephen Williams, Sr., PE ■
Dredging Operations
Badu Madabhushi
Dan Levy, PE
Environmental
Keith Stannard
Laura Cherney
Ashley Matthews
Permitting
Karen Brandon, PE
Marine Benthic / Coral Surveys
Ashley Matthews
FEMA
Dr. Jae Park
Dan Deegan, PE
Doug Bellomo, PE
Public Outreach
Sheryl Dickey ●
Construction Management / CEI
José Polo, PE
Jon Thomas
James Netterwald, PE
Scheduling and Estimating
Mike Barba
Funding / Grant Opportunities
Jason Weiss
▲ = Craven Thompson & Associates, Inc.
● = Dickey Consulting
■ = Keith and Associates, Inc.
❖ = Longitude Surveyors, LLC
✪ = NOVA Engineering & Environmental, LLC

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
José Soler, PE	**Project Manager**	23	<1

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, FL)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
BS, Civil Engineering	FL: PE PR: PE

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

José is a Director with AECOM's Americas Ports & Marine Group with more than 23 years of experience performing and managing numerous waterfront and maritime projects involving planning, coordination of design from conceptual through final and construction. His project experience includes construction management and owner's representative for the construction of bulkheads, piers, dolphin structures, cargo container terminals, waterside and landside improvements, cargo yard development, rail systems, as well as bridges. He has managed projects in the US and the Caribbean.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — **See Project 1 in Section F**

Port Miami, Program Management Consultant, Miami, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

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

☒ Check if project performed with current firm

Program Manager. Integral member of AECOM PMC management team to the Port's Capital Improvement Program. Serving as owners representative performing consulting, design review, program management, document control, and construction management and administration. Significant projects include; cruise terminal design-build developments for NCL, Virgin, Carnival, and MSC; container yard redevelopment at the SFCT terminal; FPL substation expansion; new grade separations; retrofit/rehabilitation of steel sheet pile bulkheads; and the north bulkhead wall replacement program.

Size: $15.4M fee **Cost:** $2B construction value

b. (1) TITLE AND LOCATION *(City and State)* — **See Project 1 in Section F**

Port Miami, North Bulkhead Wall Replacement Program, Miami, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

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

☒ Check if project performed with current firm

Program Manager. Serving as owners representative performing consulting and design review for existing North Bulkhead Wall system replacement with a new wall along the northern extension of Dodge Island to serve all cruise operations berths. This complex wall reconstruction will require extensive construction phasing in order to minimize impacts to port operations. Currently in the earl stage of development, the program may include widening of the north apron, extensive waterside improvements, PBB and runway modifications, and relocation of bollards, fenders, and water stations.

Cost: $260M construction value

c. (1) TITLE AND LOCATION *(City and State)* — **See Project 1 in Section F**

Port Miami, Cruise Terminal B Design-Build, Miami, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

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

☒ Check if project performed with current firm

Program Manager. Serving as owners representative performing consulting and design review for a new cruise terminal in a public-private partnership between Miami-Dade County and Norwegian Cruise Lines. Project includes upgrade of the seawall for flood and sea level rise protection, construction of new terminal capable to accommodate vessels carrying up to 5,000 cruise passengers.

Cost: $260M construction value

d. (1) TITLE AND LOCATION *(City and State)* — **See Project 1 in Section F**

Port Miami, Cruise Terminal V Design-Build, Miami, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

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

☒ Check if project performed with current firm

Program Manager. Serving as owners representative performing consulting and design review of design for a new cruise terminal to accommodate the Virgin Voyages first ship Scarlet Lady. Project to be located on the northwest side of the port includes construction of a new terminal, dredging of the berth and portions of the Intra Coastal Waterway, a new bulkhead wall system, a mooring dolphin extension to accommodate the new vessel, and flood and sea level rise protection.

Cost: $180M construction value

e. (1) TITLE AND LOCATION *(City and State)* **See Project 1 in Section F**

Port Miami, Cruise Terminal F Expansion and Berthing Re-Alignment Design-Build, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

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

☒ Check if project performed with current firm

Program Manager. Serving as owners representative performing consulting and design review of the expansion and renovation of Cruise Terminal F. Project includes waterside terminal improvements to accommodate berthing of Carnival's XL newest 7,000 passenger ships and provide improved flood and sea level rise protection.

Cost: $170M construction value

f. (1) TITLE AND LOCATION *(City and State)* **See Project 2 in Section F**

Port of Palm Beach, Port Engineer, Riviera Beach, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017	2019

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

☒ Check if project performed with current firm

Port Engineer. Led the development and overseeing of the planning, design and construction of the Port's Capital Improvement Program project of the new Berth 17 capable of handling for 300' barge for RO/RO operation, including 250 linear feet of secant wall and concrete bulkhead structure, navigational and dolphin structures and dredging. Led the coordination with Federal and States agencies such as the US Army Corps of Engineers and the Florida Department of Environmental Protection.

Cost: $11M construction value

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Vijay Agrawal, PE	**Project Director**	19	17

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, Florida)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
B.E. (Civil), M.E. (Structures), M.S. (Civil)	Professional Engineer (Texas, Civil)

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

Publications:

- "Port Corpus Christi Ship Channel and Waterways Planning and Design using Simulation", AAPA Facilities Engineering Seminar, Jacksonville, April 2019
- "Planning and Design Considerations for a Container Terminal with Electric RTG Cranes", Port & Terminal Technology Conference, Charleston, April 2018
- "Integration of Green Technology into Existing Terminal", AAPA Facilities Engineering Seminar, Miami, October 2017
- "Port Planning Value Proposition", TOC-Asia, Singapore April 2014
- "Green Port Initiatives for Existing and Greenfield Container Ports in India, the Lowest Hanging fruit is promoting use of electric", South Asia Green Ports, Mumbai, India 2013
- "Simulation modeling of a crude oil or refined products export facility", STOCEXPO Middle East 2009, Dubai
- Performance of Strip Footings on Slopes", Jao, M., Agrawal, V., and Wang, W.C., 2001, Proceedings of the 15th International Conference on Soil Mechanics and Foundation Engineering

Organizations:

- Advisory Board Member, Broward College Supply Chain Management Program, Florida
- Advisory Board Member, Center for Advances in Port Management, Lamar University, Texas

19. RELEVANT PROJECTS

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

Broward County Port Everglades, Port Everglades Master / Vision Plan Update, Fort Lauderdale, Florida

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2011	

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

☒ Check if project performed with current firm

Project Manager. Served as the Project Manager for preparing a comprehensive Port Everglades Master / Vision Plan by interfacing very closely with the Broward County and Port Everglades staff. Served as the lead planner for the update of Port Master plan to guide port development over the next 20 years, with an estimated cost of U$1.5 Billion in infrastructure. The study involved: updating the market forecast for cruise and cargo business, performing detailed conceptual planning/design studies for existing cruise terminals and container yard, conducting visioning exercises, doing public outreach, completing facility capacity studies for the cruise terminals and berthing areas, planning circulation, designing the intermodal rail yard, evaluating flight path restrictions from an adjacent international airport, identifying methods to increase terminal efficiencies, evaluating financial development options, performing navigation studies, planning infrastructure and relocation assistance, analyzing the parking garage, planning security, conducting phasing and capital improvement plans, and performing other associated studies

Size: Portwide. **Cost:** $2.5 Million

b. (1) TITLE AND LOCATION *(City and State)* **See Project 3 in Section F**

US Coast Guard Station Marathon Major Maintenance & Repair Waterfront Marathon, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	

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

☒ Check if project performed with current firm

Project Manager. Provided project management, coordination with the client and internal staff in meeting design deliverables milestones and provided QA/QC services on the drawings and the specifications.

Size: 1400ft. **Cost:** $900,000

c. (1) TITLE AND LOCATION *(City and State)* **See Project 1 in Section F**

Port of Miami Program Management Miami-Dade/Monroe Counties, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Port Planner. Providing Port Planning services, including undertaking of LNG Fueling Study and master planning of Port facilities and preparation of play-book for ongoing construction projects.

Size: 6000+ ft **Cost:** $7 Million

d. (1) TITLE AND LOCATION *(City and State)* — See Project 2 in Section F

Port of Palm Beach Reconstruction of Slip 3 and Berth 17
Palm Beach County, Florida

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	2018

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

☒ Check if project performed with current firm

Port Planner. Prepared conceptual layouts for the Slip 3 widening and lengthening and worked with the design and project permitting team to come up with a recommended Slip 3 widening option. Also, provided project management and project administrations services.
Size: 900+ ft **Cost:** $1.7M

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

Port of Houston Authority Bayport Wharf 4 and 5 Retrofit Design

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Project Director. Serving as the Project Director and providing QA/QC services to ensure the project is completed within budget and on time. The scope of work includes undertaking site investigations, preliminary and detail design, cost estimates, preparation of issue for construction drawings and specifications and providing limited services during the construction.
Size: 2000+ft **Cost:** $1.4M

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

Port of Corpus Christi 75' Deepening Feasibility Study, Corpus Christi, TX, USA.

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Principal-in-Charge. Principal-in-charge for undertaking a Feasibility Study, Environmental Impact Statement (EIS), Section 204(f) Federal Assumption of Maintenance Report (204(f) Report), required documentation to satisfy NEPA requirements, and other tasks required to permit the Port of Corpus Christi Authority to deepen the Corpus Christi Ship Channel from its authorized depth of -54 feet MLLW to -75 feet MLLW from the Gulf of Mexico to La Quinta Junction to accommodate Very Large Crude Carrier (VLCC) vessels.
Size: 7+ miles **Cost:** $5.2M

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

South Carolina Ports Authority, Detail Design of HLT ERTG Container Terminal, Charleston, SC, USA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	

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

☒ Check if project performed with current firm

Deputy Project Manager. Served as the deputy project manager and Lead Port Planner for delivering the detailed design services for the new Hugh K. Leatherman, Sr. Container Terminal at the Port of Charleston featuring electric RTG cranes in the yard and super post-panamax quay cranes on the wharf. The scope of work encompasses permitting and detail engineering design for the Phase 1 and Phase 2 of the terminal development, including grading, pavement, roadways and bridges, wharf structures, dredging, storm drainage, potable water and fire protection, sanitary sewer, electrical and communications infrastructure, security, operations and maintenance facilities, gate structures and associated systems as well as coordination of design with work to be performed by others such as ABB, ZPMC, KoneCranes, CBP, USACE and other vendors and project stakeholders.
Size: 280+ acres **Cost:** $14M

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

MOU between Port Everglades and Fort Lauderdale Airport for Crane Air Height Impacts, Port Everglades, USA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Project Manager. Project manager for assisting the Port Everglades and Broward County Aviation Department reach agreement on how to accommodate new container cranes and cruise ships calling at the Port with potential impact to the air space and flight paths. Assisting Port Everglades in submission of 7460 forms to the FAA and in evaluating the significance of one engineer inoperative impacts from crane and ship operations proposed for the Berth 30/Expanded Turning Notch area in Southport.
Size: N/A. **Cost:** $97,000

i. (1) TITLE AND LOCATION *(City and State)* — See Project 9 in Section F

Port of New Orleans, Nashville Avenue Terminal Conversion to Container and Crane Rail Extension; Port of New Orleans; New Orleans, LA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	

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

☒ Check if project performed with current firm

Planning Lead. Lead planner for the design the Nashville Avenue wharves upgrade to accommodate 100-foot gage rail-mounted cranes to increase service to larger container vessels.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Philip Hadfield, PE	**Technical Advisor**	26	26

15. FIRM NAME AND LOCATION (City and State): AECOM (Orange, California)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
BS/Civil Engineering	PE (FL, CA, SC, WA)

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

Mr. Hadfield is a Vice-President with AECOMs Americas Ports & Marine Group. He has over 26 years' experience performing and managing numerous port, harbor and marine development projects involving planning, conceptual through detailed design and construction quality assurance. His project experience includes dredging for navigation and berthing, land reclamation and ground improvement, coastal protection, site remediation and backland development, terminal and waterfront development, rehabilitation and upgrade of waterfront structures, and new port infrastructure. These projects have included container and cargo terminals, marine oil and LNG terminals, dry bulk handling facilities, cruise terminals, small craft harbors, marinas, transportation infrastructure, and new port facilities. He has worked on projects around the world, including the U.S., Canada, Mexico, Dominican Republic, Costa Rica, Panama, Uruguay, New Zealand, Australia, Philippines, Indonesia, Hong Kong, China, Russia, and Kazakhstan.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — **See Project 1 in Section F**

PortMiami, Program Management Consulting (PMC) Services, Miami, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

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

☒ Check if project performed with current firm

Program Manager. Leading the AECOM PMC team to support the Port with delivery of their robust Capital Improvement Program, which includes serving as owners representative performing consulting, design review, program management, document control, and construction management and administration. Significant projects include; cruise terminal design-build developments for NCL, Virgin, Carnival, and MSC; container yard redevelopment at the SFCT terminal; FPL substation expansion; new grade separations; retrofit/rehabilitation of steel sheetpile bulkheads; and north bulkhead wall replacement.
Size: $15.4M fee. **Cost:** $2B construction value

b. (1) TITLE AND LOCATION *(City and State)* — **See Project 12 in Section F**

San Francisco International Airport, Shoreline Protection Program, San Francisco, CA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	n/a

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

☒ Check if project performed with current firm

Lead Engineer. Performed feasibility study and performed preliminary design to improve, upgrade and/or replace the existing flood protection system along the 8-mile waterfront of the airport to address FEMA 100-year flood levels, predicted sea level rise for 2050 and 2100, and seismic performance. Developed alternatives that included upgrade of existing coastal defenses and seawalls, new onshore seawalls and levees, near-shore wave break structures, and offshore seawalls that include reclamation into the bay. Evaluated and rated all alternatives for level of performance, constructability, and impacts to airport operations and other stakeholders, as well as developed estimated costs. Developed the preferred project program for environmental permitting
Size: $1M fee. **Cost:** Estimated $450-550M construction cost

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

South Carolina Port Authority, Hugh K. Leatherman, Sr. Container Terminal Development, North Charleston, SC

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	2021

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

☒ Check if project performed with current firm

Project Manager. Performed master planning and 30% through detailed design for a greenfield terminal development along the Cooper River on a former naval facility site that was expanded into the river. The overall terminal will include a 3,500' long wharf, dredging and disposal of 2.4M cy for channel and berth deepening, and 280-acre container terminal development. The terminal is to be developed in 3 phases, with each phase bid as 3 separate projects packages: (1) wharf with berth dredging; (2) channel dredging; and (3) site and terminal development. Key considerations incorporated into the project design included FEMA 100-year flood protection, forecasted 100-year sea level rise, hurricane-level winds, storm surge, seismic performance, and ongoing site settlements of up to 12" over 25 years.
Size: $15M fee. **Cost:** Estimated $450M construction (for Phases 1 and 2)

d. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Wellington International Airport, Ltd., Runway Extension and Southern Coastal Defenses Renewal, Wellington, New Zealand	PROFESSIONAL SERVICES Ongoing	CONSTRUCTION (If applicable) n/a
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Lead Marine Engineer. Performed a feasibility study, developed multiple design concepts, performed preliminary engineering, and developed a preferred project design to extend the runway 350 meters. Evaluated options going north into a sheltered bay with deep soft sediments and/or south into an exposed open harbor with significant storm wave heights (up to 12m). Project design considerations included providing robust shoreline protection for flooding, storm surge, sea level rise, tsunamis, and seismic performance. Also performed an evaluation of the existing shoreline protection system at the south end of the runway and assessed condition of system and remaining life, developed concept designs and estimated costs for upgrade and/or replacement of the protection system, and developed mitigation measures for improved seismic performance of the western seawall, which was identified as the most vulnerable element of the overall airport infrastructure.
Size: $3M fees. **Cost:** Estimated $350-500M construction cost

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Port of Los Angeles, On-Call Engineering Services, Los Angeles, CA	PROFESSIONAL SERVICES Ongoing	CONSTRUCTION (If applicable) Ongoing
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Principal Engineer/Technical Advisor. Provided on-call services that included: underwater and topside inspections, condition assessments, field investigations and site studies, master planning, terminal planning analyses and simulations, engineering analyses and modeling, conceptual through detailed design, and bid and constriction support. Task orders that have included: wharf and seawall upgrades, rehabilitations and/or replacements, site and terminal development, building upgrades, bridge rehabilitation, grade separation, rail improvements, street improvements, and utility upgrades.
Size: $18M fee. **Cost:** Unknown construction value

f. (1) TITLE AND LOCATION *(City and State)* **See Project 9 in Section F**	(2) YEAR COMPLETED	
Port of New Orleans, Nashville Avenue Terminal Conversion to Container and Crane Rail Extension; Port of New Orleans; New Orleans, LA	PROFESSIONAL SERVICES Ongoing	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Technical Advisor. Technical Advisor for the design the Nashville Avenue wharves upgrade to accommodate 100-foot gage rail-mounted cranes to increase service to larger container vessels.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
John Carel, PE	**Technical Advisor**	47	25

15. FIRM NAME AND LOCATION (City and State): AECOM (Fort Myers, FL)

16. EDUCATION (Degree and Specialization)
MS/1972/Civil Engineering
BS/1971/Civil Engineering (cum laude)

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
PE Massachusetts, Florida, New Jersey, New York, South Carolina

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

Mr. Carel has extensive marine, coastal, and structural engineering experience. His expertise includes project management, contract negotiations, design, construction, and rehabilitation of structures with a specialization in waterfront and maritime projects, including piers, jetties, wharves, bulkheads, shoreline revetments, dolphin structures, navigation aid structures and moorings, marine terminals, as well as bridges. His experience includes hundreds of facilities including condition inspection surveys and evaluation of sites and facilities, structural design of new facilities and repairs to existing, preparation of con-tract and bidding documents both traditional design-bid-build and design build, environmental permitting, cost estimating, consultation during bidding and construction, due diligence studies, bid evaluation, and construction inspection services. He is familiar and accustomed to working for both public and private clients on commercial ports and public use facilities including ferry and passenger terminals, waterfront parks, bulkheads, seawalls and revetments.

19. RELEVANT PROJECTS

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

NYC Department of Small Business Services, Waterfront Building Code, New York NY

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

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

☒ Check if project performed with current firm

Advisor. Served as advisor and QC reviews for development of a new waterfront building code for the City of New York.
Size: N/A. **Cost:** N/A

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

NAVFAC Southeast, Hurricane Irma Repairs, Refit Wharves and TPS Docks C&D, Naval Submarine Base, Kings Bay, Georgia and Naval Air Station Jacksonville FL

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

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

☒ Check if project performed with current firm

Lead Design Engineer. At Kings Bay Lead Design Engineer of Design Build Team for two new submarine camels, new oil booms and repairs to wharves including refurbishing mooring fittings, cable tray and new ladders, and structural repairs to floating pier guide pile frames. Work includes preparation of construction plans and technical specifications. For Jacksonville Project reviewed plans for shoreline stone armor revetment, replacement of small timber pier, new timber bulkhead and stabilization of existing stone and concrete seawall. Prepared project specifications for all work.
Size: N/A. **Cost:** $557K

c. (1) TITLE AND LOCATION *(City and State)* See Project 3 in Section F

USCG Station Marathon, Marathon FL

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

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

☒ Check if project performed with current firm

Project Engineer. Project Engineer for Concept through final design for improvements to Waterfront Structures. Project Work includes repairs to wharf, bulkheads and seawalls and replacement of boat ramp. Prepared drawings, specifications, cost estimates and environmental permit applications.
Size: N/A. **Cost:** $235K

d. (1) TITLE AND LOCATION *(City and State)* See Project 1 in Section F

Port Miami Program Management, Miami FL

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

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

☒ Check if project performed with current firm

Project Engineer. Assisted in development of standard marine specifications, design guidelines and Standards Manual. Also assisted various small task orders review of construction proposals.
Size: N/A. **Cost:** N/A

e. (1) TITLE AND LOCATION *(City and State)* **See Project 2 in Section F**

Port of Palm Beach, Berth 17, Riviera Beach, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	2019

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

☒ Check if project performed with current firm

Marine Task Leader. Marine Task Leader for conceptual and final design of new slip. The inboard end of the slip will be excavated from the existing upland and include new secant and king pile walls. Since the slip is within 10 feet of the property line, challenges include the requirements for a 35-foot high bulkhead wall without tiebacks into adjacent property. The slip extension into the waterway includes pile supported breasting and mooring dolphins. Prepared Contract Drawings and Project Manual.

Size: N/A. **Cost:** $17M

f. (1) TITLE AND LOCATION *(City and State)* **See Project 7 in Section F**

Lower Manhattan Coastal Resiliency (LMCR) & Brooklyn Montgomery Costal Resilience Final Design (BMCR)

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	

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

☒ Check if project performed with current firm

Marine Task Leader. The LMCR project objective is to provide flood protection and community enhancement in Lower Manhattan areas damaged by Hurricane Sandy. The project area spans along the Manhattan Coastline from Montgomery Street in the Lower East Side to the northern end of Battery Park City. The design goals are to simultaneously protect the shoreline from flooding while also enhancing public amenities and access to the waterfront. In final design.

Size: N/A. **Cost:** N/A

g. (1) TITLE AND LOCATION *(City and State)* **See Project 8 in Section F**

Rebuild by Design Hudson River: Flood walls, Esplanade & Parks. Meadowlands, NJ

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Marine Structural Lead. Marine Structural Lead for The final design of various configuration and floodwalls types, , walkways, and steel sheet pile bulkhead walls against the flood and wave loads associated with the storm event. And various other soft waterfront protection measures.

Size: N/A. **Cost:** N/A

h. (1) TITLE AND LOCATION *(City and State)* **See Project 9 in Section F**

Port of New Orleans, Nashville Avenue Terminal Conversion to Container and Crane Rail Extension; Port of New Orleans; New Orleans, LA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	

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

☒ Check if project performed with current firm

Marine Structural Lead. Marine Structural Lead for the design the Nashville Avenue wharves upgrade to accommodate 100-foot gage rail-mounted cranes to increase service to larger container vessels.

Size: N/A. **Cost:** N/A

i. (1) TITLE AND LOCATION *(City and State)* **See Project 10 in Section F**

North & South Battery Park City Resiliency

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Marine Structural Lead. Marine Structural Lead for the construction of a comprehensive flood barrier system to check water inundation from the Hudson River Estuary at Robert F. Wagner Park (“Wagner Park”) and the Pier A Plaza (the “Plaza”) associated with storm activity and sea level rise, the construction of a new pavilion structure within Wagner Park to replace the existing pavilion structure, which will enhance the resiliency of the area and provide other amenities.

Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Lauren Swan	**Resiliency Planning**	14	6

15. FIRM NAME AND LOCATION (City and State): AECOM (Coral Gables, FL)

16. EDUCATION (Degree and Specialization)
MLA, Landscape Architecture
BA, Urban and Regional Planning

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)

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

Lauren Swan has experience in landscape architecture design, planning and project management for a variety of cross-disciplinary projects. From submittals to reviews and oversight, Lauren has worked in both public and private sectors with expertise in facilitation, design and strategic planning. Lauren oversees local community-based projects as well as large military projects requiring metric evaluation of Department of Defense compliance. Lauren's background combined with her understanding of Comprehensive Code and the Unified Facilities Criteria enables her to develop creative and resilient solutions to technical problems. Lauren led AECOM's work with 100RC resulting in the Resilient305 program and continues to actively work with communities to strengthen their climate and community resilience.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — **See Project 4 in Section F**

Florida Department of Transportation, Resilience Services

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	N/A

☒ Check if project performed with current firm

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

Project Manager. Project manager and lead contributor evaluating climate resilience projections, measures, and effects on transportation infrastructure.
Size: N/A. **Cost:** $70,000

b. (1) TITLE AND LOCATION *(City and State)* — **See Project 4 in Section F**

Greater Miami and the Beaches Resilient305, Miami-Dade County, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	N/A

☒ Check if project performed with current firm

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

Project Manager. Project Manager responsible for guiding extensive stakeholder engagement and research resulting in the development of a three-government Resilient305 Strategy to address issues of climate change, social equity, and infrastructure-based needs.
Size: N/A. **Cost:** $540,000

c. (1) TITLE AND LOCATION *(City and State)* — **See Project 13 in Section F**

Miami Beach Flood Mitigation & Resilience Study, Miami Beach, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	N/A

☒ Check if project performed with current firm

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

Resilience Planner. Contributor to the climate change focused workshops and interviews under a vulnerability assessment documenting the climate stressors and shocks affecting Miami Beach. This assessment was used to inform city-wise strategies to mitigate flooding of public and private property. Strategies include policy changes for new construction and major renovations, specifically in the minimum building first floor elevations requirements.
Size: N/A. **Cost:** $6M

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

Great Barrier Reef Foundation Resilient Reefs, Belize

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
ongoing	N/A

☒ Check if project performed with current firm

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

Project Manager. Evaluating Belize's Barrier Reef Reserve System to assess reef health and vulnerabilities. This information will be used to inform the government's reef protection policies and ensure the longevity of a healthy reef system.
Size: N/A. **Cost:** $200,000

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

Naval Facilities Engineering Command (NAVFAC)Logistics Command 21st Century Plan

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	N/A

☒ Check if project performed with current firm

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

Deputy Project Manager. Key contributor in the development of a Marine Corps Organic Industrial Base Facilities Plan for that evaluates asset condition and capacity against mission requirements and environmental vulnerabilities. The process included extensive stakeholder engagement combined with quantitative data analysis.
Size: N/A. **Cost:** $1.3M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Erica Harris	**Resiliency Planning**	9	6

15. FIRM NAME AND LOCATION (City and State): AECOM (Tampa, FL)

16. EDUCATION (Degree and Specialization)

MS, Oceanography, Oregon State University, 2011
BS, Geography/GIS, The Ohio State University, 2004

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)

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

Erica Harris is a coastal and climate scientist specializing the influence of an evolving climate on exacerbating hazard impacts. Her skillset reflects a blend of science, engineering, policy, and GIS through involvement on collaborative projects focused on understanding and adapting to existing and future climate conditions. She has worked on numerous multi-agency projects focused on providing decision-makers with locally-relevant information and tools to enhance climate resilience while maximizing co-benefits in the environmental, economic, and social sectors where possible.

19. RELEVANT PROJECTS

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

Climate Change Vulnerability Assessment, City of Naples, Florida

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	

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

☒ Check if project performed with current firm

Climate Adaptation Specialist and Technical Lead. Conducting a city-wide vulnerability assessment of public assets at risk to a suite of climate stressors (sea level rise, coastal storms, extreme heat, and precipitation). Key vulnerabilities identified will be used to inform the development of an adaptation plan to increase the long-term resilience of the city's build and natural infrastructure.

Size: N/A. **Cost:** $125K

b. (1) TITLE AND LOCATION *(City and State)* See Project 13 in Section F

Miami Beach Sea Level Rise and Resiliency Study, City of Miami Beach, Florida

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017	

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

☒ Check if project performed with current firm

Climate Adaptation Specialist. Lead contributor to the climate change technical memorandum, reviewing and documenting the climate stressors and shocks affecting Miami Beach. In response to sea level rise and increasing flooding, this document will be used to inform city-wise strategies are being evaluated to mitigate flooding of public and private property. Strategies include policy changes for new construction and major renovations, specifically in the minimum building first floor elevations requirements.

Size: N/A. **Cost:** $300K

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

Sea Level Rise Response Plan, City of Olympia, Washington

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	

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

☒ Check if project performed with current firm

Coastal/Climate Scientist. Developed a cross-jurisdictional sea level rise response plan for the City of Olympia. This effort represents an important opportunity for the development of robust adaptation strategies while providing cross-sector protection and collaboration for the City of Olympia, Port of Olympia, and the LOTT Clean Water Alliance. The sea level rise response plan included a vulnerability assessment and development of adaptation strategies (including design schematics) for shoreline protection strategies to provide flood protection for the following key asset types: stormwater infrastructure, Port facilities, transportation routes, and public use areas.

Size: N/A. **Cost:** $250K

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

Port of Oakland Sea Level Rise Assessment, Oakland, California

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	

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

☒ Check if project performed with current firm

Coastal/Climate Scientist and Deputy Project Manager. Lead contributor to the Port's Sea Level Rise Assessment Plan, which provides a prioritized list of areas within the Port's three business lines (Maritime, Commercial Real Estate, and Aviation) vulnerable to sea level rise, a financial analysis detailing the cost of inaction vs. the cost of adaptation, and adaptation options to decrease the exposure of key vulnerable assets. Evaluated asset categories include: transportation (road/rail), utilities (stormwater/wastewater/electrical), facilities (airport, maritime, and building facilities), natural habitats, and public use areas

Size: N/A. **Cost:** $140K

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Port of Los Angeles Sea Level Rise Vulnerability and Adaptation Study, Los Angeles, California	PROFESSIONAL SERVICES 2019	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Coastal/Climate Scientist. Coastal/climate scientist. Key contributor to the preparation of the Port's sea level rise vulnerability and adaptation plan. This work will assist the Port in identifying local sea level rise vulnerabilities, risks, and identification of projects to mitigate the potential impacts of an evolving climate on port operations and community assets (e.g., recreational areas, retail establishments, cruise facilities, and marinas).

Size: N/A. **Cost:** $260K

f. (1) TITLE AND LOCATION *(City and State)* See Project 4 in Section F	(2) YEAR COMPLETED	
Greater Miami and the Beaches Resilient305, Miami-Dade County, FL	PROFESSIONAL SERVICES 2019	CONSTRUCTION (If applicable) N/A
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Coastal/Climate Scientist. Coastal/climate scientist responsible for guiding extensive stakeholder engagement and research resulting in the development of a three-government Resilient305 Strategy to address issues of climate change, social equity, and infrastructure-based needs.

Size: N/A. **Cost:** $540,000

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Justin Vandever, PE	**Coastal Modeling and Engineering**	13	9

15. FIRM NAME AND LOCATION (City and State): AECOM (Oakland, CA)

16. EDUCATION (Degree and Specialization)

B.S. Civil and Environmental Engineering, Cornell University
M.S. Marine Science, Virginia Institute of Marine Science

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)

CA Civil Engineering PE

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

Mr. Vandever is a coastal engineer who focuses on coastal flood hazard analysis and mapping, coastal engineering analysis and design, coastal and estuarine modeling, and sea level rise vulnerability and adaptation.
Coastal Engineering Certificate Program (Old Dominion University); ASCE New Faces of Engineering (2013)

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — **See Project 12 in Section F**

City of Miami Beach, Sea Level Rise and Resiliency Study, Miami Beach, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2016	X

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

☒ Check if project performed with current firm

Coastal Engineer. Developed sea level rise inundation maps to assess impacts to City infrastructure and developed tools to support the City's capital planning process to include consideration of sea level rise impacts.
Size: N/A. **Cost:** N/A

b. (1) TITLE AND LOCATION *(City and State)* — **See Project 11 in Section F**

San Francisco International Airport, Shoreline Protection Program Conceptual Design, San Francisco, CA

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

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

☒ Check if project performed with current firm

Coastal Engineering Lead. Provided coastal and hydraulic engineering design criteria for conceptual design of shoreline and channel protection to meet FEMA criteria for coastal and riverine flood protection (seawalls, revetments, levees).
Size: 8-mile shoreline. **Cost:** $350,000

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

City of Naples, Stormwater Master Plan Update, Naples, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	X

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

☒ Check if project performed with current firm

Coastal Engineer. Developed climate adaptation chapter for master plan, evaluating the effects of sea level rise on stormwater management in the City, including impacts to pump stations, outfalls, and catch basins.
Size: N/A. **Cost:** N/A

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

FEMA Region IX, California Coastal Analysis and Mapping Project, San Francisco Bay and California Coast

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2016	X

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

☒ Check if project performed with current firm

Coastal Engineering Lead. Performed coastal hazard analysis and floodplain mapping in San Francisco Bay and along the California open Pacific coast for a comprehensive update to FEMA's Flood Insurance Rate Maps.
Size: N/A. **Cost:** $20M

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

City of Dania Beach, Economic Impacts of Sea Level Rise and Coastal Storms, Dania Beach, FL

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

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

☒ Check if project performed with current firm

Coastal Engineer. Technical advisor to the economic impacts team to help interpret coastal hazard mapping datasets used in the economic impacts analysis.
Size: N/A. **Cost:** $75,000

f. (1) TITLE AND LOCATION *(City and State)* — **See Project 4 in Section F**

Greater Miami and the Beaches Resilient305, Miami-Dade County, FL

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

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

☒ Check if project performed with current firm

Coastal Engineer. Technical advisor responsible for guiding extensive stakeholder engagement and research resulting in the development of a three-government Resilient305 Strategy to address issues of climate change, social equity, and infrastructure-based needs.
Size: N/A. **Cost:** $540,000

g. (1) TITLE AND LOCATION *(City and State)* **See Project 13 in Section F**

Miami Beach Sea Level Rise and Resiliency Study, City of Miami Beach, Florida

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017	

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

☒ Check if project performed with current firm

Coastal Engineer. Lead contributor to the climate change technical memorandum, reviewing and documenting the climate stressors and shocks affecting Miami Beach. In response to sea level rise and increasing flooding, this document will be used to inform city-wise strategies are being evaluated to mitigate flooding of public and private property. Strategies include policy changes for new construction and major renovations, specifically in the minimum building first floor elevations requirements.
Size: N/A. **Cost:** $300K

h. (1) TITLE AND LOCATION *(City and State)* **See Project 14 in Section F**

U.S. Army Corps of Engineers, Rehabilitation of Hudson River Wall & North & South Docks, Military Academy at West Point, Garrison, NY

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2016	2016

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

☒ Check if project performed with current firm

Coastal Engineer. Coastal Engineer for the design of a micro-pile-founded, reinforced concrete, inverted 'T' bulkhead wall replacement with faux architectural finish to provide rubble masonry appearance. Design of repairs to historic timber dock structure and steel sheet pile bulkheads.
Size: 500 feet of historic bulkhead wall replacement. **Cost:** $5M (construction)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Steven Li, PhD, PE, D.CE	**Coastal Modeling & Engineering**	30	15

15. FIRM NAME AND LOCATION (City and State): AECOM (Clifton, NJ)

16. EDUCATION (Degree and Specialization)

Ph.D., Ocean Engineering
Master, Coastal Engineering
Bachelor, Civil Engineering

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)

Professional Engineer, Florida, Civil (#71927)
New York, Civil (#094976),
New Jersey, Civil (24GE05266300), Virginia (0402055991)

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

Member, International Navigation Association (PIANC)
Member, American Society of Civil Engineer (ASCE)
Member, Oceans, Ports & Rivers Institute (COPRI)
Diplomate in Coastal Engineering (D.CE), ACOPNE

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
New York City Economic Development Corporation, Lower Manhattan Coastal Resiliency, Manhattan, NYC, NY See Project 7 in Section F	2017	N/A
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Lead Coastal Engineer. Conducted the development of integrated coastal storm and stormwater management model system to assess the vulnerability to coastal and inland flooding by simulating the flood extent and elevations under the combinations of coastal storms, rainstorms, sea level rises for different return periods; the development of hydrological management strategies, and drainage and sewer considerations Performed wave overtopping and wave loading computation to support the structural design of flood protection structures.
Size: N/A. **Cost:** $8 millions

b. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
New Jersey Department of Environmental Protection, Rebuild by Design Hudson River, New Jersey See Project 8 in Section F	2018	N/A
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Lead Coastal Engineer. Conducted the development of coastal storm model to assess the vulnerability of project area to coastal flooding by simulating the flood extent and elevations under the coastal storms and sea level rises for different return periods.
Size: N/A. **Cost:** $12 millions

c. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
New York City Transit, Revised Design for Long-Term Flood Mitigation Hammels Wye, Queens, NYC, NY	2016	N/A
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Lead Coastal Engineer. Based on scope of work of this project, washout protection, wave/debris shield barrier, and embankment stabilization against a Category 2 storm was designed to guard the shoreline and track Right-of-Way for erosion and scour due to potential wave energy. The Switch 55 located at northern lower track level also need dry protection to withstand a Category 2 storm.
Size: N/A **Cost:** $1 million

d. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Triborough Bridge and Tunnel Authority, New York, NY	2015	N/A
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Lead Coastal Engineer. Conducted engineering study to evaluate the flood elevation for Bronx Whitestone and Throgs Neck Bridges. The major work components include the sea level rise study, storm surge study, and final flood elevations for year of 2020, 2050, and 2080.
Size: N/A. **Cost:** $TBD

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

CHPE, Investigation of Flood Zone and Storm Surge Impact on Astoria Substation, NYC, NY

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2015	N/A

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

☒ Check if project performed with current firm

Lead Coastal Engineer. Conducted engineering study to evaluate the flood elevation for Bronx Whitestone and Throgs Neck Bridges. The major work components include the sea level rise study, storm surge study, and final flood elevations for year of 2020, 2050, and 2080.
Size: N/A. **Cost:** $TBD

f. (1) TITLE AND LOCATION *(City and State)* **See Project 3 in Section F**

USCG Station Marathon, Marathon FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	

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

☒ Check if project performed with current firm

Lead Coastal Engineer. Lead Coastal Engineer for Concept through final design for improvements to Waterfront Structures. Project Work includes repairs to wharf, bulkheads and seawalls and replacement of boat ramp. Prepared drawings, specifications, cost estimates and environmental permit applications.
Size: N/A. **Cost:** $235K

g. (1) TITLE AND LOCATION *(City and State)* **See Project 9 in Section F**

Port of New Orleans, Nashville Avenue Terminal Conversion to Container and Crane Rail Extension; Port of New Orleans; New Orleans, LA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	

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

☒ Check if project performed with current firm

Lead Coastal Engineer. Lead Coastal Engineer for the design the Nashville Avenue wharves upgrade to accommodate 100-foot gage rail-mounted cranes to increase service to larger container vessels.
Size: N/A. **Cost:** N/A

h. (1) TITLE AND LOCATION *(City and State)* **See Project 10 in Section F**

North & South Battery Park City Resiliency

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Coastal Engineer. Coastal Engineer for the construction of a comprehensive flood barrier system to check water inundation from the Hudson River Estuary at Robert F. Wagner Park ("Wagner Park") and the Pier A Plaza (the "Plaza") associated with storm activity and sea level rise, the construction of a new pavilion structure within Wagner Park to replace the existing pavilion structure, which will enhance the resiliency of the area and provide other amenities.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Chandy V. John, PhD	**Coastal Modeling & Engineering**	30	2

15. FIRM NAME AND LOCATION (City and State): AECOM (Jacksonville, FL)

16. EDUCATION (Degree and Specialization): PhD Civil (Environmental Hydraulics) Engineering, Dalhousie University, Canada

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline):

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

Dr. John has over 30 years of expert level experience in H&H, Tide, Storm Surge, hydrodynamic modeling, sediment fate & transport, scour analysis, circulation, mixing processes, coastal engineering, wave forces, coastal erosion, general oceanography. He has over 20 publications in Journal of Coastal Research, Oceanologica Acta, Canadian Journal of Civil Engineering, and Coastal Engineering, Netherlands. He was a member of Northern Coastal Basin Monitoring and Research Work Group, Florida from 1999 to 2003 and Member of Technical Work Group, Indian River Lagoon, Florida advising on hydrodynamic, water quality, & sediment fate & transport modeling from 1997 to 1998. He was also member of American Society of Civil Engineers (ASCE), American Water Resources Association (AWRA), American Shore and Beach Preservation Association (ASBPA), and Association of State Floodplain Managers (ASFPM). He won the 2nd place award for "Best Content" during the SJRWMD 2nd Annual GIS Day Poster Competition, Palatka, Florida, USA, 1997

Dr. Johns had training in ESRI ARCGIS, Geo-statistics, SPSS, SAS and parallel processing, He is also trained to run surface water models (EFDC, WASP, MIKE models, Delft3D, RMA2, RMA4, FESWMS, SMS, GMS, ADCIRC, and MODFLOW.

He successfully completed short courses in: Coastal Engineering, Harbor Planning, and Design, Project Management, and Microsoft Project.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — **See Project 5 in Section F**

Wagner Creek Seybold Canal Restoration - Sediment Dredging and Remediation, City of Miami, FL

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

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

☒ Check if project performed with current firm

Sr. Modeler. Design/build dredging program to remove contaminated sediments containing dioxin from what has been considered one of the most polluted waterways in Florida. Innovative dredge plans using customized dredge equipment to minimize draft depth and use of unique water quality protection procedures, including aqua barriers, air curtains, and moon pools to prevent impacts to the downstream Outstanding Florida Waters and to protect the manatees that reside in these water bodies.

Size: N/A. **Cost:** N/A

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

Maryland Port Administration, Dundalk Marine Terminal Industrial Wastewater Discharge to Baltimore Harbor Multiport Diffuser, Baltimore, MD

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

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

☐ Check if project performed with current firm

Specific Role. Nutrient and Suspended Sediment Modeler and Water Quality Data Analyst - NPDES Permitting, Baltimore, Maryland. NPDES Permitting Dundalk Marine Terminal's Industrial Waste Water discharge to Baltimore Harbor multiport diffuser. Evaluated the multiport diffuser that was engineered to enhance near-field dilution for Maryland Port Administration. Used a USEPA-approved model to assess near-field dilution based upon Maryland Department of Environment's mixing zone regulations and calculated dilution factors and mixing zone for various tide and storm surge variations and summer and winter water quality conditions. Responsible for conducting various model scenarios of discharge to a tidal water body. Used site-specific tide, storm surge, current and cross-sectional depth data; dilution modeling; developed conceptual multi-port diffuser, assessed compliance of treatment plant effluent for contaminants and compliance to state and federal regulations. [Prior to AECOM]

Size: N/A. **Cost:** N/A

c. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Bridge Hydraulics, Scour Analysis, and Floodplain Modeling/Mapping, Baltimore, MD	PROFESSIONAL SERVICES 2017	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Sr. Oceanographer/Hydraulic Engineer. Used HEC-RAS hydraulic and 2-D RMA2 hydrodynamic model for floodplain evaluation, assisted in the development of joint permit application to support the proposed replacement of bridges Baltimore, MD. Assessed issues with the proposed pier locations and site hydraulics and to determine flood stage. Used scenarios with different pier locations to update the hydraulic/flood model and investigate the effect of the pier locations on the flood elevations, velocity, shear stress, and Froude Number changes. Evaluated site hydraulics changes and FEMA floodplain regulations.

Size: N/A. **Cost:** N/A

d. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Howard Park and Inverness Park Beach Restoration Hydraulic Modeling, Baltimore County, MD	PROFESSIONAL SERVICES 2016	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☐ Check if project performed with current firm	

Sr. Oceanographer/Hydraulic Modeler. Responsible for analysis to estimate wave conditions predicted as a function of wind speed, fetch, and water depth. Used historical tide data to assess tide conditions at the project site and evaluated tide elevations for various return intervals. Calculated both wave run-up and wave overtopping.

Size: N/A. **Cost:** N/A

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Demolition of Dolphins and Steel Sheet Pilings, Navy's Defense Fuel Support Point (DFSP), New Hampshire	PROFESSIONAL SERVICES 2017	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Sr. Oceanographer/Hydraulic Engineer. Assessed fate and transport of sediment plume from dolphin removal in Lower Piscataqua River. The project involves the design of a temporary cofferdam to provide containment of debris during the demolition of four existing dolphins and steel sheet pilings. An expert system model that took into consideration site-specific tide, storm surge was used to predict dimensions of potential sediment plume in the near-field and far-field mixing zones.

Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Chris Reed	**Coastal Modeling & Engineering**	35	30

15. FIRM NAME AND LOCATION (City and State): AECOM (Tallahassee, FL)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
Post Doctorate Studies/ Coastal Engineering PhD Engineering Science and Mechanics MS Engineering Science and Mechanics BS Engineering Sciences	None

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

19. RELEVANT PROJECTS

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

Edgewater Marina and Geneva Park Restoration, Lake Erie, Ohio DEP

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

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

☒ Check if project performed with current firm

Specific Role. Dr. Reed conducted an engineering analysis of the existing Edgewater Marina breakwater and the Geneva Park Revetment to determine remediation requirements. The STWAVE model was applied to determine the wave conditions for the 10, 25, 50 and 100 year return periods and used to guide the final breakwater and revetment designs. The USACE WIS data was used for the offshore wave conditions, and combined with local bathymetry data to conduct the analysis. The BOUS2D model was applied to estimate wave propagation into the Marina at Edgewater, and the results combined with wave overtopping to determine the wave energy in the Marina. Alternative designs were developed, evaluated and final recommendations made to the Ohio DEP.

Size: N/A. **Cost:** $60,000

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

Ashtabula Breakwater Design, Lake Erie, USACE

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

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

☒ Check if project performed with current firm

Specific Role. Dr. Reed conducted a coastal engineering analysis of existing breakwaters at the Ashtabula Harbor to determine remediation requirements. The existing breakwaters require improvement to reduce sediment erosion and overtopping and to protect constructed wetlands. The analysis consisted of calculating the design breakwater crest elevation and the armor rock size for proposed breakwaters. The wave conditions are based on a wave hindcast that was developed for 53 stations along the Lake Erie shore based upon thirty-two years (1956-1987) of meteorological data. The wave conditions for the 2, 10 and 20 recurrence intervals we developed, and the analysis considered wave conditions for three different approach angles, since the local bathymetric effects on the wave conditions will depend on the approach angle. The CMS-Wave Model was used to transform the deep water wave conditions and lake levels to local conditions at each of the breakwater locations. The breakwater elevation required to reduced overtopping and the armor rock size required to remain stable under the design wave conditions at each location was calculated using the methods described in the USACE's Coastal Engineering Manual (CEM).

Size: N/A. **Cost:** $50,000

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

Florida Power and Light (F&PL) Coastal Flooding Analysis, Florida

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

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

☒ Check if project performed with current firm

Specific Role. F&PL is implementing an initiative to harden all of their coastal facilities from storm surge and storm water impacts, including both flooding and wave threats. Dr. Reed conducted a review of the C-17 storm water modeling analysis conducted by SFWMD and then extended the analysis to include longer return periods. Also, the coastal surge model SLOSH simulations results were reviewed in the vicinity of three FPL sites along Florida coastal regions. The data were reviewed and compared with other surge study results for verification and then used to estimate return periods. The results of the analysis were used to develop design flood and wave conditions.

Size: N/A. **Cost**: $90,000

d. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Indianola Groin Field Design and Analysis, Texas GLO, Indianola, TX	PROFESSIONAL SERVICES 2014	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Specific Role. The Indianola beaches are located on the western shoreline of Matagorda Bay and were experiencing excessive erosion, and subsequently exposing upland structures to potential storm surge damage. Dr, Reed conducted sediment transport and shoreline evolution modeling to support eh design of the groin and detached breakwater system. The modeling was calibrated to historical erosion data and then used to optimize the groin field design, reduce potential for down-drift erosion and estimate the need for initial and maintenance nourishment in the adjacent beach reaches
Size: N/A. **Cost:** $TBD

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Packery Channel Sediment Transport Study and Jetty Design, Corpus Christi, TX (USACE, Galveston District)	PROFESSIONAL SERVICES 2010	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Specific Role. Dr. Reed conducted a sediment transport study to estimate the sediment transport adjacent to and into a proposed channel with jetties. The analysis included applications of the STWAVE model to determine local wave conditions and the GENESIS model to estimate sediment transport and beach evolution. Additional work was conducted to provide design wave conditions for jetty design. The results of the analysis were used to estimate sand bypassing requirements and design wave conditions.
Size: N/A. **Cost:** $125,000

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Chris Levitz, PE	**Coastal Modeling & Engineering**	14	14

15. FIRM NAME AND LOCATION (City and State): AECOM (Houston, TX)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
BS, Civil Engineer, Coastal Engineering Masters Certificate	Professional Engineer: TX (Civil, 107494), LA (41472), MS (29067); Certified Floodplain Manager (1357-08N)

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

Mr. Levitz is an expert in coastal engineering and resilience. This experience consists of working on an assortment of civil engineering projects, including a strong focus on government led projects including work for USACE, FEMA, Texas General Land Office (GLO), and Texas Department of Transportation (TxDOT). He specializes in the design and analysis of coastal structures (coastal and shoreline erosion protection [breakwaters and revetment] and flood damage and risk reduction [levees, HFPS]). He has completed projects along the Gulf, Atlantic, and Great Lakes coasts that included modeling (wave analysis and sediment transport modeling [ADCIRC, CMS]), design (erosion control structures, coastal roadways and coastal levees), permitting (USACE Section 10/404) and planning (master planning, USACE initial appraisal studies, levee certification analysis & permitting plans) efforts.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
GLO, Texas Coastal Resiliency Master Plan, Texas Coast Wide	Ongoing	

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

Coastal Engineering Lead. Led the coastal engineering work to develop a suite of coastal restoration design templates and detailed cost estimates for over 100 priority projects in Texas, exceeding $5B in construction value. These projects include ecological and societal focus, combining the needs of environment and communities to improve coastal resiliency, including with respect to extreme weather events. He and his team evaluated the project benefits to enhance coastal resiliency through engineering and environmental analyses. Chris served on a team to model marsh retreat and storm surge scenarios using SLAMM, ADCIRC+SWAN and HAZUS models, which model sea level rise, land type changes, storm surge, wave action, and estimated infrastructure damages.
Size: N/A. **Cost:** $2.5M

b. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
USACE Galveston District, Emergency Repairs – Galveston Seawall, Freeport, Port Arthur, and Texas City Hurricane Flood Protection Projects, Texas Coast	2009	

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

Coastal Engineer. Developed plans, specifications, and cost estimate (MII) to repair multiple coastal sites in Texas following Hurricane Ike. Led the design task to restore the Texas City Levee to pre-storm conditions, including earth work, revetment, and articulated concrete mattress installation under an accelerated schedule. Chris developed the Design Documentation Report, which included wave analysis, stone gradation development, and detailed quantity calculations. Served as the coastal engineer for repairs to the Freeport HFPS in coordination with the Velasco Drainage District and Port Arthur HFPS in coordination with Drainage District No. 7 under the same combined effort.
Size: N/A. **Cost:** $2.1M

c. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Recovery, Repairs and Renovations for Placement Areas 8 and 11 USACE Galveston District, Recovery, Repairs and Renovations for Placement Areas 8 and 11, Sabine Lake, TX	2010	

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

Coastal Engineering Lead. Developed plans, specifications and a cost estimate for repair and renovation work, managing the survey on the entire levee and roadway system where damage was sustained and designing and incorporating USACE designs for levee sections (both repairs and raises), roadway sections, shoreline protection and drainage improvements. The project extends over 15 miles of levees within Placement Areas 8 and 11 at Pleasure Island that either sustained damage from Hurricane Ike or were being raised to new elevations to meet the needs of the placement area planned storage volume.
Size: N/A. **Cost:** $360K

d. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
GLO & Scenic Galveston, Virginia Point Shoreline Protection and Marsh Restoration Project, Galveston Bay, TX	PROFESSIONAL SERVICES 2016	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Coastal Engineering Lead. Led the coastal engineering team in conceptual design, permitting, final design and construction oversight for nearly two miles of stone breakwater construction, marsh restoration, and shoreline stabilization along a prominent coastal prairie in Galveston County.

Size: N/A. **Cost:** $250K

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
FEMA Region 6, FIRM & FIS Coastal Updates – Public Outreach and Modeling, 15+ Coastal Counties Counties/TX	PROFESSIONAL SERVICES 2018	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Coastal Engineering Expert. Beginning in 2010, every coastal county in Texas had coastal flood risks restudied. Mr. Levitz led studies in multiple counties, looking at ADCIRC and STWAVE results, and modeling localized flood elevations. As part of this, every coastal county in Texas has held at least one public open house presenting the coastal flood analysis results. For each of these meetings in Texas, it was Mr. Levitz's role to serve as the coastal expert to answer questions from both the public and elected officials.

Size: N/A. **Cost:** $3M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Chris Marshall	**Dive Team Leader/Benthic Surveys**	20	19

15. FIRM NAME AND LOCATION (City and State): AECOM (Orlando, Florida)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
BS, Geology, University of South Florida, 1997	Florida Professional Geologist, No. 2398

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

AAUS Scientific Diver/SDI Rescue Diver, AECOM National Dive Control Board Member (2017-present), OSHA 40-hr HAZWOPER, 30-hr Construction, 10-hr Construction, 8-hr Supervisor, DAN Dive Emergency Management Provider.

19. RELEVANT PROJECTS

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

United States Coast Guard, D7/8 Sites, Florida, Texas, Georgia

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	

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

☒ Check if project performed with current firm

Project Manager/Dive Team Leader. Performed hydrographic, pre-dredge sediment sampling, and benthic survey services at six USCG units in FL, GA, and TX to support post-Hurricanes Harvey and Irma recovery. Work scope included conducting benthic coral and seagrass surveys at the Miami Beach and Key West Units, where AECOM's Dive Team collected video and still photography of coral, seagrass, and fish species. Percent coverage and density of seagrass within pre-established work areas and thorough documentation of hard corals was collected as required for reporting to the Florida Department of Environmental Protection and USACE. Additional tasks included hydrographic surveying and pre-dredge sediment sampling services in Texas (Units Sabine, Galveston, and Port Aransas), and Georgia (Brunswick).
Size: 600 feet of seawall, hundreds of pilings. **Cost:** $337K

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

Gulfstream, LLC, Egmont Key Pipeline, Tampa Bay, Florida

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017-2019	2019

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

☒ Check if project performed with current firm

Dive Team Leader. Performed 60-month post-construction epibenthic resources survey to document condition and colonization of the 448 linear feet protection structures over a 36-inch natural gas pipeline. Work scope included collecting video and still photography of fish species and percent coverage of benthic communities established on the structures along pre-established transects for required reporting to the Florida Department of Environmental Protection. Additional tasks included documentation of an additional 90 feet of exposed pipeline and documentation of a 29-foot sunken vessel discovered during the survey that was resting against the protective matting. An additional survey was conducted in December 2017 to document the effects of Hurricane Irma in advance of additional construction. Training, turbidity monitoring during additional construction, and oversight continued in 2019.
Size: 600 feet of pipeline. **Cost:** $60K

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

Florida Department of Transportation, Moser and Cow Key Channels, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017-2019	

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

☒ Check if project performed with current firm

Dive Team Leader. Performed post-coral relocation assessment of 214 coral colonies comprised of numerous species. The coral was originally removed from bridge fenders requiring repairs. The survey was conducted to observe and document the efficacy of the coral mitigation effort as required by the Florida Keys National Marine Sanctuary. Based on photography and field observations, corrective measures, including several coral re-attachments and tag re-labeling, were recommended. Additional pre-construction video work was conducted at other sites, including the Cow Key Channel bridge in Dec. of 2018. Cost: $25K

d. (1) TITLE AND LOCATION *(City and State)*	See Project 11 in Section F	(2) YEAR COMPLETED	
Florida Gas and Transmission, Biscayne Bay Pipeline, Miami, Florida		PROFESSIONAL SERVICES 2017	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE		☒ Check if project performed with current firm	

Scientific Diver. Performed post-construction survey including visual underwater inspection of locations and immediate vicinities of articulated concrete matting placement, debris removal (sunken sailboat), barge spudding locations, tug vessel throttle-down locations (potential propeller wash), and benthic habitats within the work zones. Work scope included measurement of total length of new matting, verifying all construction materials and tools were removed from the work zones, identifying spudding impact sites, determination if submerged resources (corals, soft corals, sponges, and seagrass) were impacted by construction activities, laying out transects to perform the survey, recording observations along those transects, collecting still photos and video to document the site for required reporting. **Size:** 300 feet. **Cost:** $15K

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Miami Dade Parks & Recreation, Haulover Park, N. Miami Beach, Florida	PROFESSIONAL SERVICES 2019	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Dive Team Leader. Work scope included conducting benthic coral and seagrass surveys at boat ramps, piers, and basin, where AECOM's Dive Team collected video and still photography of benthic resources. Percent coverage and density of seagrass within pre-established transects and thorough documentation of hard corals was collected as required for reporting to the Florida Department of Environmental Protection and USACE.

Size: 1 acre. **Cost:** $20K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Anthony Mets, PE	**Underwater Inspections / Dive Team**	19	10

15. FIRM NAME AND LOCATION (City and State): AECOM (Orange, CA)

16. EDUCATION (Degree and Specialization): BS/Naval Architecture

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline): Professional Civil Engineer/TX, AK, NC, AZ, WA, CA

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

SPRAT/IRATA Level I Rope Access Technician
ADCI Surface-Supplied Air Diving Supervisor
ACOPNE Diplomate of Coastal Engineering (D.CE)
FHWA-NHI-130053 Bridge Inspection Refresher Training
FHWA-NHI-130078 Fracture-Critical Inspection Techniques for Steel Bridge
FHWA-NHI-130055 Safety Inspection of In-Service Bridges
ADCI Surface-Supplied Air Diver / No. 45806
Mr. Mets leads AECOM Underwater Inspection and Condition Assessment practice area. He has led and conducted an extensive number of condition assessments and structural inspections for miscellaneous waterfront, coastal and inland navigation structures, including container, bulk and fuel terminals, municipal piers, railroad and roadway bridges, vessel mooring facilities (including offshore moorings), breakwaters, seawalls, dams, reservoirs and canals. He is experienced in preparation of planning, design and permitting documents, specifications, construction drawings, and developing waterfront construction cost estimates.

19. RELEVANT PROJECTS

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

Port of Los Angeles, Berths B226-232, Evergreen Container Terminal; Pre-Construction Inspection of B226-232 Container Wharf

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

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

☒ Check if project performed with current firm

Project Manager/Team Lead/Engineer-Diver/Dive Supervisor. Work involves providing an underwater and above water visual and "hands-on" inspection of the wharves at Berth 226 through Berth 232 and documenting and verifying the repair defects of the structural members as shown on the Construction Documents. Let the original Design-level inspection for the wharf and cutoff wall of this container terminal. The total length of wharves inspected is approximately 4,100 feet and consists of approximately 2,250 prestressed precast concrete piles. Final repair quantities on the Construction Documents and final PS&E will be revised based on this pre-construction inspection.
Size: N/A. **Cost:** N/A

b. (1) TITLE AND LOCATION *(City and State)* **See Project 9 in Section F**

Nashville Avenue Terminal Underwater and Above-Water Inspection; Port of New Orleans; New Orleans, LA

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

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

☒ Check if project performed with current firm

Task Lead/Dive Supervisor/Engineer-Diver. Lead underwater and topside inspection team to perform underwater inspection and condition assessment of the 1,350 LF of the existing container wharf, including 5,100 steel and concrete piles, and 1,350 LF of Skyline BZ 16.4 and Frodingham 3NA steel sheetpile containment wall. Level I, II and Level III NDE inspections was performed in accordance with ASCE Standard Practice Manual 130 – Waterfront Facilities Inspection and Assessment, 2015 Ed. All diving was performed utilizing surface-supplied air per 23 CFR 1910 Subpart T and ADCI Consensus Standards.
Size: N/A. **Cost:** N/A

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

Bayport Container Terminal Wharves 4 and 5 Upgrades; Port of Houston Authority; Seabrook, TX

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

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

☒ Check if project performed with current firm

Task Manager/Dive Supervisor/Engineer-Diver. Providing engineering services including analysis and design of the rehabilitation and strengthening of Bayport Container Terminal (BPT) Wharf 4 and Wharf 5 and performing limited construction phase support services. Lead the structural inspection and condition assessment task for this above-water and underwater inspection and condition assessment of 2,300 LF of container wharves, comprised of 36-in diameter drilled shafts and reinforced concrete deck. The underwater and above-water inspection was performed in accordance with ASCE Standard Practice Manual 130 – Waterfront Facilities Inspection and Assessment, 2015 Ed. All diving was performed utilizing surface-supplied air per 23 CFR 1910 Subpart T and ADCI Consensus Standards.
Size: N/A. **Cost:** N/A

d. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Hugh K. Leatherman, Sr. Terminal (HLT) Containment Wall and Dike Inspection; South Carolina Port Authority; Charleston, SC	PROFESSIONAL SERVICES 2018	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Task Manager/Dive Supervisor/Engineer-Diver. Lead an underwater inspection team to perform underwater inspection and condition assessment of the 9,140 LF of the AZ 39-700 and AZ 19-700 steel sheetpile containment wall and slope protection. Level I, II and III inspection was performed in accordance with ASCE Standard Practice Manual 130 – Waterfront Facilities Inspection and Assessment, 2015 Ed. All diving was performed utilizing surface-supplied air per 23 CFR 1910 Subpart T and ADCI Consensus Standards.

Size: N/A. **Cost:** N/A

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
United States Air Force Defense Logistics Agency; Okinawa Three-Legged Mooring Inspection and Analysis; Camp Courtney, Okinawa, Japan	PROFESSIONAL SERVICES 2018	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Task Manager/Audit Team Lead/Dive Supervisor/Engineer-Diver. Performed underwater and above-water inspections per FPO 84(6)-4 audit requirements. Lead the inspection team and performed a series of field inspections at the Defense Logistics Agency's TLM Mooring off of Camp Courtney, Okinawa. Prepared and presented a post-inspection outbrief at the DLA Small Craft Harbor facility immediately upon completion of field work and subsequently prepared and submitted a draft report with inspection findings. Currently assisting with TLM hydrodynamic modelling analysis and preparing interim repair design for DLA.

Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Bruce LeLong, PE	**Marine Structural**	25	19

15. FIRM NAME AND LOCATION (City and State): AECOM (New Orleans, LA)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
BS, Civil Engineering	LA, Civil Engineering

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

M.ACI, M.AISC, M.SAME

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — See Project 15 in Section F

New Jersey American Water, Raritan-Millstone Long Term Flood Protection Project, Middlesex County, NJ

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	2018

☒ Check if project performed with current firm

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

Senior Civil/Structural Engineer. Senior Civil/Structural Engineer for the design of combi-wall type steel bulkhead floodwall, reinforced concrete lagging wall, inverted T-walls, I-walls and miscellaneous local drainage features.
Size: 1.5 miles of flood protection **Cost:** $28M (construction)

b. (1) TITLE AND LOCATION *(City and State)* — See Project 14 in Section F

U.S. Army Corps of Engineers, Rehabilitation of Hudson River Wall & North & South Docks, Military Academy at West Point, Garrison, NY

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2016	2016

☒ Check if project performed with current firm

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

Senior Civil/Structural Engineer. Senior Civil/Structural Engineer for the design of a micro-pile-founded, reinforced concrete, inverted 'T' bulkhead wall replacement with faux architectural finish to provide rubble masonry appearance. Design of repairs to historic timber dock structure and steel sheet pile bulkheads.
Size: 500 feet of historic bulkhead wall replacement. **Cost:** $5M (construction)

c. (1) TITLE AND LOCATION *(City and State)* — See Project 6 in Section F

City of Annapolis, Stormwater and Flood Mitigation Engineering Services, Annapolis, MD

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017-present	N/A

☒ Check if project performed with current firm

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

Senior Civil/Structural Engineer. Senior Civil/Structural Engineer for development of conceptual engineering and technical approach for designs of bulkhead replacement and 55,000-gpm gravity bypass pump stations as mitigation for recurring nuisance flooding of historic Ego Alley area.
Size: several hundred acres. **Cost:** $15M (estimated)

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

Louisiana Coastal Protection and Restoration Authority, Mid-Barataria Sediment Diversion Project, Plaquemines Parish, LA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017-present	N/A

☐ Check if project performed with current firm

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

Senior Project Manager. Senior Project Manager and civil/structural engineer for the engineering and design of 75,000-cfs, gravity diversion complex, including engineering of shoreline protection and relocation of dock facilities of Myrtle Grove recreational fishing development.
Size: 75,000 cfs diversion complex, incl. 5 miles of shoreline protection. **Cost:** $1B (estimated)

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

U.S. Army Corps of Engineers, LPV 111 Levee Enlargement,

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2013	2013

☒ Check if project performed with current firm

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

Project Manager. Project Manager and Lead Civil/Structural Engineer. Managed and supervised designs of ground improvement beneath enlargement of 5-mile levee protecting Bayou Sauvage National Wildlife Refuge and New Orleans East. LPV 111 is the largest soil mixing project in the world. Project also included the design of hardening of T-flood/seawall to protect a drainage pumping station from storm surge and wave action along Gulf Intracoastal Waterway.
Size: 5 miles of levee and seawall. **Cost:** $400M

f. (1) TITLE AND LOCATION *(City and State)* **See Project 8 in Section F**	(2) YEAR COMPLETED	
Rebuild by Design Hudson River: Flood walls, Esplanade & Parks. Meadowlands, NJ	PROFESSIONAL SERVICES Present	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Structural Lead. Structural Lead for The final design of various configuration and floodwalls types, , walkways, and steel sheet pile bulkhead walls against the flood and wave loads associated with the storm event. And various other soft waterfront protection measures.
Size: N/A. **Cost:** N/A

g. (1) TITLE AND LOCATION *(City and State)* **See Project 9 in Section F**	(2) YEAR COMPLETED	
Port of New Orleans, Nashville Avenue Terminal Conversion to Container and Crane Rail Extension; Port of New Orleans; New Orleans, LA	PROFESSIONAL SERVICES Ongoing	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Structural Engineer. Structural Engineer for the design the Nashville Avenue wharves upgrade to accommodate 100-foot gage rail-mounted cranes to increase service to larger container vessels.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Wael Youssef, MSCE, PE	**Marine Structural**	27	5

15. FIRM NAME AND LOCATION (City and State): AECOM (New York, NY)

16. EDUCATION (Degree and Specialization)
BSc (Eng.) /1991/Civil Engineering Cairo University
MSCE/1996/Civil/Structural Engineering

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
PE New York

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

Currently AECOM, NYC Ports and Marine Department Manager. With over 25 years of experience in: Structural design, Engineering multidisciplinary coordination, project management & construction support. In depth Broad experience in: Structural analysis and design, plan reviews, value engineering & constructability studies. Structural performance under extreme loads; seismic, flood and blast loads. Supported the successful design and construction of several Mega structures on time and on budget by executing rigorous project controls, team building, close coordinating with all trades and project stakeholders.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — **See Project 7 in Section F**

Lower Manhattan Coastal Resiliency (LMCR) & Brooklyn Montgomery Costal Resilience Final Design (BMCR)

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

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

Engineering Manager and Disciplines Coordination's Lead. The LMCR project objective is to provide flood protection and community enhancement in Lower Manhattan areas damaged by Hurricane Sandy. The project area spans along the Manhattan Coastline from Montgomery Street in the Lower East Side to the northern end of Battery Park City. The design goals are to simultaneously protect the shoreline from flooding while also enhancing public amenities and access to the waterfront. In final design.
Size: N/A. **Cost:** N/A

b. (1) TITLE AND LOCATION *(City and State)* — **See Project 10 in Section F**

North & South Battery Park City Resiliency

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

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

Engineering Lead. Engineering Lead for the construction of a comprehensive flood barrier system to check water inundation from the Hudson River Estuary at Robert F. Wagner Park ("Wagner Park") and the Pier A Plaza (the "Plaza") associated with storm activity and sea level rise, the construction of a new pavilion structure within Wagner Park to replace the existing pavilion structure, which will enhance the resiliency of the area and provide other amenities.
Size: N/A. **Cost:** N/A

c. (1) TITLE AND LOCATION *(City and State)* — **See Project 8 in Section F**

Rebuild by Design Hudson River: Flood walls, Esplanade & Parks. Meadowlands, NJ

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

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

Marine Structural Lead. Marine Structural Lead for The final design of various configuration and floodwalls types, , walkways, and steel sheet pile bulkhead walls against the flood and wave loads associated with the storm event. And various other soft waterfront protection measures.
Size: N/A. **Cost:** N/A

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

Hugh K. Leatherman, Sr. Terminal – South Carolina Ports Authority, Charleston, SC

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

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

Lead Marine Engineer. Lead Marine engineer and discipline coordinator responsible for reviewing the design and review of engineering calculations/models and final Design Documents (Plans & Specifications) for competitive bidding, and for constructing, Approximately 3,510 linear feet of the Phase 1,2&3 of pile supported high level 120 foot nominal wide marginal wharf concrete platform suitable for support of 100 foot gage 1600tons quay cranes (STS cranes) and container operations.
Size: N/A. **Cost:** N/A

e. (1) TITLE AND LOCATION *(City and State)* **See Project 14 in Section F**

US Army Corps of Engineers North and South Dock Rehabilitation | West Point, NY

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2015	

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

☒ Check if project performed with current firm

Engineering Lead. Engineering Lead for site investigation and retrofit design the of a timber pile supported dock, rock revetment, steel sheet pile bulkhead and steel sheet pile cofferdam helipad. The purpose of the design is to stabilize the existing bulkhead and rehabilitate the existing dock to its original condition.
Size: N/A. **Cost:** N/A

f. (1) TITLE AND LOCATION *(City and State)* **See Project 15 in Section F**

New Jersey American Water, Raritan-Millstone Long Term Flood Protection Project, Middlesex County, NJ

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	2018

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

☒ Check if project performed with current firm

Senior Engineer. Senior Engineer for the design of combi-wall type steel bulkhead floodwall, reinforced concrete lagging wall, inverted T-walls, I-walls and miscellaneous local drainage features.
Size: 1.5 miles of flood protection **Cost:** $28M (construction)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Saul Perez, PE	**Marine Structural**	30	30

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, Florida)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
Master of Science, Civil Engineering	Professional Engineer, FL, CA, PR

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

Serve as a senior structural engineer with extensive experience in the design and analysis of various types of structures for buildings, highway, transit, and marine facilities. He has served as Structures Department Manager, Technical Director, and Project Manager in various types of projects, mostly involving, warehouse buildings, residential structures, retaining walls, highway bridges and sign structures. He has been involved in the design of structures including Reinforced and Unreinforced Masonry Design, and various types of Retaining Walls.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — **See Project 3 in Section F**

USCG Station Marathon, Marathon FL

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

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

☒ Check if project performed with current firm

Project Manager. Financial Project Manager for Concept through final design for improvements to Waterfront Structures. Project Work includes repairs to wharf, bulkheads and seawalls and replacement of boat ramp. Prepared drawings, specifications, cost estimates and environmental permit applications.
Size: N/A. **Cost:** $235K

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

Miami Dade Transit, Miami, Florida Miami Dade Downtown People Mover

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

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

☒ Check if project performed with current firm

Structural Engineer. designing concrete pile caps and guideway beams for the Miami Downtown People Mover Rail System and retaining walls for such.
Size: N/A. **Cost:** N/A

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

Greyhound/Miami-Dade Transit, Miami, Florida Bus Station at Miami-Dade Metrorail-Brickell Station

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

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

☒ Check if project performed with current firm

Structural Design Task Manager. Structural design manager for the design of a reinforced concrete masonry unit structure supporting a reinforced concrete slab roof and resting on a continuous wall spread footing. This structure required the capability of enduring a four-hour fire due to its proximity to the Metro-Rail facility.
Size: N/A. **Cost:** N/A

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

Florida Department of Transportation (FDOT) South Florida Rail Corridor, Miami, Florida Tri-Rail Golden Glades Station Expansion

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

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

☒ Check if project performed with current firm

Project Manager. Project manager for the design of the station expansion to accommodate dual tracking along the railroad corridor. This effort included the evaluation of center platform and side platform station alternatives, and the design of a side platform preferred alternative.
Size: N/A. **Cost:** N/A

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

Miami-Dade Transit, Miami, Florida Metrorail Extension to the Palmetto Expressway and Multimodal Facility, Miami, FL

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

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

☒ Check if project performed with current firm

Project Manager. Project Manager for the post-design services oversight of the construction of a Station and the extension of a transitway system leading to it. Design of major components of the structural system to be coordinated with the surrounding projects. Review of the shop drawings, change requests, and the planned erection of a 1.5-mile long aerial rail structure that connects to an existing system.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Prabin Tuladhar, PE	**Marine Structural**	19	19

15. FIRM NAME AND LOCATION (City and State): AECOM (Orange, CA)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
MS, Civil/Structural Engineering BS, Civil Engineering	Professional Civil Engineer, CA

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

Mr. Tuladhar has more than 19 years of experience, specializing in structural design and analysis, with a focus on marine waterfront structures. His background includes the design of marine structures such as floating structures, floating wave attenuators and breakwater structures, waterfront earth retaining structures (seawalls, bulkheads, revetments), fixed pier and pile-supported wharf structures, gangways, vessel mooring structures, and site utilities. He has been involved in the design of new structures as well as assessment, modification, retrofit and/or rehabilitation of existing structures. His specialized experience includes wave/environmental load analyses, interpretive structural modeling analyses, development of project submittal documents, regulatory and local agency project permitting, and construction management. He has extensive experience with finite software programs including structural design, earth stability, and wave analysis. His marine structure experience includes a variety of construction methods and materials including concrete, timber, steel, aluminum and environmentally-friendly materials.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)*: **San Francisco International Airport - Shoreline Protection - San Francisco, California** **See Project 12 in Section F**

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

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

☒ Check if project performed with current firm

Design Engineer. AECOM scope of work included engineering consulting services for shoreline protection at the San Francisco International Airport. Involved in conceptual design of new seawall, extensions to existing seawall. Conceptual design included steel sheet pile wall and concrete seawalls.

Size: N/A. **Cost:** N/A

b. (1) TITLE AND LOCATION *(City and State)*: **Port of Los Angeles; Valero - Berth 164 MOTEMS Marine Oil Terminal Improvements, San Pedro, California**

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

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

☒ Check if project performed with current firm

Design Engineer. Work for this marine oil terminal upgrade project includes design and construction supervision of a new marine oil terminal to replace an existing old timber wharf. The project includes installation of five new large diameter steel mooring dolphins, two new steel berthing platforms, a new 200 x 40' unloading platform, an oil boom reel platform and selected site demolition of creosote timber wharf and fender piles. The scope is comprised of geotechnical field investigations; structural and seismic design and analyses of the new structures to MOTEMS and ASCE 7-10 requirements as applicable; dynamic mooring analysis; and electrical design.

Size: N/A. **Cost:** N/A

c. (1) TITLE AND LOCATION *(City and State)*: **US Army Corps of Engineers; Upgrade Fueling Wharf, DFSP Sasebo, Yokose, Japan**

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

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

☒ Check if project performed with current firm

Design Engineer. This project upgraded the existing fueling wharf located at Yokose Petroleum, Oils, and Lubricants (POL) Terminal by extending the wharf to deeper waters to accommodate the largest vessels that currently use the wharf or are anticipated to use the wharf in the future. These vessels include Fast Combat Support Ship (AOE) vessels, T-5 tankers, and State-class vessels. The proposed wharf extension is 27 meters seaward from the existing wharf face with an adequate length to meet operational requirements. New dolphin piers on either side of the wharf extension will assist with mooring and berthing. Access to the dolphin piers from the main wharf extension shall be provided by steel foot bridges. The concrete wharf extension and dolphin piers shall be supported by steel piles filled with reinforced concrete. A concrete fascia that extends below mean lowest water level (L WL) shall be provided along the wharf extension and dolphin piers to prevent any fuel spills from spreading under the structures and onto the piles. Pennant oil spill booms shall be installed between the dolphin piers and wharf extension to prevent fuel spills from spreading under the new foot bridges to the waters behind the wharf. A new small boat dock was constructed to provide pennant berthing of emergency spill response vessels and other small boats. The small boat dock shall include a breakwater structure that protects the dock from rough conditions resulting from tides, waves, storm surges, etc.

Size: N/A. **Cost:** N/A

d. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Port of Long Beach; Marine Maintenance Dock Facilities At Berth D48 Project Long Beach, CA	PROFESSIONAL SERVICES 2018	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Design Engineer. Project involved installation of a three ton jib crane, 165 feet x 22 feet concrete floating dock and its accessories, aluminum gangway, steel gangway platform, ten 24-inch octagonal piles, gates and fences. Work involved surveying, studies and analyses; design development, cost estimating, construction document development; permit assistance, and construction support.

Size: N/A. **Cost:** $2.1M

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
City of Los Angeles; Venice Beach Pier Assessment, CA	PROFESSIONAL SERVICES Ongoing	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Design Engineer Work involved the inspection, assessment and providing repair documents for the Venice Beach fishing pier. The pier is a 1,320 foot long concrete pier supported by 165 precast-pre-stressed concrete piles. Phase 1 work included underwater, under deck and above deck inspections as well as a detailed report of the findings. Phase 2 work included providing repair documents, specifications and cost estimate to repair the items identified in Phase 1. Phase 3 work included evaluating the adequacy of the existing pier to resist all applicable code forces, including a site-specific ocean wave forces as well as vertical, wind and seismic forces. This phase also included generating a current bathymetry survey of the area around the pier. Phase 4 work included providing three option and cost estimates for renovating the pier to address failures or unacceptable impacts identified in Phase 3.

Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Byoung-sok Shin	**Structural Engineer**	15	3

15. FIRM NAME AND LOCATION (City and State): AECOM (Orange, California)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
Stanford University (Master of Science Structural Engineering) University of Southern California (Bachelor of Science Civil Engineering)	Structural Engineer (California) Professional Engineer (California, Civil Engineering) Professional Engineer (Texas, Civil Engineering)

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

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19. RELEVANT PROJECTS

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

Port of Houston Authority, Rehabilitation of Wharves 4 and 5 at Bayport Container Terminal, Seabrook, Texas

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	

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

☒ Check if project performed with current firm

Design Manager. Rehabilitation of existing reinforced concrete wharf structure to accommodate new taller container cranes. Designed new reinforced concrete drilled shafts and pile caps in the existing wharf. Developed demolition plan and staff management.

Size: N/A. **Cost:** $1.3M

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

Cirque du Soleil, Conceptual Study of Existing Piers 30-32, San Francisco, California

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	

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

☒ Check if project performed with current firm

Structural Engineer. provide a conceptual structural evaluation report of the existing piers 30-32 to serve as Cirque du Soleil's performance site. Estimated Rough-order of magnitude (ROM) cost range to improve the piers. The evaluation was based on as-built drawings and previous assessments conducted.

Size: N/A. **Cost:** $25,000

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

USACE, US Army/Navy Fuel Pier, Yokose, Japan

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017	

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

☒ Check if project performed with current firm

Structural Engineer. Provide design document for the new fuel pier consisting of reinforced concrete deck supported by reinforced concrete pile cap on new steel pipe piles. Completed seismic evaluation of new wharf. Evaluated existing reinforced concrete pontoon wharf for potential seismic event.

Size: N/A. **Cost:** N/A

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

Port of Los Angeles, Berth 164, Wilmington, California

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	

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

☒ Check if project performed with current firm

Structural Engineer. Design new wharf, mooring dolphins, berthing dolphins in conformance with MOTEMS (Marine Oil Terminal Engineering and Maintenance Standards). The new wharf consists of reinforced concrete deck and pile caps supported by steel pipe piles. Run pushover analysis to meet seismic criteria per MOTEMS.

Size: N/A. **Cost:** N/A

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

Port of San Francisco, Pier 96 Sheet Pile Sea-Wall Repair, San Francisco, California

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2014	

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

☐ Check if project performed with current firm

Structural Engineer. Existing steel sheet pile sea-walls with tie-rods are damaged due to corrosion of the sheet piles. Responsible for assessing condition of an existing sheet pile wall and developing conceptual repair designs.

Size: N/A. **Cost:** N/A

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

Port of San Francisco, Pier 31.5 Hornblower/Alcatraz Landing Terminal, San Francisco, California

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2015	

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

☐ Check if project performed with current firm

Structural Engineer. Survey substructure of existing reinforced concrete wharf deck and piles at Pier 31.5, collected damages and missing parts to prepare the substructure investigation report to suggest future repair and maintenance based on MOTEMS.

Size: N/A. **Cost:** N/A

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

Black Ball Ferry Line, Black Ball Ferry Line Wharf Replacement, Victoria, Canada

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2015	2017

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

☐ Check if project performed with current firm

Structural Engineer. Design documents of new reinforced concrete wharf replacing existing wooden wharf. New wharf consists of post-tensioned deck slab, reinforced concrete pile caps, and steel pipe piles. Performed pushover analysis in conformance with ASCE 61-14 for seismic criteria.

Size: N/A. **Cost:** N/A

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

Port of San Francisco, Pier 27 Cruise Terminal, San Francisco, California

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2012	2015

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

☐ Check if project performed with current firm

Structural Engineer. Provide inspection and structural engineering for the Pier's substructure, which includes the pier deck and piles. Works includes re-evaluation of existing deck slab for new holes and light poles, repair design for the existing deck slab for new structures, re-evaluation of the existing piles, design of new concrete deck for new gangway, and construction administration.

Size: N/A. **Cost:** N/A

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

Kiewit/General/Mansion JV Construction, SR-520 Evergreen Point Floating Bridge & Landings, Seattle, Washington

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2013	2016

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

☐ Check if project performed with current firm

Structural Engineer. Construction/Design Engineering for Repairs of Floating Concrete Pontoons and Launching Dry Steel Coffercell. Investigated causes of several cracks on 75' wide x 29' tall x 360' long post-tensioned reinforced concrete pontoons. Developing and providing permanent repair procedure associated with potential cracking and leaking occurring in the exterior walls of PT Pontoons with steel cofferdams and fiber reinforced polymer options. Supervised a technical staff. Design of a 96' wide x 44' tall x 44' long steel cofferdam to repair the floating pontoons. Providing launching sequence for the steel cofferdam from 72' wide x 16' tall x 250' long steel barge and evaluating trim ballasting. Checking the steel barge structure both in global and local.

Size: N/A. **Cost:** N/A

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

Shaw E&I, IHNC GIWW Floodgate Monolith, New Orleans, Louisiana

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2010	2013

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

☐ Check if project performed with current firm

Structural Engineer. Engineering lead for designing flood walls, evaluating load cases for hurricane protection, and designing concrete structures for the steel sector gate. Coordinating geometry and construction sequences with groups in joint venture. Contributions include: (a) concrete flood side walls (b)concrete protected side walls; (c) North and South Junctures; (d) Abutments; and (e) Thrust Blocks; (g) Isolation joints between different structures; (h) Evaluating seismic load cases for steel pipe piles, sill foundation and monolith walls; (i) Providing construction support.

Size: N/A. **Cost:** N/A

k. (1) TITLE AND LOCATION *(City and State)* **See Project 12 in Section F**

San Francisco International Airport - Shoreline Protection - San Francisco, California

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)

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

☒ Check if project performed with current firm

Structural Engineer. AECOM scope of work included engineering consulting services for shoreline protection at the San Francisco International Airport. Involved in conceptual design of new seawall, extensions to existing seawall. Conceptual design included steel sheet pile wall and concrete seawalls.

Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Ariel Buenano, PE	**Senior Structural Engineer**	28	17

15. FIRM NAME AND LOCATION (City and State): AECOM (New Orleans, LA)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
BS, Civil Engineering; MSc, Structural Engineering	CA, Civil Engineer

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

American Concrete Institute/Louisiana Chapter; American Institute for Steel Construction

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — See Project 15 in Section F

New Jersey American Water, Raritan-Millstone Long Term Flood Protection Project, Middlesex County, NJ

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	2018

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

☒ Check if project performed with current firm

Lead Structural Engineer. Lead Structural Engineer for the design of combi-wall type steel bulkhead floodwall, reinforced concrete lagging wall, inverted T-walls, I-walls and miscellaneous local drainage features.
Size: 1.5 miles of flood protection **Cost:** $28M (construction)

b. (1) TITLE AND LOCATION *(City and State)* — See Project 9 in Section F

Port of New Orleans, Nashville Avenue Terminal Conversion to Container and Crane Rail Extension, New Orleans, LA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018-2019	X

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

☒ Check if project performed with current firm

Senior Structural Engineer. Analysis, design, coordination of structural team and preparation of plans and specifications for an 1,100-foot extension of 100' gage ship-to-shore (STS) crane rails. Performed preliminary mooring and berthing calculations and reviewed the existing structure for load-capacity and overall stability for lateral loads acting on the wharf. Stability design included the addition of a toe bulkhead due to deepening access channel (dredging)
Size: 1,100-foot dock and bulkhead extension. **Cost:** $TBD

c. (1) TITLE AND LOCATION *(City and State)* — See Project 14 in Section F

U.S. Army Corps of Engineers, Rehabilitation of Hudson River Wall & North & South Docks, Military Academy at West Point, Garrison, NY

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2016	2016

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

☒ Check if project performed with current firm

Senior Structural Engineer. Senior Structural Engineer for the design of a micro-pile-founded, reinforced concrete, inverted 'T' bulkhead wall replacement with faux architectural finish to provide rubble masonry appearance. Design of repairs to historic timber dock structure and steel sheet pile bulkheads.
Size: 500 feet of historic bulkhead wall replacement. **Cost:** $5M (construction)

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

Louisiana Coastal Protection and Restoration Authority, Mid-Barataria Sediment Diversion Project, Plaquemines Parish, LA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017-present	X

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

☒ Check if project performed with current firm

Lead Structural Engineer. Lead structural engineer for the engineering and design to convey as much as 75,000 cf per second though the gated structure, including engineering of shoreline protection and relocation of dock facilities of Myrtle Grove recreational fishing development.
Size: 75,000 cfs diversion complex, incl. 5 miles of shoreline protection. **Cost:** $1B (estimated)

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

U.S. Army Corps of Engineers, LPV 109 Levee Enlargement,

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2012	2013

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

☒ Check if project performed with current firm

Project Manager. Project Manager and lead structural engineer for the development of the plans and specifications for reach LPV 109.02a. This effort will include design on 39,400-linear feet of existing levee (stage construction with prefabricated vertical drains and deep soil mixing), transition flood/sea T-walls, redesign of four (4) drainage structures, and redesign of two (2) pumping stations.
Size: 7 miles of levee and seawall. **Cost:** $144M

f. (1) TITLE AND LOCATION *(City and State)*	See Project 6 in Section F	(2) YEAR COMPLETED	
City of Annapolis, Stormwater and Flood Mitigation Engineering Services, Annapolis, MD		PROFESSIONAL SERVICES: 2017-present	CONSTRUCTION (If applicable): N/A
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE		☒ Check if project performed with current firm	

Senior Structural Engineer. Senior Structural Engineer for development of conceptual engineering and technical approach for designs of bulkhead replacement and 55,000-gpm gravity bypass pump stations as mitigation for recurring nuisance flooding of historic Ego Alley area.
Size: several hundred acres. **Cost:** $15M (estimated)

g. (1) TITLE AND LOCATION *(City and State)*	See Project 8 in Section F	(2) YEAR COMPLETED	
Rebuild by Design Hudson River: Flood walls, Esplanade & Parks. Meadowlands, NJ		PROFESSIONAL SERVICES: Present	CONSTRUCTION (If applicable):
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE		☒ Check if project performed with current firm	

Structural Engineer. Structural Engineer for The final design of various configuration and floodwalls types, , walkways, and steel sheet pile bulkhead walls against the flood and wave loads associated with the storm event. And various other soft waterfront protection measures.
Size: N/A. **Cost:** N/A

h. (1) TITLE AND LOCATION *(City and State)*	See Project 9 in Section F	(2) YEAR COMPLETED	
Port of New Orleans, Nashville Avenue Terminal Conversion to Container and Crane Rail Extension; Port of New Orleans; New Orleans, LA		PROFESSIONAL SERVICES: Ongoing	CONSTRUCTION (If applicable):
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE		☒ Check if project performed with current firm	

Structural Engineer. Structural Engineer for the design the Nashville Avenue wharves upgrade to accommodate 100-foot gage rail-mounted cranes to increase service to larger container vessels.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Juan Garcia, PE	**Civil/Stormwater Drainage**	31	21

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, FL)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
BS / Civil Engineering	Professional Engineer / Florida

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

19. RELEVANT PROJECTS

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

Various Ramp Improvements at the Golden Glades Interchange, Miami-Dade County, Florida

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

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

☒ Check if project performed with current firm

Drainage Engineer. Drainage engineer providing in-house services to the Florida Department of Transportation for the drainage design of the various ramp improvements to the Golden Glades Interchange. Design responsibilities included drainage modeling of the stormwater management systems using the AdICPR flood routing software, coordination with the various other design segments within the interchange, preparation of drainage documentation report, CADD production of drainage related plans, and providing support for obtaining the required drainage permits.
Size: N/A. **Cost:** N/A

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

Widening of I-95 to Provide Aux. Lanes at the Golden Glades Interchange, Miami-Dade County, Florida

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

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

☒ Check if project performed with current firm

Drainage Engineer. Drainage engineer providing in-house services to the Florida Department of Transportation for the drainage design of the widening of I-95 to provide aux. lanes at the Golden Glades Interchange. Design responsibilities included drainage modeling of the stormwater management systems using the AdICPR flood routing software, coordination with the various other design segments within the interchange, preparation of drainage documentation report, CADD production of drainage related plans, and providing support for obtaining the required drainage permits.
Size: N/A. **Cost:** N/A

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

Alton Road From Michigan Ave. to 41st St., Miami Beach, Florida

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

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

☒ Check if project performed with current firm

Drainage Engineer. Drainage engineer providing in-house services to the Florida Department of Transportation for the drainage design of Alton Road. Design responsibilities included drainage modeling of the stormwater management systems using the AdICPR flood routing software, design of two (2) new stormwater pump stations, preparation of drainage documentation report, CADD production of drainage related plans, and providing support for obtaining the required drainage permits.
Size: N/A. **Cost:** N/A

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

Krome Ave. From SW 136th St. to SW 88th St., Miami-Dade County, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015 | CONSTRUCTION (If applicable):

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

☒ Check if project performed with current firm

Drainage Engineer. Drainage engineer providing in-house services to the Florida Department of Transportation for the drainage design of the reconstruction of Krome Avenue (SW 177th Avenue). Design responsibilities included drainage modeling of the stormwater management systems using the AdICPR flood routing software, preparation of drainage documentation report, CADD production of drainage related plans, and providing support for obtaining the required drainage permits.
Size: N/A. **Cost:** N/A

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
NW 7th Ave. From NW 8th St. to NW 32nd St., Miami-Dade County, Florida	2015	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Drainage Engineer. Drainage engineer providing in-house services to the Florida Department of Transportation for the drainage design of the reconstruction of NW 7th Avenue. Design responsibilities included drainage modeling of the stormwater management systems using the AdICPR flood routing software, preparation of drainage documentation report, CADD production of drainage related plans, and providing support for obtaining the required drainage permits.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Amy E. Eason, PE	**Civil/Stormwater Drainage**	23	18

15. FIRM NAME AND LOCATION (City and State): AECOM (West Palm Beach, Florida)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
BS, Environmental Engineering, Mercer University, 1997	Professional Engineer / FL #59936

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

Ms. Amy Eason is a senior client service manager with experience in water resources and water and wastewater engineering. Her current responsibilities include project design and management, hydraulic and hydrologic modeling, and permitting. Her experience includes special taxing districts, land development, surface water management systems, water reservoir routing, utility design, water and wastewater treatment plants, and roadway design.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
City of Miami Beach, Flood Mitigation Consulting Services, Miami Beach, Florida.	2019	N/A
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Deputy Project Manager. Recently updated current master plan to include climate change and resiliency elements to the plan the capital improvement projects for stormwater infrastructure facilities. Incorporated resiliency elements in the design of stormwater infrastructure. Prepared hydraulic and hydrologic models (ICPR) and design reports for multiple drainage basins for proposed stormwater management system improvements within the city. Included conceptual layout and design of stormwater management and pollution prevention systems to reduce flooding impacts due to existing system deficiencies and projected sea level rise. Updated existing stormwater master plan model (XPSWMM) and managing the development of multiple basin studies for neighborhood improvements for the City's capital improvement program to include future sea level changes. Currently developing Basis of Design Reports for each of the neighborhoods for the construction of the capital improvements.

Size: N/A. **Cost:** $7.5M

b. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
City of Naples, Stormwater Master Plan Update, Naples, Florida.	2018	N/A
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager for the update to the 2007 Stormwater Master Plan that investigates key components of the City's stormwater system and establishes a foundation for future policy decisions. Key to the plan are adaptation strategies that consider current and future sea level conditions, integrate natural systems, offer co-benefits to the community and enhance city stormwater operations and environmental protections efforts.

Size: N/A. **Cost:** $304K

c. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Florida Power and Light, Port Everglades Canal Stabilization Project, Fort Lauderdale, FL	2018	2018
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Engineer of Record. Design, permit, and construct one (1) mile of canal bank stabilization for the intake canal to the power plant.

Size: N/A. **Cost:** $100K

d. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
NAVFAC, SOF Boat Docks NAS Key West, Key West, FL	2016	2018
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Technical Lead. Design, permitted, and provided construction inspection services to repair and upgrade the docking facilities and associated landside improvements at the Special Forces Underwater Operations School at Trumbo Point Annex. The project included waterside and landside improvements which included a dock, boat ramp, restroom facilities, lift station, water main, and boat wash.

Size: N/A. **Cost:** $400K

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
City of Boynton Beach, NE 20th Avenue Drainage Improvement Project, Boynton Beach, Florida.	PROFESSIONAL SERVICES 2017	CONSTRUCTION (If applicable) 2018
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager. Drainage improvement design within a 24 acres historic community within Boynton Beach. The project consisted of approximately 1,744 LF of exfiltration trench, 3,243 LF of swale excavation, minor sewer and water line relocation, and ancillary restoration of the right-of-way. AECOM designed, permitted, and is conducting the construction inspection services for the project.
Size: N/A. **Cost:** $300K

f. (1) TITLE AND LOCATION *(City and State)* **See Project 3 in Section F**	(2) YEAR COMPLETED	
USCG Station Marathon, Marathon FL	PROFESSIONAL SERVICES 2019	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Engineer. Project Engineer for Concept through final design for improvements to Waterfront Structures. Project Work includes repairs to wharf, bulkheads and seawalls and replacement of boat ramp. Prepared drawings, specifications, cost estimates and environmental permit applications.
Size: N/A. **Cost:** $235K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Gustavo Santana	**Landscaping Arch & SUE**	18	15

15. FIRM NAME AND LOCATION (City and State): AECOM (Coral Gables, FL)

16. EDUCATION (Degree and Specialization)

Master of Landscape Architecture, Cum Laude
Bachelor of Design in Plannerural Studies, Cum Laude

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)

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

Mr. Santana is a motivated and resourceful designer and project manager who has been extensively involved in strategic planning, site and detail design, construction administration on a variety of large- and small-scale projects including DoD, commercial, educational, and streetscapes related projects. He has worked closely in providing clients with community and campus master plans, utilizing a full range of planning and design resources to manage change and improve quality of life.

19. RELEVANT PROJECTS

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

Marine Corps Logistic Command, Albany, GA

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	NA

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

☒ Check if project performed with current firm

Project Manager/Planner. The Marine Corps Logistics Command requires a plan that will provide a long-term infrastructure vision for the organization as it strives for improved business practices that brings the LOGCOM subordinate commands into the 21st Century in not only its process but its facilities.
Size: N/A. **Cost:** N/A

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

Marine Corps Air Station Beaufort, SC

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	NA

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

☒ Check if project performed with current firm

Project Manager/Planner. Installation Master Plan and three Area Development Plans for long-range planning for the redevelopment of the Base for a 2030 horizon vision plan. The project includes flightline recapitalization program for the F-35 and supporting projects for mission essential, quality of life and administrative and support uses.
Size: N/A. **Cost:** N/A

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

US Air Force Installation Development Plan (four), Multiple locations CONUS

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	NA

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

☒ Check if project performed with current firm

Project Manager. Managed the development of four Installation Development Plans based upon new UFC planning guidance. Installations include Cape Canaveral Air Force Station / Patrick AFB, Tinker AFB, Seymour Johnson AFB, and Joint Base Charleston. IDPS determine long-range requirements to recommend capitalization projects that are aligned with Air Force Strategic Goals and planning guidance.
Size: N/A. **Cost:** N/A

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

Marine Corps Air Station New River, NC

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2016	NA

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

☒ Check if project performed with current firm

Project Manager/Landscape Planner. Master planning and long-range development plan for the redevelopment of the Base for a 2030 horizon vision plan. The project included a flight line recapitalization program for the V-22 and supporting projects for mission essential, quality of life and administrative and support uses.
Size: N/A. **Cost:** N/A

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

Beachwalk II, Miami Beach, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	2019

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

☒ Check if project performed with current firm

Project Manager/Landscape Designer. Landscape and hardscape design of a 5 city block pedestrian corridor extension of the Atlantic Greenway Corridor in South Beach, extends North/South, behind the existing barrier dune system and provides integrated connections to the surrounding neighborhood and adjacent beach. Special consideration was given to existing dune and native plant material locations as well as beach views from adjacent hotels and condominiums.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Babu Madabhushi	**Dredging Operations**	24	19

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, FL)

16. EDUCATION (Degree and Specialization)

BS, Civil Engineering
MS, Wastewater Treatment
PhD, Hazardous Waste Management

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)

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

Mr. Madabhushi has more than 24 years of experience in conducting and managing environmental engineering-related projects with emphasis on conducting contamination screening evaluation, water/wastewater treatment, groundwater treatment, remedial system operation and maintenance. His expertise also encompasses RCRA Facility Investigation, contamination assessment, impact assessment, remedial investigation and feasibility studies, soil and groundwater remediation, in-situ bioremediation, and operation and maintenance of remedial systems.

19. RELEVANT PROJECTS

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

Project Development and Environment (PD&E) studies for FDOT

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2007 – Present	N/A

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

☒ Check if project performed with current firm

Senior Environmental Engineer. Developed contamination screening evaluation reports (CSER) for more than 15 project locations and Re-Evaluation Reports for several FDOT projects in Miami-Dade (NW 74th Street, SR 826 Express Lanes, Krome South and Krome North, NW 203rd Street), Broward- SW 10th St and I-95, St. Lucie (SR-80), Martin, and Monroe (US-1) counties.
Size: N/A. **Cost:** N/A

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

Contamination Evaluation studies for FGT

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2010- Present	N/A

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

☒ Check if project performed with current firm

Senior Environmental Engineer. Developed contamination evaluation reports for numerous project locations in Miami-Dade, Broward, St. Lucie, Martin, and Monroe counties for projects associated with hydrotesting, pipeline maintenance/repairs and pipeline abandonment work.
Size: N/A. **Cost:** N/A

c. (1) TITLE AND LOCATION *(City and State)* **See Project 5 in Section F**

Wagner Creek/Seybold Canal Contaminated Sediment Dredging and Disposal

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	N/A

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

☒ Check if project performed with current firm

Deputy Project Manager. Deputy Project Manager for this critical project in a heavily commercialized area near Jackson Hospital and downtown Miami. This included sediment dredge design, permitting, contaminated sediment handling, turbidity control and disposal at our of Florida location.
Size: N/A. **Cost:** N/A

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

US Air Force, Former Eaker Air Force Base Remediation, Blythevillle, Arkansas

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2011 - Present	N/A

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

☒ Check if project performed with current firm

Project Manager. Project manager for a performance-based remediation contract to obtain unrestricted closure for four former RCRA sites at the former Eaker AFB. The sites are contaminated with petroleum compounds, light non-aqueous phase liquid, chlorinated solvents, and arsenic. Services include remedial investigation, innovative remediation enhancements, contaminated soil removal, in-situ soil and groundwater remediation, GIS mapping and support, groundwater modeling, and routine regulatory interaction. After successful completion or remedial investigation, the site is currently undergoing active groundwater remediation. He is also responsible for performing EPA's 5-Year Review Process.
Size: N/A. **Cost:** N/A

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Federal Aviation Administration, William J. Hughes Technical Center, Atlantic City, New Jersey	PROFESSIONAL SERVICES 2012	CONSTRUCTION (If applicable) N/A
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Remediation Engineering Task Leader. Remediation engineering task leader for operation and maintenance of treatment systems for approximately 5,000-acre CERCLA Superfund site at Areas B, D, 20A, 29, and Area 41. Assisted with operation and maintenance of the existing Central Treatment Plant (Pump and Treat System) to treat the petroleum contaminated water. Provided innovative remediation enhancements, such as in-situ aerobic bioremediation of petroleum compounds and reductive dechlorination of chlorinated solvents, contaminated soil removal, vapor extraction, groundwater and soil investigations, GIS mapping and support, groundwater modeling, and routine regulatory interaction.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Dan Levy, PG	**Dredging Operations**	33	15

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, Florida)

16. EDUCATION (Degree and Specialization): Graduate Studies, Computer Modeling; Graduate Studies, Hydrology; BS, Geology

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline): Professional Geologist: Florida

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

Dan has been involved with numerous high-profile dredging projects and managed the largest Dredging Demonstration project conducted in Florida (Lake Okeechobee). He is also the co-inventor of the patented SEDCUT Dredge Technology for selective removal of contaminated sediments and the recipient of three prestigious dredging awards for his work in Florida.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* **See Project 5 in Section F**

Wagner Creek Seybold Canal Restoration - Sediment Dredging and Remediation, City of Miami, FL

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

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

☒ Check if project performed with current firm

Project Manager. Design/build dredging contract to remove contaminated sediments containing dioxin from what has been considered one of the most polluted waterways in Florida. Developed three separate innovative dredge plans using customized dredge equipment to minimize draft depth and use of unique water quality protection procedures, including aqua barriers, air curtains, and moon pools to prevent impacts to the downstream Outstanding Florida Waters of the Miami River and to protect the manatees that reside in these water bodies.

Size: N/A. **Cost:** $3,200,000

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

Dredge Material Management Plan (DMMP) Update, Jacksonville Port Authority (JPA), Jacksonville, FL

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

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

☒ Check if project performed with current firm

Project Director. The 2016 development of the Dredge Materials Management Areas (DMMAs) provided the Jacksonville Port Authority with a 20-year storage capacity plan. Evaluated the use of new and innovative DMMAs to provide a more cost-effective storage plan for an additional 8 million (M) cubic yards (CY) of dredge material.

Size: N/A. **Cost:** $27,000

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

NSB Kings Bay Alternative Dredge Design, NAVFAC-Southeast, Kings Bay, GA

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

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

☒ Check if project performed with current firm

Project Director. Development of innovative Dredging Plans to reduce dredging volume and costs for the Navy's largest dredging program. Excessive shoaling in the water restricted areas and entrance channel into Kings Bay NSB requires the removal of approximately 2M CY of sediment annually to maintain the mission-critical draft depths needed for the nuclear submarine fleet. Hydrodynamic and sediment transport modeling were conducted for each scenario and top alternatives were carried forward for further consideration.

Size: N/A. **Cost:** $58,000

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

Lake Okeechobee Pilot Dredging Project, Okeechobee, FL

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

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

☐ Check if project performed with current firm

Project Manager. Two-year research and design pilot dredging project to demonstrate a new dredge technology (SEDCUT) that could selectively remove a thin 30-cm layer of contaminated surface sediments from a slightly denser mud substrate. Test results were successful and demonstrated that a 30-cm thick sediment layer of fluid mud (<5% solids) could be removed with little or no re-suspension of the underlying mud substrate. Work was performed while employed by EA Engineering.

Size: N/A. **Cost:** $1,000,000

e. (1) TITLE AND LOCATION *(City and State)* See Project 11 in Section F	(2) YEAR COMPLETED	
Exposed Miami Beach Lateral Gas Pipeline Protection Project, Biscayne Bay, Miami-Dade County, FL	PROFESSIONAL SERVICES Present	CONSTRUCTION (If applicable) N/A
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Project Manager. Led the project for replacement of approximately 5,000 linear feet FGT 6-inch Miami Beach Lateral natural gas pipeline within Biscayne Bay impacted due to large storm/hurricane events. Responsible for acquiring all federal, State and USACE permits and construction.

Size: N/A. **Cost:** $500,000

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Keith Stannard	**Environmental**	25	20

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, FL)

16. EDUCATION (Degree and Specialization)

BS, Biological Sciences
Graduate Studies, Coastal Zone Management & Marine Biology/

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)

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

Mr. Stannard has over 25 years of experience in conducting and managing environmental programs and ecological investigations for a wide variety of public and private sector projects including linear facilities (roadways, railways, pipelines), site development (industrial, residential, mixed-use) and special-purpose projects (offshore facilities, marinas, dams, maintenance dredging, basin studies, etc.). He has an in-depth knowledge of federal, state and local environmental regulatory criteria and associated agency procedures in relation to ecosystem restoration and management. He also has extensive experience with marine and terrestrial habitat ecology; wetland and upland mitigation; threatened and endangered species conservation and Section 7 consultation; and ecosystems restoration and management.

19. RELEVANT PROJECTS

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

Cape Sable Canals Dam Restoration Environmental Assessment – Phase II, Monroe County, National Park Service

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2017	

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

☒ Check if project performed with current firm

Project Manager. Responsible for all tasks associated with the preparation of an Environmental Assessment and anticipated Finding of No Significant Impact to provide sustainable solutions to canal-induced saltwater intrusion and degradation of the interior freshwater and brackish marshes in order to reestablish the natural function of the Marl Ridge and restore the Cape Sable region to a more natural state. Phase II includes proposed dam restoration at the Raulerson Canal, East Side Creek, and House and Slagle Ditches.

Size: N/A. **Cost:** N/A

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

Big Cypress National Preserve Backcountry Access Plan/Environmental Impact Statement, Collier County, National Park Service

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Environmental Lead. Lead for all environmental tasks associated with the preparation of a Backcountry Access Plan/EIS for the 729,000-acre Big Cypress National Preserve. Project kickoff held in September 2014. Anticipated tasks data review, facilitation of internal and public scoping and comment analysis, alternatives development (including a secondary trails network), CBA, preparation of Draft EIS, facilitation of public meetings and comment analysis, and preparation of a Final EIS.

Size: N/A. **Cost:** N/A

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

District-wide Misc. Permitting Services Consultant (Contracts C-7724, C-8I41, C-9155 and C-9L61), FDOT, District VI

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Project Manager. Awarded four consecutive $1.5 million, 5-year contracts to manage Federal, State and local agency environmental permitting activities and other environmental-related studies for various large and small-scale FDOT roadway improvement, new roadway, bridge replacement/improvement, boat ramp restoration and tunnel projects throughout Miami-Dade and Monroe Counties in Florida. Tasks include conducting seagrass/benthic resource surveys, marine and freshwater wetland assessments and delineations, upland assessments, protected plant and wildlife surveys and assessments, Federal/State/County agency coordination, environmental resource permitting, stormwater management permitting, Class V Deep Well permitting, obtaining sovereign submerged lands easements, GIS mapping, wetland and T&E species mitigation planning and design, permit tracking, erosion control, engineering plan reviews, dewatering permitting, water quality assessments, NEPA studies/re- evaluations, in-house technical and administrative assistance, Essential Fish Habitat assessments, and protected plant and wildlife biological surveys/assessments.

Size: N/A. **Cost:** N/A

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

Two-Dimensional Hydrologic and Hydrodynamic Modeling Analysis and Biological Assessment for the 880.8 acre Advanced Mitigation Area on the Brighton Seminole Indian Reservation in Glades County FL, Seminole Tribe of Florida

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2015	

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

☒ Check if project performed with current firm

Senior Scientist. Responsible to develop an 880.8 acre freshwater wetland habitat to provide long-term mitigation compensation for the Brighton Reservation's existing and future developments that involve wetland impacts. Activities include a combination of eradication/control of exotic vegetation, prescribed burns, hydrologic improvements (design flowpaths, remove blockages, create fire lines, installing control structures and seepage pumps, redirecting flows, earthwork, etc.), creation of deepwater refugia, and upland habitat preservation. As part of the effort, hydrologic and hydrodynamic modeling analysis was performed to simulate the current hydrological conditions and forecast the future hydrologic conditions following implementation of the proposed engineered improvements.

Size: N/A. **Cost:** N/A

e. (1) TITLE AND LOCATION *(City and State)* See Project 1 in Section F

Port Miami, Program Management Consultant, Miami, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

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

☒ Check if project performed with current firm

Lead Biologist. Integral member of AECOM PMC management team to the Port's Capital Improvement Program. Serving as owners representative performing consulting, design review, program management, document control, and construction management and administration. Significant projects include; cruise terminal design-build developments for NCL, Virgin, Carnival, and MSC; container yard redevelopment at the SFCT terminal; FPL substation expansion; new grade separations; retrofit/rehabilitation of steel sheet pile bulkheads; and the north bulkhead wall replacement program.

Size: $15.4M fee **Cost:** $2B construction value

f. (1) TITLE AND LOCATION *(City and State)* See Project 3 in Section F

USCG Station Marathon, Marathon FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	

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

☒ Check if project performed with current firm

Lead Biologist. Lead Biologist for Concept through final design for improvements to Waterfront Structures. Project Work includes repairs to wharf, bulkheads and seawalls and replacement of boat ramp. Prepared drawings, specifications, cost estimates and environmental permit applications.

Size: N/A. **Cost:** $235K

g. (1) TITLE AND LOCATION *(City and State)* See Project 5 in Section F

Wagner Creek Seybold Canal Restoration - Sediment Dredging and Remediation, City of Miami, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	

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

☒ Check if project performed with current firm

Lead Biologist. Design/build dredging program to remove contaminated sediments containing dioxin from what has been considered one of the most polluted waterways in Florida. Innovative dredge plans using customized dredge equipment to minimize draft depth and use of unique water quality protection procedures, including aqua barriers, air curtains, and moon pools to prevent impacts to the downstream Outstanding Florida Waters and to protect the manatees that reside in these water bodies.

Size: N/A. **Cost:** N/A

h. (1) TITLE AND LOCATION *(City and State)* See Project 11 in Section F

Florida Gas Transmission Company, 6-inch Miami Beach Lateral Natural Gas Pipeline, Biscayne Bay, Miami-Dade County, Florida

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2016	

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

☒ Check if project performed with current firm

Environmental Lead. Environmental lead overseeing environmental-related tasks associated with the benthic survey of concrete mats on 10 exposed segments of existing submerged pipe (segment length varies up to 600 linear feet) located in the Biscayne Bay Aquatic Preserve. Tasks include conducting an intensive underwater marine benthic resources survey using SCUBA, applying for and obtaining federal, state and local agency permits, planning and constructing seagrass mitigation (prop scar restoration), mitigation monitoring, resolving SSL issues, preparation of EFH and a marine species Biological Assessment.

Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Laura Cherney	**Environmental**	20	10

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, FL)

16. EDUCATION (Degree and Specialization)

Master of Business Administration
Bachelor of Science Environmental Engineering Sciences

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)

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

Ms. Cherney is an award-winning professional with more than 20 years of professional experience with public and private sector clients. She has in-depth knowledge of federal, state, and local environmental laws and regulations. Ms. Cherney has extensive experience with marine and terrestrial wetland ecology; threatened and endangered species surveys, NEPA compliance, and environmental resource permitting on projects ranging from large-scale transportation projects to habitat restoration projects. She has extensive experience with the Endangered Species Act, Clean Water Act, Migratory Bird Treaty Act, and Marine Mammal Protection Act compliance. Her responsibilities include project management, managing accelerated schedules; proposal preparation; ecological studies; environmental permit applications and resolution of regulatory concerns; technical report writing and QA/QC; and strategic planning and logistics. She has conducted government, corporate, and executive-level negotiations and has a strong ability to interact with clients and agency representatives.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — See Project 5 in Section F

Wagner Creek Seybold Canal Restoration - Sediment Dredging and Remediation, City of Miami, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	

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

☒ Check if project performed with current firm

Environmental Scientist. Worked as the lead environmental scientist to remove contaminated sediments containing dioxin from what has been considered one of the most polluted waterways in Florida. Worked with the project team to identify data gaps, conducting internal scoping and public scoping, developed alternatives to minimize draft depth and use of unique water quality protection procedures, including aqua barriers, air curtains, and moon pools to prevent impacts to the downstream Outstanding Florida Waters of the Miami River and to protect the manatees that reside in these water bodies.

Size: N/A. **Cost:** N/A

b. (1) TITLE AND LOCATION *(City and State)* — See Project 11 in Section F

Exposed Miami Beach Lateral Gas Pipeline Protection Project, Biscayne Bay, Miami-Dade County, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Environmental Scientist. Worked as the lead environmental scientist and provided assistance with federal, state and county environmental agency coordination and applying for and acquiring the necessary permits. Coordinated benthic resources surveys, and identified, assessed and mapped them. Worked with the project team in environmental permits and agency coordination.

Size: N/A. **Cost:** N/A

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

U.S. Fish and Wildlife Service – Environmental Impact Statement (EIS) to evaluate the Eastern Collier Multiple Species Habitat Conservation Plan (HCP), Collier County, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Project Manager. Project Manager and technical author for the preparation of a third-party EIS evaluating an HCP for proposed large-scale private land development in eastern Collier County. EIS evaluated USFWS action to issue incidental take permit (ITP) under Section 10 of the Endangered Species Act for multiple protected species including the Florida panther and 7 other federally listed species potentially affected by the proposed project. EIS was prepared on an accelerated timeline to meet deadlines set forth in a DOI Secretarial Order.

Size: N/A. **Cost:** N/A

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

Miami-Dade County Parks, Recreation and Open Spaces Department (MDPROS) – Ludlam Trail Corridor PD&E, Miami-Dade County, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Environmental Task Manager. Environmental Task Manager that coordinated all aspects of environmental compliance with FDOT's PD&E Manual including biological, sociocultural, and cultural resources. Proposed project would convert an abandoned railroad corridor into a bike/ped trail for users of non-motorized transportation including pedestrians, cyclists, and joggers.

Size: N/A. **Cost:** N/A

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

NPS, Big Cypress National Preserve, FL – Backcountry Access Plan / Wilderness Study/Environmental Impact Statement (EIS)

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	

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

☒ Check if project performed with current firm

Deputy Project Manager / Senior Ecologist. Deputy Project Manager / Senior Ecologist to facilitate public scoping meetings and serve as lead technical writer to support the preparation of an EIS for public review, and approval by NPS. The project aimed to develop a backcountry access plan for the Preserve that provides reasonable management guidelines for backcountry access and use, while protecting the Preserve's natural and cultural resources and providing for public enjoyment. The analysis focused on off-road vehicle trails, non-motorized trails, and a camping management approach. The plan also established a permanent route for the Florida National Scenic Trail and other hiking opportunities.

Size: N/A. **Cost:** N/A

f. (1) TITLE AND LOCATION *(City and State)* **See Project 3 in Section F**

USCG Station Marathon, Marathon FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2019	

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

☒ Check if project performed with current firm

Environmental Task Manager. Environmental Task Manager for Concept through final design for improvements to Waterfront Structures. Project Work includes repairs to wharf, bulkheads and seawalls and replacement of boat ramp. Prepared drawings, specifications, cost estimates and environmental permit applications.

Size: N/A. **Cost:** $235K

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Ashley Matthews	**Environmental Permitting**	11	10

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, Florida)

16. EDUCATION (Degree and Specialization): BA Environmental Studies, Florida International University

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline): N/A

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

OSHA Hazwoper 40-Hr. #103003, Stormwater Management Inspector #27639, NAUI Divemaster, AAUS Scientific Diver, CPR/AED/First Aid Certified

19. RELEVANT PROJECTS

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

Gulfstream, LLC. Egmont Key Offshore Pipeline Environmental Cover Remediation Survey, Scientific Diver, Hillsborough County, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2017-2019 | CONSTRUCTION (If applicable):

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

☒ Check if project performed with current firm

Diver. Scientific diver who conducted the 60-month (5-year) inspection survey to meet conditions outlined in the environmental resource permit. Photographic documentation and video footage collected during the survey to document condition and benthic resource colonization.

Size: N/A. **Cost:** N/A

b. (1) TITLE AND LOCATION *(City and State)* **See Project 3 in Section F**

US Coast Guard, Benthic Survey for Restoration and Rehabilitation Projects for boat basin facilities: Miami, Marathon, Key West, Florida

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

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

☒ Check if project performed with current firm

Environmental Scientist. Assisted with the permitting efforts for the USCG Marathon station rehabilitation project. She also conducted benthic surveys in 2018 for the Miami and Key West facilities as a scientific diver using SCUBA. Survey activities included mapping seagrass beds as well as identifying, measuring and documenting biota along the boat basin seawall, pilings and seafloor.

Size: N/A. **Cost:** $235k

c. (1) TITLE AND LOCATION *(City and State)* **See Project 11 in Section F**

Florida Gas Transmission Company, Project Environmental Scientist, 6-inch Miami Beach Lateral Natural Gas Pipeline, Biscayne Bay, Miami-Dade County, Florida

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

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

☒ Check if project performed with current firm

Environmental Scientist and Diver. Environmental Scientist and Diver responsible for environmental-related tasks associated with the benthic survey of concrete mats on 10 exposed segments of existing submerged pipe (segment length varies up to 600 linear feet) located in the Biscayne Bay Aquatic Preserve. Tasks include conducting an intensive underwater marine benthic resources survey using SCUBA, applying for and obtaining federal, state and local agency permits, planning and constructing seagrass mitigation (prop scar restoration), mitigation monitoring, resolving SSL issues, preparation of EFH and a marine species Biological Assessment.

Size: N/A. **Cost:** N/A

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

Florida Department of Transportation, District VI, Districtwide Environmental Permit Reviewer, Lead Environmental Permitting Consultant and Benthic Resource Assessment, Scientific Diver, Example Project Scope: Long Key Bridge V-Pier Replacement, Long Key, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2015 | CONSTRUCTION (If applicable):

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

☒ Check if project performed with current firm

Assistant Project Manager. Assistant to the FDOT environmental project manager under a Districtwide Contract. Tasked with performing plan reviews during design to identify environmental resources and minimize impacts where practicable. Coordination conducted with design teams to address the best resolutions and pathway to complete the project in a timely manner. Field research efforts pertaining to wetland and benthic resources' may be required as a component to the permitting effort. Lead activities include field mobilization, dive planning (SCUBA), seagrass survey, coral species identification, species richness, coverage and video/photo and GPS documentation. Ms. Matthews prepares the agency format approved reporting documents of the findings as well coordinates permit application reviews between regulatory agencies to approve and/or extend project construction. She also prepares the monitoring reports for coral relocations and post-construction condition requirements.

Size: N/A. **Cost:** N/A

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

Department of the Interior, National Parks Service Cape Sable Dam Replacement, Environmental Assessment, Monroe County, Florida

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2011	

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

☒ Check if project performed with current firm

Environmental Scientist. The purpose of this project was to restore the failed dams on the East Cape and Homestead Canals in Cape Sable, Everglades to prevent salt water intrusion into fresh water marshes that are habitat for the threatened American crocodile and various wading birds. Ms. Matthews assisted with an on-site environmental baseline inspection, which analyzed the final phase of construction and oversaw planting procedures.

Size: N/A. **Cost:** N/A

f. (1) TITLE AND LOCATION *(City and State)* **See Project 1 in Section F**

Port Miami, Program Management Consultant, Miami, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

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

☒ Check if project performed with current firm

Lead Biologist. Integral member of AECOM PMC management team to the Port's Capital Improvement Program. Serving as owners representative performing consulting, design review, program management, document control, and construction management and administration. Significant projects include; cruise terminal design-build developments for NCL, Virgin, Carnival, and MSC; container yard redevelopment at the SFCT terminal; FPL substation expansion; new grade separations; retrofit/rehabilitation of steel sheet pile bulkheads; and the north bulkhead wall replacement program.

Size: $15.4M fee **Cost:** $2B construction value

g. (1) TITLE AND LOCATION *(City and State)* **See Project 5 in Section F**

Wagner Creek Seybold Canal Restoration - Sediment Dredging and Remediation, City of Miami, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	

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

☒ Check if project performed with current firm

Environmental Scientist. Design/build dredging program to remove contaminated sediments containing dioxin from what has been considered one of the most polluted waterways in Florida. Innovative dredge plans using customized dredge equipment to minimize draft depth and use of unique water quality protection procedures, including aqua barriers, air curtains, and moon pools to prevent impacts to the downstream Outstanding Florida Waters and to protect the manatees that reside in these water bodies.

Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Karen Brandon, PE	**Permitting**	37	30

15. FIRM NAME AND LOCATION (City and State): AECOM (West Palm Beach, FL)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
BS/Environmental Engineering	Professional Engineer (Florida)

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

Florida Department of Environmental Protection Certified Erosion and Sediment Control Inspector, Florida Stormwater Association, Palm Beach Municipal NPDES Steering Committee Board Member, Florida Engineering Society Member, National Society of Professional Engineers, ASCE Member and Palm Beach County Chapter Engineer of the Year

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)*: **See Project 2 in Section F**

Port of Palm Beach District Slip No. 3, Riviera Beach, Florida

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

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

Project Manager and Environmental Permitting Manager. Project Manager and Environmental Permitting Manager for the planning, design and construction of $16.5M in bulkhead reconstruction, rail, dredging, paving, grading, drainage, utility and lighting improvements to Slip 3 at the POPB which had the potential for impacts to hard corals, sea grasses and manatee habitat. Oversight of the stormwater management design was included along with a NEPA Environmental Assessment. Permits included FDEP ERP, USACE, PBC Health Department, and the City of Riviera Beach.
Size: N/A. **Cost:** N/A

b. (1) TITLE AND LOCATION *(City and State)*: **See Project 2 in Section F**

Port of Palm Beach District Berth 17 Project, Riviera Beach, Florida

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

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

Project Manager and Environmental Permitting Manager. Project Manager and Environmental Permitting Manager for the design and construction of $10M project including a new slip, dredging, paving, grading, drainage, utility and lighting improvements. Permitting issues include potential impacts to hard corals, sea grasses, sea turtles and manatee habitat. Permitting agencies included FDEP, USACE, the National Marine Fisheries Service and the Florida Wildlife Commission.
Size: N/A. **Cost:** N/A

c. (1) TITLE AND LOCATION *(City and State)*:

Port of Fort Pierce, Fort Pierce, Florida

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

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

Project Manager. Project Manager for emergency dredge permit through the FDEP. Group facilitator for public planning workshop to receive input on future land uses, environmental concerns, and development alternatives.
Size: N/A. **Cost:** N/A

d. (1) TITLE AND LOCATION *(City and State)*:

US Navy SOF Boat Dock Facility, Monroe County, Florida

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2017 — CONSTRUCTION (If applicable): 2018

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

Permitting Manager. Environmental Permitting for improvements to an existing boat dock facility including dock demolition and reconstruction, dredging, installation of shoreline revetment, fenders and a wave attenuation structure with flushing culvert. Permitting issues included seagrasses and corals. Permitting agencies included the FDEP, USACE, the NOAA/Florida Keys National Marine Sanctuary and the South Florida Water Management District for minor upland improvements.
Size: N/A. **Cost:** N/A

e. (1) TITLE AND LOCATION *(City and State)*:

Miami-Dade Water and Sewer Department – Water Main Microtunnel and Force Main Utility Tunnel, Miami, FL

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

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

Permitting Manager. Permitting Manager for the environmental regulatory permits from the Miami-Dade County Department of Environmental Resource Management, the FDEP, and USACE. Permitting was the critical path for the $37M project. Challenges included water quality and reduction of impacts to benthic resources in the Biscayne Bay Aquatic Preserve.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jae G. Park, PhD	**FEMA SME**	26	12

15. FIRM NAME AND LOCATION (City and State): AECOM (Germantown, MD)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
Ph.D. Urban and Regional Science	CFM

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

1. Mitigation investments yield returns in eastern North Carolina, Research project funded by DHS S&T (https://www.preventionweb.net/news/view/65448), 2019
2. Advisory Board member for University of North Carolina-Chapel Hill Coastal Resilience Center since 2008
3. Mississippi Governor's Thank letter for Hurricane Katrina Recovery services, 2006
4. Outstanding Public Employee Award by Federal Emergency Management Agency, 2002

19. RELEVANT PROJECTS

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

FEMA, Hazard Mitigation Assistance support, Washington, DC

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing since 2009	N/A

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

☒ Check if project performed with current firm

Program Manager. The purpose of this contract is to enhance the quality and speed of FEMA Hazard Mitigation Assistance grant awards, refine delivery, and expand national outreach for all types of mitigation. AECOM currently provides FEMA with full-time on-site staff, supported by numerous off-site subject matter experts to focus on implementing HMA grant program activities ranging from program strategy, grants program guidance, program outreach, and facilitation of the application to award/post-award process. The HMA grant programs represent a critical opportunity to protect individuals and property while simultaneously reducing reliance on Federal disaster funds.
Size: 5 Year Service Contract. **Cost:** $25M

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

State of New York Rising Community Reconstruction, Albany, NY

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2014	N/A

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

☒ Check if project performed with current firm

Project Manager. The primary objective of this work was to provide recovery planning assistances to the communities severely damaged by Hurricanes Sandy and Irene and Tropical Storm Lee for facilitating resilient and sustainable community reconstruction. He led a team of public outreach specialist, subject matter experts in housing, economic development, structural engineering, stormwater management, risk analysis, GIS and planning to perform risk assessment, public engagement and consensus building, benefit cost analysis, recovery projects identification and development and plan writing for 15 communities in NY State.
Size: 2 years. **Cost:** $5M

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

FEMA, Pre-Disaster Mitigation Joint Explanatory Statement Grant Program (PDM-JES) Technical Support, Washington, DC

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2010-2014	N/A

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

☒ Check if project performed with current firm

Technical Advisor. Provided technical supports to FEMA HQ, regions and States (PA, NY, TX, and KY) in identifying eligible mitigation projects, cost-effectiveness and feasibility review of sub applications, and data collection. The technical assistance also involved a remote sub application review, on-site training and one-on-one meetings with local government officials to provide review comments for the project application scope that would be more aligned with the PDM-JES requirements.
Size: N/A. **Cost:** $250k

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

FEMA National Levee Safety Program, Washington, DC

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2015-2017	N/A

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

☒ Check if project performed with current firm

Task Lead. This task involved with evaluation of state hazard mitigation plans for all 50 states and territories by examining how dams and levees are currently addressed in current hazard mitigation and to propose holistic approaches to manage levee hazard, including the development of education and awareness programs, risk reduction through floodplain management plans, hazard identification and mitigation, and various mitigation funding coordination.
Size: N/A. **Cost:** $200k

e. (1) TITLE AND LOCATION *(City and State)* **See Project 7 in Section F**

Lower Manhattan Coastal Resiliency (LMCR) & Brooklyn Montgomery Costal Resilience Final Design (BMCR)

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	

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

☒ Check if project performed with current firm

Technical Advisor. The LMCR project objective is to provide flood protection and community enhancement in Lower Manhattan areas damaged by Hurricane Sandy. The project area spans along the Manhattan Coastline from Montgomery Street in the Lower East Side to the northern end of Battery Park City. The design goals are to simultaneously protect the shoreline from flooding while also enhancing public amenities and access to the waterfront. In final design.
Size: N/A. **Cost:** N/A

f. (1) TITLE AND LOCATION *(City and State)* **See Project 8 in Section F**

Rebuild by Design Hudson River: Flood walls, Esplanade & Parks. Meadowlands, NJ

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Technical Advisor. Technical Advisor for The final design of various configuration and floodwalls types, , walkways, and steel sheet pile bulkhead walls against the flood and wave loads associated with the storm event. And various other soft waterfront protection measures.
Size: N/A. **Cost:** N/A

g. (1) TITLE AND LOCATION *(City and State)* **See Project 10 in Section F**

North & South Battery Park City Resiliency

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Present	

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

☒ Check if project performed with current firm

Technical Advisor. Technical Advisor for the construction of a comprehensive flood barrier system to check water inundation from the Hudson River Estuary at Robert F. Wagner Park ("Wagner Park") and the Pier A Plaza (the "Plaza") associated with storm activity and sea level rise, the construction of a new pavilion structure within Wagner Park to replace the existing pavilion structure, which will enhance the resiliency of the area and provide other amenities.
Size: N/A. **Cost:** N/A

h. (1) TITLE AND LOCATION *(City and State)* **See Project 15 in Section F**

New Jersey American Water, Raritan-Millstone Long Term Flood Protection Project, Middlesex County, NJ

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	2018

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

☒ Check if project performed with current firm

Technical Advisor. Technical Advisor for the design of combi-wall type steel bulkhead floodwall, reinforced concrete lagging wall, inverted T-walls, I-walls and miscellaneous local drainage features.
Size: 1.5 miles of flood protection **Cost:** $28M (construction)

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Dan Deegan	**FEMA**	33	11

15. FIRM NAME AND LOCATION (City and State): AECOM (Jacksonville, FL)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
BS, Ocean Engineering	Certified Floodplain Manager

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

Has supported and served as needed to ensure a successful project delivery. Has taken on the various levels of responsibility based on the needs, including Project Manager, Task Order Manager, SDE Advisor, SDE Fields Operations Manager and Quality Control Reviewer. as AECOM Lead Verifier on mitigation, BCA, risk assessments and mitigation planning. Served on FEMA's national review team for engineering feasibility and BC analysis for PDM grants since 2003. Served on State of Florida Hazard Mitigation Advisory Team and on City of Jacksonville/ Duval County Local Mitigation Strategy, chairing subcommittees (housing and planning) for Post Disaster Redevelopment Plan.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
FEMA Risk MAP, HMTAP, and TARC Production and Technical Services (PTS), Washington, DC (Contract Number HSFE60-15-D-0003)	Ongoing	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Deputy Project Director. Deputy Project Director and Function Lead. Currently serves as the DPM for Compass, providing leadership, management and oversight on Compass PTS contract which has over 250 FTEs, 60 Task Orders, overs and over 1200 separate projects throughout the county. Dan also served as the Function Lead on disaster/ related task orders since inception. Providing management and leadership, tracking costs and identifying resources for over $46M worth of Task Orders.

Size: N/A. **Cost:** $280M

b. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
FEMA Risk MAP, HMTAP, and TARC Production and Technical Services (PTS), Washington, DC (Contract Number HSFE60-15-D-0003)	2019	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Substantial Damage Advisor. Served as Operations Manager and/or SDE Advisor on 8 Task Orders requiring SDE inspections in FL, LA, NC and TX. Provided management and technical guidance to inspectors on how to collect data using tablet technology for Substantial Damage Estimates. In LA, Dan managed field operations, managing 18 teams (38) inspectors, to assess over 37,000 in just over 2 months. In total, over 50,000 inspections were performed through these 8 task orders.

Size: N/A. **Cost:** $18.2M

c. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
FEMA Risk MAP, HMTAP, and TARC Production and Technical Services (PTS), Washington, DC (Contract Number HSFE60-15-D-0003: TOs 70FBR418F00000013 & 70FBR418F00000014)	2019	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Task Order Manager. Managed two task orders, coordinated staffing, schedules and cost to support FEMA in performing engineering feasibility reviews and Benefit -Cost Analysis (BCA) for over $30M in mitigation grants funded through HMGP a result of Hurricanes Katrina (DR-1603) and Rita (1607).

Size: N/A. **Cost:** $330k

d. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
FEMA, Hazard Mitigation Technical Assistance Program (HMTAP) Non AE, Washington DC	2019	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Program Manager. Served as AECOM's Program Manager, identified and managed AECOM staff and resources as a subcontractor to CDM Smith. Managed task orders, provided contract oversight and administration, and managed costs. AECOM provided mitigation support on the following types of task orders; mitigation publications and guidance, Substantial Damage Estimates, Environmental & Historic Preservation, Engineering feasibility and benefit-cost analysis reviews for mitigation grants.

Size: N/A. **Cost:** $1.6M

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
FEMA Hazard Mitigation Technical Assistance Program Contract, Nationwide	PROFESSIONAL SERVICES 2014	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Program Manager and Task Order Manager. Served as Program Manager for AECOM's FEMA HMTAP Contract (2009-2014). Provided leadership, management and coordinated client needs, on 9 task orders worth over $5M, across regions II, III, IV, V, VII, and X since 2009. Directly managed and provided technical support on Loss Avoidance Study to validate/update current methods for calculating losses avoided as a result of the NFIP floodplain management standards. Provided Technical assistance on engineering and BCA for HMGP grant application reviews for projects in Nebraska for Region VII; Technical Advisor on SDE project on Long Island, NY after Super Storm Sandy; and served as Technical Advisor on HMGP elevation Project in Galena, AK.

Size: N/A. **Cost:** $5M

f. (1) TITLE AND LOCATION *(City and State)* **See Project 8 in Section F**	(2) YEAR COMPLETED	
Rebuild by Design Hudson River: Flood walls, Esplanade & Parks. Meadowlands, NJ	PROFESSIONAL SERVICES Present	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Technical Advisor. Technical Advisor for The final design of various configuration and floodwalls types, , walkways, and steel sheet pile bulkhead walls against the flood and wave loads associated with the storm event. And various other soft waterfront protection measures.

Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Douglas Bellomo, PE	**FEMA**	26	1

15. FIRM NAME AND LOCATION (City and State): AECOM (Arlington, VA)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
Master of Science in Civil Engineering Bachelor of Science in Civil Engineering	Professional Engineer

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

Currently Vice President in the Water Business Line at AECOM helping lead the flood risk and resilience practice. Previously a senior technical advisor for flood risk management at the US Army Corps of Engineers Institute for Water Resources. Assist in the development of national policy and the delivery of a variety of programs and missions related to: Dam and Levee Safety, Silver Jackets (a program where intergovernmental self-led teams address flood challenges), the US Army Corps of Engineers National Flood Risk Management Program, coastal flood risk management efforts, and floodplain management services.

19. RELEVANT PROJECTS

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

Flood Risk and Resilience

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

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

☒ Check if project performed with current firm

Vice President. Responsible for developing and leading elements of AECOM's National Water Business Line as well as helping forward the corporate vision & mission, including developing & coordinating the necessary technical resources to grow a broad-based flood risk management and resiliency practice that includes consulting and engineering services. Efforts focused in several specific areas including: flood risk management, emergency management, land use and building code standards, sea level rise / climate change adaptation strategies, natural resource and habitat restoration, floodplain management, change management, and business continuity.
Size: N/A. **Cost:** N/A

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

Flood Risk Management, Institute for Water Resources, US Army Corps of Engineers

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

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

☒ Check if project performed with current firm

Senior Technical Advisor. Policy advisor on issues related to budget, risk management, flood and coastal hazards and risks including dam and levee safety, emergency management, and flood resilience building. Specific examples include the development of budget justification documents, development of an enterprise risk framework for USACE missions, engagement with OMB on levee safety activities, review of proposed regulatory updates to emergency operations associated with levees, and participation on the USACE resilience team who is focused on implementing the principles of resilience within USACE programs and activities.
Size: N/A. **Cost:** N/A

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

Federal Emergency Management Agency, Washington DC

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2015	

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

☐ Check if project performed with current firm

Director – Risk Analysis Division. Directed successful suite of national programs with nearly 50 staff in four headquarters branches and in collaboration with an additional roughly 100 staff in ten Regional offices. Program portfolio was valued at over $200 million per year with key programs including Risk Mapping, Assessment, and Planning (Risk MAP), the National Dam Safety Program, Mitigation Planning, and HAZUS (a federal risk analysis software application). Developed forward looking strategies and provided program direction. Pushed team to embrace newer innovative technologies that bring efficiencies, savings, and improved service to the public. Examples include Geographic Information System applications, web mapping services, and digital web based workflow solutions. Program efforts involved a multitude of disciplines, including engineering, planning, risk assessment, and risk communication and was executed through grants, cooperative agreements, interagency agreements, and contracts (including Architectural and Engineering).
Size: N/A. **Cost:** N/A

d. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Federal Emergency Management Agency, Washington DC	PROFESSIONAL SERVICES 2008	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☐ Check if project performed with current firm	

Deputy Director – Risk Analysis Division. Developed division wide goals through a Balanced Scorecard approach (including quarterly reporting of progress), aligning resources (skills, staff, and funding) to meet those objectives, and executing. Additional assignments included working with staff to develop program budgets, ensuring staff have appropriate and current skills to carry out their functions, and motivating leaders within the branch to effectively meet agency missions. Assisted in policy development regarding technical issues associated with flood risk management. Examples include work associated with Gulf Coast recovery efforts in the aftermath of Hurricanes Katrina and Rita, and development of procedures to address flood hazard identification in and around levees.
Size: N/A. **Cost:** N/A

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
Federal Emergency Management Agency, Washington DC	PROFESSIONAL SERVICES 2006	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☐ Check if project performed with current firm	

Chief - Hazard Identification Section. Managed approximately 11 FEMA staff in the Hazard Identification Section. Work involved solving technical challenges in hydrologic, hydraulic, and mapping arena as well as administrative issues such as balancing workload, responding to grievances, providing meaningful performance evaluations, and clearly communicating expectations. Managed staff responsible for delivering over $100 million in Architectural and Engineering (A&E) work nationwide. Responsibilities included task order negotiations, invoicing, problem solving, providing technical direction, and general contract implementation. Specifically elements involving Engineering and Mapping, Transition, and Regional Management Centers. Work involved providing technical guidance, resource allocation, problem solving, negotiations, invoice payment, performance evaluation, and earned value reporting and review.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jose Polo, PE	**Construction Management/CEI**	32	22

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, Florida)

16. EDUCATION (Degree and Specialization)

BS, Civil Engineering, Florida International University, 1986
BS, Electrical Engineering, Florida International University, 1984

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)

1996/Professional Engineer/ Florida #0052065

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

TIN #: P40043658. CTQP Certifications: 9-24/Final Estimates, Level 1; 9-24/Final Estimates, Level 2; Taken & Passed Exam/QC Manager Other Certifications: 4-21/Temporary Traffic Control (TTC) Advanced - FDOT Approved; 10-21/Critical Structures Construction Issues SSC; No Expiration/FDEP Qualified Stormwater Management Inspector #2117; No Expiration/ITS Facility Management (ITSFM) Access to Learning Curve – FDOT; No Expiration/ITS Facility Management (ITSFM) Maintainer Computer Based Training - FDOT

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — See Project 1 in Section F

Port of Miami, CEI Services for the Port of Miami, Capital Development, Miami, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

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

☒ Check if project performed with current firm

Construction Manager/Claim Specialist for Port Miami Work. Work includes reviewing and analyzing existing and potential Contractor's claims for validity, certification, and required backup documentation. Capital Development Project Nos.: 2008-122-13B CT J CBP Improvements Phase II. **Construction Cost:** $17M

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

Palm Beach County Department of Airports, CEI Services for the Lantana Airport-Southside Redevelopment Phases 1 and 2, Lantana, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Ongoing	Ongoing

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

☒ Check if project performed with current firm

Project Engineer. Serving as CEI Construction Manager/Sr. Project Engineer for the Lantana Airport redevelopment. Work includes: installation of storm drainage, water and sewer, excavation of ponds, embankment, stabilization, base, structural asphalt, electrical conduits, F.O.C., hangar construction, lighting, signing and markings, landscaping and irrigation [Tasks: I-13-LNA-C-014 & I-14-LNA-C-027; PBC Project No. 17-1 and FPIDs: 422467-1-94-01, 425723-1-94-01, 427915-1-94-01, & 434600-1-94-01]

c. (1) TITLE AND LOCATION *(City and State)* — See Project 2 in Section F

Port of Palm Beach, CEI Services for the Port of Palm Beach, Berth 17, West Palm Beach, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2018	2018

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

☒ Check if project performed with current firm

CM / Assistant Sr. Project Engineer. Providing support services to Senior Project Engineer. Work includes: field inspection of Berth 17 construction, sheet piling, dredging, seawalls, drainage, pavement, lighting. In addition, assisting with reviewing and analyzing existing and potential Contractor's claims for validity, certification, and required backup documentation. Port of Palm Beach Project No.: 16-00-004 Berth 17.

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

FDOT Districts One and Seven, District Wide Bridge Repair CEI Services, FL

(2) YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
2014	2014

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

☒ Check if project performed with current firm

Senior Project Engineer. Served as Senior Project Engineer for multiple repair projects for existing bridge structures as assigned by the Districts One and Seven - District Bridge offices. District 7 projects assigned to include the Hillsborough Bascule Bridge Rehabilitation, Howard Frankland, Pinellas Bayway Structure E, Skyway, and Clearwater Memorial bridges. Work included bearing replacement, crack injection, machinery rehabilitation, beam metalizing, expansion joint replacement, spall repair, and carbon fiber beam repair. District One projects included Cortez Rd., SR 484 (Bridge #130006), Manatee Co.; Stickney Point, SR 72 (Bridges #170052 and #170065), Sarasota Co.; Wilson Pigott, SR 31 (Bridge #120064), Lee Co.; Caloosahatchee Bridge, SR 41 (Bridge #120002), Lee Co.; SR 82 over Panther Canal (Bridges #030142 and #030143), Lee Co.; SR 80 over Parker Creek (Bridge #040940), Okeechobee Co. **Construction Cost:** Various

e. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
FDOT District Two, Bridge of Lions Rehabilitation, St. Augustine, FL	2011	2011
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Senior Project Engineer. Historic bridge rehabilitation consisted of building a new temporary bridge, rehabilitating the existing bridge, and demolishing the previously built temporary bridge. The bascule span structure included a superstructure of steel plate girders with a composite exodermic deck and a substructure consisting of the existing and modified foundation for the bascule piers and existing bascule towers that enclose the counterweight along with the machinery and electrical equipment. The total length of the bridge is 1,545 feet. Work under his supervision started halfway into the rehabilitation process and consisted of pier construction, steel span assembly and installation, historical concrete restoration on bascule towers, bascule machinery fabrication, and installation, roadway construction, drainage, signalization, lighting, signing and pavement markings. [FPID: 210255-1-52-01] **Construction Cost:** $80M

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jon Thomas	**Construction Management/CEI**	43	30

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, Florida)

16. EDUCATION (Degree and Specialization): High School

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline):

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

TIN #: T52042450. CTQP Certifications: 10-24Asphalt Paving Technician, Levels 1 and 2 8-20/Pile Driving Inspection. Other Certifications: 6-23/Temporary Traffic Control (TTC) Advanced - FDOT Approved; 3-21/ Critical Structures Construction Issues SS; No Expiration/FDEP Qualified Stormwater Management Inspector #824; 9-22/IMSA/FOA Certified Fiber Optic Technician

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — **See Project 1 in Section F**

Port of Miami, CEI Services for the Port of Miami, Capital Development, Miami, FL

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

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

☒ Check if project performed with current firm

Senior Inspector. This project involved underground utility installation (water, sanitary sewer, communications and electrical duct bank), drainage installation, street lights and a new asphalt road (including embankment, subgrade, base rock and asphalt with concrete curb & gutter and a concrete traffic separator. [Port Miami: 2016-001.01, 2016-001.02 and 2016-001.03]

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

Lee County, Computer Signal System Update Phase II (LAP), Lee County, FL

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

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

☒ Check if project performed with current firm

Senior Inspector. Provided CEI services on this $8.5M federally funded ATMS project. This project consisted of connecting 110 intersections to Lee County's existing Traffic Management System - installation of conduit, fiber optic cable, communication cable, pull boxes, electrical service, traffic cabinets, controllers, CCTV cameras, Bluetooth, MVDS units, Ethernet Switches, ITS cabinets, and other related pedestrian improvements. [FPID: 412636-4-58-01]. **Construction Cost:** $8.5M

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

FDOT District One, I-75 Alligator Alley Northbound Rest Stop (Mile Marker 63), Collier County, FL

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

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

☒ Check if project performed with current firm

Senior Inspector. Provided CEI services on this $10M FDOT rest stop project. The project consisted of building a new rest stop consisting of a reinforced concrete foundation, slab on grade construction, CMU walls, structural steel columns and beams, heightened clerestory, ten picnic pavilions, new reverse osmosis water treatment facilities, concrete pavement parking with asphalt base, south bound milling and resurfacing asphalt pavement, drainage construction, building and roadway lighting, and new signing and pavement markings. **Construction Cost:** $10M

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

FDOT District Six, CEI Services for Krome Avenue North #5, Miami, FL

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

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

☒ Check if project performed with current firm

Senior Inspector. This CEI project involved widening 3.5 miles on SR-997/Krome Avenue, including a new SB bridge and demolition of the existing NB bridge and construction of the NB bridge. Work included: regular and subsoil excavation, embankment with LBR 126, French drain drainage, stabilization, rock base, SP asphalt, guardrail, sodding, and signing and markings. [FPIDs: 249615-5-52-01 & 436313-1-52-01]

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

FDOT District Four-Treasure Coast Operations, I-95 Rest Areas, St. Lucie County, FL

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

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

☒ Check if project performed with current firm

Senior Inspector. Provided inspection services on this FDOT Rest Area project. The scope of the project included replacement of sewer systems, restroom reconstruction, refurbishment of the electrical system, installation of generator and concrete pads, transformers, and sidewalk replacement. Responsibilities included inspection and oversight of the Contractor's work, materials testing, documenting work in daily work reports, issue resolution, and other CEI duties. [FPID: 433963-1-52-01].

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
James Netterwald, PE	**Construction Management/CEI**	41	41

15. FIRM NAME AND LOCATION (City and State): AECOM (Coral Gables, FL)

16. EDUCATION (Degree and Specialization)
BCE, Civil Engineering
BBA, Business Administration

17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
Professional Engineer, NY, Florida

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

James Netterwald is a Civil Engineer whose 40 years of experience includes program management, procurement, project management, resident engineering, and design of, highways, rail systems ports, docks, bridges, dry docks and tunnels He has conducted subsurface explorations and borings, inspected construction projects, and worked in disaster recovery.

19. RELEVANT PROJECTS

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

North Carolina Emergency STEP Home Repair Program (Florence)

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

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

☒ Check if project performed with current firm

Program Management Construction Lead. Program Management Construction Lead for 4 counties involving repairs to 600 homes ravaged by Hurricane Florence. Oversight of 4 contractors including daily progress and status calls, field visits to homes with special problems, and interface with homeowners, both in person and by phone.
Size: N/A. **Cost:** N/A

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

USVI Emergency STEP Home Repair Program

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

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

☒ Check if project performed with current firm

AECOM Superintendent. AECOM Superintendent for work under the FEMA STEP program to repair homes damaged by Hurricanes Irma and Maria on St. Thomas. Work includes initial site visits to homes to identify damage and required repairs, execution of the repairs and final inspections.
Size: N/A. **Cost:** N/A

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

Louisiana Emergency STEP Home Repair Program, Baton Rouge, Louisiana

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

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

☒ Check if project performed with current firm

Construction Manager. Construction Manager for temporary repairs to approximately 11,000 residences damaged by floods in the Baton Rouge area during August 2016. Repairs assigned to 9 general contractors hired by State with FEMA funding. AECOM performed initial site inspections at each residence to assess damage and assign eligible repairs from pre-determined unit price list. Final site visits performed to verify acceptable completion of repairs. Tracked progress, field verification, weekly progress meetings, performed cost estimates. Executed wage rate interview program.
Size: N/A. **Cost:** $150M

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

Hugh K. Leatherman Sr. Container Terminal Detailed Design, Charleston, South Carolina

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

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

☒ Check if project performed with current firm

Specification Coordinator. Specification coordinator for both the wharf and upland work for this major greenfield container marine facility. Additionally, prepared preliminary project schedule for design and construction.
Size: N/A. **Cost:** N/A

e. (1) TITLE AND LOCATION *(City and State)* See Project 1 in Section F

Port Miami, Terminal B Design Build Contract Procurement

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

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

☒ Check if project performed with current firm

Specific Role. Review and provide comments for Design Criteria and prequalification criteria for major cruise Terminal Building. Member of bid evaluation committee which reviewed the bids from Contractors for compliance with the bid documents and design criteria. Provided summary recommendation of findings.
Size: N/A. **Cost:** $100 MM

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Mike Barba	**Scheduling & Estimating**	21	3

15. FIRM NAME AND LOCATION (City and State): AECOM (Miami, FL)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
BS, Construction Management	VMA I, Value Methodology Associate

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

Mr. Barba is a Senior Estimator and Scheduler with over 20 years' experience providing technical guidance with scheduling, cost estimating, subcontractor/vendor solicitation, planning, schedule impact analysis and risk analysis for a variety of project types including parks, transportation, governmental, and port terminal facilities. He has estimated and bid projects for the Port of Miami, Port Everglades, FDOT, Florida Turnpike, Miami Dade Expressway Authority, Miami Dade Transit, City of Coral Gables, and Broward County. Mr. Barba is currently perusing a CVS, Certified Value Specialist, certification and has completed the first requirement and is a Certified VMA I, Value Methodology Associate.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Port Miami, Terminal B Consulting **See Project 1 in Section F**	Present	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Senior Estimator/Scheduler. Working directly with the Port Miami Capital Development Department Mr. Barba was an integral part of the GMP negotiation process for the 166,500 sf Sate of the Art Terminal B Building, Parking Garage, and roadway project. His skills and experience were utilized for determining the validity of GMP subcontractor proposals and estimates. He reviewed and submitted comments/recommendations on all subcontractor proposals and estimates, on the summary sheets provided by the JV and on the preliminary schedule. He successfully negotiated with the JV team and brought the cost of construction down on several vital items of work. Mr. Barba is currently attending weekly owners meetings and is a vital part of the team. He is in charge of labor, material, and equipment cost verification for all forthcoming requests for change orders and/or contingency draws.
Size: N/A. **Cost:** N/A

b. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
South Corridor Rapid Transit Project, FTA MTD, Miami, FL	Present	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Senior Estimator/Scheduler. As lead estimator for this Small Starts Project Mr. Barba is responsible for updating the estimate utilizing drawings in the development phase. Mr. Barba has worked closely with the PM and engineers to adjust his estimate to meet the required grand total. This project will have a Value Engineering Study performed and Mr. Barba will be part of the VE Team.
Size: N/A. **Cost:** N/A

c. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Confidential Project Miami, FL	Present	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Senior Estimator/Scheduler. Mr. Barba was involved with the initial development of the construction cost estimate, capitol cost estimate and yearly cost estimate for this project. This being a unique and first of its kind, for AECOM North America, project for a well-known international client in its preliminary conception phase, it posed several challenges, including a change of location, that Mr. Barba and the PM worked through with the client and other vital parties, that ultimately produced estimates that were in line with current construction costs.
Size: N/A. **Cost:** N/A

d. (1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Major M&R Waterfront, USCG Station Marathon, FL **See Project 3 in Section F**	Present	
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE	☒ Check if project performed with current firm	

Senior Estimator/Scheduler. Mr. Barba worked with Project Managers and designers to provide an estimate and initial schedule for this project. Currently at a Design Development stage, this project included many work items that needed to be accounted for in a safe, conservative, and realistic manner in order to lower the risk associated with the current design level and type of work. The estimate was in line with the USCG's original study when those costs were adjusted to present day.
Size: N/A. **Cost:** N/A

e. (1) TITLE AND LOCATION *(City and State)*	See Project 1 in Section F	(2) YEAR COMPLETED	
Port Miami, Terminal E & F Consulting		PROFESSIONAL SERVICES 2018	CONSTRUCTION (If applicable)
(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE		☒ Check if project performed with current firm	

Senior Estimator/Scheduler. Mr. Barba worked directly with the Port Miami Capital Development Department reviewing change orders/contingency draws and construction schedules from the contractor for Terminal F. His input was vital to lowering the total amount of the change orders/contingency draws. He attended all change order meetings and negotiated directly with the contractor and the contractor's subs with the full support and on behalf of Port Miami. Mr. Barba was also a part of the plans and construction documents review process for the Terminal E project.
Size: N/A. **Cost:** N/A

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Jason Weiss	**Funding/Grant Opportunities**	19	22

15. FIRM NAME AND LOCATION (City and State): AECOM (Portland, ME)

16. EDUCATION (Degree and Specialization)	17. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)
MS, Resource Economics and Policy, University of ME BIE, Industrial Engineering, University of MN, Duluth	N/A

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

Mr. Weiss has over 20 years of professional experience as a researcher and consultant in the fields of economics, planning, engineering, and community development. He has performed flood risk management, navigation, recreation, environmental restoration, and transportation projects. Mr. Weiss has worked extensively to complete planning and feasibility studies related to hazard mitigation for Federal (USACE, FEMA, NRCS, MCC), state, and local clients. In addition, he has developed guidance, tools, and methods that can be used by planners and economists to better estimate the impacts of proposed actions and how to incorporate climate change into analyses. Mr. Weiss has prepared, or completed significant components of, many successful grant applications in support of hazard mitigation, infrastructure, and transportation projects.

19. RELEVANT PROJECTS

a. (1) TITLE AND LOCATION *(City and State)* — **See Project 8 in Section F**

State of New Jersey, New Meadowlands Rebuild by Design Feasibility Study, New Jersey

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

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

☐ Check if project performed with current firm

Conducted an economic analysis to assess the resiliency, economic revitalization, social, and environmental benefits from conditions with and without proposed flood/storm risk reduction alternatives. **Size:** N/A. **Cost:** N/A.

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

Woods Hole Oceanographic Institute, Iselin Dock Feasibility Study, Falmouth, Massachusetts

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

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

☐ Check if project performed with current firm

Developed funding plan for replacement of existing dock structure. The plan identified potential grant and financing opportunities to support the project.
Size: N/A. **Cost:** $34k

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

USACE New York District, Shrewsbury Flood Risk Management Study, Seabright, New Jersey

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

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

☐ Check if project performed with current firm

Evaluated the economic impacts of structural and nonstructural alternatives to reduce the impacts of coastal storms. Analysis was completed using HEC-FDA.
Size: N/A. **Cost:** $22k (economic portion)

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

USACE Chicago District, Shoreline Erosion Integrated Feasibility Study, Chicago, Illinois

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2011 | CONSTRUCTION (If applicable): N/A

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

☐ Check if project performed with current firm

Performed economic analysis to evaluate shore protection alternatives along portions of the Illinois shoreline of Lake Michigan. The analysis considered the existing erosion rate and several types of protection measures to determine the feasibility of implementing an alternative.
Size: N/A. **Cost:** $16k (economic portion)

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

State of New Mexico, Housing and Urban Development National Disaster Resilience Competition, Santa Fe, New Mexico

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

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

☐ Check if project performed with current firm

Conducted analysis and prepared the benefit-cost analysis for the Phase II grant application. Analysis estimated the life-cycle benefits and costs of conducting measures to reduce wildfires. The analysis evaluated the resiliency, environmental, economic revitalization, and social impacts of the project.
Size: N/A. **Cost:** $18k (economic portion)

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

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Richard D. Pryce, P.S.M.	Surveying Services/ Lead Surveyor	47	13

15. FIRM NAME AND LOCATION *(City and State)*
Craven Thompson & Associates, Inc., 3563 NW 53rd Street, Fort Lauderdale, Florida 33309

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
Associates of Science in Criminal Justice, BCC (1978) Certificate in advanced GIS & Remote Sensing, BCC (2002)	Professional Surveyor and Mapper Florida No. 4038 (1983)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*
- Chairman FSMS GIS Committee - State & County Chapters, Florida Surveying & Mapping Society

19. RELEVANT PROJECTS

	(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
a.	Dania Beach Municipal Marina Survey Dania Beach, Florida	2013	Not Applicable

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

Principal Survey /GIS Manager. Mr. Pryce prepared a Topographic & Hydrographic survey of the Marina area for proposed dredging and bulkhead replacement. We also included a 3D High Definition Survey of the existing bridge over New River Sound so that the City could have a clear record of clearances under the bridge. The construction included the following: demolition of existing marina and seawall, dredging, construction of a new seawall, marina and docks, hardscape, landscape and security improvements, renovation of existing lifeguard facilities and a new Dock Master Building that included laundry, locker, and restroom facilities for tenants of the Marina.

	(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
b.	Fort Lauderdale Stormwater Master Plan – GIS and Surveying Fort Lauderdale, Florida	2016 - 2017	Not Applicable

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

Principal Survey Manager. Responsible for LiDAR of the City, As-built/Inventory 5,400 Stormwater Features for GIS Model.

	(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
c.	Margate Hydrographic Canal Survey Margate, Florida	2016	Not Applicable

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

Craven Thompson & Associates provided professional Surveying services for the proposed canal rehabilitation and pedestrian path. Prepared Boundary, Topographic and Hydrographic Survey of the canal lying along the east side of Parcel "A", "Margate Third Addition". The north-south canal was extremely overgrown with Brazilian Pepper and Australian Pines which made it difficult to locate edge of water, top of bank and deep cut line.

	(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
d.	King Fisher Canal Hydrographic Survey Deerfield Beach, Florida	2017	Not Applicable

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

Project Manager for Hydrographic Survey of existing canal to determine amount of silt at bottom for dredging and engineering purposes. Survey included GPS network control, benchmark establishment, and Hydrographic survey using Hydrolyte Echo sounding equipment.

	(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
e.	Stormwater Surveying, GIS/Data Collection, Project North Miami Beach, Florida	2017 - 2018	Not Applicable

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

The City is divided into six (6) zones and that structure/pipe data was collected within each zone and identified by zone and structure numbers. GIS data was collected and processed utilizing the City's existing Unit ID naming system in the geodatabase. The data was collected by a Unique ID. Provided the City with a copy of the updated geodatabase with all the proposed data fields to be collected for review. The GIS data collected consisted of: Structure type (junction, inlet, control structure, drainage well): Pipes: Culvert and Outfalls: and Headwalls and Seawalls.

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

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Nicholas Messina, Jr., P.S.M.	Surveying Services/Professional Surveyor	29	20

15. FIRM NAME AND LOCATION *(City and State)*
Craven Thompson & Associates, Inc., 3563 NW 53rd Street, Fort Lauderdale, Florida 33309

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
Associates of Science - Surveying and Mapping (1999) University of Alaska, Anchorage Alaska	Professional Surveyor and Mapper Florida No. 5799 (1998)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*
Florida Society of Professional Surveyors and Mappers

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*
Hallandale Beach Citywide Survey
Hallandale Beach, Florida

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2014 - 2015	Not Applicable

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

Project Surveyor - The survey included a GPS control network to meet horizontal and vertical accuracies to 0.10 feet on all hard surfaces within the City Limits. This included setting 188 aerial targets to control an area of about 26,000 acres from Pembroke Road, south to the Broward / Miami-Dade County line and from the Atlantic Ocean west to Interstate 95.

b.

(1) TITLE AND LOCATION *(City and State)*
Topographic/Hydrographic Surveys for Boat Ramps Improvements, Sunrise, Florida

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2018	Not Applicable

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

Topographic survey, including elevations obtained from a hydrographic survey, at six (6) different canal locations. The survey limits consisted of only those canal locations for the purpose of engineering design for eight (8) boat ramps.

c.

(2) TITLE AND LOCATION *(City and State)*
Hollywood As-Built Tidal Structures – North & South Lakes
Hollywood, Florida

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2014	Not Applicable

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

Mr. Messina prepared a topographic survey for engineering design purposes for determining the location and elevations of storm outfalls and upstream storm water connections in the North & South Lake Areas. Prepared a Topographic (As-built) survey of twenty-one (21) Storm water outfalls draining into North Lake and three (3) Storm water outfalls draining into South Lake in the City of Hollywood, Florida.

d.

(1) TITLE AND LOCATION *(City and State)*
Gladiator Lake – Lake Bank & Hydrographic Survey
Greenacres, Florida

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2017	Not Applicable

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

Project Manager. Mr. Messina prepared a Land and Hydrographic Survey for the purpose of locating the existing edge of water and hydrographic elevations of the top of bank and bottom of the lake based on approximately forty-five (45) individual cross-sections.

e.

(1) TITLE AND LOCATION *(City and State)*
Storm Sewer Outfall Replacement to SFWMD C-17 Canal Survey
Lake Park, Florida

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
2016	Not Applicable

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

Mr. Messina prepared an as-built survey of the two (2) outfalls and two (2) drainage structures on-site at the SFWMD C-17 Canal in for the of Lake Park. The survey included three (3) hydrographic cross-sections of a portion of SFWMD Canal C-17 at the two (2) outfall locations to show existing bank slope conditions, above and below the water out to the north edge of water of the canal.

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

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
David Reyes	Surveying Services / Sr. Survey Technician	25	5

15. FIRM NAME AND LOCATION *(City and State)*
Craven Thompson & Associates, Inc., 3563 NW 53rd Street, Fort Lauderdale, Florida 33309

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
Multiple Continuing Education programs in Surveying, GIS, and Mapping technologies.	Certified Survey Technician Level III, FL, 2003 FDOT Maintenance of Traffic, FL

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*
-- Member, Florida Surveying & Mapping Society, Indian River County Chapter

19. RELEVANT PROJECTS

a.
(1) TITLE AND LOCATION *(City and State)*: Stormwater Surveying, GIS/Data Collection Project North Miami Beach, Florida
(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2017 - 2018; CONSTRUCTION *(If applicable)*: Not Applicable
(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm
The City is divided into six (6) zones and that structure/pipe data was collected within each zone and identified by zone and structure numbers. GIS data was collected and processed utilizing the City's existing Unit ID naming system in the geodatabase. The data was collected by a Unique ID. The GIS data collected consisted of: Structure type (junction, inlet, control structure, drainage well): Pipes: Culvert and Outfalls: Headwalls & Seawalls.

b.
(1) TITLE AND LOCATION *(City and State)*: Fort Lauderdale Stormwater Master Plan – GIS & Surveying Fort Lauderdale, Florida
(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2016 - 2017; CONSTRUCTION *(If applicable)*: Not Applicable
(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm
Field Coordinator for Field Operations and Senior CAD Technician, GPS Network data collection and adjustment, coordination of field crews, Mobile Lidar computer extraction and Digital Terrain Model development.

c.
(1) TITLE AND LOCATION *(City and State)*: City-Wide Digital Topographic Mapping Greenacres, Florida
(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2014; CONSTRUCTION *(If applicable)*: Not Applicable
(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm
The project consisted of Aerial LiDAR mapping of the portion of the City of Greenacres lying north of Lake Worth Road for submittal to FEMA to be included in the latest Flood Mapping updates. The survey included a GPS network of control to meet horizontal & vertical accuracies to 0.10 feet on all hard surfaces in the project area.

d.
(1) TITLE AND LOCATION *(City and State)*: Lake Worth Infrastructure 2020 Master Plan, Year 1 - Mobile LiDAR Survey, Lake Worth, Florida
(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2013; CONSTRUCTION *(If applicable)*: Not Applicable
(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm
Field Coordinator for Field Operations and Senior CAD Technician, GPS Network data collection and adjustment, coordination of field crews, Mobile Lidar computer extraction for topographic survey of roadway right-of-way and Survey CAD Technician for final drawings.

e.
(1) TITLE AND LOCATION *(City and State)*: Central Broward Water Control District - East Basin Project - Aerial LiDAR & DTM, Town of Davie and Southwest Ranches, Florida
(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2013 - 2014; CONSTRUCTION *(If applicable)*: Not Applicable
(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — ☒ Check if project performed with current firm
Field Coordinator for Field Operations and Senior CAD Technician, GPS Network data collection and adjustment, coordination of field crews, and CAD Technician for final drawings and computations for Hydrographic & topographic surveys. Also included Digital Terrain Model development.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Eduardo M. Suarez, PSM	**Principal Surveyor**	33	15

15. FIRM NAME AND LOCATION (City and State)

Longitude Surveyors, LLC

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
Associate in Science in Engineering Studies	Professional Surveyor and Mapper, State of Florida, LS6313

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

Florida Surveying and Mapping Society; Florida Engineering Society; Utility & Engineering Surveying Institute

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
City of Hallandale Beach RFP #FY2013-2014-006-Proposed 8-Inch PVC Water Main Improvement along Foster Road	2019	

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

Principal Surveyor/Principal in Charge; Scope included preparation of a Topographic Survey and Sub -Surface Underground Utility Engineering Services; Right-of-Way and property lines shown graphically; a graphical baseline; location of overhead and ground utilities, sidewalks, curb and gutters, paved roads, driveways, light poles, power poles, fire hydrants, fences, signs, manholes, catch basins, valves/valve boxes, and other significant above-ground improvements within project limits; Longitude Surveyors located trees and palms; collected elevations equivalent to a 100-foot grid, extending 100 feet in each direction at intersections; LS prepared a Digital Terrain Model (DTM); Longitude collected rim elevations, bottom elevations, and inverts of drainage and sanitary structures. LS set temporary benchmarks (TBM's) outside the project limits, where they can be used by the contractor during construction. Control points were established with Northing and Easting coordinates referenced to the Florida State Plane Coordinate System, based on the North American Datum of 1983/2011 and elevations referenced to NAVD88; Longitude performed Sub-Surface Utility Engineering services, ten (1) soft digs along Foster Road.

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Bayshore Drive 18" Forcemain Rehabilitation City of Fort Lauderdale	2018-2019	

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

Principal Surveyor/Principal in Charge; Longitude Surveyors (LS) prepared a Topographic/Bathymetric Survey and performed Sub-Surface Utility Engineering Services. Scope of Work included right-of-way and property lines for the project area shown graphically; Included a graphical baseline; location of all overhead and ground utilities, sidewalks, curb and gutters, paved roads, driveways, light poles, power poles, fire hydrants, fences, signs, manholes, catch basins, valves/valve boxes, and any other above-ground improvements within the Survey limits; Longitude located all trees and palms; elevations were taken equivalent to a 25-foot grid; Longitude performed Survey 50 feet in each direction at intersections within project limits; LS provided a Digital Terrain Model (DTM); Longitude collected rim elevations, bottom elevations and inverts of all drainage and sanitary structures; LS set TBM's outside the project limits, in locations where they can be used by the contractor during construction; LS established control points with Northing and Easting coordinates referenced to the Florida State Plane Coordinate System, based on the North American Datum of 1983/2011; elevations referenced to the National American Vertical Datum of 1988 (NAVD88); Longitude performed utility locates and eight (8) soft digs; LS performed a Bathymetric Survey of the intracoastal within project limits.

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
P12413 - FLL FM Upsize from PS D-36 to D-35 Ft. Lauderdale, FL	2019	

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

Principal Surveyor/Principal in Charge; Longitude Surveyors prepared a Topographic/Bathymetric Survey and performed Sub-Surface Underground Engineering Services (SUE) soft digs to include the following tasks: Right-of-Way and property lines for the project area shown graphically; LS prepared a graphical baseline; LS provided location of all overhead and ground utilities, sidewalks, curb and gutters, paved roads, driveways, light poles, power poles, fire hydrants, fences, signs, manholes, catch basins, valves/valve boxes, and any other above-ground improvements within the Survey limits; Longitude located all trees and palms; LS collected elevations equivalent to a 25-foot grid; Longitude performed Survey extending 50 feet in each direction at every intersection within limits; LS provided a Digital Terrain Model (DTM); Longitude collected rim elevations, bottom elevations and inverts of all drainage and sanitary structures; LS set TBM's outside the project limits, in locations where they can be used by the contractor during construction; control points established with Northing and Easting coordinates referenced to the Florida State Plane Coordinate System, based on the North American Datum of 1983/2011; All elevations referenced to the National American Vertical Datum of 1988 (NAVD88); Longitude performed utility locates and eight (8) soft digs.

d. (1) TITLE AND LOCATION *(City and State)* — (2) YEAR COMPLETED

SF 330

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE a. TOTAL	b. WITH CURRENT FIRM
Darryl J. Hauser, PSM	Quality Control QA/QC	17	1

15. FIRM NAME AND LOCATION (City and State)

Longitude Surveyors, LLC

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
Bachelor of Science, Surveying and Mapping	Professional Surveyor and Mapper, State of Florida LS6277

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

Florida Engineering Society; Port Everglades Association

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **City of Hallandale Beach RFP #FY2013-2014-006-Proposed 8-Inch PVC Water Main Improvement along Foster Road**

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

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

Quality Control (QA/QC) - Scope included preparation of a Topographic Survey and Sub -Surface Underground Utility Engineering Services; Right-of-Way and property lines shown graphically; a graphical baseline; location of overhead and ground utilities, sidewalks, curb and gutters, paved roads, driveways, light poles, power poles, fire hydrants, fences, signs, manholes, catch basins, valves/valve boxes, and other significant above-ground improvements within project limits; Longitude Surveyors located trees and palms; collected elevations equivalent to a 100-foot grid, extending 100 feet in each direction at intersections; LS prepared a Digital Terrain Model (DTM); Longitude collected rim elevations, bottom elevations, and inverts of drainage and sanitary structures. LS set temporary benchmarks (TBM's) outside the project limits, where they can be used by the contractor during construction. Control points were established with Northing and Easting coordinates referenced to the Florida State Plane Coordinate System, based on the North American Datum of 1983/2011 and elevations referenced to NAVD88; Longitude performed Sub-Surface Utility Engineering services, ten (1) soft digs along Foster Road.

b.

(1) TITLE AND LOCATION *(City and State)*: **Bayshore Drive 18" Forcemain Rehabilitation City of Fort Lauderdale**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018-2019 — CONSTRUCTION *(if applicable)*:

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

Quality Control (QA/QC) - Longitude Surveyors (LS) prepared a Topographic/Bathymetric Survey and performed Sub-Surface Utility Engineering Services. Scope of Work included right-of-way and property lines for the project area shown graphically;
Included a graphical baseline; location of all overhead and ground utilities, sidewalks, curb and gutters, paved roads, driveways, light poles, power poles, fire hydrants, fences, signs, manholes, catch basins, valves/valve boxes, and any other above-ground improvements within the Survey limits; Longitude located all trees and palms; elevations were taken equivalent to a 25-foot grid; Longitude performed Survey 50 feet in each direction at intersections within project limits; LS provided a Digital Terrain Model (DTM); Longitude collected rim elevations, bottom elevations and inverts of all drainage and sanitary structures; LS set TBM's outside the project limits, in locations where they can be used by the contractor during construction; LS established control points with Northing and Easting coordinates referenced to the Florida State Plane Coordinate System, based on the North American Datum of 1983/2011; elevations referenced to the National American Vertical Datum of 1988 (NAVD88); Longitude performed utility locates and eight (8) soft digs; LS performed a Bathymetric Survey of the intracoastal within project limits.

c.

(1) TITLE AND LOCATION *(City and State)*: **Don Shula Expressway (SR 874) & Interstate 75 (SR93)**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2010 - 2013 — CONSTRUCTION *(if applicable)*:

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

Quality Control (QA/QC) – Prepared Right-of-Way; Corridor Maps for each of the following State Roads in Florida Department of Transportation District 6; Don Shula Expressway (SR 874) and Interstate 7t (SR 93), GeoPak Computation, located right-of-way property lines, drafting in MicroStation, directed field crews with preparation and work to be performed

d.

(1) TITLE AND LOCATION *(City and State)*: **P12413 - FLL FM Upsize from PS D-36 to D-35 Ft. Lauderdale, FL**

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

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

Quality Control (QA/QC) - Longitude Surveyors prepared a Topographic/Bathymetric Survey and performed Sub-Surface Underground Engineering Services (SUE) soft digs to include the following tasks: Right-of-Way and property lines for the project area shown graphically; LS prepared a graphical baseline; LS provided location of all overhead and ground utilities, sidewalks, curb and gutters, paved roads, driveways, light poles, power poles, fire hydrants, fences, signs, manholes, catch basins, valves/valve boxes, and any other above-ground improvements within the Survey limits; Longitude located all trees and palms; LS collected elevations

REQUIRED FORMS

SF 330

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

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE a. TOTAL	14. YEARS EXPERIENCE b. WITH CURRENT FIRM
John H. Adler III, PSM	Project Surveyor	36	6

15. FIRM NAME AND LOCATION (City and State)

Longitude Surveyors, LLC

16. EDUCATION *(DEGREE AND SPECIALIZATION)*	17. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
Associate Degree in Survey Technology	Professional Surveyor and Mapper, State of Florida, LS4693

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

Florida Surveying and Mapping Society; Utility & Engineering Surveying Institute

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **City of Hallandale Beach RFP #FY2013-2014-006-Proposed 8-Inch PVC Water Main Improvement along Foster Road**

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

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

Project Surveyor - Scope included preparation of a Topographic Survey and Sub -Surface Underground Utility Engineering Services; Right-of-Way and property lines shown graphically; a graphical baseline; location of overhead and ground utilities, sidewalks, curb and gutters, paved roads, driveways, light poles, power poles, fire hydrants, fences, signs, manholes, catch basins, valves/valve boxes, and other significant above-ground improvements within project limits; Longitude Surveyors located trees and palms; collected elevations equivalent to a 100-foot grid, extending 100 feet in each direction at intersections; LS prepared a Digital Terrain Model (DTM); Longitude collected rim elevations, bottom elevations, and inverts of drainage and sanitary structures. LS set temporary benchmarks (TBM's) outside the project limits, where they can be used by the contractor during construction. Control points were established with Northing and Easting coordinates referenced to the Florida State Plane Coordinate System, based on the North American Datum of 1983/2011 and elevations referenced to NAVD88; Longitude performed Sub-Surface Utility Engineering services, ten (1) soft digs along Foster Road.

b.

(1) TITLE AND LOCATION *(City and State)*: **Bayshore Drive 18" Forcemain Rehabilitation City of Fort Lauderdale**

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: 2018-2019 — CONSTRUCTION *(if applicable)*:

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

Project Surveyor - Longitude Surveyors (LS) prepared a Topographic/Bathymetric Survey and performed Sub-Surface Utility Engineering Services. Scope of Work included right-of-way and property lines for the project area shown graphically;
Included a graphical baseline; location of all overhead and ground utilities, sidewalks, curb and gutters, paved roads, driveways, light poles, power poles, fire hydrants, fences, signs, manholes, catch basins, valves/valve boxes, and any other above-ground improvements within the Survey limits; Longitude located all trees and palms; elevations were taken equivalent to a 25-foot grid; Longitude performed Survey 50 feet in each direction at intersections within project limits; LS provided a Digital Terrain Model (DTM); Longitude collected rim elevations, bottom elevations and inverts of all drainage and sanitary structures; LS set TBM's outside the project limits, in locations where they can be used by the contractor during construction; LS established control points with Northing and Easting coordinates referenced to the Florida State Plane Coordinate System, based on the North American Datum of 1983/2011; elevations referenced to the National American Vertical Datum of 1988 (NAVD88); Longitude performed utility locates and eight (8) soft digs; LS performed a Bathymetric Survey of the intracoastal within project limits.

c.

(1) TITLE AND LOCATION *(City and State)*: **P12413 - FLL FM Upsize from PS D-36 to D-35 Ft. Lauderdale, FL**

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

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

Project Surveyor - Longitude Surveyors prepared a Topographic/Bathymetric Survey and performed Sub-Surface Underground Engineering Services (SUE) soft digs to include the following tasks: Right-of-Way and property lines for the project area shown graphically; LS prepared a graphical baseline; LS provided location of all overhead and ground utilities, sidewalks, curb and gutters, paved roads, driveways, light poles, power poles, fire hydrants, fences, signs, manholes, catch basins, valves/valve boxes, and any other above-ground improvements within the Survey limits; Longitude located all trees and palms; LS collected elevations equivalent to a 25-foot grid; Longitude performed Survey extending 50 feet in each direction at every intersection within limits; LS provided a Digital Terrain Model (DTM); Longitude collected rim elevations, bottom elevations and inverts of all drainage and sanitary structures; LS set TBM's outside the project limits, in locations where they can be used by the contractor during construction; control points established with Northing and Easting coordinates referenced to the Florida State Plane Coordinate System, based on the North American Datum of 1983/2011; All elevations referenced to the National American Vertical Datum of 1988 (NAVD88); Longitude performed utility locates and eight (8) soft digs.

d.

(1) TITLE AND LOCATION *(City and State)*: **Project No. 12074 Stormwater Improvements Southeast Isles Neighborhood**

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

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH THIS FIRM
Robert Berkoff, EI, CET	Project Engineer	40+	9

15. FIRM NAME AND LOCATION *(City and State)*
NOVA Engineering and Environmental, LLC (Fort Lauderdale, Georgia)

16. EDUCATION *(Degree and Specialization)*	17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*
BS Civil Engineering, Kennedy-Western University	Engineering Intern: FL National Institute for Certification in Engineering Technologies: Concrete Level I, Soils Level I Certified Diver (PADI)

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*
American Society of Civil Engineers; American Society of Civil Engineering Technicians

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
940 Isles Road Seawall Design (Boynton Beach, Florida)	2018	

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

Project Engineer: The project consisted of a 20-foot-wide slip located approximately 15 feet inland, located between the existing seawall and the existing pool deck. The new seawall was originally designed using a combination of cantilevered and anchored SHOREGUARD 550 series vinyl sheeting. During installation, the contractor encountered dense soil containing limestone that resisted penetration of the vinyl sheets was encountered. NOVA was retained to provide engineering assistance. Subsequent soil borings indicated the dense soil / limestone, but also identified very loose soils overlying the dense soil / limestone layer. Based on the results of the initial sheet pile installation difficulties with the dense materials, as well as the very loose soils encountered in the borings, NOVA recommended two (2) alternative conceptual designs utilizing either a seawall section consisting of PZ 27 sheets or a cantilevered seawall section consisting of SCZ 18N sheets. Based on NOVA's recommendations, DES (the Engineer of Record), subsequently redesiged the seawall. **Services Provided:** Geotechnical engineering **NOVA's Fees:** $4,800

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
Playboy Marine Seawall Design and Renovation (Dania Beach, Florida)	2017	

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

Project Engineer: During the construction phase of a 340 ft seawall replacement, the contractor continually experienced difficulty in the installation of the sheetpile as well as observing surface distress and anomolies in the immediate area. NOVA was retained by the design engneer to provide consulting services related to the confirmation of the design and to assist in the geotechnical issues being reported by the contractor. Based on the subsurface information obtained from soil borings, NOVA confirmed the original design was adequate as prepared and determined that the nearby surface issues reported by the contractor were induced by the contractor's means and methods. **Services Provided**: Geotechnical engineering **NOVA's Fees:** $8,300

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
Bulkhead Assessment, Riverwalk Linear Park 5 (Fort Lauderdale, Florida)	1998	

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

Project Engineer: The existing bulkhead structure fronting a section of the planned Riverwalk was constructed in the early 1920's. Mr. Berkoff provided underwater inspection, assessment and development assistance in the rehabilitation design for the structure. Several engineering problems including lateral resistance of the piles and utility obstructions were associated with the project. In addressing the problems, special fins were designed and attached to the piles to provide additional lateral support and helical anchors were developed for installation without disrupting the crowded upland utility easement. **Services Provided:** Environmental permitting, preparation of plans, specifications and construction documents, inspections. **Fees:** n/a

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
S-193 Refurbishment, Rip Rap Rehabilitation (Lake Okeechobee, Florida)	2003	

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

Project Engineer: The levee adjacent to a lock structure at Taylor Creek consisted of stone rip rap covered with "raked" concrete. Open areas at the top of the levee which had developed over time and aggravated by recent hurricanes allowed water to enter and eroded the soil below the rip rap section leaving large voids. The South Florida Water Management District envisioned total demolition of the existing rip rap structure and replacement. Mr. Berkoff was the lead engineer on the team which recommended an alternative rehabilitation effort consisting of sealing the sides and bottom of the section with a hydro-active grout and pumping "flowable fill" into the void areas through access holes drilled in the face of the section rather than demolition and replacement of the existing rip rap system. **Services Provided:** Engineering design, plans, specifications and inspection **Fees:** n/a

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH THIS FIRM
David Miller, PE	Senior Technical Professional / QA/QC	45	23

15. FIRM NAME AND LOCATION *(City and State)*
NOVA Engineering and Environmental, LLC (Kennesaw, Georgia)

16. EDUCATION *(Degree and Specialization)*	17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*
BS, Civil Engineering, Vanderbilt University MBA, Civil Engineering, Georgia State University	Registered Professional Engineer in Georgia, Florida, Alabama, Mississippi, North Carolina, South Carolina, Tennessee, Ohio

18. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc.)*
Gwinnett County Third-Party Inspector; Georgia Soil and Water Conservation Commission, Level 1B; ICC Building Inspector; American Council of Engineering Companies (ACEC); American Society of Civil Engineers (ASCE); Georgia Brownfields Association

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
SkyRise Observation Tower (Miami, Florida)	2015	

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

QA/QC: 1,000-foot tower located at 401 Biscayne Boulevard. When complete, the project will be the tallest tower in Miami and one of the tallest observation towers in the world. NOVA's services included drilling over 30 borings from 20' to 250' below the existing parking lot elevation. Two of the borings were drilled from a barge in the Miamarina and Biscayne Bay. **Services Provided:** Geotechnical field drilling, laboratory testing, environmental consulting. **NOVA's Fees:** $585,925

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
Tampa Bay Ferry Project (Tampa, Florida)	2019	

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

QA/QC: construction of a 60 x 100 foot floating platform, a canopy structure, 150 feet of bulk heading, 2 to 10 feet of dredging, four (4) ferry berths, a relocated boat ramp and dock, a 1 to 2-story office/sales building, a 4 to 5-story parking garage, parking areas and access roadways, and a traffic light controlled interchange are proposed. **Services Provided**: Geotechnical field drilling, laboratory testing. **NOVA's Fees:** $168,000

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
Franklin Street Residential Tower (Tampa, Florida)	2015	

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

QA/QC: 23-story apartment building including 7 levels of parking and 16 levels of residential units to provide a total of 375 apartment units. **Services Provided:** Geotechnical engineering, threshold inspections, construction materials testing, special inspections **NOVA's Fees:** $58,701

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
334 St. Pete Residential Tower (St. Petersburg, Florida)	2015	

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

QA/QC: twenty-four (24) level residential tower with an adjoining eight level parking garage. **Services Provided:** Geotechnical engineering, construction materials testing. **NOVA's Fees:** $84,473

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
Project Orange Alternative Site (Deltona, Florida)	2019	

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

QA/QC: 1 million SF nonsort industrial building, associated paved parking and a stormwater management system. **Services Provided:** Preliminary Subsurface Exploration & Geotechnical Engineering **NOVA Fees:** $91,305

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH THIS FIRM
Miguel Truzman, PE	Geotechnical Engineer	26	2

15. FIRM NAME AND LOCATION *(City and State)*
NOVA Engineering and Environmental, LLC (Fort Lauderdale, Georgia)

16. EDUCATION *(Degree and Specialization)*	17. CURRENT PROFESSIONAL REGISTRATION *(State and Discipline)*
BS Geological Engineering, Universidad Central de Venezuela MS Civil Engineering, Universidad Simon Bolivar, Venezuela	Registered Professional Engineer in Florida, North Carolina, South Carolina, Texas, Venezuela

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

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
940 Isles Road Seawall Design (Boynton Beach, Florida)	2018	

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

Geotechnical Engineer: 20-foot-wide slip located approximately 15 feet inland, located between the existing seawall and the existing pool deck. The existing boat lift was reinstalled on the new section of slip seawall. The new seawall was originally designed using SHOREGUARD 550 series vinyl sheeting. Drawings indicate that the sheeting for the side sections and the returns are a cantilevered section and installed to a depth of 18 feet below the existing grade. The backwall section was designed as an anchored section, utilizing a deadman tieback system to resist overturn. The anchored sheets were installed to a depth of 10 to 12 feet below the existing grade. **Services Provided:** Geotechnical engineering **NOVA's Fees:** $4,800

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
Beacon Lakes Development (Tampa, Florida)	ongoing	

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

Geotechnical Engineer: Beacon Lakes Industrial Park is a premier master-planned commercial development, located in the Airport West/Doral submarket, with Class-A, institutional-grade logistics and distribution space. Beacon Lakes is owned and developed by Prologis. The park includes 478 acres of industrial and retail development Providing over 4.6 million square feet of Class-A warehouse and 495,000 square feet of future retail development. **Services Provided**: Environmental Consulting, Geotechnical engineering **NOVA's Fees:** $1,726,569

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
Florida Power & Light, Maid Solar Energy Center (Maid, Florida)	2018	

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

Geotechnical Engineer: Site work and construction of a new solar energy center. **Services Provided:** Geotechnical engineering **NOVA's Fees:** $75,000

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
Florida Power & Light, Campbell Grove Solar Energy Center (Campbell Grove, Florida)	2018	

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

Geotechnical Engineer: Site work and construction of a new solar energy center. **Services Provided:** Geotechnical engineering **NOVA's Fees:** $75,000

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
Florida Power & Light, Hendry Solar Energy Center (Hnedry, Florida)	2018	

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

Geotechnical Engineer: Site work and construction of a new solar energy center. **Services Provided:** Geotechnical engineering **NOVA's Fees:** $75,000

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS OF EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
DANIEL CHECCHIA	SUE & Utility Coordination Manager	22	8

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

KEITH, Pompano Beach, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
AS Applied Science in Construction Technology, Suffolk Community College, 2008	

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

FDOT Maintenance of Traffic

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **City of Hollywood Boulevard Heights Septic-to-Sewer Conversion** *(Hollywood, FL)*

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: On-going; CONSTRUCTION *(If applicable)*: On-going

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

KEITH, as a subconsultant to EAC Consulting, is currently providing topographic surveying and subsurface utility engineering (SUE) services to the City of Hollywood for the following roadways: Taft Street from NW7th Terrace to the Turnpike, the alleyway between Taft Street and Roosevelt and N 66th Avenue and 64th Avenue, Moseley Street from N 65th Way to the Turnpike, N 64th Avenue from Moseley Street to Taft Street.
Surveys include all surface features, including roadways, driveways, sidewalks, striping, surface utilities, etc. Storm and sanitary structures are carefully being noted with invert elevation, size, material and direction. Elevations are noted at intervals of approximately 100 feet, including intermediate changes in grade. Trees are being located and noted by trunk diameter and common name.

b.

(1) TITLE AND LOCATION *(City and State)*: **Broward County Shoreline Protection Project** *(Broward County, FL)*

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

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

The joint venture of Coastal Planning and Engineering, Inc. and Olsen Associates, Inc. is under contract to Broward County to perform an economic analyses of shoreline protection benefits for a section of the County's shoreline between Hillsboro Inlet and Las Olas Blvd., about 51,000 feet of shoreline. This work is required as part of a feasibility investigation associated with County's Federal Shore Protection Project. In support of the contractual obligations to Broward County for this project, KEITH was worked on the surveying assistance in collecting field data for use as input to the economic analysis.

c.

(1) TITLE AND LOCATION *(City and State)*: **Briny Avenue Streetscape Improvements** *(Pompano Beach, FL)*

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

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

This project involved the reconstruction of East Atlantic Boulevard from A1A to Pompano Beach Boulevard/Briny Avenue including wider sidewalks, revised parking configurations and lanes. KEITH provided professional services for a design survey as well as the designation and location of subsurface utilities along Briny Avenue from the south right-of-way line of Atlantic Boulevard to the south end of Briny Avenue.

d.

(1) TITLE AND LOCATION *(City and State)*: **Pompano Beach Boulevard Streetscape** *(Pompano Beach, FL)*

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: On-going; CONSTRUCTION *(If applicable)*: On-going

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

KEITH provided Quality Level "B" utility designation, Quality Level "A" utility locates and mapping services for this development of a unique beach front venue in the City of Pompano. KEITH designated the above horizontal alignment of any existing known/unknown, toneable and non-toneable utilities using combination of geo physical prospecting equipment and Ground Penetrating Radar. This information was then collected and used by the design team to identify the activities of existing subsurface facilities. KEITH was then requested to perform utility verifications of the facilities by using non-destructive/ non-intrusive vacuum excavation services. The Utilities we exposed and cataloged to help the design team resolved potential conflicts with proposed design improvements.

e.

(1) TITLE AND LOCATION *(City and State)*: **Fort Lauderdale-Hollywood International Airport Expansion of Runway 10R/28L** *(Fort Lauderdale, FL)*

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

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

KEITH provided professional design services for the Expansion of Runway 10R/28L, as ENGINEER OF RECORD for Utility and Roadway Designs, as a subconsultant partner with PBS&J/Atkins. KEITH was responsible for the complete relocation and upgrade of the existing water distribution and sanitary sewer force main utilities surrounding the runway improvements as well as coordination with all utility stakeholders. KEITH was initially tasked to prepare a Project Definition Document (PDD) Validation Report, Design Criteria Package, Utility Corridor Report and a Preliminary Engineering Report and assisted in the development of the Earthwork Management Plan to coordinate the import and placement of 6.5 million cubic yards of fill during construction. These evaluations included providing engineer's estimate of probable construction costs for use in a Life Cycle Cost Analysis Report of these utility systems.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS OF EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
THOMAS DONAHUE, PE	QA/QC Officer	40	2

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

KEITH, Pompano Beach, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
B.S. Civil Engineering, Northeastern University, 1978	State of Florida Professional Engineer, #60529, 2003

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

National Association of Industrial and Office Parks (NAIOP), Member; Institute of Transportation Engineers, Gold Coast Chapter, Member

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Fort Lauderdale Aquatics Center *(Fort Lauderdale, FL)*	2018	2018

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

The Fort Lauderdale Aquatic Center is situated on a man-made pier which extends approximately 600 feet into the Intracoastal Waterway. The City of Fort Lauderdale and its CRA is looking to renovate the facility and ensure it meets aquatic competition requirements. KEITH's tasks include surveying, subsurface utility engineering, planning services, landscape architecture, and civil engineering. The intent of the project is to restore the Aquatic Center to remain as one of the icons of Fort Lauderdale Beach.

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Fort Lauderdale-Hollywood International Airport Expansion of Runway 10R/28L *(Fort Lauderdale, FL)*	2015	2015

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

KEITH provided professional design services for the Expansion of Runway 10R/28L, as ENGINEER OF RECORD for Utility and Roadway Designs, as a subconsultant partner with PBS&J/Atkins. KEITH was responsible for the complete relocation and upgrade of the existing water distribution and sanitary sewer force main utilities surrounding the runway improvements as well as coordination with all utility stakeholders. KEITH was initially tasked to prepare a Project Definition Document (PDD) Validation Report, Design Criteria Package, Utility Corridor Report and a Preliminary Engineering Report and assisted in the development of the Earthwork Management Plan to coordinate the import and placement of 6.5 million cubic yards of fill during construction. These evaluations included providing engineer's estimate of probable construction costs for use in a Life Cycle Cost Analysis Report of these utility systems.

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Port Everglades Southport Phase IX-B *(Fort Lauderdale, FL)*	On-going	On-going

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

This Proposed 23 acre Southport IX-B, Project proposes to construct the paved laydown/storage yards for shipping containers or other port storage requirements. This involves the paving of the approximately 23 acres and an additional 1.2 acre dry retention area, which will connect to the existing western dry retention areas. The proposed project will drain to the enlarged western stormwater retention areas and discharge offsite through the existing Southport discharge structures and the proposed Control Structure 6AC. Mr. Williams serves as the lead site design engineer and Project Manager.

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Everglades Holiday Park Improvements *(Fort Lauderdale, FL)*	2019	2019

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

KEITH has provided comprehensive design, permitting, bid, and construction phase services associated with site improvements at Everglades Holiday Park. The improvements included renovation, construction and/or reconstruction of boat docks, boat ramps, parking, ancillary buildings, limited utility infrastructure, other minor park related amenities and improvements. This project has included LEED "Green" design principles. Project phases include: Conceptual Master Plan Design, Schematic Design, Design Development and Construction Documents. Project Budget: $6,000,000.

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Pompano Beach CRA District Improvements *(Pompano Beach, FL)*	On-going	On-going

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

KEITH was integral to the planning, urban design and landscape architecture improvements for this redevelopment project that has created a vibrant, beach-side promenade, encouraging citizens to enjoy new recreational and social opportunities. This project has generated millions of dollars of private development based on the improvements made to the increase the aesthetic and function of the public realm.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS OF EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
KELLI SCHUELER, PE	Arial 10 Bold	14	2

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

KEITH, Pompano Beach, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
B.S. Landscape Architecture, Oklahoma State University, 2003	Registered Landscape Architect, #2959

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

United States Green Building Council (USGBC), USGBC LEED Accredited Professional

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **DC Alexander Park Improvements** *(Fort Lauderdale, FL)*

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: On-going; CONSTRUCTION *(If applicable)*: On-going

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

The DC Alexander Park is viewed as the "front yard" of the Fort Lauderdale Aquatic Center and occupies a prominent location on Fort Lauderdale Beach. Mr. Weinberg is leading the design, planning and permitting of this improvement project in conjunction with the City's CRA. He is managing a multi-disciplinary team to create a legacy project that will serve as an iconic, memorable place.

b.

(1) TITLE AND LOCATION *(City and State)*: **Levitt Pavilion and Esplanade Park** *(Fort Lauderdale, FL)*

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: On-going; CONSTRUCTION *(If applicable)*: On-going

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

I worked with a team to develop a design for a new concert venue and pavilion in Downtown Fort Lauderdale at the Esplanade Park. The design embraces local heritage of Native American culture and celebrates the river location while providing a state-of-the-art park and concert facility for the public. The project serves as a catalyst to new development in Fort Lauderdale's civic core and will provide citizens with an attractive public environment for daily use and special events.

c.

(1) TITLE AND LOCATION *(City and State)*: **Broward County South Regional Courthouse Pre-Design Phase** *(Hollywood, FL)*

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: On-going; CONSTRUCTION *(If applicable)*: On-going

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

The primary purpose of this Pre-Design Phase is to develop a full program and to research, explore and provide various alternatives for the best redevelopment uses of this Broward County owned property to maximize the needs of the users and the civic needs of the community, including programming, code analysis, massing, ADA and security enhancements, and passive design strategies. KEITH provided the boundary and topographic survey, subsurface utility engineering, and landscape architecture for this project.

d.

(1) TITLE AND LOCATION *(City and State)*: **Atlantic Boulevard Streetscape Improvements** *(Margate, FL)*

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

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

The CRA requested the KEITH Team develop a branded approach to several of the city's ROW and streetscapes. The request includes multiple miles of streetscape, medians, walls, walkways, landscape, lighting, signage and a signature fountain feature. The team worked to create a brand or identity that can be utilized throughout the City in these public realm areas. The signature element for this streetscape initiative is the addition of a roundabout and fountain feature. The CRA requested that a theme of a child fishing along the edge of the canal be utilized for inspiration. KEITH had to work around existing infrastructure items and yet was able to develop a creative approach for the fountain. The result was a combination of water, sculpture, landscape and hardscape to make a statement for the City and CRA of Margate.

e.

(1) TITLE AND LOCATION *(City and State)*: **Fast Forward Fort Lauderdale Design and Construction Manual** *(Fort Lauderdale, FL)*

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

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

KEITH is working with renowned architecture firm Brooks + Scarpa to develop a design and construction manual that would facilitate a sustainable and resilient community, as well as a cohesive public realm that could potentially impact every facet of infrastructure and design within the city.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS OF EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
PAUL WEINBERG, PE	Landscape Architect	18	2

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

KEITH, Pompano Beach, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
B.S., Landscape Architecture, Michigan State University, 2000	Registered Landscape Architect, State of Florida, #6666804

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

Council of Landscape Architecture Registration Boards (CLARB Certified); American Society of Landscape Architects (ASLA), Member; Urban Land Institute, Member; American Resort Development Association (ARDA), Member; CRA Work (North Miami, Deerfield, Fort Lauderdale, Riviera Beach, Pompano Beach); Streetscapes (Hillsboro, A1A, Sunrise, Nob Hill, Las Olas)

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Pompano Beach CRA District Improvements *(Pompano Beach, FL)*	On-going	On-going

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

Mr. Weinberg was integral to the planning, urban design and landscape architecture improvements for this redevelopment project that has created a vibrant, beach-side promenade, encouraging citizens to enjoy new recreational and social opportunities. This project has generated millions of dollars of private development based on the improvements made to the increase the aesthetic and function of the public realm.

b.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
DC Alexander Park Improvements *(Fort Lauderdale, FL)*	On-going	On-going

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

The DC Alexander Park is viewed as the “front yard” of the Fort Lauderdale Aquatic Center and occupies a prominent location on Fort Lauderdale Beach. Mr. Weinberg is leading the design, planning and permitting of this improvement project in conjunction with the City’s CRA. He is managing a multi-disciplinary team to create a legacy project that will serve as an iconic, memorable place.

c.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Fast Forward Fort Lauderdale Design and Construction Manual *(Fort Lauderdale, FL)*	2018	

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

KEITH is working with renowned architecture firm Brooks + Scarpa to develop a design and construction manual for a sustainable and resilient community and cohesive public realm that could potentially impact every facet of infrastructure and design within the city. Mr. Weinberg is responsible for the planning and landscape architecture elements of the manual.

d.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Fort Lauderdale Aquatics Center *(Fort Lauderdale, FL)*	On-going	On-going

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

The Fort Lauderdale Aquatic Center is situated on a man-made pier which extends approximately 600 feet into the Intracoastal Waterway. The City of Fort Lauderdale and its CRA is looking to renovate the facility and ensure it meets aquatic competition requirements. KEITH’s tasks include surveying, subsurface utility engineering, planning services, landscape architecture, and civil engineering. The intent of the project is to restore the Aquatic Center to remain as one of the icons of Fort Lauderdale Beach.

e.

(1) TITLE AND LOCATION *(City and State)*	(2) YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Broward County South Regional Courthouse Pre-Design Phase *(Hollywood, Broward County, FL)*	On-going	N/A

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

The primary purpose of this Pre-Design Phase is to develop a full program and to research, explore and provide various alternatives for the best redevelopment uses of this Broward County owned property to maximize the needs of the users and the civic needs of the community, including programming, code analysis, massing, ADA and security enhancements, and passive design strategies. KEITH provided the boundary and topographic survey, subsurface utility engineering, and landscape architecture for this project.

E. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT

(Complete one Section E for each key person.)

12. NAME	13. ROLE IN THIS CONTRACT	14. YEARS OF EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
STEPHEN WILLIAMS, SR., PE	Project Manager	48	5

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

KEITH, Pompano Beach, Florida

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
B.S. Civil Engineering, University of Florida, 1977	State of Florida Professional Engineer #32090

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

American Society of Civil Engineers (ASCE), Florida Engineering Society (FES), National Society of Professional Engineers (NSPE), Leadership Broward I, Fort Lauderdale Unsafe Structures Board

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION *(City and State)*: **Fort Lauderdale-Hollywood International Airport Expansion of Runway 10R/28L** *(Fort Lauderdale, FL)*

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

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

KEITH provided professional design services for the Expansion of Runway 10R/28L, as ENGINEER OF RECORD for Utility and Roadway Designs, as a subconsultant partner with PBS&J/Atkins. KEITH was responsible for the complete relocation and upgrade of the existing water distribution and sanitary sewer force main utilities surrounding the runway improvements as well as coordination with all utility stakeholders. KEITH was initially tasked to prepare a Project Definition Document (PDD) Validation Report, Design Criteria Package, Utility Corridor Report and a Preliminary Engineering Report and assisted in the development of the Earthwork Management Plan to coordinate the import and placement of 6.5 million cubic yards of fill during construction. These evaluations included providing engineer's estimate of probable construction costs for use in a Life Cycle Cost Analysis Report of these utility systems.

b.

(1) TITLE AND LOCATION *(City and State)*: **Pompano Beach Design/Build Pier Beach Parking Garage** *(Pompano Beach, FL)*

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

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

The new Pompano Beach Pier/Beach Parking Garage is located at the southeast corner of North Ocean Blvd. (S.R. A1A) and NE 3rd Street on a 3.5-acre site. The new parking garage includes five stories, 625 parking spaces, speed ramp to facilitate access to higher levels of the garage and some retail space on the ground level fronting NE 3rd Street and the new Pier Street. As part of the design-build team, led by Kaufman Lynn Construction, KEITH was responsible for Planning, Surveying, Utility Coordination/Investigation, Civil Engineering, Landscape Design, Permitting and Construction Inspection of the project.

c.

(1) TITLE AND LOCATION *(City and State)*: **City of Pompano Beach & CRA Miscellaneous Engineering Services Contract** *(Pompano Beach, FL)*

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: On-going; CONSTRUCTION *(If applicable)*: On-going

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

KEITH has served as the General Engineering Consultant for the City of Pompano Beach for over 16 years. Ms. Keith-Lazowick is the Contract Manager/Elected Officials Liaison for the firm on an as needed basis. Many of the project assignments have been in the redevelopment of roadways, parking facilities and utility infrastructure design. All services of the firm are utilized including planning, civil engineering, surveying, subsurface utility engineering, and landscape architecture. Signature design and construction projects include:

• Martin Luther King Boulevard Streetscape and Utility Improvements	• Pompano Beach Sidewalk Construction Program
• Old Historic Pompano Downtown Roadway and Utility Improvements	• SE 8th Court Bridge Replacement
• Pompano Beach Boulevard Streetscape, Utility and Dune Restoration Project	• NE 27th Terrance Bridge Replacement
• Harbor Drive Beautification, Roadway and Utility Improvements	• Pompano Airpark Master Drainage Plan
• Municipal Reclaimed Water Main Phase III Design and Construction	• Collier City Sanitary Sewer Improvements
• Municipal Force Main Replacement SE 13th Street Design and Construction	

d.

(1) TITLE AND LOCATION *(City and State)*: **City of Deerfield Beach & CRA Miscellaneous Engineering Services Contract** *(Deerfield Beach, FL)*

(2) YEAR COMPLETED — PROFESSIONAL SERVICES: On-going; CONSTRUCTION *(If applicable)*: On-going

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

KEITH has served as the General Engineering Consultant for the City of Deerfield Beach for over 14 years. KEITH is providing on-going continuing services as needed including engineering and surveying and mapping services to the municipality. Ms. Keith- Lazowick serves as the senior staff/elected officials liaison for the firm. Some projects provided under these contracts include: Hillsboro Boulevard beautification and utility improvements, Beach Dune re-nourishment program, Ocean Way improvements, and the Cove Shopping Center drainage & beatification improvement project.

e.

(1) TITLE AND LOCATION *(City and State)*: **Port Everglades Southport Phase IX-B** *(Fort Lauderdale, FL)*

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

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

This Proposed 23 acre Southport IX-B, Project proposes to construct the paved laydown/storage yards for shipping containers or other port storage requirements. This involves the paving of the approximately 23 acres and an additional 1.2 acre dry retention area, which will connect to the existing western dry retention areas. The proposed project will drain to the enlarged western stormwater retention areas and discharge offsite through the existing Southport discharge structures and the proposed Control Structure 6AC. Mr. Williams serves as the lead site design engineer and Project Manager.

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

12. NAME	13. ROLE IN CONTRACT	14. YEARS EXPERIENCE	
		a. TOTAL	b. WITH CURRENT FIRM
Sheryl Dickey	**President/Project Manager**	41	24

15. FIRM NAME AND LOCATION (City and State)
Dickey Consulting Services, Inc., Fort Lauderdale, Fl

16. EDUCATION (DEGREE AND SPECIALIZATION)	17. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)
B.S.S.W	

18. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)
Certification – Charrette Planner and Public Meeting Facilitator – Virginia Tech

19. RELEVANT PROJECTS

a.

(1) TITLE AND LOCATION (City and State)
Public Information Community Awareness Services,
Utility Analysis Zone Projects – 310, Hillsboro Mile, 122, 123, 108
Broward County, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2015 to Present	N.A.

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

☑ Check if project performed with current firm

Provide information to the property owners, residents and businesses relative to the impact of the replacement of water and sewer lines in the neighborhood. Development of a database tracking system for community concerns and responses to the project team for management purposes. Prepare project collateral brochures, flyers, fact sheets, notification letters, news articles, and public notices. Dissemination of brochures, flyers, and notices. Prepare a database of homeowners, residents and businesses. Attend meetings with established neighborhood associations or community groups, schools, PTA's, and business owners. Attend progress meetings and provide coordination assistance during construction. Development and distribution of a newsletter for residents and businesses.
Ref: Pat Gibney, Craven Thompson & Associates, 954/739-6400

b.

(1) TITLE AND LOCATION (City and State)
Public Relations and Community Awareness Services
Utility Analysis Zone Projects – 113A, 113B, 110 & 111
Broward County, FL

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2017 to present	

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

☑ Check if project performed with current firm

Provide information to the property owners, residents and businesses relative to the impact of the replacement of water and sewer lines in the neighborhood. Prepare project collateral brochures, flyers, fact sheets, notification letters, news articles, and public notices. Dissemination of brochures, flyers, and notices. Prepare a database of homeowners, residents and businesses. Attend meetings with established neighborhood associations or community groups, schools, PTA's, and business owners. Attend progress meetings and provide coordination assistance during construction. Development and distribution of a newsletter for residents and businesses. DCS provides public information, coordination and community awareness.
Ref: Safiya Brea, CHEN*MOORE, 954-730-0707, Ext. 1008

c.

(1) TITLE AND LOCATION (City and State)
BCAD Airport Master Plan Update
Ricondo & Associates, Inc.
Broward County, Florida

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2017 to present	

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

☑ Check if project performed with current firm

Provide assistance to Ricondo staff relative to the Stakeholder Engagement/Public Outreach Program Implementation. Prepare project collateral, flyers, fact sheets, notification letters, and public notices. Dissemination of flyers, and notices. Prepare a database of Policy Advisory and Technical Advisory Committee members to notify for participation in workshops throughout the study process which included professional staff from federal, state, county and local governments and business organizations. Coordinate presentations and attend meetings with established community groups and business owners. Attend progress meetings and provide coordination assistance during workshops and meetings. Develop and distribute via outlook notifications request for meeting attendance to the Advisory Committees. Coordinate the attendance of court reporters to take minutes.
Ref: Pete Ricondo – 305-260-2727

d.

(1) TITLE AND LOCATION (City and State)
BCAD Airport Noise Abatement Committee Administrative Support
Harris Miller Miller & Hansen Inc.
Broward County, Florida

(2) YEAR COMPLETED	
PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2002- Present	

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

☑ Check if project performed with current firm

Assist HMMH and BCAD in scheduling, facilitating and reporting to the Airport Noise Abatement Committee, government officials and concerned citizens. Provide ADA conversion services for all documents that will be posted on the Aviation Department website for this project. Also, work with the HMMH team on the Part 150 Study coordinating meetings with the public, businesses and public officials.
Ref: Rhea Gundry – 916-368-0707 x2222 or Winston Cannicle (Broward County) 954-359-6181

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#1

21. TITLE AND LOCATION (City and State)

PortMiami Program Management Services
Miami-Dade/ County, FL

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Present	Present

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
PortMiami	Elizabeth Ogden, Assistant Port Director	305.371.7678 eogden@miamidade.gov

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

Project Overview

AECOM is currently serving as Program Manager, assisting PortMiami in administering its $1.5-billion capital development program under a five-year program management contract.

AECOM has assisted the port as an extension of staff in providing short and long term planning, facilities planning, cost estimating, scheduling, project programming, design oversight, oversight of engineering and inspection consultants, quality assurance oversight, design criteria and standards oversight, value engineering, project controls, contract administration, utility relocations, and claims administration.

AECOM provides three on-site technical resources to the Port as extension-of-the-staff, who are supported 8 to 10 core staff dedicated to providing on-going project management, construction management and field reviews, and owner's representative services, including attendance to meetings (external and internal meetings), coordination with adjacent projects, documents and cost controls, schedule reviews, technical support, and design reviews for adherence to the strategic projects' goals and objectives of the Port and the Port's design criteria as established for the project.

Program management activities include Weekly Progress Meetings with Cruise and Shipping Lines, Construction Manager Joint Venture teams on various projects, and Design team representatives on various projects, Meetings with project stakeholders including Customs and Border Protection (CBP) and shipping/cruise line operations and security divisions, pre-construction meetings, and adjacent projects coordination meetings with Port contractors and consultants.

AECOM performs design and specifications reviews to confirm compliance with design and construction criteria. AECOM services also include maintaining complete, accurate records of all activities and events relating to the project and properly documenting all project changes. AECOM is also performing all construction administration services.

AECOM staff assists the Seaports Contracts Section with the procurement of design and construction contractors through the Miami-Dade County procurement process, as well as 7040 I 7360 Miscellaneous Construction Contracts. AECOM staff also assists with owner direct purchases,

Relevance to This Contract:

- ☑ Coastal Engineering
- ☑ Shoreline Protection
- ☑ Structural Evaluation of Seawalls
- ☑ Federal Waters Permitting

Duration: 2001 – Present

Cost (fee): $1.5 million

Key Personnel: José Soler, Keith Stannard, Ashley Matthews, Jon Thomas, Michael Barba, Jim Netterwald, Philip Hadfield

claims reviews, specification reviews, cost estimate reviews, project advertisement, pre-construction meetings, pay application reviews and close-out of Port projects. Our staff is assisting the Capital Development Division to provide construction management and administration for design-build projects and provides services related to attendance to construction meetings, coordination with PortMiami Capital Development Facilities, Operations and Security Divisions, performance of field inspections and preparation of associated documentation, change management, and review and processing of Design-Build Firm's pay applications for Cruise Terminal projects.

Task Order: Cruise Terminal B (CTB) Design-Build Project AECOM is also overseeing the development of the Cruise Terminal B Complex, a $100-million Design-Build project that includes a state-of-the-art cruise terminal, multi- story parking garage, intermodal facilities, and landside and waterside improvements to support passenger and cruise operations. AECOM manages a large, multi-disciplined team, serves as client advisor, and coordinates efforts and resources to support numerous enabling projects.

AECOM provided bid support services during Step 1 and Step 2 tier submissions and preparation of the CTB Design-Build Request for Design-Build Services (ROBS), including assisting the Port in the development of evaluation criteria.

AECOM completed CTB Design Criteria Package reviews, coordinated with the Port's consultant during the preparation of the Design Criteria Package, prepared the draft of the CTB Design-Build Agreement , and supported the Port in the preparation of front end and other contract documents for CTB. AECOM assisted the Port in the

review and evaluation of the Step 1 and Step 2 Design-Build Proposer submissions. Once the CTB was awarded using the CM at Risk alternative delivery method, AECOM provided support to PortMiami in the development of the new Cruise Terminal B program and the new agreement between PortMiami and the Cruise Line. As Owner's Representative, AECOM has supported phased GMP review and negotiations between the Port, the cruise line, the Architect and the Construction Manager. Additional services have included providing support to PortMiami in the review of the new Cruise Terminal B Design Drawings submittals by Norwegian Cruise Lines.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	Miami-Dade, FL	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#2

21. TITLE AND LOCATION (City and State)

Port of Palm Beach Reconstruction of Slip 3 and Berth 17
Palm Beach County, Florida

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
July 2016 Slip 3, July 2018 Berth 17	April 2018

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Port of Palm Beach District	Tom Lundeen, PE	561.383.4133

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

Project Overview

AECOM provided planning, design, permitting, construction document preparation, construction management and construction administration services for the reconfiguration of existing Slip 3 at Port of Palm Beach. The project consisted of the reconstruction of the Port of Palm Beach's Slip #3, including dredging, upland improvements and a bulk sugar vessel loading system; all with coordination of existing tenant operations and Florida Power & Light.

As the team leader, AECOM is managing seven other small to medium size specialty subconsultants in executing the project. The scope of work includes boundary surveys, upland topographic surveys, bathymetric surveys of the slips and marginal wharfs, soil borings/material testing and analysis, demolition design, design of replacement steel sheet piling, concrete cap and soil anchors, fenders and mooring fittings, roll on/roll off ramp, provision of shore power stations, water main installation, paving, high mast lighting, electrical conduit and manholes and water boxes.

While the east, west and south bulkheads employ a traditional anchored king pile oversheeting, in order to maintain the slip width, the north bulkhead had to be installed behind the existing bulkhead. This created sequencing challenges that required the existing tie-back system be maintained functional and securing the existing bulkhead until the new wall and soil anchors were completed. Other challenges included maintaining port operations with minimal disruptions.

On the slip's south side, the AECOM team developed modifications to the existing sugar gantry loader rails to allow relocating the loader 8 feet waterward. The gantry connection to the conveyor was modified to accommodate move. The construction allowed the loader to remain in operation throughout the reconstruction.

Relevance to This Contract:

- ☑ Coastal Engineering
- ☑ Shoreline Protection
- ☑ Structural Evaluation of Seawalls
- ☑ Federal Waters Permitting

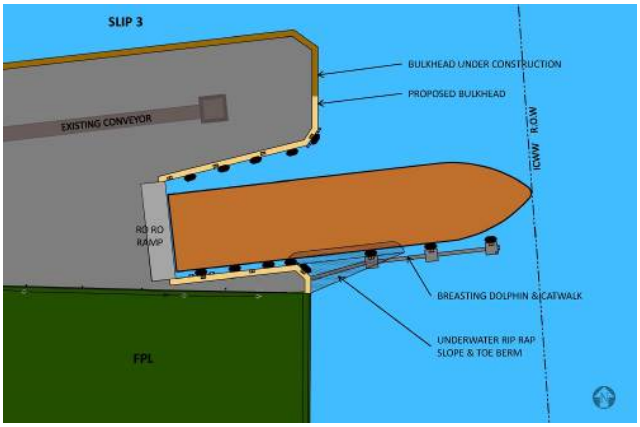
Duration: 2011 – 2018

Cost (fee): $1,700,000

Key Personnel: Lori Baer, Vijay Agrawal, John Carel, Jose Soler, Karen Brandon, Saul Perez

The project scope was expanded in 2014 and AECOM developed construction documents for an additional barge slip at the southeast corner of the property including concrete secant pile wall and steel sheet piling bulkheads and mooring/breasting dolphins for 300 feet barges and a RORO ramp. Due to proximity to property line cantilever secant pile walls are used with a low-level relieving platform to reduce soil loads on the wall. The project includes pavement replacement for a 2,000-foot-long access road back to the tenant's upland facility.

The scope of work also included permitting, dredging, building demolition, tenant coordination, cost estimating and preparation and management of multiple phased procurement and construction contracts. AECOM also performed construction phase services for the berth.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	West Palm Beach, FL	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#3

21. TITLE AND LOCATION (City and State)

US Coast Guard Station Marathon Major Maintenance & Repair Waterfront
Marathon, FL

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2019	Not Started

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
United States Coast Guard	Felipe De Las Pozas	305.278.6732 Felipe.DeLasPozas@uscg.mil

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

Project Overview

The US Coast Guard Station Marathon is located at 1800 Overseas Highway in Marathon, Florida, on Vaca Key. Station Marathon is a multi-mission unit that conducts missions in search and rescue, law enforcement, alien migrant interdiction operations, and marine mammal protection. The waterfront facilities support the stations vessels including one 45' Response Boat Medium (RB-M) and three 33' Law Enforcement Special Purpose Craft (SPC-LE). The waterfront facilities are also used by three small rental boats, one US Borders and Customs Protection boat, one Florida Fish and Wildlife boat, and one Florida Keys National Marine Sanctuaries boat.

AECOM provided professional engineering services (investigation, design, permitting, and coordination) for the project to upgrade the waterfront facilities which include a concrete soldier pile and plank bulkhead, a concrete wharf, a boat ramp, and seawalls consisting of stacked bagged concrete and mass gravity concrete wall.

Shortly after notice to proceed hurricane Irma passed the Florida Keys delaying the project start. The repairs to the seawalls and bulkhead included repairs to undermined walls from past storms and filling sinkholes. The end of the boat ramp was undermined and required replacement of the ramp with a precast slab and installation of sheet pile enclosure to prevent further undermining. During the concept stage the age of the wharf, its numerous reconstructions and observed conditions warranted additional testing. Cores were taken and sent for petrographic examination and found to be highly contaminated. As a result, repairs included with the original scope were determined to have a short life cycle. An analysis determined replacement was the more cost-effective solution based on life cycle costs.

AECOM developed plans, specifications, cost estimates, and documentations throughout the design process for the completion of various elements to be constructed as described above and replacement of the wharf in its entirety with a new pile supported concrete platform.

Relevance to This Contract:

- ☑ Coastal Engineering
- ☑ Shoreline Protection
- ☑ Structural Evaluation of Seawalls
- ☑ Federal Waters Permitting

Duration: June 2017– October 2019

Cost (fee): $1,988,481

Key Personnel: Vijay Agrawal, John Carel, Keith Stannard, Laura Cherney, Steven Li, Ashley Matthews, Saul Perez

In addition to the inspection and design services, AECOM established the need for, applied for and obtained permits necessary for Army Corp, State, and local approval including Florida Keys National Marine Sanctuary permit. A recently performed benthic survey for the basin also prepared under a separate contract by AECOM was utilized for the application. AECOM is current acting as agent during the permit process.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	Miami, FL	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#4

21. TITLE AND LOCATION (City and State)

100 Resilient Cities
Greater Miami and the Beaches, Miami, FL

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2019	N/A

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
100 Resilient Cities, Rockefeller Foundation	Otis Rolley	212.852.8336 ORolley@rockfound.org

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

Project Overview

AECOM was the Strategy Partner to the Rockefeller Foundation's 100 Resilient Cities for the Resilient305 program for the Greater Miami & the Beaches. The effort was a three-year partnership between Miami-Dade County and the Cities of Miami and Miami Beach to develop a collaborative Resilient Strategy for the region. AECOM assisted the communities by engaging thousands of stakeholders throughout this process to prioritize strategies, narrative content, and develop the final Resilient305 Implementation Strategy.

Our experience listening and helping build a more resilient region has provided insight into the top resilience shocks and stresses the region is facing, including vulnerability to storms and the ability to recover, sea level rise and coastal erosion, aging infrastructure , strained natural systems , and overall greater opportunity for intergovernmental collaboration.

Specific to sea level rise, flooding, storm surge, and recovery, there was a significant portion of the work dedicated to committing innovative investments in infrastructure; protecting natural resources; water quality and supply; understanding and communicating risk; and understanding the potential changes in insurance rates. We are prepared to apply the knowledge gained as Strategy Partner for Resilient305 to our work with City of Miami.

Relevance to This Contract:

- ☑ Coastal Resiliency
- ☑ Stakeholders Engagement
- ☑ Flooding Risk Assessment and Mitigation Strategies
- ☑ Data Collection & Reports Writing

Duration: 2016–2019

Cost (fee): $540,000

Key Personnel: Lauren Swan, Erica Harris, Justin Vandever

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	Miami, FL	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#5

21. TITLE AND LOCATION (City and State)

Wagner Creek Seybold Canal Restoration
Miami, FL

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2018	2018

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of Miami	Robert Fenton	786.263.2133 rfenton@miamigov.com

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

Project Overview

AECOM, as a subconsultant to Sevenson Environmental Services (SES), provided Design-Build services to the City of Miami to remove contaminated (dioxin) sediment from Wagner Creek and Seybold Canal. These waterways were considered the most contaminated in the State of Florida. The sediments in Wagner Creek contained elevated levels of dioxins; and dredging was needed to remove the contaminated sediments and to restore this aquatic habitat and manatee refuge area, as well as restore the drainage features of these waterways , which are designated as Outstanding Florida Waters (OFWs).

The key to project success was AECOM's design of three innovative dredge approaches. AECOM's plan was developed based on the use of specialized dredge equipment that SES built specifically for this project. Key advantages included 1) ability to access the site and transfer material continuously ; 2) fast track permitting program that could obtain regulatory approval from FDEP, USACE, Miami-Dade County Department of Environmental Resources Management (DERM), and FWC within 90 days of contract award ; and 3) use of aqua dams, moon pools, and air curtains to provide protection of the endangered manatees. The city was in jeopardy of losing millions of grant dollars if the project wasn't substantially completed by March 2018. AECOM was successful in obtaining permits in time to allow for project start and secured funding.

AECOM was responsible for the engineering dredge design for the six operational sections (OS1- OS6). design and permitting of the off-site staging area, pre- and post-structural engineering evaluations, permitting an innovative dredge plan, public outreach, regulatory compliance, manatee protection, and on-site environmental and quality assurance inspections of the dredging activities .

Two of the key accomplishments included 1) an extensive community outreach effort that successfully promoted a clear understanding of environmental issues associated with restoring these contaminated waterways , and 2) AECOM's public outreach team that promoted communication between the project stakeholders, and most importantly the residents , which stimulated meaningful discussions and a deep understanding of environmental issues affecting the surrounding neighborhoods.

Relevance to This Contract:

- ☑ Contaminated Sediments Removal
- ☑ Waterways Dredging
- ☑ Protection of Aquatic Habitat and Manatee
- ☑ Fast-track Regulatory Approvals from FDEP, USACE, DERM and FWC

Duration: 2017 – 2018

Cost (fee): $3.2M

Key Personnel: Dan Levy, Keith Stannard, Laura Cherney

The project was a huge success and received two prestigious Environmental Awards last year, a national award from the Western Dredging Association (WEDA) and a regulatory award from Florida Department of Environmental Protection for environmental excellence in dredging.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	Miami, FL	Subconsultant
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#6

21. TITLE AND LOCATION (City and State)

Stormwater and Flood Mitigation Engineering Design Services
Annapolis, MD

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Present	Not Started

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of Annapolis	Lisa Grieco	410.263.7949

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

Project Overview

AECOM is engineering and designing a stormwater and flood mitigation system for the City of Annapolis, MD. City Dock is an area located in the downtown historic district of the City of Annapolis, MD that serves as an economic and tourist hub for the city. The project involves shoreline protection and interior drainage improvements and mitigation features that are collectively integrated into the historical architecture and aesthetics of the area,

The Market Slip bay (commonly referred to as Ego Alley) connects the dock to the Atlantic Ocean. Located within the Colonial Annapolis Historic District, the area is deemed a National Historic Landmark (NHL). Adjacent to City Dock is the United States Naval Academy which is also designated as an NHL. During high tides, City Dock experiences nuisance flooding which inhibits tourism and business activities. In 2009, there were over 60 occurrences where water was seen on the roads and sidewalks and 54 events in 2010 with standing water on the roads. The National Oceanic and Atmospheric Administration completed a study regarding sea level rise which identified the City of Annapolis as the most significantly impacted city in North America due to Sea Level Rise (SLR).

These nuisance flooding events occur when the tide level in Market Slip rises to the elevation at which tide water travels upstream in the underground storm drain systems, adjacent to City Dock, causing portions of the system to become submerged leading to water escaping onto the roads and sidewalks. Sea water not only escapes onto the streets through the storm drain system during high tide situations, it also overtops segments on the existing bulkhead which result in overland flooding of the streets and businesses. In conjunction with projected sea level rise, the frequency and severity of the nuisance flooding is expected to increase.

To deal with the nuisance flooding at City Dock, a combination of flood reduction measures is being proposed while considering various design factors such as SLR, Historic Preservation guidelines, maintenance of watershed views, constructability, construction phasing and cost. The proposed concept design combines alternatives such as underground pump stations, backflow preventers, raising of the existing bulkhead and realignment of the storm drain system. The proposed design is expected to mitigate nuisance flooding as well as control stormwater runoff up to the base-flood elevation.

Relevance to This Contract:

- ☑ Stormwater and Flooding Mitigation System
- ☑ Shoreline Protection and Landscape Architecture
- ☑ Structural Evaluation, Analysis and Design of Seawalls
- ☑ Federal Waters Permitting

Duration: 2017−present

Cost (fee): $13.4M (Est.)

Key Personnel: Bruce Lelong, Ariel Buenano

An existing bulkhead serves as the boundary between City Dock and Market Slip. The height of this bulkhead varies between elevation 1.0-ft and 4.9-ft (NAVD88). Because the elevation is not consistent along Market Slip, some areas are more prone to nuisance flooding than others. For example, the height of the existing bulkhead at the end of Newman Street is at elevation 1.0-ft, allowing for high tides to overtop the bulkhead and creep upwards towards Compromise Street. Coupled with nuisance flooding which is caused by tide water backing up through the storm drains at elevation 0.63-ft, this creates a disastrous situation. A key feature of City Dock is the Alex Haley memorial statue at the beginning of Market Slip (Dinghy Dock); this area is also susceptible to nuisance flooding because the height of the existing bulkhead in this area is at elevation 1.5-ft NAVD88.

The City of Annapolis experiences semi-diurnal tides, with typically one of the high tides being slightly higher than the other and one low tide being slightly lower than the other. These are known as higher high tide and lower low tide, respectively.

Data from the NOAA Annapolis gage for all of 2016 indicates that the mean of all high tides (high and higher high) for 2016 was 0.80-ft NAVD88. AECOM coastal engineers also reviewed data for all high tides above the reported 1.90-ft NAVD88 elevation at which storm drains begin to back up. This elevation was surpassed 23 times in 2016, with the mean of these levels at 2.26-ft NAVD88. Tidal records provided by City officials have shown high tides between 2.20 to 3.26 feet NAVD88 in the past 8 years (without the influence of a tropical storm or hurricane) that have caused significant flooding along Compromise and Dock Streets. AECOM used this information along with results from the WBCM 2012 report to recommend analysis of proposed mitigation measures

commensurate with a current high tide elevation of 2.9-ft NAVD88.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	Germantown, MD New Orleans, LA	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#7

21. TITLE AND LOCATION (City and State)

Lower Manhattan Coastal Resiliency Bridges Study
New York, NY

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2018	Not Started

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
NYC Economic Development Corporation	Elijah Hutchinson	212.312.3782 EHutchinson@edc.nyc

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

Project Overview

Initially as the Prime Consultant for the LMCR Feasibility Study, AECOM's involvement in the resiliency of Lower Manhattan continues with the Two Bridges project.

The Lower Manhattan Coastal Resiliency (LMCR) Project aims to reduce flood risk due to coastal storms and sea level rise from Manhattan's Two Bridges neighborhood to Battery Park Cit y. The AECOM team developed a long-term strategy aimed at flood reduction in Lower Manhattan as well as a feasible concept design for a flood protection system for the Two Bridges Neighborhood . The interdisciplinary team undertook a collaborative design process that involved engineers, landscape architects, architects, planners, economists, environmental and regulatory experts, hydrodynamic modeling specialists, and community engagement advisors.

In the Two Bridges neighborhood , the project explored a variety of infrastructure typologies in order to develop a system of flood protection which were analyzed in a Feasibility Study and developed to a schematic level of design. The project intends to build the physical, social, and economic resiliency of the area by integrating flood protection infrastructure into the community fabric while improving access to the waterfront and enhancing public spaces. LMCR goals prioritized project concepts and infrastructure typologies that were implementable , while identifying opportunities for long-term resilience; and engaged with the community on core design principles and priorities.

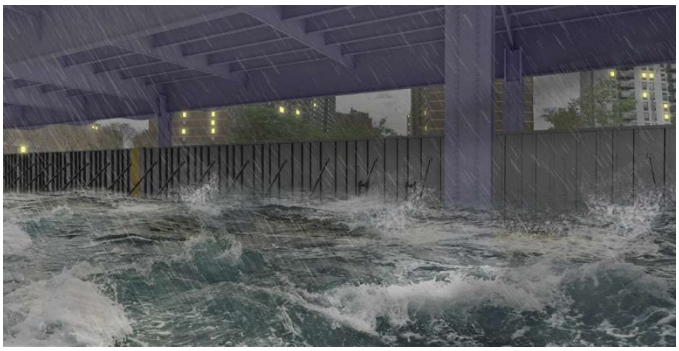
Relevance to This Contract:

- ☑ Coastal Resiliency and Flooding Risk Management
- ☑ Shoreline Protection and Landscape Architecture
- ☑ Hydrodynamic and Coastal Modeling
- ☑ Extensive Community and Stakeholders Management

Duration: 2016–2018

Cost (fee): $7.28M

Key Personnel: John Carel, Steven Li, Brian Stobbie, Wael Youssef, Abbas Sarmad



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	New York, NY	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#8

21. TITLE AND LOCATION (City and State)

NJDEP Rebuild by Design Hudson River
NJ/NY

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Present	Not Started

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
New Jersey Department of Environmental Protection	Frank Schwarz	Frank.schwarz@depnj.gov

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

Project Overview

AECOM is promoting development of innovative resilience projects in Superstorm Sandy-affected regions. The Rebuild By Design: Hudson River (RBDH) Project emerged from the Rebuild by Design Competition , which promoted development of innovative resilience projects in Superstorm Sandy-affected regions. HUD awarded $230M to the State of New Jersey to design and build a multipurpose structure that provided FEMA accredited flood risk reduction at the 100-year storm level (called the "Resist Structure"), as well as mitigation for stormwater flooding through elements such as green infrastructure , underground storage and Storm Sewer Modification.

The Resist structure design consists of an 8,846 linear foot alignment that is intended to provide coastal flood risk reduction to the population and infrastructure residing within the project area's 100-year floodplain . Ranging from 1 foot to approximately 11 feet in height, multiple types of public amenities will be integrated into the structure in various locations along the alignment. The final design will also include Cove Park , a new waterfront park designed on top of, and incorporated with , the Resist Structure.

AECOM is responsible for advancing the multipurpose Resist Component, related stormwater components, integrated urban amenities , and Cove Park to a final-level design. The design process is informed by a public engagement process that is organized to solicit input through workshops and individual activities applied to three-dimensional models, maps and diagrams. AECOM prepared working materials and facilitated the workshops.

Relevance to This Contract:

- ☑ Coastal Resiliency and Flooding Mitigation
- ☑ Shoreline Protection and Stormwater Management
- ☑ Structural Evaluation of Seawalls
- ☑ Public and Stakeholders Engagement

Duration: 2017 – Present

Cost (fee): $30 million

Key Personnel: Bruce Lelong, Ariel Buenano, Brian Stobbie, Wael Youssef, Steven Li, Jae Park, Dan Deegan

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	New York, NY	Prime
b.	AECOM	New Orleans, LA	Prime

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#9

21. TITLE AND LOCATION (City and State)

Port of New Orleans, Nashville Avenue Terminal Conversion to Container and Crane Rail Extension
New Orleans, LA

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Present	N/A

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Port of New Orleans	Anthony Evett	504.528.3309 Evetta@portno.com

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

Project Overview

AECOM was selected to provide Design of structural improvements to the existing container wharf being used by Ports America, extension of the landside crane rail, and improvements to the utilities serving the STS cranes in New Orleans. AECOM's scope of services include design of the following work; fender and mooring bollard improvements, electrical service improvements to the STS cranes, additional mooring and berthing analysis, geotechnical slope stability and lateral pile analyses, sheet pile toe walls, wharf pile repairs, crane rail extension, demolition of a warehouse, concrete wharf modifications, high mast light poles, dredging of an identified portion of the berth, removal of a fire water pump and installation of the new pump on an adjacent wharf, technical points of emphasis, and maintenance of operations during construction.

AECOM's scope of work is to design the Nashville Avenue wharves upgrade to accommodate 100-foot gage rail-mounted cranes to increase service to larger container vessels. Currently, the concept design is being completed. A new rail and supporting crane beam and pilings are to be constructed on the landside of the dock, offset 100 feet from the existing waterside rail, which also may need to be replaced. Localized demolition will be required on the dock surface, to install new crane rail(s) foundation piling.

Relevance to This Contract:

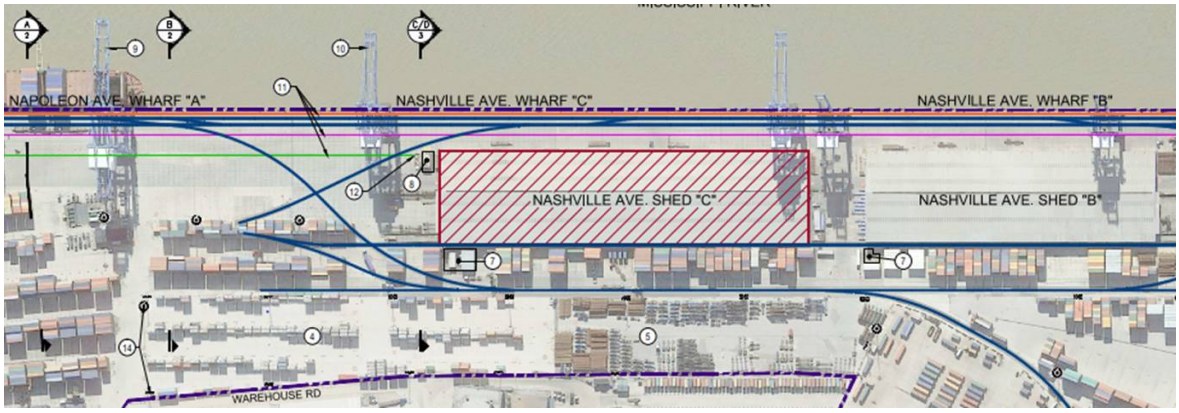
- ☑ Coastal Engineering
- ☑ Shoreline Protection
- ☑ Structural Evaluation of Seawalls
- ☑ Federal Waters Permitting

Duration: 2018 – Present

Cost (fee): $2.8M

Key Personnel: Vijay Agrawal, Philip Hadfield, John Carel, Steven Li, Anthony Mets, Bruce LeLong, Ariel Buenano. Brent Jones, Jonathan McDowell, Tom Hunter

AECOM added extra value to the client, having designed the original berth (performed by legacy AECOM firms), AECOM was able to mobilize the project team swiftly, including project partners with previous experience in the berth's construction and site conditions, to prepare a detailed scope of work for the rehabilitation, undertake the concept design, and prepare the basis of design. The client is able to access AECOM's deep bench of Ports & Marine experts and locally based wharf design team members when undertaking and managing all site investigations, permitting, concept design, detail design, and the construction administration services.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	New Orleans, LA	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#10

21. TITLE AND LOCATION (City and State)

South Battery Park Resiliency Project
New York, NY

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Present	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Battery Park City Authority (SPCA)	Gwen Dawson	212.417.2000 gwen.dawson@ bpca.ny.gov

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

Project Overview

AECOM is the lead for multi-discipline team for Design Services (from conceptual to construction documents) and Community Engagement for this flood risk management project. South Battery Park Resiliency is a highly urban and coastal flood risk management project for Battery Park City Authority (BPCA) in Lower Manhattan. During Hurricane Sandy combined coastal surge inundated Lower Manhattan on its western side through both Wagner Park and Pier A and other portions of northern BPCA, finding its way up 9A (West side Highway). into One World Trade Center and the Battery Tunnel, impacting much of Lower Manhattan's critical infrastructure.

This project looks to design an integrated flood alignment system through the southern portion of Battery Park City, through Wagner Park and Pier A, and along the north side of Battery Park to the higher ground of the Bowling Green Plaza. This project will be inclusive of some of the most progressive flood risk management solutions that are available , due the dense urban environ and existing subterranean infrastructure . Wagner Park , the main public space within the project area , is a well-known design legacy landscape.

The flood alignment will be designed as an integrated aspect of the public park, as well as, deployable flood gate designed so the NYC can still maintain its daily operations. The entire alignment will need to be FEMA certified/accredited and the scope of work ranges from conceptual design to construction documents, community engagement, construction administration , FEMA floodplain maps updating, and operations and maintenance manual development of the entire system.

Relevance to This Contract:

- ☑ Coastal Engineering
- ☑ Shoreline Protection
- ☑ Structural Evaluation of Seawalls
- ☑ Federal Waters Permitting

Duration: 2018 – 2021 (estimated)

Cost (fee): $7.8M

Key Personnel: John Carel, Steven Li, Wael Youssef, Jae Park, Brian Stobbie

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	New York, NY	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#11

21. TITLE AND LOCATION (City and State)

Exposed Miami Beach Lateral Gas Pipeline Protection Project
Biscayne Bay, Miami-Dade County, FL

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Present	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Florida Gas Transmission Company, LLC.	Janice Taylor	407.838.7057 Janice.Taylor@energytransfer.com

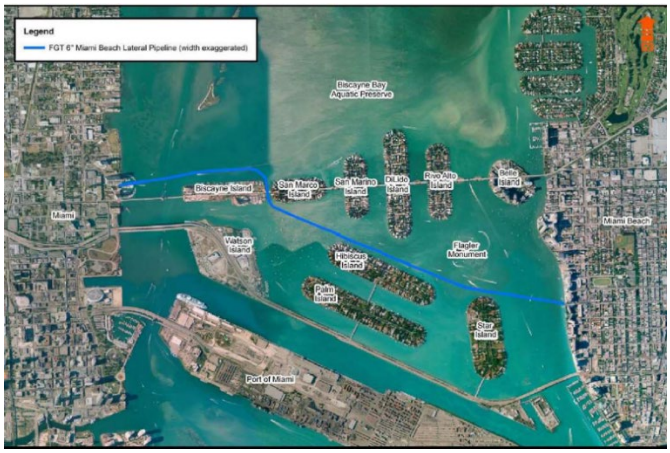
24. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (Include scope, size, and cost)

Project Overview

Approximately 5,000 linear feet comprised of numerous separated segments of various lengths of the existing FGT 6-inch Miami Beach Lateral natural gas pipeline within Biscayne Bay became exposed over time due to large storm/hurricane events. In order to protect the pipeline, as required per regulations of the U.S. Dept. of Transportation's Office of Pipeline Safety, FGT proposed to position articulated block concrete mats over the exposed segments of pipe using a spud barge (120 feet long by 45 feet wide). The exposed segments of the pipeline are located within the limits of Biscayne Bay, designated as Outstanding Florida Waters and an Aquatic Preserve.

The project work (permitting and construction) was accomplished in two separate phases.

FGT retained AECOM to provide assistance with federal, state and county environmental agency coordination and applying for and acquiring the necessary permits. As a part of the permitting tasks, AECOM performed an extensive benthic resources survey to identify, assess and map the extent of benthic resources (i.e., seagrasses, corals, sponges, etc.) within 65 feet of the existing pipeline to accommodate the width of the barge. Nineteen seagrass habitat types and seven bare substrate habitat types were identified, assessed and mapped.



Through extensive coordination efforts between AECOM, FGT and the regulatory agencies (including National Marine Fisheries Service). every prudent and feasible effort was made to avoid and minimize impacts to existing marine benthic communities including the development of a computer model to demonstrate that additional subsurface anchoring of the mats was not required for structural sustainability (for future large storm events).

Relevance to This Contract:

- ☑ Infrastructure Damage due to Hurricane & Storm
- ☑ South Florida Experience in Waters
- ☑ Benthic Resources Survey
- ☑ Regulatory and Permitting with Several Agencies

Duration: 2016 – 2020

Cost (fee): $500,000

Key Personnel: Dan Levy, Keith Stannard, Laura Cherney

To offset unavoidable project impacts, a proposed mitigation was developed by AECOM in consultation with the FDEP's Biscayne Bay Aquatic Preserve to consist of restoration of seagrass bed propeller scars (prop scars) caused by vessel grounding.

The mitigation area is located in a partially enclosed region of northern Biscayne Bay surrounded by urban, commercial, and industrial development (Miami, Port of Miami, Virginia Key, and Rickenbacker Causeway). The shoal, adjacent to the Intracoastal Waterway, is located in an area that experiences considerable recreational and commercial boat traffic. The seagrass beds on this shoal have experienced numerous impacts in the form of propeller scars resulting from vessel groundings on the shoal.

Construction of the mitigation was also conducted by AECOM. The objective of the seagrass mitigation effort is to restore the damage to the seagrass bed by filling the propeller scars with sediment tubes to facilitate the regrowth of seagrasses. The sediment tubes are used to establish the pre-existing grade of the mitigation site (to bring the propeller scars back to grade with the surrounding seafloor) so that seagrass colonization can reestablish horizontally across the restored substrate. The sediment tubes for this mitigation site consist of a coarse grained untreated cotton fabric and are wholly biodegradable. The tubes are three feet long and eight inches in diameter when filled. Materials utilized to fill below-grade depressions include calcareous sand-silt sediments similar to original substrate . The sediment tubes were installed by hand using personnel deployed

from a shallow draft skiff equipped with the Power Pole device that acts as an anchoring spud to minimize bottom impacts. Floating turbidity curtains were placed around the mitigation site prior to and during the sediment tube installation activities in order to minimize turbidity. The bottom of the curtain was maintained at six inches above the seagrass bed at low tide. No additional impacts (direct or secondary) to existing resources occurred from the sediment tube placement activities.

AECOM was also tasked with performance of environmental inspections during construction (mat installation activities) and five years of monitoring of the mitigation area to demonstrate the project meets the permitted success criteria .

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	Miami, FL	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#12

21. TITLE AND LOCATION (City and State)

San Francisco Airport Seawall
San Francisco, CA

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2018	N/A

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
San Francisco International Airport	Joseph Birrer	650.821.7751 joe.birrer@flysfo.com

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

Project Overview

SFO's shoreline is eight miles long and extends from the San Bruno Channel in the north to the Millbrae Channel in the south. Existing shoreline protection features are man-made defenses ranging from rock revetments and reinforced concrete walls to vinyl and steel sheet piled walls. In some locations, the shoreline abuts wetland habitats with naturally formed shallow foreshores that extend out into the bay and are exposed during low tide events.

A recently completed FEMA flood study of San Francisco Bay designated portions of SFO as within the Special Flood Hazard Area (SFHA). SFO is seeking removal of the SFHA designation by providing an accredited flood protection system to mitigate coastal and riverine flooding.

Although FEMA requirements were SFO's primary concern, AECOM's project also addressed the effects of SLR. To improve the airport's overall resiliency, seismic improvements were included in the flood protection design alternatives. The primary seismic hazards for SFO's shoreline structures are liquefaction and lateral spreading, as well as lateral deformation of the shoreline protection systems.

AECOM's work (in a joint venture with an LBE firm) on this program included the following:

- Performed visual observation of SFO's entire shoreline (8 miles), which was subdivided into 15 reaches and noted deficiencies, as well as one specific area that required emergency repairs.
- Performed extensive review of existing available site information, including as-built drawings of the shoreline systems, utility drawings, flood maps, survey data, geotechnical reports, and other site data.
- Developing reach-by-reach design criteria for FEMA compliance, SLR (2050 and 2100) and seismic improvement.
- Developed a toolbox of concept designs for shoreline upgrades, including levees/berms, concrete and sheet pile floodwalls, rock revetments, fixed and floating off-shore breakwaters, and off-shore seawalls.

Relevance to This Contract:

- ☑ Coastal Engineering
- ☑ Shoreline Protection
- ☑ Structural Evaluation of Seawalls
- ☑ Federal Waters Permitting

Duration: 2016 – 2018

Cost (fee): $600,000

Key Personnel: Justin Vandever, Philip Hadfield, Byoung-Sok, Prabin Tuladhar

- Performing a multi-hazard risk assessment of SFO's existing flood defenses.
- Developed preliminary design approach for seismic improvement that uses ground improvement via jet grouting, deep soil mixing or stone columns.
- Through an adaptive approach, designs were developed for near-term FEMA compliance, then evaluated for addressing mid- to long-term adaptation for SLR, and lastly, developed ground improvement schemes for seismic resiliency.
- Developing preliminary designs to evaluate alternatives and for construction cost estimates.
- Performed an alternatives evaluation with 23 criteria organized into six general categories: FEMA compliance, SLR adaptability, seismic performance, construction approach and constructability; stakeholder impacts, and environmental/permit impacts.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	Orange County, CA	Subconsultant
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#13

21. TITLE AND LOCATION (City and State)

City of Miami Beach Sea Level Rise Vulnerability and Resilience Program
Miami Beach, Florida

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2018	N/A

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of Miami Beach	Susanne Torriente	305.673.7000 susannetorriente@miamibeachfl.gov

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

Project Overview

AECOM has brought environmental and earth scientists, planners, modelers, economists, and engineers to support the City of Miami Beach in its Sea Level Rise Vulnerability and Resilience Program. Our team has assisted the City with review of building and land development codes to improve flood resilience, assessment of vulnerability for city-wide assets, and development of tools which have assisted the City in its efforts to clearly communicate complex issues and solutions to its many stakeholders.

Several key outcomes have resulted from this work, including:

- Over 100 recommendations to revise building and land development ordinances for improved flood resilience. Numerous ordinances were approved by the City Commission such as increases in freeboard, increases in the minimum elevation of seawalls, and increased front and side-yard setbacks.
- Vulnerability assessment of 200+ City-owned built assets to clearly understand potential sea level and flooding exposure, sensitivity, and adaptive capacity. This work included several multi-day workshops with every City department to gather data, review and verify, discuss and revise findings, and training.
- Tools to build resilience into City operations and practices, and communicate risks and benefits to property owners.
  - Adaptation Decision-Making Assessment and Planning Tool (ADAPT). An interactive database used to inform City staff as they plan and develop projects and capital budgets.
  - Elevation Calculator. AECOM developed the first prototype for this tool to assist property owners in understanding the elevation of their property to street and sidewalk elevations, and proposed changes. The City further developed this prototype into a GIS-based tool for use in improved stakeholder communication.

Relevance to This Contract:

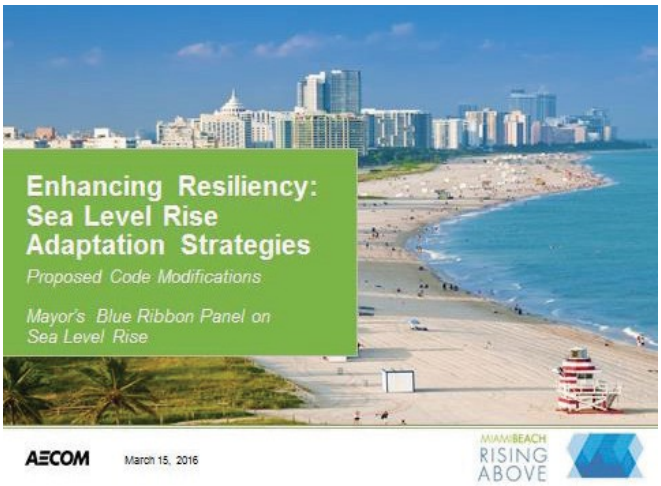
- ☑ Sea Level Rise Vulnerability Assessment
- ☑ Mitigation Strategies for Flooding
- ☑ Community Outreach and Stakeholders Management
- ☑ Resiliency Adaptation Strategies

Duration: 2015 – 2018

Cost (fee): $6M

Key Personnel: Lauren Swan, Erica Harris, Justin Vandever, Gustavo Santana

- Strategies for use in the City's hazard mitigation plan and emergency response plan.
- Review of the City's program under the National Flood Insurance Program (NFIP) Community Rating System, (CRS) and changes to improve the City's rating and reduce flood insurance premiums.



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	Miami, FL	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#14	
21. TITLE AND LOCATION (City and State)	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
Inspections, Analyses, Structural Repair Designs, & Construction Phase Services for Waterfront Facilities USMA West Point, NY	2015	2015

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
USACE Vicksburg District/New York District	Kevin Haskins	603.646.4703

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

Project Overview

AECOM (legacy URS) performed inspections, analyses and provided sketches of recommended repairs and improvements to the United States Military Academy (USMA) in West Point, NY for their dock facilities along the Hudson River, which included designs of replacement river wall and refurbishment of bulkhead walls. AECOM first assessed the condition of bulkheads, mooring dolphins, wharves, timber and concrete decks, and the river wall. The 400-foot long historic river wall was constructed ca. 1903 and is located next to the South Dock. Design Phase services included repair designs to the North and South Docks, design of a replacement river wall, repairs to shoreline protection, and MCACES cost estimating. Construction phase services include shop drawing review, Contractor RFI responses, and periodic site visits. Tasks included:

- Assessment of existing facility data such as property records, future planning construction, maintenance histories, waterfront development plans, and future functionality requirements.
- Conducted Level I, II and III underwater inspections of the North and South Docks and assigned condition assessment ratings for each structure inspected (underwater and above water).
- Performed initial design analyses. Original drawings were unavailable, so AECOM created sketches from measurements and evaluations.
- Documented all findings and reported back directly to the client and key stakeholders, including operational ratings, damage descriptions, and repair priority and descriptions.
- Drafted recommendations for appropriate remedial actions and developed preliminary cost estimates for the repairs.
- Performed detailed engineering analyses of deteriorated members and designed repairs to the North Dock, South Dock, and designed a replacement river wall. Work included geotechnical investigations, surveying, structural engineering, civil/site design, shoreline protection, and cost estimating. The river wall originally was constructed to raise the grade along the river so that the campus road and rail line paralleling the bankline would not be inundated during high river periods. The historic wall is supported on a timber pile and board foundation and is composed of rubble masonry that was quarried from upstate New York. Over time, due to decay of the foundation and freeze-and-thaw processes, the wall has differentially settled, cracked, and shifted, leaning precariously into the river. AECOM designed a replacement wall that is supported on battered steel piles with a deeper pile cap that rests below the frost line. The wall's facades are a custom-patterned rubble masonry faux finish. The original wall's capstones were re-used. Disruption of parking and maintenance of drainage patterns throughout construction were important design and scheduling considerations. The design was reviewed by the academy's historic preservation review committee, as well as the local county. Other work performed on this project includes the refurbishment of the steel sheet pile wall at the North Dock. Repairs to the corroded sheet pile wall to determine corrosion extents, and then designed and detailed additions of doubler plates and alternate connections at the sheet pile knuckles.

Relevance to This Contract:

- ☑ Coastal Engineering
- ☑ Shoreline Protection
- ☑ Structural Evaluation of Seawalls
- ☑ Extensive Field Data Collection and Surveys of Existing Conditions

Duration: 2012 – 2015

Cost (fee): $399K

Key Personnel: Bruce Lelong, Ariel Buenano

Project Title (continued) **#14**

Cost Control: AECOM received "Very Good" ratings for our Cost Estimating and "Meeting Cost Limitations" on our ACASS evaluation.

Quality of Work: AECOM received "Exceptional" ratings on our ACASS for "Thoroughness of Site Investigations/Field Analysis", "Quality Control", "Plans Accurate and Coordinated", "Plans Clear and Detailed Sufficiently", and "Exceptional" ratings for "Structural Engineering", "Civil Engineering" and "Cost Estimating". W912B-10-D-0058-CD01 is ongoing and ratings have not yet been received.

Compliance with Performance Schedules: On W912EE-07-D-0010 / 0017, AECOM received "Exceptional" ratings on our ACASS for "Management and Adherence to Schedule."

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	New Orleans, LA;	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT

20. EXAMPLE PROJECT KEY NUMBER	#15

21. TITLE AND LOCATION (City and State)

Long Term Flood Protection Project, Raritan Millstone Water Treatment Plant
Raritan, NJ

22. YEAR COMPLETED

PROFESSIONAL SERVICES	CONSTRUCTION (if applicable)
2018	2018

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
NJ American Water Company	Mr. Manoj Patel	908.431.3264

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

Project Overview

The New Jersey American Water Company's (NJAW's) Raritan Millstone Plant is a critical facility, producing 165 million gallons of potable water each day for central New Jersey, and also serves as an emergency source of drinking water for the cities of Trenton and Newark. The plant; however, is in the floodplain of the Raritan River, and has twice been inundated by floodwaters - in 1971 and 1999. Under this project, NJAW upgraded and raised the plant's existing one-mile long flood protection system, which surrounds the plant, from the 100-year protection level to the 500-year level. The system is comprised of earthen levees and concrete floodwalls. The cost of construction was $28 Million.

NJAW selected AECOM to provide H&H, geotechnical, civil-site, structural, and electrical engineering design services, plus utility relocations, as well as cost estimating for this project because AECOM's extensive expertise and experience designing and constructing flood protection throughout the United States. AECOM also provided field inspection, engineering support during construction, and construction administration assistance.

The project had several major challenges: The plant's location in the river floodplain meant that enlargement of its footprint could constrict the river flow at flood stage and raise the river's water surface; numerous large diameter underground water mains and intake pipes cross beneath the existing flood protection system, complicating installation of deep foundations and under-seepage reduction systems; permitting requirements restricted construction easements and placed limitations on activities during certain months; and maintenance of the plant's 24/7 operations cycle required a meticulous sequence of construction to maintain plant access and avoid disrupting operations.

AECOM designed the project to FEMA, USACE, and NJAW requirements. Because of the multiple, interdisciplinary challenges and stringent design standards, AECOM employed its engineering and scientific experts across the company, led by its Clifton, New Jersey Office, with civil and structural engineering and cost estimating performed by its New Orleans, Office. The New Orleans Office also designed the erosion control for the drainage and pumping discharge outlets from the plant.

Relevance to This Contract:

- ☑ Coastal Engineering
- ☑ Shoreline Protection
- ☑ Structural Evaluation of Seawalls
- ☑ Federal Waters Permitting

Duration: 2015 – 2018

Cost (fee): $28M (construction)

Key Personnel: Bruce Lelong, Ariel Buenano

AECOM performed HEC-RAS modeling of river flooding to verify that the designs will not raise the river's water surface elevation during a 500-year flood event. To address real estate and operational restrictions, AECOM developed designs of several different systems to suit the unique conditions in the different quadrants of the plant: earthen levee enlargements, inverted T-walls, I-walls, a raising of an existing concrete lagging wall, and a steel pipe pile-sheet pile bulkhead/floodwall.

AECOM provided geotechnical engineering services, including development and oversight of a soil sampling and testing program, stability analyses for the levee enlargements and new floodwalls, and under-seepage analyses. Foundations were designed to facilitate the installation of temporary flood protection systems while under construction during the hurricane and winter flood seasons. Both deep and shallow foundations were used. Deep foundation systems included drilled shafts, micro-piles, and steel sheet piling. Under-seepage reduction systems consisted of bentonite-cement jet grout and steel sheet pile curtain walls, as well as embankment toe drains. The under-seepage reduction system was designed to limit under-seepage flows to a volume that the plant's existing interior drainage and pumping system can handle.

Structural engineering included design of new inverted T-walls and I-walls, retrofits to the existing lagging floodwall, combination steel pipe pile-to-sheet pile bulkhead/floodwall, swing flood gates, and tie-back bulkhead walls.

Civil engineering included site work and grading, modifications to existing interior storm water pumping systems, overhead and underground utility relocations, modifications of plant spill containment areas, design of secondary retaining walls, and design of a new sanitary sewer lift station.

Project Title (continued) **#14**

Construction started in 2016 and was completed in 2018. AECOM provided on-site field inspection and construction administration services, as well as engineering support during construction. AECOM's New Orleans Office provided engineering support for the construction of flood walls, flood gates, drainage structures, earthen levees and site work.

All work completed to date has been accomplished on time, in accordance with NJAW's schedule.

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AECOM	New Orleans, LA Clifton, NJ	Prime
b.			

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)*	20. EXAMPLE PROJECT KEY NUMBER 1

21. TITLE AND LOCATION (CITY AND STATE)	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
Hollywood As-Built Tidal Structure Survey – North & South Lakes Hollywood, Florida	2014	Not Applicable

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
City of Hollywood	Mr. Luis Lopez, P.E. City Engineer	Phone: (954) 921-3930 Email: llopez@hollywoodfl.org

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

Craven Thompson & Associates, Inc. prepared a topographic survey for engineering design purposes for determining the location and elevations of storm outfalls and upstream storm water connections in the North & South Lake Areas. Prepared a Topographic (As-built) survey of twenty-one (21) Storm water outfalls draining into North Lake and three (3) Storm water outfalls draining into South Lake in the City of Hollywood, Florida. The survey included outfall locations covering the project area shown on the attached Exhibit 'A' based on plats, right-of-way maps, and information from Broward County and the City. The Survey will also include locations and topographic elevations of two drainage structures, including rim, inverts, and pipe sizes and material upstream from each outfall and other aboveground visible improvements along the drainage route, including trees and overhead utility lines, and improvements within the rights-of-way within fifty (50) feet of the upstream structures. We established two (2) site benchmarks within the project limits. All elevations were relative to North American Vertical Datum of 1988 (NAVD88).

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) Role
a.	Craven Thompson & Associates, Inc.	3563 NW 53rd Street Fort Lauderdale, Florida 33309	Prime – Surveying Services
b.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) Role
c.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) Role
d.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) Role
e.	(1) FIRM NAME	(2) FIRM LOCATION (City and State)	(3) Role

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT (Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)	20. EXAMPLE PROJECT KEY NUMBER
	2

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Bayshore Drive 18" Forcemain Rehabilitation City of Fort Lauderdale	Surveying and Mapping	

23. PROJECT OWNER'S INFORMATION		
a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Chen Moore and Associates	Daniel Davila, P.E.	954-730-0707

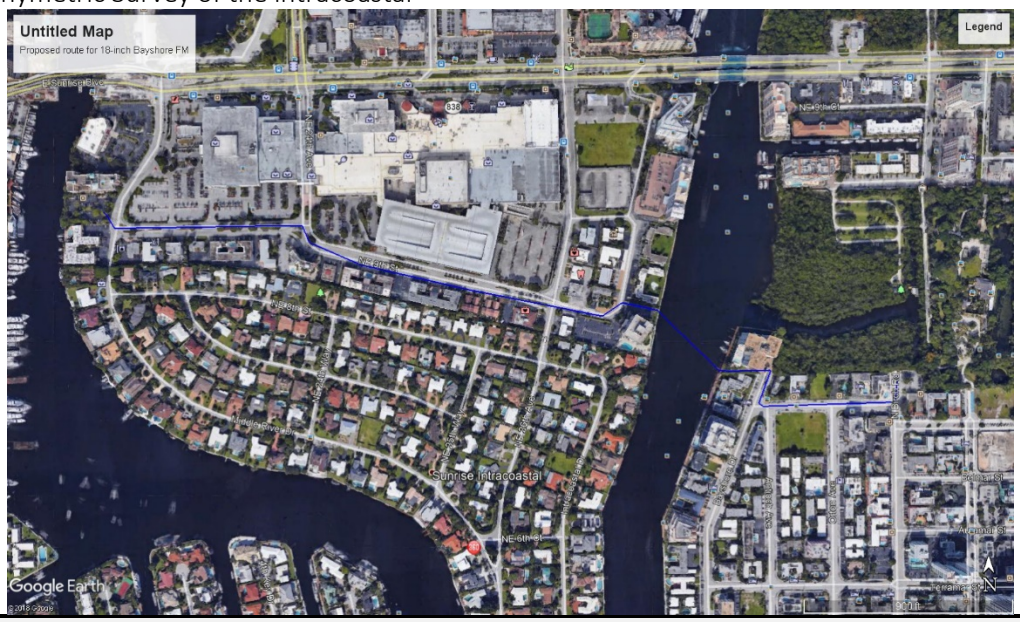
24. BRIEF DESCRIPTION OF PROJECT AND RELEVANVE TO THIS CONTRACT (Include scope, size, and cost)

Longitude Surveyors, LLC prepared a Topographic/Bathymetric Survey and Performed Sub-Surface Utility Engineering Services (SUE)

Scope of Work:

Longitude performed a Topographic/Bathymetric Survey and SUE (Soft Digs) to include the following tasks:

- Right-of-Way and property lines for the project area shown graphically
- Graphical baseline included
- Location of all overhead and ground utilities, sidewalks, curb and gutters, paved roads, driveways, light poles, power poles, fire hydrants, fences, signs, manholes, catch basins, valves/valve boxes, and other significant above-ground improvements within the Survey limits
- Located trees and palms
- LS collected elevations equivalent to a 25-foot grid
- Longitude surveyed 50 feet in each direction at intersections within Survey limits
- Provided a Digital Terrain Model (DTM)
- Longitude collected rim elevations, bottom elevations, and inverts of drainage and sanitary structures
- LS set TBM's outside the project limits, in locations where they can be used by the contractor during construction
- All control points established with Northing and Easting coordinates referenced to the Florida State Plane Coordinate System, based on the North American Datum of 1983/2011
- Elevations referenced to the National American Vertical Datum of 1988 (NAVD88).
- Longitude performed utility locates and 8 Soft Digs
- Performed a Bathymetric Survey of the intracoastal



25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT			
	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	Longitude Surveyors LLC	7769 NW 48 Street, Suite 375, Doral, FL 33166	Surveying and Mapping/SUE
	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
b.			
c.	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE

F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, If not specified. Complete one Section F for each project.)*	20. EXAMPLE PROJECT KEY NUMBER

21. TITLE AND LOCATION *(City and State)*	22. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If Applicable)*
Indian Creek Country Club Seawall (Surfside, Florida)	2017	

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
Indian Creek Country Club	Fred Blitstein	305.372.6600

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

The project site is located at 55 Indian Creek Island Road in Surfside, Florida. The site is located opposite the existing country club and consists of a conventional "T" pier extending approximately 112 ft. into Biscayne Bay from a 127 x 52 ft. land extension. The "T" pier and the seawall bordering the land extension are the subject of this report. This proposed rehabilitation consisted of the installation of concrete piles for the pier, installation of mooring piles, pier decking, construction of two (2) intermediate finger piers, installation of a wave break and installation of batter piles, associated cap and a concrete filled aluminum toe wall for the seawall of the land extension.

NOVA performed a geotechnical exploration within the areas of the proposed construction and to assess these findings as they relate to geotechnical aspects of the planned site development. The authorized geotechnical engineering services included a site reconnaissance, a soil test boring and sampling program, engineering evaluation of the field data, and a report with recommended design parameters for the proposed waterfront work.

Services Provided: Geotechnical Exploration and Evaluation, Waterfront Structure Design Recommendations

NOVA's fees: $16,441

25. FIRMS FROM SECTION C INVOLVED WITH THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	NOVA Engineering and Environmental, LLC	Fort Lauderdale, Florida	Geotechnical Exploration, Waterfront Structure Design Recommendations
b.			
c.			
d.			
e.			

KEITH

Broward County Shoreline Protection Project

Project Location: Broward County, FL
Project Commencement: 2011
Project Completion: 2012

Client: Coastal Engineering & Olsen Associates
Mr. Christopher Creed, PE
(904) 387-6114
ccreed@olsen-associates.com

Project Description: The joint venture of Coastal Planning and Engineering, Inc. and Olsen Associates, Inc. is under contract to Broward County to perform an economic analyses of shoreline protection benefits for a section of the County's shoreline between Hillsboro Inlet and Las Olas Blvd., about 51,000 feet of shoreline. This work is required as part of a feasibility investigation associated with County's Federal Shore Protection Project. In support of the contractual obligations to Broward County for this project, KEITH was worked on the surveying assistance in collecting field data for use as input to the economic analysis.

KEITH is serving as the subconsultant to Coastal Engineering and Olsen Associates. In-house services include planning, landscape architecture, civil engineering, surveying and traffic engineering services.

1033 Sistrunk Boulevard, Suite 206
Fort Lauderdale, FL 33311
P: 954.467.6822 * F: 954.467.7033

Project Experience :

City of Fort Lauderdale, FL
Project Description: City of Fort Lauderdale Sistrunk Corridor Streetscape Project
Year Started – Completed: January 2010 - October 2013

- Developed, coordinated and implemented a Public Involvement Program for CTA. Development and implementation of the Public Involvement Plan
- Provided economic and community development/redevelopment planning; community involvement/outreach services.
- Role of key staff in the project
  - Established a list of potential stakeholders.
  - Coordinated community visioning workshops and outreach.
  - Coordinated public meetings to educate and inform the community and government officials.
  - Public involvement data collection, schedule informational meetings, workshops, hearings; and management of community issues and concerns (responses to inquiries, etc.).
  - Comprehensive database/mailing list of all stakeholders and tracking system for all public correspondence.
- Composed and updated monthly meeting collateral (Door signs, directional signs, maps, etc.)
- Conducted public/community analysis through surveys and compiled final report encompassing statistical and empirical data
- Provided staff to translate: Spanish and Creole
- Executed photography and implemented event floor plan set up
- Conducted research to ensure clear and concise dissemination of information to the public

Size of project: Approx. $15,800,000.00
Cost of project: $156,536.00

Project	**Name:**	City of Fort Lauderdale Sistrunk Corridor Streetscape Project
	References:	CTA/ Tom McDonald – P:954-6400
Firm Information:		
Name:	Dickey Consulting Services, Inc.	
Address 1:	1033 NW 6 Street	
Address 2:	Suite 206	
City, State, ZIP:	Fort Lauderdale, FL 33311	

G. KEY PERSONNEL PARTICIPATION IN EXAMPLE PROJECTS

26. NAMES OF KEY PERSONNEL (From Section E, Block 12)	27. ROLE IN THIS CONTRACT (From Section E, Block 13)	28. EXAMPLE PROJECTS LISTED IN SECTION F (Fill in "Example Projects Key" section below before completing table. Place "●" under project key number for participation in same or similar role.)																		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
José Soler, PE	Project Manager	●	●																		
Vijay Agrawal, PE	Project Director	●	●	●																	
Philip Hadfield, PE	Technical Advisor	●											●								
John Carel, PE	Technical Advisor	●	●	●																	
Lauren Swan	Resiliency Planning				●									●							
Erica Harris	Resiliency Planning				●									●							
Justin Vandever, PE	Coastal Modeling & Engineering				●							●	●	●							
Steven Li, PE	Coastal Modeling & Engineering			●				●	●	●	●										
Dr. Chandy John	Coastal Modeling & Engineering					●															
Dr. Chris Reed	Coastal Modeling & Engineering																				
Chris Levitz, PE	Coastal Modeling & Engineering																				
Chris Marshall, PG	Underwater Inspections / Dive Team											●									
Anthony Mets, PE	Underwater Inspections / Dive									●											
Bruce LeLong, PE	Marine Structural						●		●	●					●	●					
Wael Youssef, MSCE, PE	Marine Structural							●	●		●				●	●					
Saul Perez, PE	Marine Structural			●																	
Prabin Tuladhar, PE, SE	Marine Structural												●								
Byoung-Sok Shin, PE, SE	Marine Structural												●								
Ariel Buenano, PE	Marine Structural						●		●	●	●				●	●					
Juan Garcia, PE	Civil/Stormwater Drainage																				
Amy Eason, PE	Civil/Stormwater Drainage			●																	
Gustavo Santana	Landscaping Arch & SUE																				
Badu Madabhushi	Dredging Operations					●															
Dan Levy, PG	Dredging Operations					●						●									
Keith Stannard	Environmental	●		●		●						●									
Laura Cherney	Environmental			●		●						●									
Ashley Matthews	Marine Benthic/ Coral Surveys	●		●		●						●									
Karen Brandon, PE	Permitting		●																		
Dr. Jae Park	FEMA							●	●		●				●	●					
Dan Deegan, PE	FEMA								●												
Doug Bellomo, PE	FEMA																				
José Polo, PE	Construction Management/CEI	●	●																		
Jon Thomas	Construction Management/CEI	●																			
James Netterwald, PE	Construction Management/CEI	●																			
Mike Barba	Scheduling & Estimating	●		●																	
Jason Weiss	Funding / Grant Opportunities								●												
Richard Pryce, PSM (CTA)	Land Surveys																●				
Nicholas Messina, Jr., PSM (CTA)	Land Surveys																●				

G. KEY PERSONNEL PARTICIPATION IN EXAMPLE PROJECTS

26. NAMES OF KEY PERSONNEL (From Section E, Block 12)	27. ROLE IN THIS CONTRACT (From Section E, Block 13)	28. EXAMPLE PROJECTS LISTED IN SECTION F (Fill in "Example Projects Key" section below before completing table. Place "●" under project key number for participation in same or similar role.)																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
David Reyes (CTA)	Land Surveys																●				
Eduardo M. Suarez, PSM (LS)	Hydrographic Surveys	●																●			
Darryl J. Hauser, PSM (LS)	Hydrographic Surveys	●																●			
John H. Adler III, PSM (LS)	Hydrographic Surveys	●																●			
Robert Berkoff, EI, CET (NOVA)	Geotechnical & Materials	●																	●		
David Miller, PE (NOVA)	Geotechnical & Materials	●																	●		
Miguel Truzman, PE (NOVA)	Geotechnical & Materials	●																	●		
Daniel Checchia (KEITH)	Landscaping Arch & SUE																			●	
Thomas Donahue, PE (KEITH)	Landscaping Arch & SUE																			●	
Kelli Schueler, PE (KEITH)	Landscaping Arch & SUE																			●	
Paul Weinberg, PE (KEITH)	Landscaping Arch & SUE																			●	
Stephen Williams, Sr., PE (KEITH)	Landscaping Arch & SUE																			●	
Sheryl Dickey (DC)	Public Outreach																				●

29. EXAMPLE PROJECTS KEY

NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)	NO.	TITLE OF EXAMPLE PROJECT (FROM SECTION F)
1	PortMiami Program Management Services, Miami-Dade/ County, FL	11	Exposed Miami Beach Lateral Gas Pipeline Protection Project, Biscayne Bay, Miami-Dade County, FL
2	Port of Palm Beach Reconstruction of Slip 3 and Berth 17, Palm Beach County, FL	12	San Francisco Airport Seawall, San Francisco, CA
3	US Coast Guard Station Marathon Major Maintenance & Repair Waterfront, Marathon, FL	13	City of Miami Beach Sea Level Rise Vulnerability and Resilience Program, Miami Beach, FL
4	100 Resilient Cities, Greater Miami and the Beaches, Miami, FL	14	Inspections, Analyses, Structural Repair Designs, & Construction Phase Services for Waterfront Facilities, USMA West Point, NY
5	Wagner Creek Seybold Canal Restoration, Miami, FL	15	Long Term Flood Protection Project, Raritan Millstone Water Treatment Plant, Raritan, NJ
6	Stormwater and Flood Mitigation Engineering Design Services, Annapolis, MD	16	As-Built Tidal Structures Survey North and South Lakes, City of Hollywood, FL
7	Lower Manhattan Coastal Resiliency Bridges Study, New York, NY	17	Bayshore Drive 18" Forcemain Rehabilitation, City of Fort Lauderdale, FL
8	NJDEP Rebuild by Design Hudson River, NJ/NY	18	Indian Creek Country Club Seawall, Surfside, FL
9	Port of New Orleans, Nashville Avenue Terminal Conversion to Container and Crane Rail Extension, New Orleans, LA	19	Shoreline Protection Project, Broward County, FL
10	South Battery Park Resiliency Project, New York, NY	20	Sistrunk Corridor Streetscape Project, City of Fort Lauderdale, FL

H.0 Profile of the AECOM Team

AECOM Technical Services, Inc. (AECOM) is a global provider of professional technical and management support services to a broad range of markets, including transportation (e.g., ports, marine terminals, intermodal rail facilities), environmental, energy, water and government. AECOM has been in the port and marine business for 110+ years operating under Frederic R. Harris and DMJM legacy firms, including URS Corporation that joined AECOM in October 2014, and ranks #3 in Ports in the US. Our available resources are now in excess of 78,000 employees and we can get any conceived project completed successfully.

Why Select AECOM

- Extensive experience with THREE main project elements: 1) Flood mitigation and Coastal Resiliency 2) Design of Seawalls, and 3) Permitting & FEMA experience
- AECOM Project Manager and Key Task Leaders are local, highly experienced and committed to delivering the project
- Local small-business firms partnered to provide required services

With roughly 4,000 employees in the Southeast region including 1250 dedicated to transportation and more than 50 specializing in Port & Marine work, AECOM is a leader in all of the local markets that it serves. AECOM provides a blend of national and global reach, local knowledge, innovation, and technical excellence in delivering solutions that create, enhance and sustain the world's built, natural, and social environments.

AECOM proposes to bring all required resources to provide requested engineering services to the City of Hollywood for Tidal Flooding Mitigation work and will serve as the Lead Consultant / Designer on this project and will be responsible for the overall project delivery and commitment to the City of Hollywood for completion of the assignment.

AECOM Ports & Waterways Services

AECOM provides ports, waterways, coastal and resiliency technical expertise worldwide and throughout North America on similar projects and mitigating Sea Level Rise through INNOVATIVE design and construction of seawalls.

AECOM has completed design of waterfront infrastructure projects across the Country and around the globe at some of the busiest ports including PortMiami, Port Everglades, West Palm Beach, Corpus Christi, Houston, Galveston, New Orleans, Savannah, Charleston, Los Angeles, Long Beach and New York, as well as have worked with several cities and agencies in mitigating and addressing the issue of Sea Level Rise and tidal flooding.

AECOM's Port & Marine services include planning, port and harbor engineering, urban waterfront design, coastal engineering, economic and strategic evaluation and program and construction management of coastal and landside infrastructure, including management and oversight of all sub-consultant partners providing geotechnical, site surveys and underwater inspections.

With the DEEP BENCH of resources, we are able to provide the City of Hollywood with an integrated "one-stop-shop" service on the City's most critical and important project of mitigating Tidal Flooding.

AECOM's Ports & Waterways business in North America is serviced by multiple DESIGN CENTERS for carrying out technical and specialized wharf, seawalls and piers design work with staff located in local offices for project management, client interface and stakeholder management and permitting.

Currently, we have FOUR marine wharf/seawall design centers in North America (Miami, New York, Louisiana, and California) with staff experienced in performing all planning, analysis and design engineering work based in these design centers. AECOM proposes to use the **Miami and Louisiana Design Center** with support from the New York and California design centers to deliver this job most cost effectively and on a fast track schedule. Louisiana Design center has designed extensive number of seawalls, flood protection levies and flood walls and currently have the capacity to undertake the proposed scope of work.

Using a blended team of local resources and design center resources, AECOM provides ports and waterways technical expertise in cities throughout the Southeast USA. With significant presence in the Southeast market supported by more than **240 professional staff based in South Florida; 1,200 in Florida and more than 4,000 in the Southeast region** and more than 60 specializing in port/marine work, AECOM is a leader in all the local markets that it serves.

2019 ENR Rankings

- No. 1 Top Design Firm overall
- No. 1 Design Firm in Transportation
- No. 1 Design Firm in Florida
- No. 2 Design Firm in Water
- No. 3 Design Firm in Marine and Port Facilities

AECOM Team Members

To provide the best resources to the City of Hollywood, AECOM have handpicked some of the local companies as our partners with whom AECOM have extensive partnership experience from other projects. These project partners and local firms based in the Broward and Miami-Dade Counties provide all required services including undertaking site surveys (underwater or above ground), geotechnical and utility coordination services.

Table 1 briefly describes the AECOM Team members:

Table 1. AECOM Team Members

Name/Address	Discipline / Tasks Responsibility	Brief Bio of the Firm
Keith and Associates, Inc. (KEITH) 301 E Atlantic Boulevard Pompano Beach, FL 33060 KEITH	Landscape architecture, SUE and UC services	**Keith and Associates, Inc. (KEITH)** was incorporated as a Florida corporation in 1998. As a mid-size closely-knit firm, we provide civil engineering, traffic engineering, surveying and mapping, subsurface utility engineering, planning, landscape architecture, construction management and virtual design and construction services. The firm was founded on the principal of achieving success by combining the latest technology with client oriented business practices, and a staff of experienced and talented professionals.
Dicky Consulting 1033 NW 6th Street, Suite 206 Fort Lauderdale, FL 33311 Dickey Consulting Public Relations-Project Management-Strategic Planning-Economic Development "Sustaining Communities"	Public Outreach	**Dickey Consulting Services (DCS**) is an economic development, government relations, project management and communications consulting firm. The organization and its associates provide services to public and private enterprises, coordinating, implementing and promoting projects related to economic and community development, government relations, business development, housing, public relations, public involvement, and other marketing initiatives. **DCS** coordinates funding for economic and social policy issues, facilitates involvement and participation in programs to ensure maximum business opportunities for minority and female-owned businesses. The firm coordinates public involvement and public relations programming with various community/civic groups and public officials.
Longitude Surveyors, LLC 7769 NW 48 Street, Suite 375 Doral, FL 33166 LONGITUDE SURVEYORS	Land & Hydrographic Surveys	**Longitude** is a Miami-Dade County certified SBE established in 2004 to provide specialty land surveying and underground utility location services to both private and governmental agencies throughout south Florida. Longitude performs boundary, topographic and land title surveys as well as aerial photogrammetry and mapping including LiDAR. Longitude Surveyors offers a broad range of services to Residential, Commercial and Municipal Land Surveying Services which include: ALTA/ACSM Land Title Survey, Boundary Survey, Topographic Survey, Lot Survey, Architectural Survey, Construction Layout, Forensic Survey and Aerial Photogrammetry and Mapping.

H. ADDITIONAL INFORMATION

30. PROVIDE ANY ADDITIONAL INFORMATION REQUESTED BY THE AGENCY. ATTACH ADDITIONAL SHEETS AS NEEDED.

Name/Address	Discipline / Tasks Responsibility	Brief Bio of the Firm
NOVA Engineering and Environmental, LLC 4350 Oakes Road, Suite 518 Fort Lauderdale, FL 33314 NOVA	Geotechnical & Materials	**NOVA Engineering and Environmental** has more than 25 years on the principles of excellence, quality, and service. Founded in 1996, NOVA has been a leader in solving complex issues and managing projects for clients in both the public and private sectors. With Headquartered near Atlanta, Georgia and 17 offices in 4 states, it has a local presence with 9 offices located in Florida. The geographic coverage enables NOVA's personnel to have a working knowledge of local soil and geologic conditions, and established relationships with local regulatory agencies. NOVA is a company of people dedicated to delivering best-value services and solutions based on innovative applications of science and technology. Their principals and staff of professionals have extensive experience in successfully addressing complex engineering and environmental concerns, based on sound business, regulatory, engineering and construction practices, with registered professional engineers specializing in Geotechnical, Materials, Forensic and Environmental Engineering, Geologists, Laboratory Specialists, Level IA and IB Certified Stormwater Personnel, ICC-certified Special Inspectors, Specialists for Existing Building Evaluations, and Environmental Scientists.
Craven Thompson & Associates, Inc. 3563 NW 53rd Street Fort Lauderdale, FL 33309 CRAVEN • THOMPSON & ASSOCIATES, INC.	Land & Hydrographic Surveys	**Craven Thompson & Associates, Inc. (CT)** is a Broward County based local firm with extensive experience working with the City of Hollywood. CT has been providing Surveying services since 1962. Through selection and training of personnel and a program to obtain the best equipment available, CT have developed a skilled and technically equipped Surveying Department, capable of conducting almost any type of survey. CT staff are qualified and certified by the State of Florida, Department of Natural Resources, for both horizontal and vertical control for Second Order accuracy. In addition to conventional boundary topographic and construction surveys, CT have the experience to provide the latest in 3D Laser Scanning - High Definition Surveying, Geodetic Control, PLSS Retracement, Hydrographic, Cadastral, Photogrammetric Control, Right-of-Way and Construction Surveys.

H.1 Past Performance

This section provides AECOM's corporate references for past similar projects. Details of these projects are provided in Section F of SF330 Form, as well as inside the attached PROFILE OF THE CONSULTANT. Additional information can be provided upon request.

Project Name	Project Description	Project Owner	Year Completed	Point of Contact Name	Point of Contact Telephone Number
San Francisco Airport Seawall San Francisco, CA	Developed a concept designs for shoreline upgrades, including levees/berms, concrete and sheetpile floodwalls, rock revetments, fixed and floating off-shore breakwaters, and off-shore seawalls for SFO's shoreline is eight miles long and extends from the San Bruno Channel in the north to the Millbrae Channel in the south.	San Francisco International Airport	2018	Joseph Birrer	650.821.7751
South Battery Park Resiliency Project New York, NY	Design of an integrated flood alignment system through the southern portion of Battery Park City, through Wagner Park and Pier A, and along the north side of Battery Park to the higher ground of the Bowling Green Plaza.	Battery Park City Authority (SPCA)	Ongoing	Gwen Dawson	212.417.2000
Exposed Miami Beach Lateral Gas Pipeline Protection Project Biscayne Bay, Miami-Dade County, FL	Feasibility analysis to avoid and minimize impacts to existing marine benthic communities along 5,000 linear feet of 6-inch gas pipe, including the development of a computer model to demonstrate that additional subsurface anchoring of the mats was not required for structural sustainability (for future large storm events).	Florida Gas Transmission Company ,LLC	Ongoing	Janice Taylor	407.838.7057
Stormwater and Flood Mitigation Engineering Design Services Annapolis, MD	Engineering and designing a stormwater and flood mitigation system for the City of Annapolis, MD. The project involves shoreline protection and interior drainage improvements and mitigation features that are collectively integrated into the historical architecture and aesthetics of the area.	City of Annapolis, MD	Ongoing	Lisa Grieco	410.263.7949
City of Miami Beach Sea Level Rise Vulnerability and Resilience Program Miami Beach, Florida	Review of building and land development codes to improve flood resilience, assessment of vulnerability for city-wide assets, and development of tools to support the City of Miami Beach in its Sea Level Rise Vulnerability and Resilience Program.	City of Miami Beach	2018	Susanne Torriente	305.673.7000

H. ADDITIONAL INFORMATION

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Project Name	Project Description	Project Owner	Year Completed	Point of Contact Name	Point of Contact Telephone Number
Inspections, Analyses, Structural Repair Designs, & Construction Phase Services for Waterfront Facilities USMA West Point, NY	Improvements to the United States Military Academy (USMA) in West Point, NY for their dock facilities along the Hudson River, which included designs of replacement river wall and refurbishment of bulkhead walls.	USACE Vicksburg District/New York District	2015	Kevin Haskins	603.646.4703

H.2 Professional Experience and Qualifications of Personnel to be Assigned to the Projects

AECOM Team's proposed personnel are hand-picked to bring all required resources and discipline experts to provide a comprehensive engineering services for Tidal Flooding Mitigation to the City of Hollywood.

AECOM has a very DEEP BENCH of resources with specific expertise in the following key disciplines applicable to this contract, including but not limited to:

- Program and Project management
- Design and analysis of an existing and new seawalls
- Coastal processes modeling and analysis
- Mitigation of Flooding and Sea Level Rise Impacts
- Landscape Architecture and City Waterfront Rehabilitation
- Design of civil and utilities infrastructure
- Environmental Permitting and Agencies Coordination
- Construction Management and On-Site Inspection
- Project Cost and Schedule Management

An Integrated Team with ALL Expertise to DELIVER the Project

- Extensive resiliency and seawall design experience
- Local Project Manager and Project Director for extensive coordination with the City
- Each person proposed for the project is hand-picked due to prior experience with design of Seawalls, Permitting and/or Resiliency

AECOM team will be led by **Mr. Jose Soler**, a Florida Professional Engineer with more than 23 years of experience in performing and managing numerous waterfront and maritime projects involving planning, coordination of design from conceptual through final design phases and executing the construction works. Mr. Jose will be involved in all tasks of the project from signing of the contract till getting the construction done including but not limited to data collection and field surveys, engineering analysis, design development, project permitting and agency coordination, stakeholder communications, procurement and selection of contractor, providing on-site construction management and working closely with the City in preparing all reports and presentations). Mr. Jose has extensive experience in Planning, design, constructability and construction management of marine, coastal, and structural work for several Port Authorities. Mr. Jose has the experience as Owner's representative performing consulting, design review, program management, document control, and construction management and administration.

AECOM have formed a comprehensive team of industry experts who has years of professional experience and educational and professional qualifications, a summary of which is provided in the table below. Detail resumes of these resources are provided in SECTION E of the SF330 Form. Similar background information for each of the proposed staff is provided in the attached PROFILE OF THE CONSULTANT. Additional information can be provided upon request.

Name	Level of Education	Similar Project Experience & Qualifications
José Soler, PE	BS, Civil Engineering	▪ Port Miami, Program Management Consultant, Miami, Florida ▪ Port Miami, North Bulkhead Wall Replacement Program, Miami, Florida ▪ Port Miami, Cruise Terminal B Design-Build, Miami, Florida ▪ Port Miami, Cruise Terminal V Design-Build, Miami, Florida ▪ Port Miami, Cruise Terminal F Expansion and Berthing Re-Alignment, Miami, Florida ▪ Port of Palm Beach, Berth 17, Riviera Beach, Florida
Vijay Agrawal, PE	MS, Civil Engineering ME, Structures BE, Civil Engineering	▪ Port Miami, Program Management Consultant, Miami, Florida ▪ US Coast Guard Station Marathon, Major Maintenance & Repair Waterfront, Marathon, Florida ▪ Port of Palm Beach Reconstruction of Slip 3 and Berth 17, Palm Beach County, Florida ▪ Broward County Port Everglades, Port Everglades Master / Vision Plan Update, Fort Lauderdale, Florida

H. ADDITIONAL INFORMATION

30. PROVIDE ANY ADDITIONAL INFORMATION REQUESTED BY THE AGENCY. ATTACH ADDITIONAL SHEETS AS NEEDED.

Name	Level of Education	Similar Project Experience & Qualifications
Philip Hadfield, PE	BS, Civil Engineering	▪ Port Miami, Program Management Consultant, Miami, Florida ▪ Wellington Airport Southern Sea Defenses Renewal Program, Wellington, New Zealand ▪ San Francisco Airport Flood Protection and Sea Level Rise Study, San Francisco, California ▪ Pago Pago International Airport Shoreline Protection Program, American Samoa
John Carel, PE	MS, Civil Engineering BS, Civil Engineering	▪ NYC Department of Small Business Services, Waterfront Building Code, New York, New York ▪ NAVFAC Southeast, Hurricane Irma Repairs, Refit Wharves and TPS Docks C&D, Naval Submarine Base, Kings Bay, Georgia and Naval Air Station Jacksonville, Florida ▪ US Coast Guard Station Marathon, Major Maintenance & Repair Waterfront, Marathon, Florida ▪ Springmaid Pier Reconstruction, Myrtle Beach, South Carolina
Lauren Swan	MLA, Landscape Architecture BA, Urban and Regional Planning	▪ Florida Department of Transportation District 6, Resilience Services, Florida ▪ 100 Resilient Cities, Miami-Dade County, City of Miami Beach, City of Miami, Greater Miami and the Beaches Resilient305, Miami-Dade County, Florida ▪ City of Miami Beach, Miami Beach Flood Mitigation & Resilience Study, Miami Beach, Florida
Erica Harris	MS, Oceanography BS, Geography/GIS	▪ Climate Change Vulnerability Assessment, City of Naples, Florida ▪ Miami Beach Sea Level Rise and Resiliency Study, City of Miami Beach, Florida ▪ Texas Department of Transportation, Coastal Chapter Hydraulic Design Manual Update, State of Texas ▪ Sea Level Rise Response Plan, City of Olympia, Washington
Justin Vandever, PE	MS, Marine Science BS, Civil and Environmental Engineering Coastal Engineering Certificate	▪ City of Miami Beach, Sea Level Rise Vulnerability Assessment, Miami Beach, Florida ▪ San Francisco International Airport (SFO) Shoreline Protection Program Conceptual Design Development, San Francisco, California ▪ City of Naples, Climate Vulnerability Assessment, Naples, Florida ▪ Economic Impacts and Sea Level Rise and Coastal Storms, Dania Beach, Florida ▪ Port of Long Beach, Climate Adaptation and Coastal Resiliency Strategy, Long Beach, California
Steven Li, PE	Ph.D., Ocean Engineering MS, Coastal Engineering BS, Civil Engineering	▪ New York City Economic Development Corporation, Lower Manhattan Coastal Resiliency, Manhattan, NYC, New York ▪ New Jersey Department of Environmental Protection, Meadowlands, New Jersey ▪ New York City Transit, Revised Design for Long-Term Flood Mitigation Hammels Wye, Queens, NYC, New York ▪ CHPE, Investigation of Flood Zone and Storm Surge Impact on Astoria Substation, NYC, New York

H. ADDITIONAL INFORMATION

30. PROVIDE ANY ADDITIONAL INFORMATION REQUESTED BY THE AGENCY. ATTACH ADDITIONAL SHEETS AS NEEDED.

Name	Level of Education	Similar Project Experience & Qualifications
Dr. Chandy John	PhD, Civil (Environmental Hydraulics) Engineering	▪ Benning Road Facility RI/FS. Sediment Transport Analysis and Impact of Site Contaminants on Background Locations due to River Flows and Tides. DC ▪ Wagner Creek Seybold Canal Restoration - Sediment Dredging and Remediation, City of Miami, Florida ▪ Maryland Port Administration, Dundalk Marine Terminal Industrial Wastewater Discharge to Baltimore Harbor Multiport Diffuser, Baltimore, Maryland ▪ Brookeville Floodplain Modeling and Mapping, wetland mitigation and stream restoration. Maryland State Highway Administration, Maryland
Dr. Chris Reed	Post Doctorate Studies, Coastal Engineering PhD, Engineering Science and Mechanics MS, Engineering Science and Mechanics BS, Engineering Sciences	▪ Edgewater Marina and Geneva Park Restoration, Lake Erie, Ohio DEP ▪ Ashtabula Breakwater Design, Lake Erie, USACE ▪ Florida Power and Light (F&PL) Coastal Flooding Analysis, Florida ▪ Indianola Groin Field Design and Analysis, Texas GLO, Indianola, Texas ▪ Packery Channel Sediment Transport Study and Jetty Design, Corpus Christi, Texas (USACE, Galveston District)
Chris Levitz, PE	Coastal Engineering Masters Certificate BS, Civil Engineer	▪ GLO, Texas Coastal Resiliency Master Plan, Texas Coast Wide ▪ USACE Galveston District, Emergency Repairs – Galveston Seawall, Freeport, Port Arthur, and Texas City Hurricane Flood Protection Projects, Texas Coast ▪ GLO & Scenic Galveston, Virginia Point Shoreline Protection and Marsh Restoration Project, Galveston Bay, Texas ▪ USACE Galveston District, Initial Appraisal of Texas City and Vicinity, TX Hurricane Flood Protection System, Texas City and Vicinity, Texas
Chris Marshall, PG	BS, Geology	▪ United States Coast Guard, D7/8 Sites, Florida, Texas, Georgia ▪ Gulfstream, LLC, Egmont Key Pipeline, Tampa Bay, Florida ▪ Florida Department of Transportation, Moser and Cow Key Channels, Florida ▪ Miami Dade Parks & Recreation, Haulover Park, N. Miami Beach, Florida
Anthony Mets, PE	BS, Naval Architecture	▪ Port of Los Angeles, Berths B226-232, Evergreen Container Terminal; Pre-Construction Inspection of B226-232 Container Wharf, California ▪ Nashville Avenue Terminal Underwater and Above-Water Inspection; Port of New Orleans; New Orleans, Louisiana ▪ Bayport Container Terminal Wharves 4 and 5 Upgrades; Port of Houston Authority; Seabrook, Texas ▪ Port of Los Angeles, Berth 240A,B,C Seawall Repair Design; San Pedro, California
Bruce LeLong, PE	BS, Civil Engineering	▪ New Jersey American Water, Raritan-Millstone Long Term Flood Protection Project, Middlesex County, New Jersey ▪ U.S. Army Corps of Engineers, Rehabilitation of Hudson River Wall & North & South Docks, Military Academy at West Point, Garrison, New York ▪ Louisiana Coastal Protection and Restoration Authority, Mid-Barataria Sediment Diversion Project, Plaquemines Parish, Louisiana

Name	Level of Education	Similar Project Experience & Qualifications
Wael Youssef, MSCE, PE	BS, Civil Engineering MSCE, Civil/Structural Engineering Graduate/Post Masters Studies	▪ Lower Manhattan Coastal Resiliency (LMCR) & Brooklyn Montgomery costal resilience final design (BMCR), New York ▪ North & South Battery Park City Resiliency, NYC, New York ▪ Rebuild by Design New Meadowlands: Flood walls, Esplanade & Parks. Meadowlands, New Jersey ▪ US Army Corps of Engineers, North and South Dock Rehabilitation, West Point, New York
Saul Perez, PE	MS, Civil Engineering LRFD Certification FDOT	▪ Florida Department of Transportation Districts 4 and 6, District-Wide Structures Plans Review and Design, Florida ▪ Florida Department of Transportation District 4, I-595 Reconstruction, Florida ▪ Florida Department of Transportation District 6, Bridge Widening, Red Road over Little River Canal, Hialeah, Florida
Prabin Tuladhar, PE, SE	MS, Civil/Structural Engineering BS, Civil Engineering	▪ San Francisco International Airport - Shoreline Protection - San Francisco, California ▪ City of Long Beach; Colorado Lagoon Restoration Phase 2B, Long Beach, California ▪ City of Long Beach; Engineering Bureau, Project Engineer; Peer Review – Naples Island Permanent Seawall Repair, Phase I, Long Beach, California
Byoung-Sok Shin, PE, SE	MS, Structural Engineering BS, Civil Engineering	▪ Port of Houston Authority, Rehabilitation of Wharves 4 and 5 at Bayport Container Terminal, Seabrook, Texas ▪ Cirque du Soleil, Conceptual Study of Existing Piers 30-32, San Francisco, California ▪ Port of San Francisco, Pier 96 Sheet Pile Sea-Wall Repair, San Francisco, California ▪ Shaw E&I, IHNC GIWW Floodgate Monolith, New Orleans, Louisiana
Ariel Buenano, PE	MSc, Structural Engineering BS, Civil Engineering	▪ New Jersey American Water, Raritan-Millstone Long Term Flood Protection Project, Middlesex County, New Jersey ▪ Louisiana Coastal Protection and Restoration Authority, Mid-Barataria Sediment Diversion Project, Plaquemines Parish, Louisiana ▪ U.S. Army Corps of Engineers, LPV 109 Levee Enlargement
Juan Garcia, PE	BS, Civil Engineering	▪ Alton Road From Michigan Ave. to 41st St., Miami Beach, Florida ▪ Krome Ave. From SW 136th St. to SW 88th St., Miami-Dade County, Florida ▪ NW 7th Ave. From NW 8th St. to NW 32nd St., Miami-Dade County, Florida
Amy Eason, PE	BS, Environmental Engineering	▪ City of Miami Beach, Flood Mitigation Consulting Services, Miami Beach, Florida ▪ City of Naples, Stormwater Master Plan Update, Naples, Florida ▪ City of Boynton Beach, NE 20th Avenue Drainage Improvement Project, Boynton Beach, Florida
Gustavo Santana	MS, Landscape Architecture BS, Plannerural Studies	▪ Blue Cross Blue Shield Deerwood Campus, Jacksonville, Florida ▪ Beachwalk II, Miami Beach, Florida ▪ Baker's Bay, Abaco, Bahamas
Babu Madabhushi	PhD, Hazardous Waste Management MS, Wastewater Treatment BS, Civil Engineering	▪ Wagner Creek/Seybold Canal Contaminated Sediment Dredging and Disposal, Miami, Florida ▪ Everglades National Park - Marina Dredging, Florida ▪ City of Hollywood, North Lake Dredge Feasibility Study, Hollywood, Florida ▪ Flamingo Marina Dredging, National Park Service, Everglades National Park, Florida

Name	Level of Education	Similar Project Experience & Qualifications
Dan Levy, PG	Graduate Studies, Computer Modeling Graduate Studies, Hydrology BS, Geology	▪ Wagner Creek Seybold Canal Restoration - Sediment Dredging and Remediation, City of Miami, Florida ▪ Dredge Material Management Plan (DMMP) Update, Jacksonville Port Authority (JPA), Jacksonville, Florida ▪ NSB Kings Bay Alternative Dredge Design, NAVFAC-Southeast, Kings Bay, Georgia ▪ Lake Okeechobee Pilot Dredging Project, Okeechobee, Florida
Keith Stannard	MS, Coastal Zone Management & Marine Biology BS, Biological Sciences	▪ National Park Service, Cape Sable Canals Dam Restoration Environmental Assessment – Phase II, Monroe County, Florida ▪ FDOT, District VI, District-wide Misc. Permitting Services Consultant, Miami-Dade and Monroe Counties, Florida ▪ Seminole Tribe of Florida, Two-Dimensional Hydrologic and Hydrodynamic Modeling Analysis and Biological Assessment for the Advanced Mitigation Area, Brighton Seminole Indian Reservation, Glades County, Florida ▪ Broward County Aviation Department (BCAD), Fort Lauderdale-Hollywood International Airport Expansion Program, Broward County, Florida
Laura Cherney	MBA, Executive MBA Program BS, Environmental Engineering Sciences	▪ U.S. Agency for Global Media, Office of Cuba Broadcasting (OCB) – Assessment for Site Flooding and Shoreline Erosion at Radio Transmission Site, Marathon, Florida ▪ National Park Service (NPS), Big Cypress National Preserve, FL – Hydrologic Restoration Master Plan / Environmental Assessment, Florida ▪ Seminole Tribe of Florida, Two-Dimensional Hydrologic and Hydrodynamic Modeling Analysis and Biological Assessment for the Advanced Mitigation Area, Brighton Seminole Indian Reservation, Glades County, Florida ▪ Florida Fish and Wildlife Conservation Commission, New River High School Living Shoreline Project, Broward County, Florida
Ashley Matthews	BA, Environmental Studies	▪ Gulfstream, LLC. Egmont Key Offshore Pipeline Environmental Cover Remediation Survey, Scientific Diver, Hillsborough County, Florida ▪ US Coast Guard, Benthic Survey for Restoration and Rehabilitation Projects for boat basin facilities: Miami, Marathon, Key West, Florida ▪ Department of the Interior, National Parks Service Cape Sable Dam Replacement, Environmental Assessment, Monroe County, Florida
Karen Brandon, PE	BS, Environmental Engineering	▪ Port of Palm Beach District Slip No. 3, Riviera Beach, Florida ▪ Port of Palm Beach District Berth 17 Project, Riviera Beach, Florida ▪ US Navy SOF Boat Dock Facility, Monroe County, Florida
Dr. Jae Park	Ph.D. Urban and Regional Science	▪ FEMA, Hazard Mitigation Assistance support, Washington, DC ▪ FEMA, Pre-Disaster Mitigation Joint Explanatory Statement Grant Program (PDM-JES) Technical Support, Washington, DC ▪ FEMA National Levee Safety Program, Washington, DC
Dan Deegan, PE	BS, Ocean Engineering	▪ FEMA Risk MAP, HMTAP, and TARC Production and Technical Services (PTS), Washington, DC ▪ FEMA, Hazard Mitigation Technical Assistance Program (HMTAP)
Doug Bellomo, PE	MS, Civil Engineering BS, Civil Engineering	▪ Flood Risk Management, Institute for Water Resources, US Army Corps of Engineers, Alexandria, Virginia ▪ Risk Analysis Division, Federal Emergency Management Agency, Washington DC ▪ Hazard Identification Section, Federal Emergency Management Agency, Washington DC, Washington DC

H. ADDITIONAL INFORMATION

30. PROVIDE ANY ADDITIONAL INFORMATION REQUESTED BY THE AGENCY. ATTACH ADDITIONAL SHEETS AS NEEDED.

Name	Level of Education	Similar Project Experience & Qualifications
José Polo, PE	BS, Civil Engineering BS, Electrical Engineering	▪ Port Miami, CEI Services for the Port Miami, Capital Development, Miami, Florida ▪ Port of Palm Beach, CEI Services for the Port of Palm Beach, Berth 17, West Palm Beach, Florida
Jon Thomas	CTQP Certifications: 10-24Asphalt Paving Technician, Levels 1 and 2 8-20/Pile Driving Inspection 9-22/IMSA/FOA Certified Fiber Optic Technician	▪ Port Miami, CEI Services for the Port Miami, Capital Development, Miami, Florida ▪ FDOT District One, I-75 Alligator Alley Northbound Rest Stop (Mile Marker 63), Collier County, Florida ▪ FDOT District Six, CEI Services for Krome Avenue North #5, Miami, Florida
James Netterwald, PE	BCE, Civil Engineering BBA, Business Administration	▪ FEMA, Emergency STEP Home Repair Program, North Carolina, USVI, Louisiana ▪ Port Miami, Terminal B Design Build Contract Procurement, Capital Development, Miami, Florida ▪ Government of Haiti, Quality Control for Cap-Haitian Port Urgent Works, Haiti
Mike Barba	BS, Construction Management	▪ Port Miami, Multiple Projects, Miami, Florida ▪ US Coast Guard, Major M&R Waterfront, USCG Station Marathon, Florida ▪ City of Coral Gables, Maggiore Park Renovations, Coral Gables, Florida ▪ Broward County, Port Everglades Turning Notch Extension Project, Port Everglades Wetlands Restoration, Broward County, Florida
Jason Weiss	MS, Resource Economics and Policy BIE, Industrial Engineering	▪ State of New Jersey, New Meadowlands Rebuild by Design Feasibility Study, New Jersey ▪ Woods Hole Oceanographic Institute, Iselin Dock Feasibility Study, Falmouth, Massachusetts ▪ USACE Chicago District, Shoreline Erosion Integrated Feasibility Study, Chicago, Illinois
Craven Thompson & Associates	VARIES BY EACH RESOURCE (SEE SF330 FORM SECTION E)	▪ Lake Worth 2020 Master Plan Year 1 Improvements Survey ▪ Lake Worth 2" Watermain Replacement Program Phase 2 Survey, Florida ▪ Dania Beach Municipal Marina Survey, Florida ▪ Greenacres Hydrographic Survey, Florida ▪ Lake Park Canal Outfall Survey, Florida
Longitude Surveyors	VARIES BY EACH RESOURCE (SEE SF330 FORM SECTION E)	▪ City of Hallandale Beach 2013-2014-006-Proposed 8-inch PVC Water Main Improvement along Foster Road between NW 10 Avenue & NW 4 Avenue, Hallandale, Florida ▪ Bayshore Drive 18" Forcemain Rehabilitation City of Fort Lauderdale, Florida ▪ S 56 Avenue (Martin Luther King Blvd.) from County Line Road to Pembroke Road, City of West Park, Florida
NOVA Engineering & Environmental	VARIES BY EACH RESOURCE (SEE SF330 FORM SECTION E)	▪ 940 Isles Road Seawall, Boynton Beach, Florida ▪ Indian Creek Country Club Seawall, Surfside, Florida ▪ Playboy Marine Seawall, Dania Beach, Florida ▪ Bulkhead Assessment, Riverwalk Linear Park 5, Fort Lauderdale, Florida ▪ S-193 Refurbishment, Rip Rap Rehabilitation, Lake Okeechobee, Florida
KEITH Engineering	VARIES BY EACH RESOURCE (SEE SF330 FORM SECTION E)	▪ Deerfield Beach Ocean Way Improvements, Deerfield Beach, Florida ▪ Hillsboro Blvd Directional Drill Water Main Across ICWWS, Deerfield Beach, Florida ▪ DC Alexander Park Improvements, Fort Lauderdale, Florida

H.3 Commitment to use the Same Personnel Consistently Under The Contract

AECOM hereby gives a full commitment for providing all KEY PERSONNEL to the City of Hollywood for successfully executing all phases of work and engineering services for the Tidal Flooding Mitigation project, including the Basic Services, as well as future scope of work encompassing additional length of the public and private seawall to be raised/retrofitted to protect the City of Hollywood along the periphery of the North Lake and South Lake area.

AECOM is one of the largest engineering service provider in the Nation and in the State of Florida, having more than 120 staff based in South Florida and several staff located in other offices around the nation. Upon retirement/departure from the company or having unforeseen unavailability of any of the KEY PERSONNEL, AECOM is committed to providing additional resources with similar or better qualifications to the City of Hollywood for executing the Tidal Flooding Mitigation project during the contract period.

H.4 Similar Project Experience, Comparable in Type, Size and Complexity

AECOM has extensive experience with providing the requested scope of services for the City of Hollywood for Tidal Flooding Mitigation and Design of existing and new seawalls. AECOM brings market leadership and extensive technical expertise to the City of Hollywood in providing the resources with hands-on experience and firm experience in undertaking the following key elements of the project:

- Program and Project management
- Design and analysis of an existing and new seawalls
- Coastal processes modeling and analysis
- Mitigation of Flooding and Sea Level Rise Impacts
- Landscape Architecture and City Waterfront Rehabilitation
- Design of civil and utilities infrastructure
- Environmental Permitting and Agencies Coordination
- Construction Management and On-Site Inspection
- Project Cost and Schedule Management

AECOM's profile is unmatched in the industry for providing the cutting-edge consulting and expertise in mitigation of impacts due to Sea Level rising and building Infrastructure Resiliency. Some of the recent work undertaken by AECOM staff in all these categories of work are summarized herein for the City of Hollywood to assess the competency of AECOM for being the partner for the City of Hollywood in carrying out the design, permitting and providing CE&I services for Tidal Flooding Mitigation of Seawalls around the North Lake and South Lake.

AECOM Team have provided details of several relevant projects in the SF330 Form Section F to highlight AECOM's experience in projects of similar type, size and complexity. This section provides additional projects and information on AECOM's experience to further illustrate AECOM Team's qualifications and capabilities for successfully completing the Tidal Flooding Mitigation project for the City of Hollywood. Additional information on these projects can be provided upon request.

City of Hollywood Professional Continuing Services: Various Pump/Lift Station Conversion Program, Hollywood, FL

AECOM has been providing Professional Services Agreement to the City of Hollywood, Florida since 2003. As part of the agreement, AECOM was assigned various task orders including a series of task orders related to rehabilitation, repair, and replacement of 18 City-owned lift stations.

As part of the lift station program, AECOM designed multiple pump station improvements and interconnecting water main, force main, and gravity sewer pipelines.

City-wide Water Main Repair Evaluation – Prepared a City-wide water main distribution replacement plan of 220 miles of pipe. Replacement was prioritized in utility analysis zones by ranking of importance factors.

West Hollywood Pump and Storage Facility – We provided design, bid, permitting, and construction management services for the $1 million West Hollywood Pumping and Storage Tank Facilities.

City Model Conversion – Providing conversion of Citywide water transmission model from WaterCad to Infoworks.

Stormwater Pump Station #6 – AECOM provided design, permitting, bid, construction, and start-up phase services for what was ultimately a facility housing two 3,750 pgm stainless steel submersible pumps. The building architecture was designed to match the established and historic neighborhood. The construction project was on time and within budget.

Master Lift Station Conversion and Upgrade Program – Prepared documents for the structural design rehabilitation of three master lift stations.

Johnson Street Water Main Repair – Prepared contract documents for water main replacements including design, permitting and construction services.

Water Use Permitting for Membrane Softening Plant Expansion – Prepared the water use permit renewal request for information with the South Florida Water Management District permit for requested withdrawals from the Biscayne and Floridian aquifers.

Bond Report for Water Treatment Plant Improvements – Developed a bond report describing the status of the municipal water treatment supply systems.

City of Hollywood WTP, Various Water Treatment Plant Improvements – Provided for the facilities upgrade of a water treatment plant which included spiractor piping modifications, new 9,000-kVA emergency generator facilities, and gravity filter piping and valve replacement, building rehabilitation, and filter operations study. Also managed the structural rehabilitation of steel filters, sodium hypochlorite tank replacement, lime pumps and slakers replacement design report, HVAC upgrades, chlorine facility upgrades, elimination of plant discharges to the pond, spiractor cone repair investigation, and water ground storage tank and repump facilities in the western part of the City. Prepared studies, developed pre-design reports, prepared final design drawings and specifications, provided bidding services, coordinated permitting, and provided construction services and engineering certifications, and commissioning services as required.

Lift Station Conversion and Upgrade Program – Provided design, permitting, bid, construction and start-up phase services for the replacement of 18 lift stations ranging from 125 gpm and 725 gpm each. AECOM worked closely with City staff and their building department to site plan and professionally landscape each site. Most sites are within residential neighborhoods. As part of the lift station program, AECOM also designed water main, force main, and gravity sewer pipelines to tie from new lift stations to the existing underground infrastructure. Using AECOM's phased program approach has delivered each station within budget and schedule. We are currently providing construction services for four of the 18 lift stations.

US Coast Guard Station Marathon Major Maintenance & Repair Waterfront Marathon, FL

The US Coast Guard Station Marathon is located at 1800 Overseas Highway in Marathon, Florida, on Vaca Key. Station Marathon is a multi-mission unit that conducts missions in search and rescue, law enforcement, alien migrant interdiction operations, and marine mammal protection. The waterfront facilities support the stations vessels including one 45' Response Boat Medium (RB-M) and three 33' Law Enforcement Special Purpose Craft (SPC-LE). The waterfront facilities are also used by three small rental boats, one US Borders and Customs Protection boat, one Florida Fish and Wildlife boat, and one Florida Keys National Marine Sanctuaries boat.

AECOM provided professional engineering services (investigation, design, permitting, and coordination) for the project to upgrade the waterfront facilities which include a concrete soldier pile and plank bulkhead, a concrete wharf, a boat ramp, and seawalls consisting of stacked bagged concrete and mass gravity concrete wall.

Shortly after notice to proceed hurricane Irma passed the Florida Keys delaying the project start. The repairs to the seawalls and bulkhead included repairs to undermined walls from past storms and filling sinkholes. The end of the boat ramp was undermined and required replacement of the ramp with a precast slab and installation of sheet pile enclosure to prevent further undermining. During the concept stage the age of the wharf, its numerous reconstructions and observed conditions warranted additional testing. Cores were taken and sent for petrographic examination and found to be highly contaminated. As a result, repairs included with the original scope were determined to have a short life cycle. An analysis determined replacement was the more cost-effective solution based on life cycle costs.

AECOM developed plans, specifications, cost estimates, and documentations throughout the design process for the completion of various elements to be constructed as described above and replacement of the wharf in its entirety with a new pile supported concrete platform.

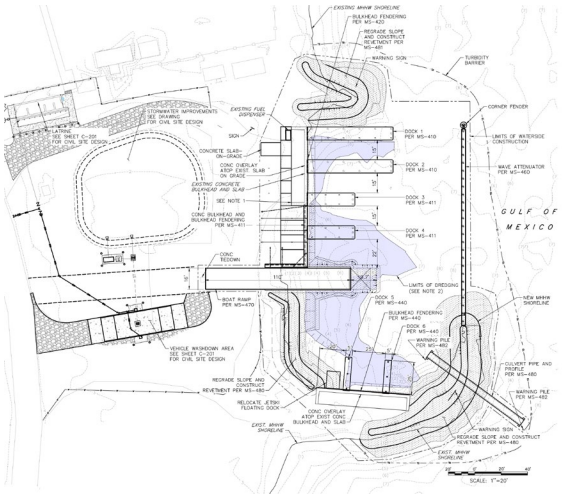
In addition to the inspection and design services, **AECOM** established the need for, applied for and obtained permits necessary for Army Corp, State, and local approval including Florida Keys National Marine Sanctuary permit. A recently performed benthic survey for the basin also prepared under a separate contract by AECOM was utilized for the application. AECOM is current acting as agent during the permit process.

Special Operations Forces Boat Docks Naval Air Station Key West, Key West, Florida USA

AECOM teamed with ARGO Systems as the successful design build team selected by the U.S. Navy to design and build a reconstructed boat basin and upland support facilities serving special operations forces small craft vessels.

This multidiscipline project included:

- Demolition of existing timber docks and concrete piles and construction of new concrete docks on precast-prestressed (PCPS) concrete piles. Smaller docks for zodiacs of all precast construction.
- Removal of existing timber wave attenuation fence on concrete piles and replacement with concrete jacketed H-piles piles on which precast concrete panels and a poured in place concrete cap is provided.
- Replacement of existing boat ramp with cast-in-place and precast concrete boat ramp.
- Spall Repairs to existing concrete bulkhead and construction of a bulkhead extension using PCPS Concrete soldier piles and concrete plank lagging tied back to PCPS concrete pile deadmen.
- Expansion of paved area behind bulkhead.
- Re-grading and re-armoring rock revetments at both ends of the basin to provide protection against storm wave events
- Installation of an RCP Culvert to improve water circulation within the basin
- Construction Staging to keep the basin operational during the reconstruction
- Construction of an upland boat washdown area and retention basin
- Construction of a new latrine building with toilet and diver shower facilities.
- Upland lighting and site utilities to service boat wash and latrine building including a sewer force main to adjacent building up a hill.



Contract documents (plans and technical specifications) were prepared. Engineer of Record Construction phase services are completed for the upland work. In-water work is underway.

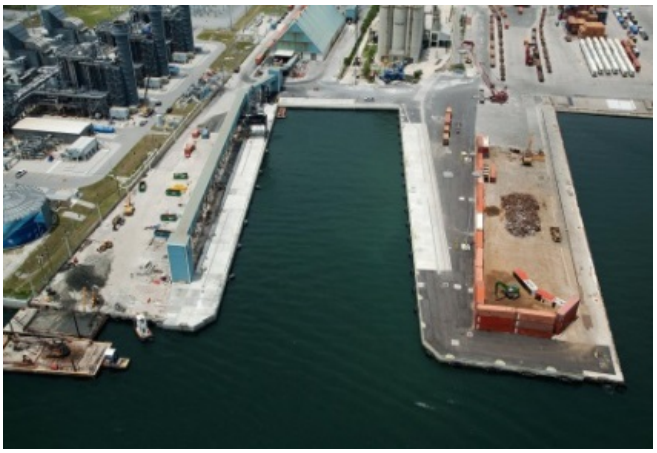
AECOM was responsible for the submission and approval of all permits for the project including the Florida Department of Environmental Protection Environmental Resource Permit, US Army Corps of Engineers Section 404 permit, and the Florida Keys National Marine Sanctuary (NOAA) permit. Approval of a State-owned Sovereign Submerged Land Authorization was also required.

Port Everglades 2010, 2014 Master/Vision Plan Updates

As prime consultant, AECOM prepared the 2010 and 2014 Master/Vision plans to guide port development over the next 5, 10 and 20 years. Working closely with the Port staff, the study involved: updating the market forecast, performing detailed conceptual planning/design studies, conducting visioning exercises, doing public outreach, completing facility capacity studies for the terminals and berthing areas, planning circulation, designing the intermodal rail yard, evaluating flight path restrictions from an adjacent international airport, identifying methods to increase terminal efficiencies, evaluating financial development options, performing navigation studies, planning infrastructure and relocation assistance, analyzing the parking garage, planning security, conducting phasing and capital improvement plans, and performing other associated studies. AECOM also reviewed and analyzed the port entrance channel dredging and widening alternatives developed by the USACE and reviewed National Economic Development benefits analysis and simulation model methodology and identified gaps between the Port Master Plan and USACE methodology.

AECOM identified key market segments for cruise passengers, containerized cargo and general bulk cargo in the 5-year, 10- year and 20-year horizons and suggested proposed infrastructure improvements necessary to meet the market forecast. A 5-year Capital Improvement Program was developed based on the estimated cost of each project and identified potential funding. AECOM completed the latest Master/Vision Plan Update in June 2014 and received an overall Excellent rating from Port Everglades. Similarly, AECOM had prepared the 2010 Master/Vision Plan update, which was adopted by the Broward County Commissioners, and several of the projects identified in the Master/Vision Plans are already completed.

Port of Palm Beach Authority, Reconstruction of Slip 3



AECOM provided planning, design, permitting, construction document preparation, construction management, and construction administration services for rehabilitation and reconfiguration of the existing Slip 3 at the Port. The project consisted of dredging, upland improvements, and adding a bulk sugar vessel-loading system, coordinating with existing tenant operations and Florida Power & Light.

AECOM managed seven specialty subconsultants in executing the project. The scope of work included boundary surveys, upland topographic surveys, bathymetric surveys of the slips and marginal wharves, soil borings/material testing and analysis, demolition design, design of replacement steel sheet piling, concrete cap and soil anchors, fenders and mooring fittings, roll on/roll off ramp, provision of shore power stations, water main installation, paving, high mast lighting, electrical conduit and manholes, and water boxes.

Although the east, west, and south bulkheads employed a traditional, anchored, king pile over-sheeting, to maintain the slip width, the north bulkhead had to be installed behind the existing bulkhead. This created sequencing challenges that required for the existing tie-back system to remain functional, securing the existing bulkhead until the new wall and soil anchors were completed. Other challenges included maintaining port operations with minimal disruptions. The AECOM team developed modifications to the existing sugar gantry loader on the south side, whose reach needed to be extended 8 feet and counterweights increased because of the new bulkhead over-sheeting and wider fendering necessary for manatee protection.

Manatee County Port Authority, Berth Reconstruction Engineering

AECOM provided design and construction document preparation, and performed engineer of record construction phase services for berth reconstruction engineering at Port Manatee. The initial project included reconstruction of Berth 9, which was constructed of a severely deteriorated, steel sheet pile, diaphragm-type cofferdam structure with a concrete cap that was undermined by settlement and leaking fill.

To address the key issue of deterioration of the marginal wharf structure, AECOM recommended over-sheeting in the form of a new steel combi-wall anchored bulkhead of pipe and Z-shaped sheet piling. The new wall also allowed the future deepening of the slip when the main channel was deepened. The space between the new and old walls was to be filled with cementitious flowable fill. The wall was to be anchored back, using tie rods, secured to a transfer beam supported on the back wall of the cofferdams, and then held laterally with soil anchors to avoid conflicts that would otherwise be encountered in attempting to drill through the back wall of the existing cofferdam. Tie rod anchors instead of soil anchors also were considered but were rejected because of the need to work beneath and support existing petroleum, electrical, water, and sewer lines running parallel and behind the cofferdams. During the design development stage, the implications of various live load scenarios and dredge depths were studied, and cost estimates were prepared to ascertain impacts on the project budget. The work included new fendering, mooring fittings, the ship's utility stations, concrete and asphalt pavement to support mobile harbor cranes, forklifts and dockside equipment, and a drainage system with separators. The project also included adding alternate bid items, to provide cathodic protection system in the form of anodes at berths 4, 5, 12, and 14 that were accepted because the bids received were under the engineer's estimate. Contract documents (i.e., plans, bid and technical specifications, and cost estimates) were prepared and engineer of record construction-phase services were provided.

Port of Houston Authority, Bayport Wharf 4 and 5 Retrofit Design

AECOM has recently completed design of approximately 1,660 feet of wharf 4 and wharf 5 capacity improvements for the POH Bayport Container Terminal complex to accommodate heavier and taller container quay cranes. The wharf retrofit design will be able to accommodate 100-foot-gage cranes with a 211-foot outreach, capable of off-loading a 22-foot-wide container ship, and up to 53-foot-depth of water in support of future dredging programs. The wharf retrofit design included several new drilled shafts to accommodate the concentration of wind forces on tie-downs and wharf furniture for supporting new container cranes.

The Port Authority was considering purchase of taller STS cranes but was not sure whether the existing wharf was designed to accommodate the taller and heavier cranes, and if not, to what extent rehabilitation would be needed. The Port needed to make a swift decision, based on a well-informed study with a very short duration. AECOM quickly mobilized the design team, de-archived relevant design and drawing files (both electronic and paper), and assisted the Port with strategic decision making in a very cost-effective manner.

AECOM presented conceptualized Design to Capacity ratios for the crane rail beams and piles for two new cranes, based on a detailed evaluation of the original design files. AECOM developed and presented PDF exhibits of constructible crane beam and pile strengthening repairs and/or warranted wharf rehabilitations needed to safely support the larger cranes, in collaboration with PHA engineering and operations/maintenance staff. AECOM developed and presented PDF exhibits for replacing the existing bollards and fender systems with stronger elements, for new design vessels that the POH prefers to be considered. AECOM's Port Cost Estimating group developed and presented a high-level opinion of probable cost associated with each crane alternative, with the required, detailed breakdown of work elements based on constructible sequence of tasks and contingencies incorporated, to be refined during the design phase.

South Carolina Ports Authority, Hugh K. Leatherman, Sr. Container Terminal Detail Design

In 2017, South Carolina Ports Authority (SCPA) awarded AECOM engineering design of the new Hugh K. Leatherman, Sr. (HLT) Container Terminal in North Charleston, SC. AECOM was tasked with completing detailed design of the entire project on a fast-track basis, which features a new 280-acre terminal utilizing electric RTGs, state-of-the-art entry/exit gate systems, functional and efficient terminal buildings, optimum terminal lighting, utilities, super post-panamax STS cranes and wharf structure to support them.

AECOMs scope of work encompassed planning, engineering design, permitting, and bid and construction support services for the terminal development. The terminal is to be developed in three phases over a 10-year period, with each phase bid as three separate projects: Wharf, Dredging and Site Development. Phases 1 and 2 were to be completed to 100% design and bid documents, with Phase 3 taken to a 30% design. Phase 1 of the terminal is anticipated to open March 2021.

AECOM inherited a 30% design developed by others. As a result of changes to the project and a value engineering study to confirm design elements and identify more cost-effective solutions, AECOM initially performed master planning for a new terminal layout and developed a revised 30% design. Currently, the Phase 1 Wharf is in construction, with the Phase Wharf completed to 100% design, The Phases 1 and 2 Site Development are at 100% design, with some new design changes being incorporated, and the Phases 1 and 2 Dredging are working towards 90% design. Key features of the terminal development include:

- 3500'-long, 120'-wide concrete pile-supported wharfs capable of handling 18,000 TEU container ships.
- Soil-structure interaction modeling for wharf seismic design
- Berth deepening to -60' MLLW and deepening of the navigation access area to -58' MLLW.
- Upland disposal of dredged sediments.
- Two roadways and three bridges (240', 270' and 450' long) with a traffic circle at the terminal entrance for terminal access and connection to adjacent future chassis yard and Navy Base Intermodal Facility.
- ERTG cranes on concrete runways for container storage and stacking on concrete beams, in lieu of full concrete pavement sections to reduce costs.
- Stormwater quality detention pond development for treatment and discharge of stormwater runoff.
- Comprehensive utility network, including potable water, firewater, sanitary sewer, natural gas.
- Extensive electrical system for power, IT and security systems, as well as substations, lighting and provisioning for potential shire-to-ship power systems
- 12 buildings and canopies for terminal operations, maintenance, gate processing, and security
- Provisioning for future sediment suspension system
- Ground improvement for select areas of the site
- Design for FEMA 100-year flooding and sea level rise

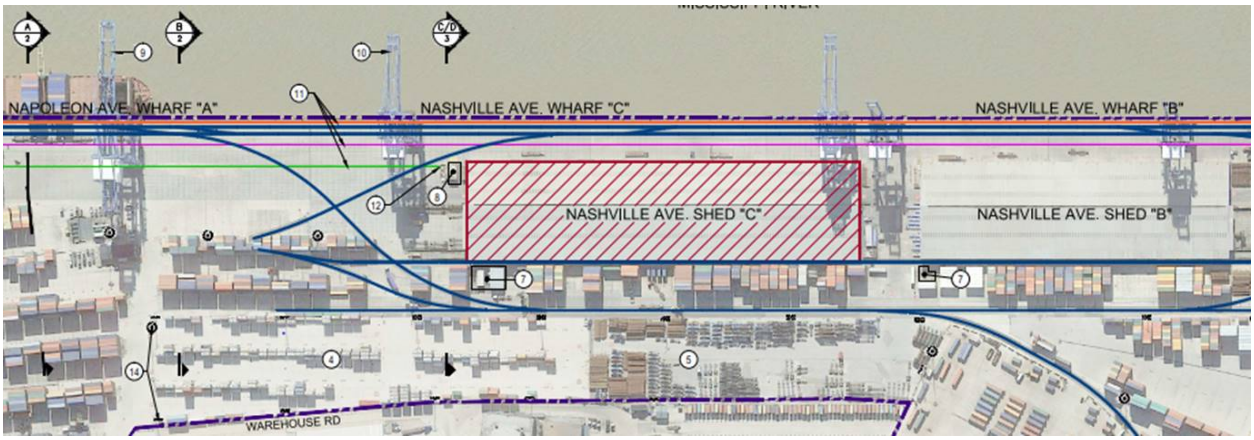
AECOM was tasked with completing detailed design of the entire project on a fast-track basis, with design of the entire terminal split in three phases over a 10-year period, with each phase bid as three separate projects: Wharf, Dredging, and Site Development. Phases 1 and 2 were to be completed to 100% design and bid documents, with Phase 3 taken to a 30% design. The site is located in a very challenging Marl formation, with high seismicity and poor geotechnical conditions.

AECOM inherited a 30% design developed by others. Because of changes to the project and a value engineering study to confirm design elements and identify more cost-effective solutions, AECOM initially performed master planning for a new terminal layout and developed a revised 30% design.

Currently, the Phase 1 Wharf is under construction, with the wharf completed to 100% design. Phases 1 and 2, Site Development are at 100% design, with some new design changes being incorporated, and Phases 1 and 2, Dredging are working toward 90% design. Issues that AECOM has addressed have included the extent of the seismic design, undertaken for the 3,500-foot-long by 120-foot-wide concrete, pile-supported wharf, to be capable of servicing 18,000 TEU container ships. AECOM was able to mobilize national experts in seismic analysis, to undertake in-depth analysis and make rapid progress in the design.

Ports America Louisiana, Nashville Avenue Wharf Improvements

Key Issues Being Addressed: AECOM was selected to provide Design of structural improvements to the existing container wharf being used by Ports America, extension of the landside crane rail, and improvements to the utilities serving the STS cranes in New Orleans. AECOM's scope of services include design of the following work; fender and mooring bollard improvements, electrical service improvements to the STS cranes, additional mooring and berthing analysis, geotechnical slope stability and lateral pile analyses, sheet pile toe walls, wharf pile repairs, crane rail extension, demolition of a warehouse, concrete wharf modifications, high mast light poles, dredging of an identified portion of the berth, removal of a fire water pump and installation of the new pump on an adjacent wharf, technical points of emphasis, and maintenance of operations during construction.



AECOM's scope of work is to design the Nashville Avenue wharves upgrade to accommodate 100-foot gage rail-mounted cranes to increase service to larger container vessels. Currently, the concept design is being completed. A new rail and supporting crane beam and pilings are to be constructed on the landside of the dock, offset 100 feet from the existing waterside rail, which also may need to be replaced. Localized demolition will be required on the dock surface, to install new crane rail(s) foundation piling.

AECOM added extra value to the client, having designed the original berth (performed by legacy AECOM firms), AECOM was able to mobilize the project team swiftly, including project partners with previous experience in the berth's construction and site conditions, to prepare a detailed scope of work for the rehabilitation, undertake the concept design, and prepare the basis of design. The client is able to access AECOM's deep bench of Ports & Marine experts and locally based wharf design team members when undertaking and managing all site investigations, permitting, concept design, detail design, and the construction administration services.

Port of South Louisiana, Globalplex General Cargo Dock and Finger Pier Retrofit

AECOM is the prime engineering consultant for the Port of South Louisiana and is responsible for project management, design, bid document preparation, and construction administration for Retrofit of the existing dock structure to accommodate the replacement of existing rail-mounted portal gantry cranes with larger capacity diesel powered cranes which will run along an enlarged rail gage.

The project is funded in part by the Louisiana Department of Transportation and Development, Port Priority Program, with an anticipated total construction cost of $12 million. The project involves retrofit of the existing dock structure to accommodate replacement of existing rail-mounted portal gantry cranes with larger capacity diesel powered cranes, which will run along an enlarged rail gage. AECOM previously completed the feasibility design and cost study phase of the project and now is finalizing the design, with construction bidding documents to be completed by end of 2018.

The General Cargo Dock and Finger Pier at the Port of South Louisiana is a 1,350-foot-long, steel-framed, pile-supported open dock structure, sited along the left descending bank of the Mississippi River in Reserve, Louisiana. The Port and its stevedore currently operate two rail-mounted gantry cranes for on and off-loading of primarily bulk cargo. The existing cranes are reaching the end of their useful service lives and have experienced increased downtime in recent years because of maintenance delays. The Port intends to procure two new portal rail-mounted gantry cranes, to be erected at the dock on completion of the retrofit project. To accommodate the larger gage, heavier, and larger capacity cranes, the dock structure will be retrofitted and upgraded. Installation of a new landside steel crane rail girder will increase the gage width from 36 to 45 feet. A new steel girder is proposed to be installed from the top of the dock, by saw-cutting the existing concrete deck and providing a connection to the existing girders. In addition to the new landside crane rail girder, additional bracing and reinforcement will be required below the deck level, to brace the existing piling and provide additional lateral stability. Ancillary features—including stowage pin supports, crane rail stops, and relocation of existing dock access hatches, electrical and plumbing lines—also will be added.

In addition to the dock retrofit project, AECOM concurrently is performing project management of the technical specification development and procurement of the two new portal rail-mounted gantry cranes. The project will be publicly bid, with an estimated procurement cost for the two new cranes of $12 million.

As part of the feasibility and cost study project phase, AECOM reviewed the existing dock structure and evaluated the impact of the proposed new cranes. The project initially began with the goal of removing the existing rail-mounted cranes and replacing them with tire-mounted mobile harbor cranes. Because of the construction layout and materials used in the original dock structure, significant limitations existed with using the mobile tire crane instead of a rail-mounted solution. A cost study for required dock retrofit and rail-mounted versus mobile cranes was conducted, with input from major crane manufacturers. The result of the feasibility study showed that although mobile cranes were possible, this approach would require substantial retrofit to the dock, which would increase cost and schedule. Also, because of travel restrictions and limitations at the narrow finger pier portion of the dock, a portal-mounted crane was determined to be better suited.

In addition to the dock retrofit feasibility and crane model evaluation, significant analyses and field investigations have been coordinated and performed by AECOM, to verify the load-carrying capacity of the existing structure to support the weight and operational loads of the new cranes. The original dock structure was constructed over multiple phases, with

each phase extending or widening the dock footprint. To confirm and attain confidence in the load capacity of the existing steel pipe piles, non-destructive testing was performed by AECOM's geotechnical consultant. The testing was used to determine the as-built pile tip embedment depths, which then were used in conjunction with historical soil boring data to estimate allowable pile capacities for design.

100 Resilient Cities: Greater Miami and the Beaches, Miami, FL

AECOM was the Strategy Partner to the Rockefeller Foundation's 100 Resilient Cities for the Resilient305 program for the **Greater Miami & the Beaches**. The effort was a three-year partnership between Miami-Dade County and the Cities of Miami and Miami Beach **to develop a collaborative Resilient Strategy** for the region. AECOM assisted the communities by engaging thousands of stakeholders throughout this process to prioritize strategies, narrative content, and develop the final Resilient305 Implementation Strategy.

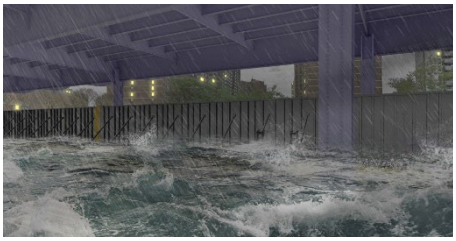
Our experience listening and helping build a more resilient region has provided insight into the top resilience shocks and stresses the region is facing, including **vulnerability to storms and the ability to recover, sea level rise and coastal erosion,** aging infrastructure, strained natural systems, and overall greater opportunity for intergovernmental collaboration.

Specific to sea level rise, flooding, storm surge, and recovery, there was a significant portion of the work dedicated to committing innovative investments in infrastructure; protecting natural resources; water quality and supply; understanding and communicating risk; and understanding the potential changes in insurance rates. We are prepared to apply the knowledge gained as Strategy Partner for Resilient305 to our work with City of Miami.

Lower Manhattan Coastal Resiliency (LMCR) Bridges Study, New York, NY

The Lower Manhattan Coastal Resiliency (LMCR) Project aims to **reduce flood risk due to coastal storms and sea level rise** from Manhattan's Two Bridges neighborhood to Battery Park City. The AECOM team developed a **long-term strategy aimed at flood reduction** in Lower Manhattan as well as a feasible concept design for a flood protection system for the Two Bridges Neighborhood. The interdisciplinary team undertook a collaborative design process that involved engineers, landscape architects, architects, planners, economists, environmental and regulatory experts, hydrodynamic modeling specialists, and community engagement advisors.

In the Two Bridges neighborhood, the project explored a variety of infrastructure typologies in order to develop a system of flood protection which were analyzed in a Feasibility Study and developed to a schematic level of design. The project intends to build the physical, social, and economic resiliency of the area by **integrating flood protection infrastructure i**nto the community fabric while improving access to the waterfront and enhancing public spaces. LMCR goals prioritized project concepts and infrastructure typologies that were implementable, while identifying opportunities for long-term resilience; and engaged with the community on core design principles and priorities.



Rebuild by Design: Hudson River, NJ/NY

AECOM is promoting development of innovative resilience projects in Superstorm Sandy-affected regions. The Rebuild by Design: Hudson River (RBDH) Project emerged from the Rebuild by Design Competition, which promoted development of innovative resilience projects in Superstorm Sandy-affected regions. HUD awarded $230M to the State of New Jersey to design and build a multipurpose structure that provided **FEMA accredited flood risk reduction** at the 100-year storm level (called the "Resist Structure"), as well as **mitigation for stormwater flooding** through elements such as green infrastructure, underground storage and Storm Sewer Modification.

The **Resist structure design consists of an 8,846 linear foot alignment** that is intended to provide coastal flood risk reduction to the population and infrastructure residing within the project area's 100-year floodplain. Ranging from 1 foot to approximately 11 feet in height, multiple types of public amenities will be integrated into the structure in various locations along the alignment. The final design will also include Cove Park, a new waterfront park designed on top of, and incorporated with, the Resist Structure.

AECOM is responsible for advancing the multipurpose Resist Component, related stormwater components, integrated urban amenities, and Cove Park to a final-level design. The design process is informed by a public engagement process that is organized to solicit input through workshops and individual activities applied to three-dimensional models, maps and diagrams. AECOM prepared working materials and facilitated the workshops.

South Battery Park Resiliency Project, New York, NY

AECOM is the lead for multi-discipline team for Design Services (from conceptual to construction documents) and Community Engagement for this flood risk management project. South Battery Park Resiliency is a **highly urban and coastal flood risk management project** for Battery Park City Authority (BPCA) in Lower Manhattan. During Hurricane Sandy combined coastal surge inundated Lower Manhattan on its western side through both Wagner Park and Pier A and other portions of northern BPCA, finding its way up 9A (West side Highway), into One World Trade Center and the Battery Tunnel, impacting much of Lower Manhattan's critical infrastructure.

This project looks **to design an integrated flood alignment system** through the southern portion of Battery Park City, through Wagner Park and Pier A, and along the north side of Battery Park to the higher ground of the Bowling Green Plaza. This project will be inclusive of some of the **most progressive flood risk management solutions** that are available, due the dense urban environ and existing subterranean infrastructure. Wagner Park, the main public space within the project area, is a well-known design legacy landscape.

The flood alignment will be designed as an integrated aspect of the public park, as well as, deployable flood gate designed so the NYC can still maintain its daily operations. The entire alignment will need to be **FEMA certified/accredited** and the **scope of work ranges from conceptual design to construction documents**, community engagement, construction administration, FEMA floodplain maps updating, and operations and maintenance manual development of the entire system.

State Rt. 37 Integrated Traffic, Infrastructure, and Sea Level Rise Analysis & Design Alternatives Assessment, San Francisco Bay, CA

California State Route 37 is an important regional connection linking the north, east, and west San Francisco Bay Area sub- regions. The study corridor, located from US 101 in Novato to I-80 in Vallejo along the edge of the San Pablo Bay, currently experiences severe traffic congestion and temporary **flooding during heavy storms, which is expected to worsen with sea level rise**. SR 37 is located in an ecologically rich area and traverses through large, contiguous wetlands, including the San Pablo Bay National Wildlife Refuge, along with California Department of Fish and Wildlife managed lands, private lands, and several restoration sites, that are home to several federally- and state- listed species. Due to its bayside location and elevation, **rising sea levels due to climate change will critically impact both the study corridor and surrounding sensitive ecosystems**. AECOM has been supporting planning efforts along SR 37 since 2014.

In collaboration with UC Davis, AECOM conducted a SLR vulnerability and risk assessment and developed conceptual adaptation strategies to raise the highway along the length of its corridor. AECOM conducted a vulnerability assessment for five sub-segments of the highway to examine the exposure, sensitivity, and adaptive capacity of each segment. Exposure was evaluated by examining the depth and extent of inundation, length of overtopped highway, and vulnerability of shoreline protection features. Sensitivity was evaluated by examining indicators such as age, level of use, historical flooding, seismic sensitivity, and liquefaction susceptibility. Adaptive capacity was evaluated by examining the availability of alternate routes. Risk was evaluated by considering the consequences of disruption due to flooding and included evaluation of costs to restore service, public safety impacts, economic impacts to goods, transport and commuters, proximity to communities of concern, and impacts to recreation activities. To address long-term flood vulnerabilities, **AECOM developed conceptual design alternatives and cost estimates** to elevate the highway on an embankment or structure, considering three different alternatives. AECOM presented the findings of the vulnerability, risk, and conceptual design tasks at multiple stakeholder meetings and **created 3D renderings of each alternative** to illustrate the concept designs. This initial effort laid the foundation for the subsequent Design Alternatives Assessment (DAA) and included **multiple meetings with key stakeholders** to share study findings and solicit feedback and local knowledge.

AECOM is currently working with Kimley-Horn to support the Metropolitan Transportation Commission and its four north Bay county partners to perform a Design Alternatives Assessment (DAA) for the corridor. The DAA aims to develop an integrated transportation and ecosystem design solution for both the short- and long-term sustainability of the corridor. The effort has included an innovative environmental stakeholder engagement process to involve stakeholders early in the process so that they can shape the vision of the future corridor. The **project recently received an Environmental Excellence Award from the Federal Highway Administration.**

Design Alternatives Prepared by AECOM

Shoreline Protection Program San Francisco International Airport, CA

SFO's shoreline is 8 miles long and extends from the San Bruno Channel in the north to the Millbrae Channel in the south. Existing shoreline protection features are man-made defenses ranging from rock revetments and reinforced concrete walls to vinyl and steel sheet-piled walls. In some locations, the shoreline abuts wetland habitats with naturally formed shallow foreshore which extends out and dries during low tide events.

H. ADDITIONAL INFORMATION

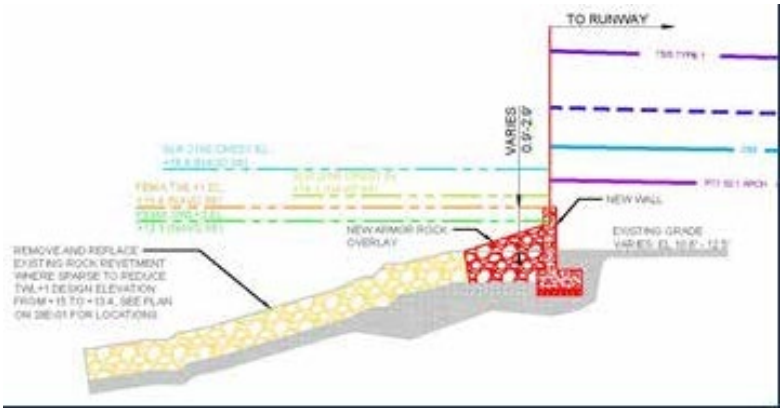
30. PROVIDE ANY ADDITIONAL INFORMATION REQUESTED BY THE AGENCY. ATTACH ADDITIONAL SHEETS AS NEEDED.

A recently completed FEMA flood study of San Francisco Bay designated portions of SFO as within the Special Flood Hazard Area (SFHA). SFO is seeking removal of the SFHA designation by providing an accredited flood protection system to mitigate coastal and riverine flooding.

Although FEMA requirements were SFO's primary concern, AECOM's project also addressed the effects of sea level rise (SLR). To improve the airport's overall resiliency, seismic improvements were included in the flood protection design alternatives. The primary seismic hazards for SFO's shoreline structures are liquefaction and lateral spreading. The primary mitigation is via ground improvement.

AECOM's work on SFO's shoreline program included:

- Performing a condition assessment of SFO's entire shoreline (8 miles), which was subdivided into 15 reaches.
- Developing reach-by-reach design criteria for FEMA compliance, Sea Level Rise (2050 and 2100) and seismic design.
- Performing a multi-hazard risk assessment of SFO's existing flood defenses.
- Developing a toolbox of preliminary designs including levees/berms, concrete and sheet pile floodwalls, rock revetments and fixed, floating off-shore breakwaters and off-shore floodwalls. The preliminary design uses ground improvement via jet grouting or stone columns for seismic.
- Through an adaptive approach, designs were developed for FEMA compliance then evaluated for addressing Sea Level Rise. Lastly, ground improvement was added for seismic resiliency.
- Developing preliminary designs to evaluate alternatives and for construction cost estimates.
- Performing an alternatives evaluation with 23 criteria organized into five general categories: FEMA Compliance, SLR Adaptability, Construction Approach and Constructability; Stakeholder Impacts and Environmental/Permit Impacts.
- Achieving stakeholder consensus through eight workshops which presented the hazards, functionality of existing shoreline defenses, preliminary design of alternatives and evaluation of alternatives.



Norris Cut Force Main Replacement Tunnel, Miami-Dade County, FL

AECOM was contracted to assist Miami-Dade Water and Sewer Department replace a critical force main under Norris Cut after it was found to be in imminent threat of failure.

The project was successfully implemented using design- build delivery in less than five years with AECOM serving as MDWASD's criteria professional, procurement consultant, and owner's representative from project conception to final construction and commissioning.

The project consisted of replacing a critical existing sanitary sewage force main (FM) pipeline under Norris Cut from the Central District Wastewater Treatment Plant (CDWWTP) to Fisher Island. The existing 54-inch pipeline

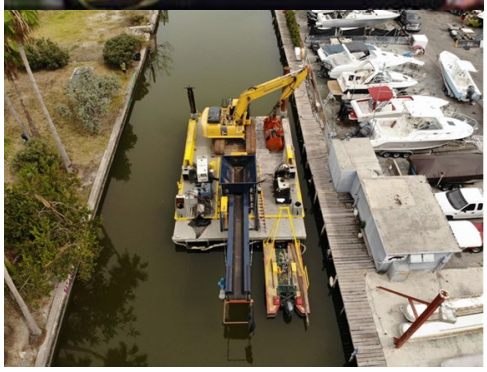
consisted of pre-stressed concrete cylinder pipe and transmits all sewage collected from Miami Beach, Surfside, Bal Harbor, Bay Harbor, North Bay Village and Fisher Island to the CDWWTP on Virginia Key for treatment and disposal, and there would have been disastrous consequences if it ruptured. AECOM performed a preliminary design; prepared design criteria documents for a design-build tender; assisted MDWASD in permitting, public outreach, and procuring a design-build team; and performed engineering services during final design and construction.

The Norris Cut Tunnel includes 5,300 linear feet of 10- ft diameter TBM-mined tunnel with a pre-cast concrete

segmental liner at 80 to 90 feet below existing grade. The tunnel passed under Norris Cut with approximately 40 feet of cover. Ground conditions consisted of a highly pervious and variable coralline limestone formation with pockets and layers of clean sand. AECOM was responsible for:

- Route Selection/Preliminary Design
- Preparation of Design Criteria Documents
- Geotechnical and Geophysical Investigations
- Bathymetric and topographic Surveys
- Geotechnical Data and Baseline Reports
- Permitting and Community Outreach
- Right of Way Engineering and property acquisition
- Preparation of Procurement Documents
- Evaluation of Design-Build Tender Submittals
- Negotiation assistance leading to contract award Engineering Services during Final Design
- Owner's representative overseeing compliance during the construction phase
- Final certification/close-out and settlement of all outstanding contractual matters

Wagner Creek Seybold Canal Restoration, Miami, FL



AECOM, as a subconsultant to Sevenson Environmental Services (SES), provided Design-Build services to the City of Miami to remove contaminated (dioxin) sediment from Wagner Creek and Seybold Canal. These waterways were considered the most contaminated in the State of Florida. The sediments in Wagner Creek contained elevated levels of dioxins; and dredging was needed to remove the contaminated sediments and to restore this aquatic habitat and manatee refuge area, as well as restore the drainage features of these waterways, which are designated as Outstanding Florida Waters (OFWs).

The key to project success was AECOM's design of three innovative dredge approaches. AECOM's plan was developed based on the use of specialized dredge equipment that SES built specifically for this project. Key advantages included 1) ability to access the site and transfer material continuously; 2) **fast track permitting program** that could obtain regulatory approval from FDEP, USACE, Miami-Dade County Department of Environmental Resources Management (DERM), and FWC within 90 days of contract award; and 3) use of aqua dams, moon pools, and air curtains to provide **protection of the endangered manatees**. The city was in jeopardy of losing millions of grant dollars if the project wasn't substantially completed by March 2018. **AECOM was successful in obtaining permits in time to allow for project start and secured funding.**

AECOM was responsible for the engineering dredge design for the six operational sections (OS1- OS6), design and permitting of the off-site staging area, pre- and post- structural engineering evaluations, permitting an innovative dredge plan, public outreach, regulatory compliance, manatee protection, and on-site environmental and quality assurance inspections of the dredging activities.

Two of the key accomplishments included 1) an **extensive community outreach effort** that successfully promoted a clear understanding of environmental issues associated with restoring these contaminated waterways, and 2) AECOM's public outreach team that promoted communication between the project stakeholders, and most importantly the residents, which stimulated meaningful discussions and a deep understanding of environmental issues affecting the surrounding neighborhoods.

The project was a huge success and **received two prestigious Environmental Awards**, a national award from the Western Dredging Association (WEDA) and a regulatory award from Florida Department of Environmental Protection for environmental excellence in dredging.

NYSDOT: FDR Drive and Harlem River Drive Corridor Riverfront Structures

AECOM performed a visual inspection (roadway level and from the water) of the FDR, Harlem River Drive roadway, and East River Esplanade existing conditions, the collection and cataloguing of record information and the preparation of a comprehensive report containing a description of the corridor, agency jurisdictions, repair history, current conditions, and a list of locations requiring study or repair in priority order. Also included are an electronic GIS mapping database to graphically show the summary data and the preparation of PS&E package for contract work to perform waterside site inspection of areas along the corridor. A report of the findings was prepared as well as any repair details to resolve flag conditions identified in the areas exposed by the dredging / access contract.

Post-Katrina Hurricane Protection Office New Orleans, Louisiana

In a follow-up contract to the New Orleans District's Task Force Guardian Program (an emergency program to restore the levees damaged by Hurricane Katrina), AECOM was awarded multiple task orders to assist the Hurricane Protection Office (HPO) with improvements to the levee system in New Orleans. The project encompasses about 30-miles of the levee/flood protection system and consists of seven major reaches of work. The project includes the design and construction of floodwalls, levees, and gates, and requires utility relocation, pump station remediation, and real estate coordination.

2

1

The work includes first raising the existing flood protection system to the authorized (or as originally constructed) elevations and then raising the system to the 1% project design elevations that will provide protection from a hurricane event that would produce a 1% exceedance surge elevation and associated waves.

The project required closures and intermodal transport coordination to allow construction across U.S. highways, including Interstate I-10, a key hurricane evacuation route.

AECOM provided extensive Program/Project Management of a team consisting of people from 15 AECOM offices as well as subconsultants that were assembled to provide the necessary engineering services. The assembled team consisted of over 100 technical experts and experienced personnel.

Members of the AECOM project team worked closely with the members of the HPO team to investigate cost-effective and workable solutions. This was particularly challenging on this project due to the short time frames allowed for construction. Nevertheless, the AECOM team strove to identify the most cost-effective solution for each type of construction. Because

AECOM utilized staff from a number of different offices, we were able to maintain the schedules established by the HPO, even though the time permitted was often much shorter than would typically be available for similar work. Where difficulties were encountered with scheduling, every effort was made to coordinate and address these obstacles with the HPO.

Seawall Resiliency Project, San Francisco, CA

Seawall Resiliency Project AECOM provide the city of San Francisco with planning, engineering and Environmental Services for the city of San Francisco. The approach taken for this project was to prioritize infrastructure project on a diverse array of factors including greatest disaster risk and loss reduction, fastest recovery and strongest co-benefits to the community, agencies and business along the seawall. The seawall was originally constructed more than 100 years ago and now the Port and local business are once again looking for the protection against chronic concerns of flooding, exacerbated by sea level, and the pressing threat of a large earthquake.

To address these concerns a three-phase master plan will be developed. This plan will be informed by these risks, stakeholder needs and desires, opportunities, and aggressive action timeline. Emergency improvement projects will be fast tracked to start within the first 2 years and other critical projects will be executed over the next decade as required. The projects will be planned carefully to minimize the effect that they have on the Port Business, the community and visitor thus reduce the impact on associated City revenue. During the later phases dividends of the resilience will begin to offset the cost of the impacts.

USACE Galveston District, A/E IDIQ Contract for Engineering and Planning Services, Texas Gulf Coast

AECOM as was contracted to provide planning and engineering services for task orders including emergency repairs post hurricane Ike, storm damage reduction, flood control, building assessments and navigation projects. The full range of engineering services where preformed for this project including

- Survey (topographic and bathymetric)
- Geotechnical investigation
- Modeling
- Design, including drawings produced in MicroStation
- Preparation of specifications in CSI format
- Cost estimating
- Value Engineering
- Construction Support

The District received request for rehabilitation assistance from public sponsors for: Galveston Sewall: Texas Hurricane Flood protection System (HFPS); Port Arthur HFSP; Freeport HFPS; Clear Creek Second Outlet Structure; White Oak Bayou Federal Flood Control project; and North Padre Island Storm Damage Reduction and Environmental Restoration Project. For each of these projects PIRs where prepared that justified the emergency repairs for these seven projects. Each of these reports included initial damage assessment, cost estimates for repairs, economic benefits of damages prevented by restoring the project to pre-storm conditions and initial environmental assessment of impact cause by the repairs.

Planning Center of Expertise (PCX) Coastal Storm Damage Reduction (CSDR) Services, USACE North Atlantic Division

As part of the International Coastal Solutions Partnership (ICSP) JV, AECOM provided architect-engineer service to support the USACE North Atlantic Division National Planning center effort to recover from Hurricane Sandy. The contract focused on coastal storm damage reduction and involved coastal processes, coastal design, non-structural alternative resources planning, other engineering investigations, NEPA, environmental inventorying/analysis, cultural resources management and hurricane planning as well as technical review of products.

Specific task included

- Draft & Final Report preparation including incorporation of comments. The report included framework for conducting tiered coastal risk analyses and resilience planning on a statewide, regional or local level.
- Development of structural, non-structural and natural/nature-based flood risk reduction measures, including feasibility level designs and cost estimates.
- Updated economic flooding depth-damage relationships for residential, nonresidential, & public property and new emergency costs and secondary storm effects damage relationships.
- Estimation of populations at risk and loss of life for the Sandy event. Results will be used in follow- on studies to estimate of loss of life after project implementation.
- Support for development of joint probability of storm winds, waves, and water levels along the North Atlantic coast for both tropical and extra- tropical storm events.
- Provided technical support for feasibility phase of the North Atlantic Coast Comprehensive Study involving development of a Coastal Program Guide and animation/information graphics for an associated USACE internet site.

H.5 Current Capability – Current and Projected Work Load

AECOM's proposed team provides professionals to carry out all required engineering, data collection, field surveys and construction management services for the proposed Tidal Flooding Mitigation project.

AECOM is a large organization with more than 80,000 worldwide resources, with significant presence in the USA Southeast market supported by more than **240 professional staff based in South Florida; 1,200 in Florida and more than 4,000 in the Southeast region** and more than 60 specializing in port/marine work, therefore AECOM provides extensive redundancy in professional staff and able to service project needs based on the dynamically changing requirements.

DEEP BENCH OF RESOURCES COMMITTED TO DELIVER

- AECOM has more than 240 professional staff based in South Florida servicing ALL required disciplines for Tidal Flooding Mitigation
- AECOM can mobilize and execute ALL PHASES of the proposed Scope of Work on a fast-track basis
- AECOM's proposed Project Manager and Project Director live within 30 miles radius and committed to DELIVER the project to the City of Hollywood

Following table provides AECOM professional resources firm wide as of December 2018.

Discipline	Number of Employees
Architect	1,536
CADD Technician	2,838
Civil Engineer	8,119
Construction Manager	1,039
Cost Engineer/Estimator	1,106
Economist	279
Electrical Engineer	1,392
Environmental Engineer	1,466
Environmental Scientist	1,994
Fire Protection Engineer	83
GIS Specialist	405
Geologist	943
Interior Designer	92
Landscape Architect	324
Mechanical Engineer	1,598
Planner: Urban/Regional	767
Project Manager (subset of other disciplines)	[9,231]
Structural Engineer	1,915
Technician/Analyst	9,151
Transportation Engineer	1,988
International and Other Technical Staff	41,620
Total (all AECOM entities)	78,655

As the City of Hollywood does not plan to award the project until June of 2020, the projected work load is difficult to determine precisely, however AECOM is committed to providing the proposed KEY PERSONNEL for swiftly executing the Tidal Flooding Mitigation project for the City of Hollywood upon award of the work.

AECOM will make all KEY PERSONNEL available to undertake the required scope of services and can also identify additional resources if required. Following table provides an overall breakdown of current project workload and projected availability of our KEY PERSONNEL.

H. ADDITIONAL INFORMATION

30. PROVIDE ANY ADDITIONAL INFORMATION REQUESTED BY THE AGENCY. ATTACH ADDITIONAL SHEETS AS NEEDED.

Name	Current Project Workload	Estimated Hours Required*	Projected Availability
José Soler, PE	60% full time	600-1200	Full time as required
Vijay Agrawal, PE	30% full time	150-300	20% to 30% as required
Philip Hadfield, PE	50% full time	200-400	20% to 30% as required
John Carel, PE	80% full time	200-400	20% to 30% as required
Lauren Swan	70% full time	200-400	Full time as required
Erica Harris	70% full time	150-400	Full time as required
Justin Vandever, PE	70% full time	200-400	Full time as required
Steven Li, PE	80% full time	200-400	Full time as required
Chris Marshall, P.G.	70% full time	150-300	Full time as required
Bruce LeLong, PE	50% full time	400-600	Full time as required
Ariel Buenano	70% full time	200-400	Full time as required
Amy Eason, PE	70% full time	200-400	Full time as required
Badu Madabhushi	60% full time	200-400	Full time as required
Laura Chemey	70% full time	200-400	Full time as required
Ashley Matthews	70% full time	200-400	Full time as required
Karen Brandon, PE	60% full time	200-400	Full time as required
Jae Park	50% full time	100-200	Full time as required
Dan Deegan, PE	60% full time	100-200	Full time as required
Mike Barba	80% full time	200-400	Full time as required
Jason Weiss	70% full time	100-200	Full time as required

H.6 South Florida Experience with Similar Projects

AECOM has extensive experience with similar projects in the South Florida market having more than three offices and more than 240 professional staff providing engineering services.

Although repetitive, this section provides additional projects and information on AECOM's local SOUTH FLORIDA experience further illustrate AECOM Team's qualifications and capabilities for successfully completing the Tidal Flooding Mitigation project for the City of Hollywood. Additional information on these projects can be provided upon request.

City of Hollywood Professional Continuing Services: Various Pump/Lift Station Conversion Program, Hollywood, FL

AECOM has been providing Professional Services Agreement to the City of Hollywood, Florida since 2003. As part of the agreement, AECOM was assigned various task orders including a series of task orders related to rehabilitation, repair, and replacement of 18 City-owned lift stations.

As part of the lift station program, AECOM designed multiple pump station improvements and interconnecting water main, force main, and gravity sewer pipelines.

City-wide Water Main Repair Evaluation – Prepared a City-wide water main distribution replacement plan of 220 miles of pipe. Replacement was prioritized in utility analysis zones by ranking of importance factors.

West Hollywood Pump and Storage Facility – We provided design, bid, permitting, and construction management services for the $1 million West Hollywood Pumping and Storage Tank Facilities.

City Model Conversion – Providing conversion of Citywide water transmission model from WaterCad to Infoworks.

Stormwater Pump Station #6 – AECOM provided design, permitting, bid, construction, and start-up phase services for what was ultimately a facility housing two 3,750 pgm stainless steel submersible pumps. The building architecture was designed to match the established and historic neighborhood. The construction project was on time and within budget.

Master Lift Station Conversion and Upgrade Program – Prepared documents for the structural design rehabilitation of three master lift stations.

Johnson Street Water Main Repair – Prepared contract documents for water main replacements including design, permitting and construction services.

Water Use Permitting for Membrane Softening Plant Expansion – Prepared the water use permit renewal request for information with the South Florida Water Management District permit for requested withdrawals from the Biscayne and Floridian aquifers.

Bond Report for Water Treatment Plant Improvements – Developed a bond report describing the status of the municipal water treatment supply systems.

City of Hollywood WTP, Various Water Treatment Plant Improvements – Provided for the facilities upgrade of a water treatment plant which included spiractor piping modifications, new 9,000-kVA emergency generator facilities, and gravity filter piping and valve replacement, building rehabilitation, and filter operations study. Also managed the structural rehabilitation of steel filters, sodium hypochlorite tank replacement, lime pumps and slakers replacement design report, HVAC upgrades, chlorine facility upgrades, elimination of plant discharges to the pond, spiractor cone repair investigation, and water ground storage tank and repump facilities in the western part of the City. Prepared studies, developed pre-design reports, prepared final design drawings and specifications, provided bidding services, coordinated permitting, and provided construction services and engineering certifications, and commissioning services as required.

Lift Station Conversion and Upgrade Program – Provided design, permitting, bid, construction and start-up phase services for the replacement of 18 lift stations ranging from 125 gpm and 725 gpm each. AECOM worked closely with City staff and their building department to site plan and professionally landscape each site. Most sites are within residential neighborhoods. As part of the lift station program, AECOM also designed water main, force main, and gravity sewer pipelines to tie from new lift stations to the existing underground infrastructure. Using AECOM's phased program approach has delivered each station within budget and schedule. We are currently providing construction services for four of the 18 lift stations.

Port Miami, Program Management Consultant, Miami, FL

AECOM since 2013 provides Program Management Consultant (PMC), facilitating all tasks necessary to develop the PortMiami's Master Plan and oversee the construction of new infrastructure and facilities that are expected to be completed over the next five years. These projects include four new cruise terminals, new cruise berthing facilities, upgrades and expansions to existing cruise terminals, parking garages, concourse extensions, seawall reconstruction, waterside improvements, another significant investment in the cargo terminal yards, gantry cranes, gate complexes, Ropax facilities, roadways and rail systems.

PortMiami: The AECOM team brings a proven history of successfully serving as the PMC for PortMiami.

North Bulkhead Wall Replacement Evaluation – Performing consulting and design review for existing North Bulkhead Wall system replacement with a new wall along the northern extension of Dodge Island to serve all cruise operations berths. This complex wall reconstruction will require extensive construction phasing in order to minimize impacts to port operations. Currently in the earl stage of development, the program may include widening of the north apron, extensive waterside improvements, PBB and runway modifications, and relocation of bollards, fenders, and water stations.

Cruise Terminal B Design-Build – Serving as owners representative performing consulting and design review for a new cruise terminal in a public-private partnership between Miami-Dade County and Norwegian Cruise Lines. Project includes upgrade of the seawall for flood and sea level rise protection, construction of new terminal capable to accommodate vessels carrying up to 5,000 cruise passengers.

Cruise Terminal V Design-Build – Serving as owners representative performing consulting and design review of design for a new cruise terminal to accommodate the Virgin Voyages first ship Scarlet Lady. Project to be located on the northwest side of the port includes construction of a new terminal, dredging of the berth and portions of the Intra Coastal Waterway, a new bulkhead wall system, a mooring dolphin extension to accommodate the new vessel, and flood and sea level rise protection.

Cruise Terminal F Expansion and Berthing Re-Alignment – Serving as owners representative performing consulting and design review of the expansion and renovation of Cruise Terminal F. Project includes waterside terminal improvements to accommodate berthing of Carnival's XL newest 7,000 passenger ships and provide improved flood and sea level rise protection.

US Coast Guard Station Marathon Major Maintenance & Repair Waterfront Marathon, FL

The US Coast Guard Station Marathon is located at 1800 Overseas Highway in Marathon, Florida, on Vaca Key. Station Marathon is a multi-mission unit that conducts missions in search and rescue, law enforcement, alien migrant interdiction operations, and marine mammal protection. The waterfront facilities support the stations vessels including one 45' Response Boat Medium (RB-M) and three 33' Law Enforcement Special Purpose Craft (SPC-LE). The waterfront facilities are also used by three small rental boats, one US Borders and Customs Protection boat, one Florida Fish and Wildlife boat, and one Florida Keys National Marine Sanctuaries boat.

AECOM provided professional engineering services (investigation, design, permitting, and coordination) for the project to upgrade the waterfront facilities which include a concrete soldier pile and plank bulkhead, a concrete wharf, a boat ramp, and seawalls consisting of stacked bagged concrete and mass gravity concrete wall.

Shortly after notice to proceed hurricane Irma passed the Florida Keys delaying the project start. The repairs to the seawalls and bulkhead included repairs to undermined walls from past storms and filling sinkholes. The end of the boat ramp was undermined and required replacement of the ramp with a precast slab and installation of sheet pile enclosure to prevent further undermining. During the concept stage the age of the wharf, its numerous reconstructions and observed conditions warranted additional testing. Cores were taken and sent for petrographic examination and found to be highly contaminated. As a result, repairs included with the original scope were determined to have a short life cycle. An analysis determined replacement was the more cost-effective solution based on life cycle costs.

AECOM developed plans, specifications, cost estimates, and documentations throughout the design process for the completion of various elements to be constructed as described above and replacement of the wharf in its entirety with a new pile supported concrete platform.

In addition to the inspection and design services, **AECOM** established the need for, applied for and obtained permits necessary for Army Corp, State, and local approval including Florida Keys National Marine Sanctuary permit. A recently

performed benthic survey for the basin also prepared under a separate contract by AECOM was utilized for the application. AECOM is current acting as agent during the permit process.

Special Operations Forces Boat Docks Naval Air Station Key West, Key West, Florida USA

AECOM teamed with ARGO Systems as the successful design build team selected by the U.S. Navy to design and build a reconstructed boat basin and upland support facilities serving special operations forces small craft vessels.

This multidiscipline project included:

- Demolition of existing timber docks and concrete piles and construction of new concrete docks on precast-prestressed (PCPS) concrete piles. Smaller docks for zodiacs of all precast construction.
- Removal of existing timber wave attenuation fence on concrete piles and replacement with concrete jacketed H-piles piles on which precast concrete panels and a poured in place concrete cap is provided.
- Replacement of existing boat ramp with cast-in-place and precast concrete boat ramp.
- Spall Repairs to existing concrete bulkhead and construction of a bulkhead extension using PCPS Concrete soldier piles and concrete plank lagging tied back to PCPS concrete pile deadmen.
- Expansion of paved area behind bulkhead.
- Re-grading and re-armoring rock revetments at both ends of the basin to provide protection against storm wave events
- Installation of an RCP Culvert to improve water circulation within the basin
- Construction Staging to keep the basin operational during the reconstruction
- Construction of an upland boat washdown area and retention basin
- Construction of a new latrine building with toilet and diver shower facilities.
- Upland lighting and site utilities to service boat wash and latrine building including a sewer force main to adjacent building up a hill.

Contract documents (plans and technical specifications) were prepared. Engineer of Record Construction phase services are completed for the upland work. In-water work is underway.

AECOM was responsible for the submission and approval of all permits for the project including the Florida Department of Environmental Protection Environmental Resource Permit, US Army Corps of Engineers Section 404 permit, and the Florida Keys National Marine Sanctuary (NOAA) permit. Approval of a State-owned Sovereign Submerged Land Authorization was also required.

Port Everglades 2010, 2014 Master/Vision Plan Updates

As prime consultant, AECOM prepared the 2010 and 2014 Master/Vision plans to guide port development over the next 5, 10 and 20 years. Working closely with the Port staff, the study involved: updating the market forecast, performing detailed conceptual planning/design studies, conducting visioning exercises, doing public outreach, completing facility capacity studies for the terminals and berthing areas, planning circulation, designing the intermodal rail yard, evaluating flight path restrictions from an adjacent international airport, identifying methods to increase terminal efficiencies, evaluating financial development options, performing navigation studies, planning infrastructure and relocation assistance, analyzing the parking garage, planning security, conducting phasing and capital improvement plans, and performing other associated studies. AECOM also reviewed and analyzed the port entrance channel dredging and widening alternatives developed by the USACE and reviewed National Economic Development benefits analysis and simulation model methodology and identified gaps between the Port Master Plan and USACE methodology.

AECOM identified key market segments for cruise passengers, containerized cargo and general bulk cargo in the 5-year, 10- year and 20-year horizons and suggested proposed infrastructure improvements necessary to meet the market forecast. A 5-year Capital Improvement Program was developed based on the estimated cost of each project and identified potential funding. AECOM completed the latest Master/Vision Plan Update in June 2014 and received an overall Excellent rating from Port Everglades. Similarly, AECOM had prepared the 2010 Master/Vision Plan update, which was adopted by the Broward County Commissioners, and several of the projects identified in the Master/Vision Plans are already completed.

Port of Palm Beach Authority, Reconstruction of Slip 3

AECOM provided planning, design, permitting, construction document preparation, construction management, and construction administration services for rehabilitation and reconfiguration of the existing Slip 3 at the Port. The project consisted of dredging, upland improvements, and adding a bulk sugar vessel-loading system, coordinating with existing tenant operations and Florida Power & Light.

AECOM managed seven specialty subconsultants in executing the project. The scope of work included boundary surveys, upland topographic surveys, bathymetric surveys of the slips and marginal wharves, soil borings/material testing and analysis, demolition design, design of replacement steel sheet piling, concrete cap and soil anchors, fenders and mooring fittings, roll on/roll off ramp, provision of shore power stations, water main installation, paving, high mast lighting, electrical conduit and manholes, and water boxes.

Although the east, west, and south bulkheads employed a traditional, anchored, king pile over-sheeting, to maintain the slip width, the north bulkhead had to be installed behind the existing bulkhead. This created sequencing challenges that required for the existing tie-back system to remain functional, securing the existing bulkhead until the new wall and soil anchors were completed. Other challenges included maintaining port operations with minimal disruptions. The AECOM team developed modifications to the existing sugar gantry loader on the south side, whose reach needed to be extended 8 feet and counterweights increased because of the new bulkhead over-sheeting and wider fendering necessary for manatee protection.

100 Resilient Cities: Greater Miami and the Beaches, Miami, FL

AECOM was the Strategy Partner to the Rockefeller Foundation's 100 Resilient Cities for the Resilient305 program for the **Greater Miami & the Beaches**. The effort was a three-year partnership between Miami-Dade County and the Cities of Miami and Miami Beach **to develop a collaborative Resilient Strategy** for the region. AECOM assisted the communities by engaging thousands of stakeholders throughout this process to prioritize strategies, narrative content, and develop the final Resilient305 Implementation Strategy.

Our experience listening and helping build a more resilient region has provided insight into the top resilience shocks and stresses the region is facing, including **vulnerability to storms and the ability to recover, sea level rise and coastal erosion,** aging infrastructure, strained natural systems, and overall greater opportunity for intergovernmental collaboration.

Specific to sea level rise, flooding, storm surge, and recovery, there was a significant portion of the work dedicated to committing innovative investments in infrastructure; protecting natural resources; water quality and supply; understanding and communicating risk; and understanding the potential changes in insurance rates. We are prepared to apply the knowledge gained as Strategy Partner for Resilient305 to our work with City of Miami.

Norris Cut Force Main Replacement Tunnel, Miami-Dade County, FL

AECOM was contracted to assist Miami-Dade Water and Sewer Department replace a critical force main under Norris Cut after it was found to be in imminent threat of failure.

The project was successfully implemented using design- build delivery in less than five years with AECOM serving as MDWASD's criteria professional, procurement consultant, and owner's representative from project conception to final construction and commissioning.

The project consisted of replacing a critical existing sanitary sewage force main (FM) pipeline under Norris Cut from the Central District Wastewater Treatment Plant (CDWWTP) to Fisher Island. The existing 54-inch pipeline consisted of pre-stressed concrete cylinder pipe and transmits all sewage collected from Miami Beach, Surfside, Bal Harbor, Bay Harbor, North Bay Village and Fisher Island to the CDWWTP on Virginia Key for treatment and disposal, and there would have been disastrous consequences if it ruptured. AECOM performed a preliminary design; prepared design criteria documents for a design-build tender; assisted MDWASD in permitting, public outreach, and procuring a design-build team; and performed engineering services during final design and construction.

The Norris Cut Tunnel includes 5,300 linear feet of 10- ft diameter TBM-mined tunnel with a pre-cast concrete segmental liner at 80 to 90 feet below existing grade. The tunnel passed under Norris Cut with approximately 40 feet of cover. Ground conditions consisted of a highly pervious and variable coralline limestone formation with pockets and layers of clean sand. AECOM was responsible for:

- Route Selection/Preliminary Design
- Preparation of Design Criteria Documents
- Geotechnical and Geophysical Investigations
- Bathymetric and topographic Surveys
- Geotechnical Data and Baseline Reports
- Permitting and Community Outreach
- Right of Way Engineering and property acquisition
- Preparation of Procurement Documents
- Evaluation of Design-Build Tender Submittals

- Negotiation assistance leading to contract award Engineering Services during Final Design
- Owner's representative overseeing compliance during the construction phase
- Final certification/close-out and settlement of all outstanding contractual matters

Wagner Creek Seybold Canal Restoration, Miami, FL

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The project was a huge success and **received two prestigious Environmental Awards**, a national award from the Western Dredging Association (WEDA) and a regulatory award from Florida Department of Environmental Protection for environmental excellence in dredging.

H.7 Select AECOM Team

AECOM Technical Services, Inc. (AECOM) thanks you for the opportunity to present our qualifications. We have assembled a team of local professionals and national experts in the design of seawalls and solving the bigger problem of Sea Level Rise and building resiliency cities and infrastructure to mitigate FLOODING risks.

AECOM has strong community ties and a proven history of successfully delivering projects for the City of Hollywood. We have partnered with five local partners and small businesses including Keith and Associates, Inc., Dicky Consulting, Longitude Surveyors, LLC; NOVA Engineering and Environmental, LLC; and Craven Thompson & Associates, many of whom have worked with the City of Hollywood before and have delivered projects successfully,

AECOM team will be led by Mr. Jose Soler, PE, a local Project Manager with more than 23 years of experience delivering major infrastructure programs and complex projects in South Florida, who will be supported by a DEEP BENCH of technical and engineering experts encompassing all disciplines required to undertake ALL PHASES of Tidal Flooding Mitigation project with an integrated planning, design and construction management approach.

AECOM Team is committed to solving the FLOODING problem in the City of Hollywood and brings national expertise and LESSONS LEARNT from other cities and projects with extensive RESILIENCY projects portfolio and expertise in DESIGN OF SEAWALLS and Ports & Marine facilities.

AECOM provides extensive in-house staff for environmental and regulatory permitting with all local, State and Federal agencies, including in-house staff or undertaking scientific and engineering diving and mitigating impacts to potential flora & fauna and will ensure expedited permitting for the Seawalls designed and constructed for the City of Hollywood Tidal Flooding Mitigation project and associated infrastructure.

AECOM provides an integrated team of planning, engineering and construction management professionals and are committed to DELIVER the Tidal Flooding Mitigation project for the City of Hollywood, for the Base Scope as well as any future scope of work.

I. AUTHORIZED REPRESENTATIVE THE FOREGOING IS A STATEMENT OF FACTS.

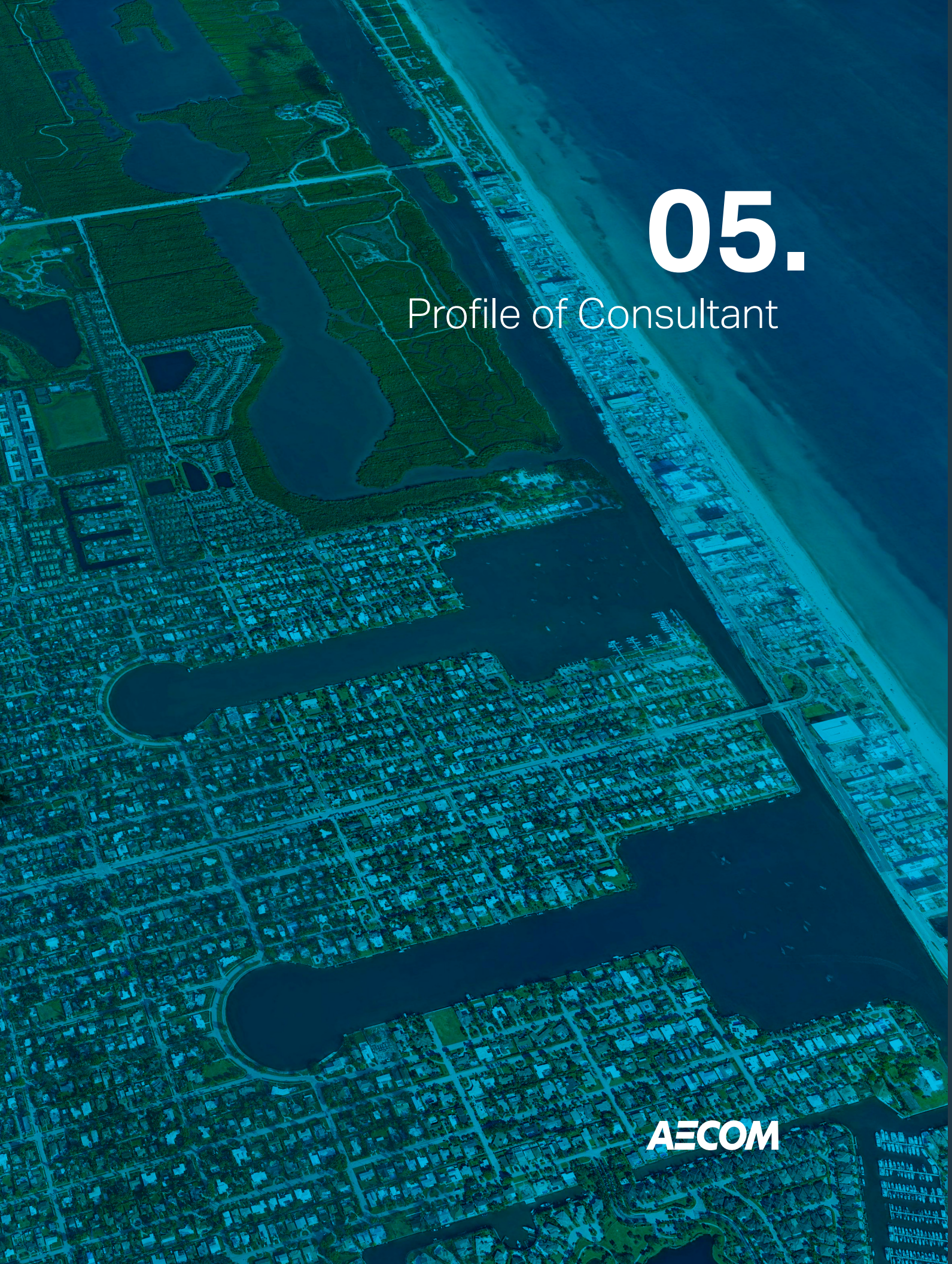
31. SIGNATURE

32. DATE

December 10, 2019

33. NAME AND TITLE

Vijay Agrawal, Vice President, Americas Ports & Marine



05.

Profile of Consultant

AECOM


AECOM

Profile of Consultant

a. State whether your organization is national, regional or local.

AECOM Technical Services, Inc., is a national organization, with offices in all States and Regions and having more than 240 employees in the South Florida offices located in Miami, Fort Lauderdale and West Palm Beach.

b. State the location of the office from which your work is to be performed.

The project will be performed from several AECOM offices as per the information provided in the SF330 Form, however the location of the Project Manager and the Project Director as well as some of the key personnel is **7650 Corporate Center Dr. Suite 400, Miami, Florida 33126.**

c. Describe the firm, including the size, range of activities, etc.

AECOM Technical Services, Inc. (AECOM) is a global provider of professional technical and management support services to a broad range of markets, including transportation (e.g., ports, marine terminals, intermodal rail facilities), environmental, energy, water and government. AECOM has been in the port and marine business for 110+ years operating under Frederic R. Harris and DMJM legacy firms, including URS Corporation that joined AECOM in October 2014, and ranks #1 in Ports in the US. Our available resources are now in excess of 80,000 employees and we can get any conceived project completed successfully.

With roughly 4,000 employees in the Southeast region including 1250 dedicated to transportation and more than 50 specializing in Port/Marine work, AECOM is a leader in all of the local markets that it serves. AECOM provides a blend of national and global reach, local knowledge, innovation, and technical excellence in delivering solutions that create, enhance and sustain the world's built, natural, and social environments.

AECOM provides ports, waterways, coastal and resiliency technical expertise worldwide and throughout North America on similar projects and mitigating Sea Level Rise through INNOVATIVE design and construction of seawalls.

AECOM has completed design of waterfront infrastructure projects across the Country and around the globe at some of the busiest ports including PortMiami, Port Everglades, West Palm Beach, Corpus Christi, Houston, Galveston, New Orleans, Savannah, Charleston, Los Angeles, Long Beach and New York, as well as have worked with several cities and agencies in mitigating and addressing the issue of Sea Level Rise and tidal flooding.

AECOM's Port & Marine services include planning, port and harbor engineering, urban waterfront design, coastal engineering, economic and strategic evaluation and program and construction management of coastal and landside infrastructure, including management and oversight of all sub-consultant partners providing geotechnical, site surveys and underwater inspections.

With the DEEP BENCH of resources, we are able to provide the City of Hollywood with an integrated "one-stop-shop" service on the City's most critical and important project of mitigating Tidal Flooding. AECOM's Ports & Waterways business in North America is serviced by multiple DESIGN CENTERS for carrying out technical and specialized wharf, seawalls and piers design work with staff located in local offices for project management, client interface and stakeholder management and permitting.

AECOM proposes to bring all required resources to provide requested engineering services to the City of Hollywood for Tidal Flooding Mitigation work and will serve as the Lead Consultant / Designer on this project and will be responsible for the overall project delivery and commitment to the City of Hollywood for completion of the assignment.

d. Provide a list and description of similar Tidal Mitigation and Shoreline Protection or Seawall projects within the past five (5) years. For each project listed, include the name and telephone number of a representative for whom the project was undertaken who can verify satisfactory performance.

Following table provides a list and brief description of similar Tidal Mitigation and Shoreline Protection and Seawall Design and Retrofit projects that AECOM have delivered or currently delivering within the past five years. Details of each of these projects are provided in the SF330 Form.

Project Name	Project Description	Project Owner	Year Completed	Point of Contact Name	Point of Contact Telephone Number
San Francisco Airport Seawall San Francisco, CA	Developed a concept designs for shoreline upgrades, including levees/berms, concrete and sheetpile floodwalls, rock revetments, fixed and floating off-shore breakwaters, and off-shore seawalls for SFO's shoreline is eight miles long and extends from the San Bruno Channel in the north to the Millbrae Channel in the south.	San Francisco International Airport	2018	Joseph Birrer	650.821.7751
South Battery Park Resiliency Project New York, NY	Design of an integrated flood alignment system through the southern portion of Battery Park City, through Wagner Park and Pier A, and along the north side of Battery Park to the higher ground of the Bowling Green Plaza.	Battery Park City Authority (SPCA)	Ongoing	Gwen Dawson	212.417.2000
Exposed Miami Beach Lateral Gas Pipeline Protection Project Biscayne Bay, Miami-Dade County, FL	Feasibility analysis to avoid and minimize impacts to existing marine benthic communities along 5,000 linear feet of 6-inch gas pipe, including the development of a computer model to demonstrate that additional subsurface anchoring of the mats was not required for structural sustainability (for future large storm events).	Florida Gas Transmission Company ,LLC	Ongoing	Janice Taylor	407.838.7057
Stormwater and Flood Mitigation Engineering Design Services Annapolis, MD	Engineering and designing a stormwater and flood mitigation system for the City of Annapolis, MD. The project involves shoreline protection and interior drainage improvements and mitigation features that are collectively integrated into the historical architecture and aesthetics of the area.	City of Annapolis, MD	Ongoing	Lisa Grieco	410.263.7949
City of Miami Beach Sea Level Rise Vulnerability and Resilience Program Miami Beach, Florida	Review of building and land development codes to improve flood resilience, assessment of vulnerability for city-wide assets, and development of tools to support the City of Miami Beach in its Sea Level Rise Vulnerability and Resilience Program.	City of Miami Beach	2018	Susanne Torriente	305.673.7000

Project Name	Project Description	Project Owner	Year Completed	Point of Contact Name	Point of Contact Telephone Number
Inspections, Analyses, Structural Repair Designs, & Construction Phase Services for Waterfront Facilities USMA West Point, NY	Improvements to the United States Military Academy (USMA) in West Point, NY for their dock facilities along the Hudson River, which included designs of replacement river wall and refurbishment of bulkhead walls.	USACE Vicksburg District/New York District	2015	Kevin Haskins	603.646.4703

e. Provide information on any litigation (settled or pending) the firm has been involved in within the last five (5) years.

AECOM Technical Services, Inc. ("ATS") is a large design, engineering, planning and related professional services company that executes thousands of projects annually. As with any large services company, from time to time, ATS is involved in claims and litigation, many of which involve third party personal injury and property damage claims. However, we strive to avoid litigation and have a risk management program in place that includes early recognition of situations that might give rise to a claim, open lines of communication and proactive dispute resolution.

Upon knowledge and belief, formed after reasonable inquiry, ATS has been involved in the disclosed litigation over the past five (5) years related to the performance of professional engineering, design, and construction services in the U.S. None of our current claims could reasonably be expected to have a material adverse effect on ATS or its ability to perform under the contract contemplated by the proposal. If you require additional information, please contact Lusanna Ro, Region Chief Counsel, DCS Americas, at Lusanna.ro@aecom.com.

Claimant Name & Case Number	Date Filed & Venue	Status	Claim Description
County of San Bernardino v. Skanska USA Civil West, Inc. et al. Case No. CIVDS1913509	Filed May 29, 2019 San Bernardino County - Superior Court - San Bernardino, CA	Pending	Complaint alleging defective and non-conforming work which resulted in construction related issues on a railroad grade separation project in Devore, San Bernardino County.
Slade Jordan & JWS Restoration vs. AECOM Technical Services Case No. 19963	Filed Oct. 26, 2018 District Court, Nolan County, TX	Dismissed July 2019	Multi-plaintiff PBC exposure case related to a remediation project at an abandoned refinery in West Texas owned by Anadarko Petroleum Corporation. Anadarko hired ATS to serve as "Compliance Supervisor" to design, engineer, implement and supervise compliance with safety standards.
East Kentucky Power Cooperative v. AECOM Technical Services, Inc. Case No. No. 5:18-cv-00437-JMH	E.D. Kentucky June 7, 2018	Pending	East Kentucky Power Cooperative alleges that ATS did not design an external haul road used to access the bottom of EKPC's Spurlock Station coal ash landfill in Maysville, Kentucky in accordance with the parties' contract or professional standards. ATS disputes EKPC's allegations, and contends that ATS acted consistent with the applicable industry standard of care and scope of work authorized by EKPC.

Claimant Name & Case Number	Date Filed & Venue	Status	Claim Description
Clark Bros. Inc. (CBI) v. Gierlich-Mitchel Inv. (GMI) v. AECOM (Cross-Dft. AECOM) Case No. 17CECG00503	Filed Apr. 12, 2017 Superior Court of the State of California for the County of Fresno	Settled Sept. 2018	Contractor on municipal sewer lift station project filed suit against pump manufacturer and its representative, alleging pumps were defective or did not meet published specifications. Mfr.'s representative filed cross-claims against ATS alleging negligence. ATS provided design services on the project.
David Dewayne Stowe, Sr., et al., vs. Donald Slade Jordan, et al. Case No. 44771	Filed Oct. 10, 2016 5th Judicial District Court for the Parish of Richland, State of Louisiana	Pending	Multi-plaintiff PCB exposure case related to a remediation project at an abandoned refinery in West Texas owned by Anadarko Petroleum. Anadarko hired ATS to serve as "Compliance Supervisor" to design, engineer, implement and supervise compliance with safety standards.
Green Bay Metropolitan Sewerage District v. PTS Contractors, et al. (including AECOM Technical Services, Inc.) Case No. 16CV449	Filed Mar. 29, 2016 Circuit Court of Brown County, WI	Settled March 2019	Fox River Fiber and Green Bay Metropolitan Sewerage District filed separate suits asserting breach of contract and negligence claims against AECOM Technical Services, Inc. ATS provided design and construction inspection services. The claims arise from a force main failure (leak) allegedly caused by corroded bolts.
Fox River Fiber v. AECOM, et al. / Green Bay Metropolitan Sewerage District v. M.P. Nexlevel, LLC, AECOM Technical Services, Inc., et al. Case No. 15CV1742 Green Bay Metropolitan Sewerage District v. M.P. Nexlevel, LLC, AECOM Technical Services, Inc., et al. Case No. 16CV2	Filed Dec. 28, 2015 Circuit Court of Brown County, WI Filed Jan. 4, 2016 Circuit Court of Brown County, WI	Pending	Green Bay Metropolitan Sewerage District filed suit against AECOM Technical Services, Inc. asserting breach of contract. ATS provided design and construction inspection services. The claim arises from the discovery of corroded force main bolts, which GBMSD claims could create the risk of leakage of wastewater.
The Association of Apartment Owners of the Hawaii Kai Peninsula and Board of Directors of the Association of Apartment Owners of the Hawaii Kai Peninsula, etc., v. Peninsula Hawaii Kai, LLC et al., including AECOM Technology Corporation Case No. 101175108JHC	Filed Dec. 28, 2015 Circuit Court of the First Circuit, State of Hawaii	Settled August 2017	Complaint against multiple parties alleging negligence and breach of implied warranty in connection with the construction of a condominium project known as the Hawaii Kai Peninsula.
The Connecticut Light & Power Company dba Eversource Energy v. Joken Development Corporation, et al., incl. AECOM Technical Services, Inc. Case No. UWY-CV-15-6027719-S	Filed July 1, 2015 Superior Court of Connecticut Judicial District at Waterbury	Settled July 2018	Claim for damages to electrical facilities related to the contractor's (Joken) excavation services. AECOM is tendering its defense to the contractor.

Claimant Name & Case Number	Date Filed & Venue	Status	Claim Description
Penta Corporation v. Town of Newport v. AECOM Technical Services Inc. v. Westech Case No. 212-2015-CV-00011	Filed Mar. 31, 2015 New Hampshire Superior Court	Settled Nov. 2018	Penta Corporation commenced an action against the Town of Newport for breach of contract alleging an unpaid balance of the contract price and monies due to an alleged differing site conditions claim. Newport asserted a counterclaim against Penta for failure to comply with the specifications and failure to achieve final completion. The Town of Newport brought a third party claim against ATS alleging negligence and breach of contract.
IDOT Circle Interchange Phase II - Peoria Street Bridge / CUPPA Hall (Board of Trustees of The University of Illinois, et al. v. Kiewit Infrastructure Co. v. AECOM Technical Services, Inc.)	Filed Jan. 19, 2015 Circuit Court of Cook County, Illinois	Pending	Complaint filed against ATS for the design and preparation of plans, specifications and estimates for the reconfiguration and reconstruction of the Circle Interchange in downtown Chicago.

*The above table was comprised from identifiable and retrievable corporate records for AECOM Technical Services, Inc. and excludes (i) claims involving personal injury and property damage claims not otherwise connected with the claims identified, (ii) employment-related matters, and (iii) subsidiaries and affiliates of AECOM Technical Services, Inc.

As of November 12, 2019

f. Describe the experience in conducting similar projects for each of the staff assigned to the engagement. Describe the relevant educational background of each individual.

Following table provides the information on the relevant experience and educational background for all KEY PERSONNEL proposed to work on this project. Details of the experience is provided in resumes of these KEY PERSONNEL in the SF330 Form. Additional information can be provided upon request.

Name	Level of Education	Similar Project Experience & Qualification
José Soler, PE	BS, Civil Engineering	▪ Port Miami, Program Management Consultant, Miami, Florida ▪ Port Miami, North Bulkhead Wall Replacement Program, Miami, Florida ▪ Port Miami, Cruise Terminal B Design-Build, Miami, Florida ▪ Port Miami, Cruise Terminal V Design-Build, Miami, Florida ▪ Port Miami, Cruise Terminal F Expansion and Berthing Re-Alignment, Miami, Florida ▪ Port of Palm Beach, Berth 17, Riviera Beach, Florida
Vijay Agrawal, PE	MS, Civil Engineering ME, Structures BE, Civil Engineering	▪ Port Miami, Program Management Consultant, Miami, Florida ▪ US Coast Guard Station Marathon, Major Maintenance & Repair Waterfront, Marathon, Florida ▪ Port of Palm Beach Reconstruction of Slip 3 and Berth 17, Palm Beach County, Florida ▪ Broward County Port Everglades, Port Everglades Master / Vision Plan Update, Fort Lauderdale, Florida
Philip Hadfield, PE	BS, Civil Engineering	▪ Port Miami, Program Management Consultant, Miami, Florida ▪ Wellington Airport Southern Sea Defenses Renewal Program, Wellington, New Zealand ▪ San Francisco Airport Flood Protection and Sea Level Rise Study, San Francisco, California ▪ Pago Pago International Airport Shoreline Protection Program, American Samoa

Name	Level of Education	Similar Project Experience & Qualification
John Carel, PE	MS, Civil Engineering BS, Civil Engineering	▪ NYC Department of Small Business Services, Waterfront Building Code, New York, New York ▪ NAVFAC Southeast, Hurricane Irma Repairs, Refit Wharves and TPS Docks C&D, Naval Submarine Base, Kings Bay, Georgia and Naval Air Station Jacksonville, Florida ▪ US Coast Guard Station Marathon, Major Maintenance & Repair Waterfront, Marathon, Florida ▪ Springmaid Pier Reconstruction, Myrtle Beach, South Carolina
Lauren Swan	MLA, Landscape Architecture BA, Urban and Regional Planning	▪ Florida Department of Transportation District 6, Resilience Services, Florida ▪ 100 Resilient Cities, Miami-Dade County, City of Miami Beach, City of Miami, Greater Miami and the Beaches Resilient305, Miami-Dade County, Florida ▪ City of Miami Beach, Miami Beach Flood Mitigation & Resilience Study, Miami Beach, Florida
Erica Harris	MS, Oceanography BS, Geography/GIS	▪ Climate Change Vulnerability Assessment, City of Naples, Florida ▪ Miami Beach Sea Level Rise and Resiliency Study, City of Miami Beach, Florida ▪ Texas Department of Transportation, Coastal Chapter Hydraulic Design Manual Update, State of Texas ▪ Sea Level Rise Response Plan, City of Olympia, Washington
Justin Vandever, PE	MS, Marine Science BS, Civil and Environmental Engineering Coastal Engineering Certificate	▪ City of Miami Beach, Sea Level Rise Vulnerability Assessment, Miami Beach, Florida ▪ San Francisco International Airport (SFO) Shoreline Protection Program Conceptual Design Development, San Francisco, California ▪ City of Naples, Climate Vulnerability Assessment, Naples, Florida ▪ Economic Impacts and Sea Level Rise and Coastal Storms, Dania Beach, Florida ▪ Port of Long Beach, Climate Adaptation and Coastal Resiliency Strategy, Long Beach, California
Steven Li, PE	Ph.D., Ocean Engineering MS, Coastal Engineering BS, Civil Engineering	▪ New York City Economic Development Corporation, Lower Manhattan Coastal Resiliency, Manhattan, NYC, New York ▪ New Jersey Department of Environmental Protection, Meadowlands, New Jersey ▪ New York City Transit, Revised Design for Long-Term Flood Mitigation Hammels Wye, Queens, NYC, New York ▪ CHPE, Investigation of Flood Zone and Storm Surge Impact on Astoria Substation, NYC, New York
Dr. Chandy John	PhD, Civil (Environmental Hydraulics) Engineering	▪ Benning Road Facility RI/FS. Sediment Transport Analysis and Impact of Site Contaminants on Background Locations due to River Flows and Tides. DC ▪ Wagner Creek Seybold Canal Restoration - Sediment Dredging and Remediation, City of Miami, Florida ▪ Maryland Port Administration, Dundalk Marine Terminal Industrial Wastewater Discharge to Baltimore Harbor Multiport Diffuser, Baltimore, Maryland ▪ Brookeville Floodplain Modeling and Mapping, wetland mitigation and stream restoration. Maryland State Highway Administration, Maryland

Name	Level of Education	Similar Project Experience & Qualification
Dr. Chris Reed	Post Doctorate Studies, Coastal Engineering PhD, Engineering Science and Mechanics MS, Engineering Science and Mechanics BS, Engineering Sciences	▪ Edgewater Marina and Geneva Park Restoration, Lake Erie, Ohio DEP ▪ Ashtabula Breakwater Design, Lake Erie, USACE ▪ Florida Power and Light (F&PL) Coastal Flooding Analysis, Florida ▪ Indianola Groin Field Design and Analysis, Texas GLO, Indianola, Texas ▪ Packery Channel Sediment Transport Study and Jetty Design, Corpus Christi, Texas (USACE, Galveston District)
Chris Levitz, PE	Coastal Engineering Masters Certificate BS, Civil Engineer	▪ GLO, Texas Coastal Resiliency Master Plan, Texas Coast Wide ▪ USACE Galveston District, Emergency Repairs – Galveston Seawall, Freeport, Port Arthur, and Texas City Hurricane Flood Protection Projects, Texas Coast ▪ GLO & Scenic Galveston, Virginia Point Shoreline Protection and Marsh Restoration Project, Galveston Bay, Texas ▪ USACE Galveston District, Initial Appraisal of Texas City and Vicinity, TX Hurricane Flood Protection System, Texas City and Vicinity, Texas
Chris Marshall, PG	BS, Geology	▪ United States Coast Guard, D7/8 Sites, Florida, Texas, Georgia ▪ Gulfstream, LLC, Egmont Key Pipeline, Tampa Bay, Florida ▪ Florida Department of Transportation, Moser and Cow Key Channels, Florida ▪ Miami Dade Parks & Recreation, Haulover Park, N. Miami Beach, Florida
Anthony Mets, PE	BS, Naval Architecture	▪ Port of Los Angeles, Berths B226-232, Evergreen Container Terminal; Pre-Construction Inspection of B226-232 Container Wharf, California ▪ Nashville Avenue Terminal Underwater and Above-Water Inspection; Port of New Orleans; New Orleans, Louisiana ▪ Bayport Container Terminal Wharves 4 and 5 Upgrades; Port of Houston Authority; Seabrook, Texas ▪ Port of Los Angeles, Berth 240A,B,C Seawall Repair Design; San Pedro, California
Craven Thompson & Associates		▪ Lake Worth 2020 Master Plan Year 1 Improvements Survey ▪ Lake Worth 2" Watermain Replacement Program Phase 2 Survey, Florida ▪ Dania Beach Municipal Marina Survey, Florida ▪ Greenacres Hydrographic Survey, Florida ▪ Lake Park Canal Outfall Survey, Florida
Longitude Surveyors		▪ City of Hallandale Beach 2013-2014-006-Proposed 8-inch PVC Water Main Improvement along Foster Road between NW 10 Avenue & NW 4 Avenue, Hallandale, Florida ▪ Bayshore Drive 18" Forcemain Rehabilitation City of Fort Lauderdale, Florida ▪ S 56 Avenue (Martin Luther King Blvd.) from County Line Road to Pembroke Road, City of West Park, Florida
NOVA Engineering & Environmental		▪ 940 Isles Road Seawall, Boynton Beach, Florida ▪ Indian Creek Country Club Seawall, Surfside, Florida ▪ Playboy Marine Seawall, Dania Beach, Florida ▪ Bulkhead Assessment, Riverwalk Linear Park 5, Fort Lauderdale, Florida ▪ S-193 Refurbishment, Rip Rap Rehabilitation, Lake Okeechobee, Florida
Bruce LeLong, PE	BS, Civil Engineering	▪ New Jersey American Water, Raritan-Millstone Long Term Flood Protection Project, Middlesex County, New Jersey ▪ U.S. Army Corps of Engineers, Rehabilitation of Hudson River Wall & North & South Docks, Military Academy at West Point, Garrison, New York ▪ Louisiana Coastal Protection and Restoration Authority, Mid-Barataria Sediment Diversion Project, Plaquemines Parish, Louisiana

Name	Level of Education	Similar Project Experience & Qualification
Wael Youssef, MSCE, PE	BS, Civil Engineering MSCE, Civil/Structural Engineering Graduate/Post Masters Studies	▪ Lower Manhattan Coastal Resiliency (LMCR) & Brooklyn Montgomery costal resilience final design (BMCR), New York ▪ North & South Battery Park City Resiliency, NYC, New York ▪ Rebuild by Design New Meadowlands: Flood walls, Esplanade & Parks. Meadowlands, New Jersey ▪ US Army Corps of Engineers, North and South Dock Rehabilitation, West Point, New York
Saul Perez, PE	MS, Civil Engineering LRFD Certification FDOT	▪ Florida Department of Transportation Districts 4 and 6, District-Wide Structures Plans Review and Design, Florida ▪ Florida Department of Transportation District 4, I-595 Reconstruction, Florida ▪ Florida Department of Transportation District 6, Bridge Widening, Red Road over Little River Canal, Hialeah, Florida
Prabin Tuladhar, PE, SE	MS, Civil/Structural Engineering BS, Civil Engineering	▪ San Francisco International Airport - Shoreline Protection - San Francisco, California ▪ City of Long Beach; Colorado Lagoon Restoration Phase 2B, Long Beach, California ▪ City of Long Beach; Engineering Bureau, Project Engineer; Peer Review – Naples Island Permanent Seawall Repair, Phase I, Long Beach, California
Byoung-Sok Shin, PE, SE	MS, Structural Engineering BS, Civil Engineering	▪ Port of Houston Authority, Rehabilitation of Wharves 4 and 5 at Bayport Container Terminal, Seabrook, Texas ▪ Cirque du Soleil, Conceptual Study of Existing Piers 30-32, San Francisco, California ▪ Port of San Francisco, Pier 96 Sheet Pile Sea-Wall Repair, San Francisco, California ▪ Shaw E&I, IHNC GIWW Floodgate Monolith, New Orleans, Louisiana
Ariel Buenano, PE	MSc, Structural Engineering BS, Civil Engineering	▪ New Jersey American Water, Raritan-Millstone Long Term Flood Protection Project, Middlesex County, New Jersey ▪ Louisiana Coastal Protection and Restoration Authority, Mid-Barataria Sediment Diversion Project, Plaquemines Parish, Louisiana ▪ U.S. Army Corps of Engineers, LPV 109 Levee Enlargement
Juan Garcia, PE	BS, Civil Engineering	▪ Alton Road From Michigan Ave. to 41st St., Miami Beach, Florida ▪ Krome Ave. From SW 136th St. to SW 88th St., Miami-Dade County, Florida ▪ NW 7th Ave. From NW 8th St. to NW 32nd St., Miami-Dade County, Florida
Amy Eason, PE	BS, Environmental Engineering	▪ City of Miami Beach, Flood Mitigation Consulting Services, Miami Beach, Florida ▪ City of Naples, Stormwater Master Plan Update, Naples, Florida ▪ City of Boynton Beach, NE 20th Avenue Drainage Improvement Project, Boynton Beach, Florida
Gustavo Santana	MS, Landscape Architecture BS, Plannerural Studies	▪ Blue Cross Blue Shield Deerwood Campus, Jacksonville, Florida ▪ Beachwalk II, Miami Beach, Florida ▪ Baker's Bay, Abaco, Bahamas
KEITH Engineering		▪ Deerfield Beach Ocean Way Improvements, Deerfield Beach, Florida ▪ Hillsboro Blvd Directional Drill Water Main Across ICWWS, Deerfield Beach, Florida ▪ DC Alexander Park Improvements, Fort Lauderdale, Florida

Name	Level of Education	Similar Project Experience & Qualification
Babu Madabhushi	PhD, Hazardous Waste Management MS, Wastewater Treatment BS, Civil Engineering	▪ Wagner Creek/Seybold Canal Contaminated Sediment Dredging and Disposal, Miami, Florida ▪ Everglades National Park - Marina Dredging, Florida ▪ City of Hollywood, North Lake Dredge Feasibility Study, Hollywood, Florida ▪ Flamingo Marina Dredging, National Park Service, Everglades National Park, Florida
Dan Levy, PG	Graduate Studies, Computer Modeling Graduate Studies, Hydrology BS, Geology	▪ Wagner Creek Seybold Canal Restoration - Sediment Dredging and Remediation, City of Miami, Florida ▪ Dredge Material Management Plan (DMMP) Update, Jacksonville Port Authority (JPA), Jacksonville, Florida ▪ NSB Kings Bay Alternative Dredge Design, NAVFAC-Southeast, Kings Bay, Georgia ▪ Lake Okeechobee Pilot Dredging Project, Okeechobee, Florida
Keith Stannard	MS, Coastal Zone Management & Marine Biology BS, Biological Sciences	▪ National Park Service, Cape Sable Canals Dam Restoration Environmental Assessment – Phase II, Monroe County, Florida ▪ FDOT, District VI, District-wide Misc. Permitting Services Consultant, Miami-Dade and Monroe Counties, Florida ▪ Seminole Tribe of Florida, Two-Dimensional Hydrologic and Hydrodynamic Modeling Analysis and Biological Assessment for the Advanced Mitigation Area, Brighton Seminole Indian Reservation, Glades County, Florida ▪ Broward County Aviation Department (BCAD), Fort Lauderdale-Hollywood International Airport Expansion Program, Broward County, Florida
Laura Cherney	MBA, Executive MBA Program BS, Environmental Engineering Sciences	▪ U.S. Agency for Global Media, Office of Cuba Broadcasting (OCB) – Assessment for Site Flooding and Shoreline Erosion at Radio Transmission Site, Marathon, Florida ▪ National Park Service (NPS), Big Cypress National Preserve, FL – Hydrologic Restoration Master Plan / Environmental Assessment, Florida ▪ Seminole Tribe of Florida, Two-Dimensional Hydrologic and Hydrodynamic Modeling Analysis and Biological Assessment for the Advanced Mitigation Area, Brighton Seminole Indian Reservation, Glades County, Florida ▪ Florida Fish and Wildlife Conservation Commission, New River High School Living Shoreline Project, Broward County, Florida
Ashley Matthews	BA, Environmental Studies	▪ Gulfstream, LLC. Egmont Key Offshore Pipeline Environmental Cover Remediation Survey, Scientific Diver, Hillsborough County, Florida ▪ US Coast Guard, Benthic Survey for Restoration and Rehabilitation Projects for boat basin facilities: Miami, Marathon, Key West, Florida ▪ Department of the Interior, National Parks Service Cape Sable Dam Replacement, Environmental Assessment, Monroe County, Florida
Karen Brandon, PE	BS, Environmental Engineering	▪ Port of Palm Beach District Slip No. 3, Riviera Beach, Florida ▪ Port of Palm Beach District Berth 17 Project, Riviera Beach, Florida ▪ US Navy SOF Boat Dock Facility, Monroe County, Florida
Dr. Jae Park	Ph.D. Urban and Regional Science	▪ FEMA, Hazard Mitigation Assistance support, Washington, DC ▪ FEMA, Pre-Disaster Mitigation Joint Explanatory Statement Grant Program (PDM-JES) Technical Support, Washington, DC ▪ FEMA National Levee Safety Program, Washington, DC
Dan Deegan, PE	BS, Ocean Engineering	▪ FEMA Risk MAP, HMTAP, and TARC Production and Technical Services (PTS), Washington, DC ▪ FEMA, Hazard Mitigation Technical Assistance Program (HMTAP)

Name	Level of Education	Similar Project Experience & Qualification
Doug Bellomo, PE	MS, Civil Engineering BS, Civil Engineering	▪ Flood Risk Management, Institute for Water Resources, US Army Corps of Engineers, Alexandria, Virginia ▪ Risk Analysis Division, Federal Emergency Management Agency, Washington DC ▪ Hazard Identification Section, Federal Emergency Management Agency, Washington DC, Washington DC
José Polo, PE	BS, Civil Engineering BS, Electrical Engineering	▪ Port Miami, CEI Services for the Port Miami, Capital Development, Miami, Florida ▪ Port of Palm Beach, CEI Services for the Port of Palm Beach, Berth 17, West Palm Beach, Florida
Jon Thomas	CTQP Certifications: 10-24Asphalt Paving Technician, Levels 1 and 2 8-20/Pile Driving Inspection 9-22/IMSA/FOA Certified Fiber Optic Technician	▪ Port Miami, CEI Services for the Port Miami, Capital Development, Miami, Florida ▪ FDOT District One, I-75 Alligator Alley Northbound Rest Stop (Mile Marker 63), Collier County, Florida ▪ FDOT District Six, CEI Services for Krome Avenue North #5, Miami, Florida
James Netterwald, PE	BCE, Civil Engineering BBA, Business Administration	▪ FEMA, Emergency STEP Home Repair Program, North Carolina, USVI, Louisiana ▪ Port Miami, Terminal B Design Build Contract Procurement, Capital Development, Miami, Florida ▪ Government of Haiti, Quality Control for Cap-Haitian Port Urgent Works, Haiti
Mike Barba	BS, Construction Management	▪ Port Miami, Multiple Projects, Miami, Florida ▪ US Coast Guard, Major M&R Waterfront, USCG Station Marathon, Florida ▪ City of Coral Gables, Maggiore Park Renovations, Coral Gables, Florida ▪ Broward County, Port Everglades Turning Notch Extension Project, Port Everglades Wetlands Restoration, Broward County, Florida
Jason Weiss	MS, Resource Economics and Policy BIE, Industrial Engineering	▪ State of New Jersey, New Meadowlands Rebuild by Design Feasibility Study, New Jersey ▪ Woods Hole Oceanographic Institute, Iselin Dock Feasibility Study, Falmouth, Massachusetts ▪ USACE Chicago District, Shoreline Erosion Integrated Feasibility Study, Chicago, Illinois

g. Describe the organization of the proposed project team, stressing level of experience and qualification, detailing the level of involvement, field of expertise and estimated hours for each member of the team.

Name	Level of Experience & Qualification	Level of Involvement	Field of Expertise	Estimated Hours will Vary Depending on Final Scope of Work and Schedule
José Soler, PE	Professional Engineer with more than 23 years of experience in performing and managing numerous waterfront and maritime projects involving planning, coordination of design from conceptual through final design phases and executing the construction works. Professional experience working for Port Authority as well as a designer and program manager.	**Project Manager**. Proposed to be Involved in all tasks of the project from signing of the contract till getting the construction done including but not limited to data collection and field surveys, engineering analysis, design development, project permitting and agency coordination, stakeholder communications, procurement and selection of contractor, providing on-site construction management and working closely with the City in preparing all reports and presentations).	Planning, design, constructability and construction management of marine, coastal, and structural work for several Port Authorities. Experience as Owner's representative performing consulting, design review, program management, document control, and construction management and administration.	600-1200
Vijay Agrawal, PE	Professional Engineer with over 19 years of experience performing a variety of port projects including feasibility studies, master planning, detailed design and program management for services. He has led more than 50 port projects worldwide focused on the development of efficient and world-class cargo and cruise handling facilities. Served as the Project Manager for Port Everglades Master Plan Update and currently working with Port Everglades and Broward County Aviation Department to sign a memorandum of agreement to allow bigger cranes to service Southport.	**Project Director**. Proposed to be involved in all project's task and execution of the project with responsibility to provide an oversight for technical delivery and deployment of committed resources to deliver the project within agreed upon schedule and budget.	Port planning, land-use planning, design of wharves and bulkheads for extension of design life and addressing sea-level rise, working with USACE and agencies for project permits related to channel dredging, port & terminal infrastructure, , shoreline revetment and waterfront and maritime projects in North America and Worldwide.	150-300

Name	Level of Experience & Qualification	Level of Involvement	Field of Expertise	Estimated Hours will Vary Depending on Final Scope of Work and Schedule
Philip Hadfield, PE	Professional Engineer with over 26 years of experience in performing and managing numerous ports, harbor and marine development projects involving planning, conceptual through detailed design and providing construction quality assurance.	**Technical Advisor.** Proposed to be involved in the engineering analysis and design development tasks and providing constructability reviews and QA/QC reviews throughout the project on all major milestones.	Seawalls for cities and airports, dredging for navigation and berthing of vessels, geotechnical engineering including land reclamation and ground improvement, design engineering of coastal protection works, site remediation and backland development, terminal and waterfront development, rehabilitation and upgrade of waterfront structures, and new port infrastructure.	200-400
John Carel, PE	Professional Engineer with over 47 years of extensive marine, coastal, and structural engineering experience, with specialization and expertise in the design of seawalls, bulkheads and wharf structures with intent of rehabilitation to add design life, mitigation from the flooding risk and retrofitting for handling new capacity.	**Technical Advisor**. Proposed to be involved in the engineering analysis and design development tasks and providing constructability reviews and QA/QC reviews throughout the project on all major design deliverables.	Design, construction, and rehabilitation of in-water & marine structures with a specialization in waterfront and maritime projects, including piers, jetties, wharves, bulkheads, shoreline revetments, dolphin structures, navigation aid structures and moorings, marine terminals.	200-400
Lauren Swan	Landscape architecture with 6 years of experience in landscape architecture design, planning and project management of climate resilience projections, working with subject matter experts to address sea-level-rise and climate change to build resiliency measures and manage a multi-task multi-location teams of professionals.	**Resilience Planning Lead.** Proposed to be involved in the resilience/sea level rise analysis and coordinating with AECOM resources providing resiliency services to ensure a long-term strategy is built in towards mitigation of flooding risk in the City of Hollywood.	Project team member in evaluating climate resilience projections, measures, and effects. Also, will provide an oversight on the land-scape architecture related tasks.	200-400
Erica Harris	Professional oceanographer with over 9 years of experience with coastal and climate change analysis, specialized in determining the influence of an evolving climate on exacerbating hazard impacts.	**Resilience Planning.** Proposed to be involved in the resilience/sea level rise analysis.	Conducting a city-wide vulnerability assessment of public assets at risk to a suite of climate stressors (sea level rise, coastal storms, extreme heat, and precipitation). Key vulnerabilities identified will be used to inform the development of an adaptation plan to increase the long-term resilience.	150-400

Name	Level of Experience & Qualification	Level of Involvement	Field of Expertise	Estimated Hours will Vary Depending on Final Scope of Work and Schedule
Justin Vandever, PE	Professional Engineer with over 13 years of experience as a coastal engineer who focuses on coastal flood hazard analysis utilizing state-of-the-art modeling tools including suit of MIKE21 and flood modeling tools.	**Coastal Modeling Lead.** Proposed to be involved in carrying out the required coastal processes analysis and modeling of waves, winds, current and sea-level-rise and storm-surge.	Coastal engineer who focuses on coastal flood hazard analysis and mapping, coastal engineering analysis and design, coastal and estuarine modeling, and sea level rise vulnerability and adaptation.	200-400
Steven Li, PE	Professional Engineer with over 30 years of experience in integrated coastal storm and stormwater management system modeling to assess the vulnerability to coastal flooding by simulating the flooding risk and risk of sea level rises. Also, industry expert at conducting passing ship analysis, mooring analysis and conducting fast-time and real-time ship simulations.	**Coastal Modeling Team.** Proposed to be involved in the coastal analysis and modeling and determining required seawall heights and additional mitigation measures based on the collected oceanography data as well as coastal modeling.	Conducted the development of coastal storm model to assess the vulnerability of project area to coastal flooding by simulating the flood extent and elevations under the coastal storms and sea level rises.	200-400
Dr. Chandy John	Professional experience with over 30 years of expertise in H&H, Tide, Storm Surge, hydrodynamic modeling, sediment fate & transport, scour analysis, circulation, mixing processes, coastal engineering, wave forces, coastal erosion, general oceanography.	**Coastal Modeling Team**. Proposed to be involved in the coastal analysis and modeling.	Hydrodynamic model for floodplain evaluation. H&H study to assess floodplain modeling and mapping, wetland mitigation and stream restoration for mitigation site	150-300
Dr. Chris Reed	Professional experience with over 35 years of expertise in coastal engineering processes modeling and shoreline resilience.	**Coastal Modeling Team.** Proposed to be involved in the coastal analysis and modeling.	Coastal engineering analysis of existing conditions and proposed to determine remediation requirements.	150-300
Chris Levitz, PE	Professional Engineer with over 14 years of expert level experience in coastal engineering and resilience.	**Coastal Modeling Team.** Proposed to be involved in the coastal analysis and modeling and undertaking required design and analysis of coastal structures and revetments.	Design and analysis of coastal structures (coastal and shoreline erosion protection [breakwaters and revetment] and flood damage and risk reduction [levees, HFPS].	200-400
Chris Marshall, PG	Professional geologist with over 20 years of experience in providing hydrographic, pre-dredge sediment sampling, and benthic survey services.	Proposed to be involved in carrying out the **underwater inspections** in the data collection task and QA/QC of bathymetry data either collected from the City or using a sub-consultant partner.	Hydrographic, pre-dredge sediment sampling, benthic survey services benthic coral and seagrass surveys, post-coral relocation assessment.	150-300

Name	Level of Experience & Qualification	Level of Involvement	Field of Expertise	Estimated Hours will Vary Depending on Final Scope of Work and Schedule
Anthony Mets, PE	Professional Civil/Structural Engineer with 19 years of experience in the design and management of civil, coastal and waterfront infrastructure, marine engineering and condition assessment projects. Professional diver with expertise in visual inspection of underwater structures and providing recommendation on the extent of deterioration and possible mitigation measures	Proposed to be involved in carrying out the required **underwater inspections** along the existing Seawalls to determine the existing condition and possible structural damage / deterioration of the Seawall sections.	Underwater Inspection and Condition Assessment structural inspections for waterfront, coastal navigation structures, including municipal piers, vessel mooring facilities breakwaters, seawalls. Preparation of planning, design and permitting documents, specifications, construction drawings, and developing waterfront construction cost estimates.	200-400
Craven Thompson & Associates	Professional firm providing surveying services for more than 65 years in the Broward County with extensive experience in the City of Hollywood. Provided surveying services to over twenty-five municipalities and the following governmental and quasi-governmental agencies, including the City of Hollywood.	**Land surveying.** Proposed to be involved in the data collection task and possible civil engineering tasks.	Provide surveying services during the data collection task including 3D Laser Scanning - High Definition Surveying, Geodetic Control, PLSS Retracement, Hydrographic, Cadastral, Photogrammetric Control, Right-of-Way and Construction Surveys.	To be determined
Longitude Surveyors	Professional firm providing surveying services for more than 15 years in South Florida including at the Port of Miami and several Miami-Dade county cities. Broad range of services to Residential, Commercial and Municipal Land Surveying Services including topographic surveys, bathymetric surveys, aerial photogrammetry and mapping.	**Underwater surveying.** Proposed to be involved in the data collection task depending on the quality and extent of existing bathymetry data we receive from the City of Hollywood.	Provide surveying services during the data collection task including bathymetric surveys.	To be determined
NOVA Engineering & Environmental	Professional firm providing geotechnical and environmental engineering services for more than 25 years with 17 offices in 4 states, 9 located in Florida with extensive experience in South Florida.	Proposed to provide all required **geotechnical field work** and laboratory testing of soil and construction materials. To be involved in the data collection task.	Provide geotechnical testing services, laboratory specialists, certified special inspectors of structures, environmental scientist.	To be determined
Bruce LeLong, PE	Professional Engineer with over 25 years of experience in marine, coastal, and structural engineering with specialization in design of flood walls, levies, seawalls, bulkheads and wharves.	**Marine Structural Lead.** Proposed to be involved in the analysis & design development task for the seawalls and foundations.	Structural Engineer for the design of combi-wall type steel bulkhead floodwall, reinforced concrete lagging wall, marine structures.	400-600

Name	Level of Experience & Qualification	Level of Involvement	Field of Expertise	Estimated Hours will Vary Depending on Final Scope of Work and Schedule
Wael Youssef, PE	Professional Engineer with over 25 years of experience in: Structural design, Engineering multidisciplinary coordination, project management & construction support with extensive recent experience in coastal resiliency projects.	**Marine Structural team.** Proposed to be involved in the analysis & design development task for the seawalls and foundations.	Structural analysis and design, plan reviews, value engineering & constructability studies.	400-600
Saul Perez, PE	Professional Engineer with more than 30 years of experience working as a senior structural engineer with extensive experience in the design and analysis of various types of structures for buildings, highway, transit, and marine facilities.	**Marine Structural team.** Proposed to be involved in the analysis & design development task for the seawall and foundations.	Experienced working as Structures Department Manager, Technical Director, and Project Manager in various types of projects, mostly involving, warehouse buildings, residential structures, retaining walls, highway bridges, sign structures and marine wharves and bulkheads. He has been involved in the design of structures including Reinforced and Unreinforced Masonry Design, and various types of Retaining Walls.	150-300
Prabin Tuladhar, PE, SE	Professional Structural Engineer with 19 years of experience, specializing in structural design and analysis, with a focus on industrial and recreational marine waterfront structures, and expertise in seismic analysis and design of structures.	**Marine Structural team.** Proposed to be involved during the analysis and design development task for seawalls and revetments.	Developing design options to meet current FEMA guidelines, and to make allowance for predicted sea-level rise changes.	200-400
Byoung-Sok Shin, PE, SE	Professional Engineering with 15 years of marine, coastal, and structural engineering experience.	**Marine Structural team.** Proposed to be involved in the analysis and design development task for seawalls and revetments.	Designing of flood walls, evaluating load cases for hurricane protection, and designing marine structures.	200-400
Ariel Buenano, PE	Professional Engineer with over 13 years of experience marine, coastal, and structural engineering projects.	**Marine Structural team.** Proposed to be involved in the analysis and design development task of seawalls and revetments.	Structural Engineer for the design of combi-wall type steel bulkhead floodwall, reinforced concrete lagging wall, marine structures.	200-400
Juan Garcia, PE	Professional Engineer with over 20 years of experience in drainage modeling of the stormwater management systems and design of civil infrastructure.	**Civil team**. Proposed to be involved in the engineering analysis and design development tasks for required civil and stormwater management systems associated with seawalls.	Extensive experience in Project drainage design and management of civil engineering design and engineering works.	200-400

Name	Level of Experience & Qualification	Level of Involvement	Field of Expertise	Estimated Hours will Vary Depending on Final Scope of Work and Schedule
Amy Eason, PE	Professional Engineer with over 20 years of experience in land development, surface water management systems, water reservoir routing, utility design, water and wastewater treatment plants, and roadway design.	**Civil team.** Proposed to be involved in the engineering analysis and design development tasks for required civil and stormwater management systems associated with seawalls.	Project design and management, hydraulic and hydrologic modeling, and permitting work.	200-400
Gustavo Santana	Landscape architecture with 20 years of experience in landscape architecture design, strategic planning, site and detail design and construction administration.	**Landscaping architecture.** Proposed to be involved in providing the oversight of Landscape Architecture work associated with the seawall retrofit works.	Extensive experience with landscape architecture in all types of projects including working to assist in the design development integrating the landscaping architecture with Seawalls.	200-400
KEITH Engineering	More than 20 years of experience in landscaping architecture, civil engineering and surveying services in South Florida.	**Landscaping architecture.** Proposed to be involved in the landscape architectural work associated with raising the seawalls.	Assist in the design development integrating the landscaping architecture, economic, ecological and social factors to the design solution.	To be determined
Babu Madabhushi	More than 24 years of professional experience in conducting and managing environmental engineering-related projects with emphasis on conducting contamination screening evaluation, water/wastewater treatment, groundwater treatment, remedial system operation and maintenance.	**Underwater material removal analysis**. Proposed to be involved in the engineering analysis and design development tasks.	Impact assessment, remedial investigation and feasibility studies, soil and groundwater remediation, in-situ bioremediation, and operation and maintenance of remedial systems	200-400
Dan Levy, PG	Professional geologist with over 33 years of experience dredging projects and managed the largest Dredging Demonstration project conducted in Florida (Lake Okeechobee).	**Underwater material removal analysis.** Proposed to be involved in the engineering analysis and design development tasks.	Developed innovative dredge plans to customized dredge equipment to minimize draft depth and use of unique water quality protection procedures to prevent impacts to the downstream and to protect the marine life that reside in water bodies.	200-400

Name	Level of Experience & Qualification	Level of Involvement	Field of Expertise	Estimated Hours will Vary Depending on Final Scope of Work and Schedule
Keith Stannard	Professional biologist over 25 years of experience in conducting and managing environmental programs and ecological investigations for a wide variety of public and private sector projects including special-purpose projects (offshore facilities, marinas, dams, maintenance dredging, basin studies).	**Environmental Team**. Involve in the engineering analysis and design development tasks.	He has an in-depth knowledge of federal, state and local environmental regulatory criteria and associated agency procedures in relation to ecosystem restoration and management. He also has extensive experience with marine and terrestrial habitat ecology; wetland and upland mitigation; threatened and endangered species conservation and Section 7 consultation; and ecosystems restoration and management.	200-400
Laura Cherney	Award-winning environmental engineer with more than 20 years of professional experience with public and private sector clients. She has in-depth knowledge of federal, state, and local environmental laws and regulations. Ms. Cherney has extensive experience with marine and terrestrial wetland ecology; threatened and endangered species surveys, NEPA compliance, and environmental resource permitting on projects ranging from large-scale transportation projects to habitat restoration projects.	**Environmental Team**. Involve in the engineering analysis and design development tasks.	Evaluate the extent of flooding and shoreline erosion, provided recommendations and identified environmental issues associated with several options to mitigate against shoreline erosion and protect site against future sea level rise while being sensitive to surrounding habitats.	200-400
Ashley Matthews	Environmental with over 11 years of experience in environmental permitting and compliance.	**Environmental Team.** Involve in the engineering analysis and design development tasks.	Assisted with the permitting efforts Inspection and perform surveys to meet conditions outlined in the environmental resource permit.	200-400
Karen Brandon, PE	Environmental Engineering with over 37 years of experience. Florida Department of Environmental Protection Certified Erosion and Sediment Control Inspector.	**Permitting Lead**. Involve in the design development tasks.	Permitting Manager for the environmental regulatory permits from the Miami-Dade County Department of Environmental Resource Management, the Florida Department of Environmental Protection, and the U.S. Army Corps of Engineers.	200-400

Name	Level of Experience & Qualification	Level of Involvement	Field of Expertise	Estimated Hours will Vary Depending on Final Scope of Work and Schedule
Dr. Jae Park	Professional with over 26 years' experience in urban and regional science, FEMA program strategy, grants program guidance, program outreach, and facilitation of the application to award/post-award process.	**FEMA programs**, projects, & mitigation. Involve in the engineering analysis and design development tasks.	FEMA Hazard Mitigation Assistance grant awards pursuit.	100-200
Dan Deegan, PE	Ocean Engineering with over 33 years of experience. Certified Floodplain Manager	**FEMA programs**, projects, & mitigation. Involve in the engineering analysis and design development tasks.	Supported FEMA on Flood Mapping and Mitigation for over 30 years. Deputy Project Director on Compass PTS contract and served as Compass Functional Lead on disaster and mitigation task orders.	100-200
Doug Bellomo, PE	Professional engineer with over 15 years' experience managing people, projects, programs, and portfolios of programs in the Federal Government. 20 years of experience in, hydrology, hydraulics, and coastal storm surge and wave modeling.	**FEMA** and USACE experience in the floodplain. Involve in the engineering analysis and design development tasks.	Flood risk management, emergency management, sea level rise / climate change adaptation strategies, natural resource and habitat restoration, floodplain management.	100-200
José Polo, PE	Civil Engineer with 30 years of experience in program management.	**Construction management specialist**. Involve in the construction administration of the project if needed by the City.	Program management, procurement, project management and claim analyst.	To be determined
Jon Thomas	Over 40 years of experience in providing CEI services.	**Construction management specialist.** Involve in the construction administration of the project if needed by the City.	CEI inspector with certification in Pile Driving, FDEP Qualified Stormwater Management.	To be determined
James Netterwald, PE	Civil Engineer with 40 years of experience in program management.	**Construction management specialist**. Involve in the construction administration of the project if needed by the City.	Program management, procurement, project management and resident engineering	To be determined
Mike Barba	Senior Estimator and Scheduler with over 20 years' experience providing technical guidance with scheduling, cost estimating, planning, schedule impact analysis and risk analysis for a variety of project types including port terminal facilities.	**Estimating and cost control.** Involve in the design development task.	Development of the construction cost estimate, capital cost estimate and yearly cost estimate for this project	200-400

Name	Level of Experience & Qualification	Level of Involvement	Field of Expertise	Estimated Hours will Vary Depending on Final Scope of Work and Schedule
Jason Weiss	Over 20 years of professional experience as a researcher and consultant in the fields of economics, planning, engineering, and community development.	**Funding and Grant opportunities expert.** Involve assisting in the application to pursuit grant if requested by the City.	Has prepared, or completed significant components of, many successful grant applications in support of hazard mitigation, infrastructure, and transportation projects.	100-200

h. Describe what municipal staff support is anticipated for this type of engagement.

The support of municipal staff responsible to comply with the City's responsibilities under Article 4 of the Professional Services Agreement in timely matter, is anticipated as described below:

- Coordinate with City's Departments to provide Complete and accurate surveys.
- Coordinate with City's Departments to provide Soil Borings or test pits or other test reports.
- Coordinate with City's Departments to provide Information regarding Project Budget.
- Coordinate with City's Departments to provide As-builts drawings representing conditions at the time of original construction.
- Liaison between the Consultant and City.
- Coordinate with City's Departments to provide promptly decisions and /or recommendation pertaining to documents submitted by the Consultant.
- Comply with responsibilities of the City described in the General and Supplemental Conditions.
- Provide prompt notice to the Consultant of any fault or defective work or other nonconformance with the Contract during the construction phase.
- Coordinate with City's Departments to provide any legal, accounting, insurance counseling and auditing services required by the Consultant related to the payments to the Contractor under a Construction Contract.
- Coordination to provide access to City's owned properties when required.

i. Describe your approach to performing the work. This should include your role and that of other parties involved in the data gathering, data analysis and recommendation process.

AECOM incorporates a range of changing climate conditions and resulting hazards, including flooding due to increased storms, increased storm intensity, and rising tides into each of our coastal projects. Our in-depth knowledge of coastal flooding has been built from decades supporting Federal Emergency Management Agency (FEMA) with coastal flood modeling, mapping and analysis and from working with all major Port Authorities in design of their waterside and landside infrastructure. We use skills and knowledge of coastal modeling and climate science to understand and identify hazards in association with use of the latest and state-of-the-art coastal modeling tools and apply:

- Design and engineering expertise to identify and develop feasible solutions;
- Evaluating above minimum code standards for asset performance to protect the community and improve properties;
- Consideration of capital, operational, and maintenance costs to assess and develop a menu of solutions and build a risk management plan;
- Provide prioritized and phased implementation plans based on local knowledge of conditions, regulatory requirements, risk profile, economic value, and community importance.

AECOM has extensive in-house experience and capabilities in providing the complete end-to-end services to the City of Hollywood for providing the design of BASE scope of work as well as additional future scope of work encompassing private seawall repair replacement along the perimeter of the North and South Lake and Holland Park.

AECOM will lead the delivery of the project and will function as the single point of contact for the City of Hollywood and will manage all sub-contractors identified in this proposal for coordinating the field work including surveys, above water and below water (as needed), geotechnical engineering, environmental services and biological services, in closely working with the City of Hollywood staff.

AECOM will undertake majority of the scope of work in-house with the AECOM staff experienced with executing similar work for many other clients, including undertaking the coastal engineering, structural engineering, civil engineering and

landscape architecture, cost estimating, permitting and construction administration. AECOM has deep bench of resources to also provide the required construction inspection and management services if required by the City.

AECOM understands the importance and criticality of this project and the impact of design of the Seawall with the RIGHT solution and the need for a long-term mitigation strategy for flooding. Based on an in-depth understanding of the coastal processes, the ongoing trend and future forecast on sea-level-rise and need to build the coastal resiliency, AECOM will develop several alternate shoreline protection sections and solutions for each different site condition encountered along the route in relation to available lands, environmental impacts, access for construction and surveys; and will recommend the solution which provides the HIGHEST VALUE to the City of Hollywood for building a long-term sustainable solution.

AECOM's is approach is built upon closely working with the City of Hollywood staff and the Stakeholders and understands the need to develop several presentations and information brochures on the shoreline protection recommendations to present before Community meetings, City Commission, Technical Advisory Boards and GOB Oversight Boards etc. to ensure the project is built upon with community input and with the highest support of project stakeholders.

AECOM's core strength is in providing all necessary permitting assistance on this project as required to obtain permits from Broward County, Army Corps of Engineers, Florida Fish and Wildlife, City of Hollywood and other required permit agency, using extensive in-house Environmental and Permitting staff, who have procured similar permits from several of these agencies for other clients based on strong relationships and understanding of these agencies processes, regulations and technical expertise.

AECOM has the full in-house capability and is prepared to support the City of Hollywood in taking this project all the way to the end, by providing required construction administration of the project on an as needed basis as determined by the City, as further described below.

Our project approach incorporates four (4) main tasks to complete the flood assessment, determine the resiliency plan and provide alternate design options for new shoreline protection system. These tasks are Data Collection, Engineering Analysis, Design Development and Recommendation of Shoreline Protection System. The project's task process includes:

Data Collection

Our team includes staff with specific experience related to gathering the appropriate data for this type of project. Based on experience conducting relevant studies our team will effectively and efficiently collect the necessary existing data that will be the foundation of this project such as:

- Existing Survey Data
- NOAA Tidal Data
- FEMA Storm Surge Elevation data
- Existing roadway information
- Existing water and power utilities
- Property boundaries
- City's Flood Vulnerability Study
- Perform underwater inspections
- Field survey and habitat assessment (Holland Park)

AECOM understands that the City of Hollywood is requesting support to tidal flooding mitigation and shoreline protection. Potential impacts to the existing environmental resources from proposed project activities will be considered. Environmental tasks include conducting terrestrial surveys for wetlands and protected species, benthic resources surveys, marine species assessments, and associated environmental permitting for the proposed project activities. AECOM will conduct GIS-based desktop reviews to review available data from federal, state, and local databases regarding adjacent resources and permits associated with the proposed project area(s).

AECOM will conduct a biological field survey/habitat assessment of the proposed project area to assess the potential for the presence of protected resources, including any Essential Fish Habitat (EFH). The field surveys will be in accordance with guidelines set forth by the U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), NOAA's National Marine Fisheries Service (NMFS), South Florida Water Management District (SFWMD), Florida Department of Environmental Protection (FDEP), Florida Fish and Wildlife Conservation Commission (FWC), Broward County Environmental Protection and Growth Management Department (EPGMD), and others, as applicable.

Protected Species

Based on AECOM's general knowledge of the area(s) and a review of publicly available databases, there are several protected (threatened or endangered) resources that have the potential to be present within the proposed project area(s).

West Indian Manatee (*Trichechus manatus*) - Manatees are protected as Threatened under the Endangered Species Act and are also afforded protected under the Marine Mammal Protection Act. The entire Intracoastal is designated as a Manatee Protection Zone by the FWC.

American Crocodile (*Crocodylus acutus*) - The American crocodile is protected as Threatened under the Endangered Species Act and by Florida's Endangered and Threatened Species Rule.

Everglade Snail Kite (*Rostrhamus sociabilis plumbeus*) - The Snail kite is protected as Endangered under the Endangered Species Act and the afforded protection under the Migratory Bird Treaty Act of 1918.

Piping Plover (*Charadrius melodus*) and Wood Stork (*Mycteria americana*) – These birds are protected as threatened under the Endangered Species Act and are also protected under the Migratory Bird Treaty Act of 1918, along with other migratory birds, their nests, and eggs.

In addition, the proposed project areas are located within the consultation areas for the American crocodile, piping plover, wood stork, and Everglades snail kite. AECOM will consult with the appropriate federal, state, and local agencies (e.g., USFWS, FWC, Broward County, etc.) and abide by all applicable Protection Measures established for these species.

Wetlands and Mangroves

AECOM will assess the environmental features and conduct wetland delineations and habitat characterizations of the upland areas. A functional assessment using the agency-approved Uniform Mitigation Assessment Method (UMAM) will be performed by AECOM for each wetland resource observed and delineated.

A vegetative habitat map will be produced in GIS. The wetlands/surface water limits will be delineated per current federal and state guidelines and mapped using a sub-foot accuracy Trimble unit.

Habitat features will be characterized in terms of vegetation, soils, and hydrology as required by the permitting agencies. The wetlands/surface water limits will be transmitted to the planning team for incorporation into the design plans for permitting purposes.

Wildlife observances will be noted at the time of the field review including the presence of protected species and/or their indicators (e.g., tracks, scat, dens, etc.)

Living Shoreline Suitability Study

If site conditions warrant, AECOM can also conduct a living shoreline survey and suitability study to determine if a living shoreline approach is appropriate for the project. The survey will evaluate the shoreline type in terms of its exposure to wind/wave action, boat wakes, storm surge, tidal influence and vessel clustering due to inlet proximity, nearshore slope, and the presence of species habitat.

In-Water Benthic Resource Survey

AECOM will conduct an in-water benthic resource survey to identify the resources within the proposed project areas (i.e., seagrasses, protected corals). The benthic resources survey/assessment will be conducted by a survey team consisting of AECOM divers certified Scientific Divers by the American Academy of Underwater Sciences (AAUS). The dive team members will utilize SCUBA equipment to conduct the survey and are experienced in conducting resource assessments of habitats within South Florida and identifying seagrass (particularly Halophila spp.).

As part of the pre-survey agency coordination, AECOM will coordinate with Florida Marine Patrol and/or the US Coast Guard (USCG), if needed, to address diver safety during the in-water survey. In addition, AECOM will participate in meetings with National Marine Fisheries Service (NMFS) and FWC to discuss the benthic resource survey methodology prior to execution.

The first phase will be an initial reconnaissance of the entire survey area to delineate and identify any existing seagrass beds. Qualitative video and still photographic data will be collected for identification of seagrasses and other marine biota observed during the survey. The second phase will be used to determine seagrass densities using quantitative sampling methods. Other data collected will include identification of biota observed during the survey including macroalgae, sponges and fishes. The field work for the survey will be conducted during the seagrass growing season (April 1 through October 31).

As a part of the survey, AECOM's Dive Team will conduct underwater observations and locate the extent of any observed submerged aquatic vegetation (SAV) and/or hardbottom resources (e.g., sponges, corals, live rock, etc.) observed within the proposed project areas. The objective of the benthic resources survey is to obtain visual observation of the proposed project area, delineate, map, and assess the benthic marine resources located within the proposed project area.

In accordance with AECOM safety protocol, AECOM will develop a site-specific Dive Operations/Dive Emergency Plans (DOP/DEP) and Safe Work Plan (SWP) for this project. These safety plans will be approved by AECOM Safety

Representatives including the AECOM Diving Safety and Control Board before any in-water field surveys are conducted. AECOM can provide a copy of these plans to the City upon request.

In accordance with AECOM Dive Board standards, the benthic survey will employ AECOM's four-person team, composed of two (2) in-water buddy divers, one (1) standby rescue diver, and one (1) dive tender working from land as surface support. The benthic survey will be accomplished by establishing survey transects throughout the survey areas based on existing site conditions (e.g., turbidity, etc.). Diving activities will be supported by the vessel as needed for support and safety, especially in areas of high boat traffic.

We have partnered with specialized firms that will provide additional assessment and site conditions data:

- Craven Thompson and Longitude Surveyors will perform land and hydrographic surveys, for accurate data of the existing conditions
- Nova Engineering will provide geotechnical support for the analysis of the existing soil conditions

Engineering Analysis

Once the data collection is completed, AECOM will develop storm surge models utilizing regional conditions, identifying design storms and performing the simulation of coastal storm surges, rainfall, waves under present and future conditions scenarios. AECOM will use the resulting data to perform coastal engineering analysis to determine the design flood elevations and wave characteristics for shore protection and required flood countermeasures to protect the community and properties.

The design flood stage and wave characteristics will be incorporated into a Basis of Design Document listing the design criteria and standards to be used for the designs, and these criteria will be presented to the City for review. The document will list design loads and load combinations, including marine vessel impact loads and scour depths. After establishing the criteria in consultation with the City, AECOM will develop typical designs of potential shoreline protection component alternatives.

Shoreline protection alternatives that will be evaluated include: retrofitting of existing bulkhead walls, new bulkhead walls constructed in front or behind existing walls, offset earthen berms, and offset vertical sea walls. Bulkhead walls are used where space constraints prevent earthen berms from being constructed. There are various types of bulkhead walls: cantilevered, tied-back to a dead-man; raked; externally buttressed (piles raked toward the water); and inverted T-wall. Cantilevered walls can be constructed with Z-shaped sheet piling, a king pile-sheet pile combination, or with socketed soldier piles with lagging between them. The type of wall selected depends on soil stratigraphy, the depth of the canal bottom, landside grades, potential for underseepage, space available, impacts to existing boat docks, proximity to existing structures and residences, ease of construction and vibration impacts from construction. Materials selected depend on magnitude of computed stresses in the structural components, ease of construction and anticipated corrosion rates.

Those alternatives identified to be potentially feasible will be designed two-dimensionally on a typical lineal foot-basis and major components sized: sheet pile size and length, piling types, sizes, and lengths; reinforced concrete envelopes, and extents of protective coating or cathodic protection coverage for steel components. Space requirements for construction and inspection and maintenance will be estimated. The results will be illustrated in typical section drawings so that they can be used to lay out different alignment alternatives under consideration.

Design analyses involve geotechnical global stability analyses, underseepage analyses, soil-structure interaction (SSI) analyses, and structural designs. The results of the SSI analyses will be used to structurally design the typical section structural components.

The design of shoreline protection must account for, in addition to the engineering analyses and designs, are scour and wave overwashing protection, localized drainage behind the wall, access for inspection and maintenance, and access to boat docks. Splash pads and turf reinforcement are options to be considered if overwashing induced scour is a concern. Access to boat docks can be by ramps or pedestrian gates, where the City has access and the labor resources to control the proper and timely opening, closing and periodic maintenance of the gates.

Where space is sufficient, earthen berms constructed offset and behind the shoreline are often preferable to bulkhead walls for cost savings, ease of construction, greater ease of raising protection grades in the future, and ability to integrate into the surrounding landscape. Where space is not sufficient for berm construction, in certain locations there may be sufficient space to construct offset, low-level sea walls. These offset sea walls often are preferred to bulkhead walls because they can be integrated into the surrounding landscape by terracing, providing the feeling of greater connectivity to the water. There must be sufficient space to locate the seawall far enough behind the bulkhead wall that failure of the bulkhead would not in turn cause seawall failure from resulting bankline instability. The analyses and designs are berms will also be done as typical sections, following standard guidelines for levee design. Offset seawalls will be designed according to FEMA standards for floodwall design.

AECOM's geotechnical, structural and civil engineers have designed bulkhead and seawalls across the United States to FEMA and USACE standards, and our designs have been certified by FEMA. AECOM was responsible for the designs of levees, bulkhead walls, sea walls, flood walls, and shoreline protection around the City of New Orleans after Hurricane Katrina, which was approximately $2 Billion worth of construction. AECOM is currently designing shoreline protection in the New York Metropolitan Area, along the Hudson River and on Staten Island and Long Island. AECOM is also designing shoreline protection and drainage improvements for the City of Annapolis, MD to combat nuisance flooding of the historic City Dock Area near the Naval Academy. AECOM is also performing feasibility studies for the State of Louisiana along its Gulf Coast to protect vulnerable communities from sea-level rise. All these projects include not only the engineering and designs of these systems, but also integrating these systems into the surrounding landscapes so that the communities can remain connected to the water.

Design Development

AECOM's team of marine structural and civil engineers, in collaboration with KEITH Engineering as the landscaping architect, will evaluate the results of the engineering analysis and develop three (3) alternate shoreline protection solutions for each different site condition encounter. Landscaping architecture integration to the team is vital, as KEITH believes in a context-based approach that considers multiple facets of the development process resulting in solutions that are curated for each authentic scenario. In addition to the traditional design approach, KEITH believes that careful consideration should be given to economic, ecological and social factors. This cohesive approach to the project is engineered to enhance the opportunity for a resilient solution.

KEITH approach is categorized into the following three general phases:

- Exploration Phase – The process of becoming familiar with an area through extensive analysis.
- Inspiration Phase – The process of developing ideas emanating from the exploration process.
- Implementation Phase – The process of activating a decision or plan.

For the City of Hollywood Engineering RFQ our team intends to take a resilient approach to the preservation and reconstruction of +/- 10,000 LF of shore line and sea wall. The approach to landscape in all areas will be to first preserve as much tree and palm canopy as possible that currently exists. The act will ensure that any natural mitigation of water through evapotranspiration will be maintained as these trees/palms act as living pumps for water from the ground back to the air. In addition, through any new landscape we will aim to utilizing only Florida Friendly landscapes, native where possible, to stabilize and restore any disturbed areas. These landscape solutions will also dovetail with shoreline protection, sea walls and grading concepts to all work in concert together. The created and preserved areas will also consider migratory patterns as an integral part in the FEC Flyways that might serve as current or future habitat to local fauna. Finally, in addition to function, the landscape solutions will also aim to achieve a Florida natural beauty as these water edge conditions are often scenic in nature.

The shoreline protection solutions will provide the level of protection needed to protect the community and properties, enhancing the value of the project and community. The alternate solution will consider:

- Available lands
- Environmental and marine resources impact
- Permit feasibility
- Access for construction
- Local conditions and restrictions
- Maintenance costs
- Level of protection
- Potential project phasing due to operational impacts
- Service life

Recommendation of Shoreline Protection System

The AECOM team will present the shoreline protection solutions alternatives in a clearly translatable and visual format to the City of Hollywood stakeholders, providing a matrix to include all design considerations and estimated cost to assist in the selection of the most appropriate option. We will work with the City to develop an engagement plan for presentations before the City Commission, Technical Advisory and GOB Oversight Board presentations to present the recommended design for long-term buy-in and engagement. AECOM will coordinate meeting, applicable local/state/federal regulatory agencies. Will assist the City of Hollywood with the preparation of applicable permit application packages for proposed project activities and will coordinate with all applicable resources agencies throughout the permit application review and approval process including the USACE, SFWMD, FDEP, Broward County Environmental Protection and Growth Management, and other regulatory agencies. Commenting agencies may include the NMFS, USFWS, U.S. Coast Guard (USCG), Florida Inland Navigation District (FIND), FWC. AECOM will continue to coordinate with the regulatory agencies and commenting agencies throughout the survey/assessment and application process.

As appropriate, AECOM will also coordinate with the relevant regulatory and commenting agencies to discuss permitting requirements such as avoidance and minimization of impacts, potential mitigation for unavoidable impacts, and/or monitoring and maintenance activities. AECOM Environmental Permitting Specialists have permitted a variety of coastal projects throughout South Florida and have successfully obtained a variety of permits including Environmental Resources Permits (ERP), Section 404 Dredge/Fill Permit, and Environmental Resource License, mangrove trimming permits, etc.

Tidal Flooding Exceptions

AECOM Technical Services, Inc. ("ATS") has reviewed the City's Request for Proposal for the Engineering Services for Tidal Flooding Mitigation project (Solicitation DCM-19-001187), as well as the sample Professional Services Agreement, and has identified the following specific terms that ATS will want to negotiate prior to signing a professional services contract with the City. ATS believes it has captured the most significant issues; however, final review and negotiations of the contract may identify other terms that require modification to properly interface with the terms negotiated below, or otherwise. As a result, we have prepared the following general comments.

Standard of Care: ATS requests that a clear standard of care be inserted into contract similar to the following: "Consultant will perform the services in accordance with standard industry practices, with the care, knowledge and skill expected of similar engineering firms. No other warranties, express or implied are made or intended."

Use of Documents: Request term clarifying that any modification, reuse or use of incomplete work products produced under the Agreement shall be without liability to ATS. Also, request terms stating that Consultant shall be entitled to rely upon the accuracy of data and information provided by City or others without independent review or evaluation, and the Consultant retains its ownership of Consultant's proprietary information not specifically created under the resultant contract.

Insurance: ATS agrees to provide insurance with an insurance company authorized to do business in Florida consistent with the limits described in the RFP. The City will be included as an Additional Insured on all policies specified in the RFP, with the exception of Workers Compensation, Employers Liability and Professional Liability. With respect to other insurance requirements, we would be pleased to discuss and develop mutually acceptable terms generally consistent with those identified in the RFP.

Indemnity: ATS requests the governing indemnification provision be revised to be consistent with the applicable Florida Statute for professional services (725.08): "Consultant shall indemnify and hold harmless the City, and its officers and employees, from liabilities, damages, losses, and costs, including, but not limited to, reasonable attorneys' fees, to the extent caused by the negligence, recklessness, or intentionally wrongful conduct of the Consultant and other persons employed or utilized by the Consultant in the performance of the Contract."; also request that Statute 558.0035 be included in the final contact as well.

Consequential Damages: Request the contract contain a provision in which each party waives, on a reciprocal basis, the right to recover any consequential, indirect, incidental, special and related damages.

Invoicing: We request clarification that upon City's receipt of acceptable invoices, payment will be made to Consultant within thirty days.

Termination: In the event the City considers terminating Agreement prior to completion for default, Consultant should be afforded an opportunity to address any alleged deficiencies prior to proceeding with termination process. Additionally, Consultant should not be held liable for the accuracy or reliability of any partially completed work.

Scope: Based on experience with similar projects, ATS believes it is critical to assign project risks and responsibilities to those who are best able to manage them. In this respect, ATS looks forward to delineating and clarifying the responsibilities and boundaries associated with the various services and tasks that would be provided by ATS under the contract.

Additional Terms: To the extent the City requires additional terms to the resultant agreement used as the basis for contract negotiations, we believe those changes should be subject to the parties' mutual agreement.

Miscellaneous: ATS requests a standard force majeure term be inserted into contract document.

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 03/18/2019

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

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

PRODUCER Marsh Risk & Insurance Services CA License #0437153 633 W. Fifth Street, Suite 1200 Los Angeles, CA 90071 Attn: LosAngeles.CertRequest@Marsh.Com CN101348564-STND-GAUE-19-20	**CONTACT NAME:** **PHONE (A/C, No, Ext):** **FAX (A/C, No):** **E-MAIL ADDRESS:**
INSURED AECOM 1999 Avenue of the Stars, Suite 2600 Los Angeles, CA 90067	**INSURER(S) AFFORDING COVERAGE** — **NAIC #** **INSURER A :** ACE American Insurance Company — 22667 **INSURER B :** N/A — N/A **INSURER C :** Illinois Union Insurance Co — 27960 **INSURER D :** SEE ACORD 101 **INSURER E :** **INSURER F :**

COVERAGES **CERTIFICATE NUMBER:** LOS-002167648-18 **REVISION NUMBER:**

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

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	X **COMMERCIAL GENERAL LIABILITY** [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY [ ] PRO-JECT [ ] LOC [ ] OTHER:			HDO G71234137	04/01/2019	04/01/2020	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ $ $ $ $ $	1,000,000 1,000,000 5,000 1,000,000 2,000,000 2,000,000
A	**AUTOMOBILE LIABILITY** X ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY			ISA H25280532	04/01/2019	04/01/2020	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ $ $ $	1,000,000
	[ ] **UMBRELLA LIAB** [ ] OCCUR [ ] **EXCESS LIAB** [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $						EACH OCCURRENCE AGGREGATE	$ $	
D	**WORKERS COMPENSATION AND EMPLOYERS' LIABILITY** ANYPROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? **Y / N** [N] **(Mandatory in NH)** If yes, describe under DESCRIPTION OF OPERATIONS below	**N / A**		SEE ACORD 101	04/01/2019	04/01/2020	X PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $	1,000,000 1,000,000 1,000,000
C	ARCHITECTS & ENG. PROFESSIONAL LIAB.			EON G21654693 005 "CLAIMS MADE"	04/01/2019	04/01/2020	Per Claim/Agg Defense Included		$2,000,000

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

EVIDENCE OF COVERAGE

Contractors Pollution Liability, Carrier: AIG Specialty Insurance Company, NAIC #26883, Policy #: CPL 1814870, Policy Term: 04/01/2019 – 04/01/2020, "Claims Made," Defense Included, Limit: $2,000,000 Per Loss/Aggregate

CERTIFICATE HOLDER

AECOM
1999 Avenue of the Stars, Ste. 2600
Los Angeles, CA 90067

CANCELLATION

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

AUTHORIZED REPRESENTATIVE
of Marsh Risk & Insurance Services

James L. Vogel

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Marsh Risk & Insurance Services	AECOM 1999 Avenue of the Stars, Suite 2600 Los Angeles, CA 90067
POLICY NUMBER	
CARRIER / NAIC CODE	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 **FORM TITLE:** Certificate of Liability Insurance

Workers Compensation/Employer Liability cont.

Policy Number	Insurer	States Covered
WLR C6589323A	Indemnity Insurance Company of North America - NAIC # 43575	AOS
WLR C65893150	ACE American Insurance Company - NAIC # 22667	CA and MA
SCF C65893198	ACE American Insurance Company - NAIC # 22667	WI Retro
WCU C65893393	ACE American Insurance Company - NAIC # 22667	OH, Ohio Qualified Self Insured (QSI) - SIR: $500,000; Only applicable to specific qualified entities self-insured in the state of Ohio

ACKNOWLEDGMENT AND SIGNATURE PAGE

This form must be completed and submitted by the date and the time of bid opening.

Legal Company Name (include d/b/a if applicable): AECOM Technical Services, Inc. Federal Tax Identification Number: 95-2661922

If Corporation - Date Incorporated/Organized: 1970

State Incorporated/Organized: California

Company Operating Address: 7650 Corporate Center Drive, Suite 400

City Miami State Florida Zip Code 33029

Remittance Address (if different from ordering address): 1178 Paysphere Circle

City Chicago State IL Zip Code 60674

Company Contact Person: Vijay Agrawal Email Address: vijay.agrawal@aecom.com
vijay.agrawal@aecom.com

Phone Number (include area code): 305-262-7466 Fax Number (include area code): 305-261-4017

Company's Internet Web Address: www.aecom.com

IT IS HEREBY CERTIFIED AND AFFIRMED THAT THE BIDDER/PROPOSER CERTIFIES ACCEPTANCE OF THE TERMS, CONDITIONS, SPECIFICATIONS, ATTACHMENTS AND ANY ADDENDA. THE BIDDER/PROPOSER SHALL ACCEPT ANY AWARDS MADE AS A RESULT OF THIS SOLICITATION. BIDDER/PROPOSER FURTHER AGREES THAT PRICES QUOTED WILL REMAIN FIXED FOR THE PERIOD OF TIME STATED IN THE SOLICITATION.

Bidder/Proposer's Authorized Representative's Signature:  Date 12/8/2019

Type or Print Name: Vijay Agrawal

THE EXECUTION OF THIS FORM CONSTITUTES THE UNEQUIVOCAL OFFER OF BIDDER/PROPOSER TO BE BOUND BY THE TERMS OF ITS PROPOSAL. FAILURE TO SIGN THIS SOLICITATION WHERE INDICATED BY AN AUTHORIZED REPRESENTATIVE SHALL RENDER THE BID/PROPOSAL NON-RESPONSIVE. THE CITY MAY, HOWEVER, IN ITS SOLE DISCRETION, ACCEPT ANY BID/PROPOSAL THAT INCLUDES AN EXECUTED DOCUMENT WHICH UNEQUIVOCALLY BINDS THE BIDDER/PROPOSER TO THE TERMS OF ITS OFFER.

Bid/RFP/RFQ Number: DCM-19-001187 Title: Engineering Services for Tidal Flooding Mitigation

Procurement Services Division
2600 Hollywood Boulevard, Room 303
Hollywood, Florida 33020

HOLD HARMLESS AND INDEMNITY CLAUSE

AECOM Technical Services, Inc.

(Company Name and Authorized Signature, Print Name)

, the contractor, shall indemnify, defend and hold harmless the City of Hollywood, its elected and appointed officials, employees and agents for any and all suits, actions, legal or administrative proceedings, claims, damage, liabilities, interest, attorney's fees, costs of any kind whether arising prior to the start of activities or following the completion or acceptance and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part by reason of any act, error or omission, fault or negligence whether active or passive by the contractor, or anyone acting under its direction, control, or on its behalf in connection with or incident to its performance of the contract.

**** ATS agrees to indemnify the City subject to revisions necessary to be consistent with Florida Statute.**

Signature	Vijay Agrawal Printed Name
AECOM Technical Services, Inc. Name of Company	Vice President Title

Bid/RFP/RFQ Number: DCM-19-001187 Title: Engineering Services for Tidal Flooding Mitigation

Procurement Services Division
2600 Hollywood Boulevard, Room 303
Hollywood, Florida 33020

NONCOLLUSION AFFIDAVIT

STATE OF: Florida

COUNTY OF: Broward, being first duly sworn, deposes and says that:

(1) He/she is Vijay Agrawal of AECOM Technical Services, Inc., the Bidder that has submitted the attached Bid.

(2) He/she has been fully informed regarding the preparation and contents of the attached Bid and of all pertinent circumstances regarding such Bid;

(3) Such Bid is genuine and is not a collusion or sham Bid;

(4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Bidder, firm or person to submit a collusive or sham Bid in connection with the contractor for which the attached Bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person to fix the price or prices, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure an advantage against the City of Hollywood or any person interested in the proposed Contract; and

(5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

Signature	Vijay Agrawal Printed Name
AECOM Technical Services, Inc. Name of Company	Vice President Title

Bid/RFP/RFQ Number: DCM-19-001187 Title: Engineering Services for Tidal Flooding Mitigation

SWORN STATEMENT PURSUANT TO SECTION 287.133 (3) (a) FLORIDA STATUTES ON PUBLIC ENTITY CRIMES

THIS FORM MUST BE SIGNED AND SWORN TO IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICIAL AUTHORIZED TO ADMINISTER OATHS

1. This form statement is submitted to City of Hollywood

By Vijay Agrawal, VP for AECOM Technical Services, Inc.

(Print individual's name and title) (Print name of entity submitting sworn statement)

whose business address is 7650 Corporate Center Drive, Suite 400, Miami, FL 33126

and if applicable its Federal Employer Identification Number (FEIN) is 95-2661922 If the entity has no FEIN, include the Social Security Number of the individual signing this sworn statement.

2. I understand that "public entity crime," as defined in paragraph 287.133(1)(g), Florida Statues, means a violation of any state or federal law by a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid, proposal, reply, or contract for goods or services, any lease for real property, or any contract for the construction or repair of a public building or public work, involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misinterpretation.

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

4. I understand that "Affiliate," as defined in paragraph 287.133(1)(a), Florida Statutes, means:

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

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

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

NO Neither the entity submitting sworn statement, nor any of its officers, director, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, nor any affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

NO The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime subsequent to July 1, 1989.

NO The entity submitting this sworn statement, or one or more of its officers, directors, executives, partners, shareholders, employees, members, or agents who are active in the management of the entity, or an affiliate of the entity has been charged with and convicted of a public entity crime, but the Final Order entered by the Hearing Officer in a subsequent proceeding before a Hearing Officer of the State of the State of Florida, Division of Administrative Hearings, determined that it was not in the public interest to place the entity submitting this sworn statement on the convicted vendor list. (attach a copy of the Final Order).

I UNDERSTAND THAT THE SUBMISSION OF THIS FORM TO THE CONTRACTING OFFICER FOR THE PUBLIC ENTITY IDENTIFIED IN PARAGRAPH 1 (ONE) ABOVE IS FOR THAT PUBLIC ENTITY ONLY AND THAT THIS FORM IS VALID THROUGH DECEMBER 31 OF THE CALENDAR YEAR IN WHICH IT IS FILED. I ALSO UNDERSTAND THAT I AM REQUIRED TO INFORM THAT PUBLIC ENTITY PRIOR TO ENTERING INTO A CONTRACT IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017 FLORIDA STATUTES FOR A CATEGORY TWO OF ANY CHANGE IN THE INFORMATION CONTAINED IN THIS FORM.

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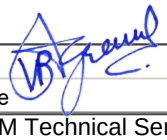	Vijay Agrawal
Signature	Printed Name
AECOM Technical Services, Inc.	Vice President
Name of Company	Title

Bid/RFP/RFQ Number: DCM-19-001187 Title: Engineering Services for Tidal Flooding Mitigation

ABOUT AECOM

AECOM is the world's premier infrastructure firm, delivering professional services across the project lifecycle – from planning, design and engineering to consulting and construction management. We partner with our clients in the public and private sectors to solve their most complex challenges and build legacies for generations to come. On projects spanning transportation, buildings, water, governments, energy and the environment, our teams are driven by a common purpose to deliver a better world. AECOM is a Fortune 500 firm with revenue of approximately $20.2 billion during fiscal year 2019. See how we deliver what others can only imagine at aecom.com and @AECOM.

AECOM
7650 Corporate Center Dr. Suite 400
Miami, Florida 33126