

**RESOLUTION DIRECTING WORK TO AECOM FOR THE SOUTH  
UNION CITY STUDY**

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**MOTIONED BY:** Velazquez  
**SECONDED BY:** Guzman

**WHEREAS**, the North Hudson Sewerage Authority (hereinafter "Authority") is a public body, duly formed under the Sewerage Authorities law, constituting Chapter 138 of the Laws of New Jersey of 1946, as amended (Chapter 14A of Title 40 of the New Jersey Statutes Annotated) and possesses the powers set forth therein; and

**WHEREAS**, AECOM has been selected under resolution 21-105 to provide engineering services for various capital projects required throughout its service area that must be performed in order to maximize the performance of its waste water treatment facility, the capacity of its combined sewer system and/or to comply with its New Jersey Pollution Discharge Elimination System (NJPDES) permit; and

**WHEREAS**, AECOM has submitted a proposal (Exhibit "A") to provide Engineering Services for the South Union City Drainage Study; and

**WHEREAS**, the Facilities Review Board has considered this request and proposal and recommends the approval of the full Board.

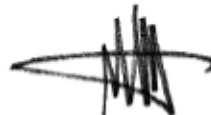
**NOW THEREFORE, BE IT RESOLVED** that the Authority, as recommended by the Facilities Review Board, directs AECOM to provide professional engineering services for the South Union City Drainage Study not to exceed \$296,098.31.

**DATED: MAY 19, 2022**

**RECORD OF COMMISSIONERS' VOTE**

	<b>YES</b>	<b>NO</b>	<b>ABSENT</b>
Commissioner Kappock	x		
Commissioner Marotta			x
Commissioner Gardiner	x		
Commissioner Friedrich	x		
Commissioner Guzman	x		
Commissioner Velazquez	x		
Commissioner Barrera	x		
Commissioner Zucconi	x		
Commissioner Assadourian	x		

**THIS IS TO CERTIFY THAT THIS RESOLUTION WAS DULY ADOPTED BY THE  
NORTH HUDSON BOARD OF COMMISSIONERS ON MAY 19, 2022.**




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**SECRETARY**

Mr. Fredric J. Pocci, P.E.  
Executive Director  
North Hudson Sewerage Authority  
1600 Adams Street  
Hoboken NJ 07030

**RE: Engineering Qualifications and Proposal for South Union City Drainage Study**

Dear Mr. Pocci,

AECOM is pleased to provide the North Hudson Sewerage Authority (Authority or NHSA) with this proposal to provide engineering services for the South Union City Drainage Study. The intent of this study is to identify problem areas in the South Union City (UH-1) drainage area with respect to surface flooding and sewer backups, and to develop and evaluate alternatives to address the identified problem areas. AECOM, through its participation in the 2018 CSO control alternatives development workshop, and its experience in developing the 2007 Cost and Performance Analysis Reports for the Adams Street and River Road WWTP systems, is very familiar with NHSA's combined sewer system. **Don Walker, PE** and **Greg Heath, PE**, who we are proposing to serve as Project Director and Technical Advisor, respectively, both participated in the CSO control alternatives development workshop, with Don serving as the moderator of the workshop. Both Don and Greg also worked on the 2007 reports and have extensive national experience in wet weather planning. Their local knowledge of the NHSA system, coupled with their national experience, will allow them to effectively guide the hydraulic assessment, and the development and evaluation of alternatives for the South Union City system. Don and Greg both look forward to the opportunity to contribute again to the evaluation of wet weather issues in NHSA's system.

## I. Project Understanding and Approach

The UH-1 drainage area is served by combined sewers that drain to the Jersey City collection system, and ultimately to the Passaic Valley Sewerage Commission (PVSC) system for treatment. No CSO regulators exist in the UH-1 drainage area, so this area was not specifically addressed in the NHSA's CSO Long Term Control Plan (LTCP). However, based on the July 2018 System Characterization Report for the Adams Street WWTP that was prepared as an earlier deliverable in the LTCP development process, the pipes in the UH-1 area are pre-1900's vintage. More than half of the pipes are vitrified clay (VCP), and approximately 30 percent are brick. As with other densely populated urban areas with aging infrastructure, sewer backups and insufficient drainage capacity have been identified as issues that need to be addressed.

### AECOM Planning Approach

We envision three key steps to the assessment of the UH-1 drainage area:

1. Identifying the locations within the collection system at risk of sewer backups and flooding.
2. Identifying the root causes of the issues.
3. Developing and evaluating alternatives to address the root causes.

The following paragraphs expand upon each of these steps.

**Identifying Locations of Sewer Backup and Flooding Risks.** One of the first activities will be to work with NHSA to review available information on locations of reported sewer backups and flooding within the UH-1 area. It is anticipated that sewer complaint logs will be available identifying the location and date of reported sewer backups. Locations will be assessed to identify clusters that might be tied to a specific portion of the collection system, and dates will be assessed to correlate to rainfall. Identifying locations of surface flooding can be more challenging, but customer complaint logs can also be a source. Major flooding associated with extreme events is sometimes recorded in photographs, or in documentation of high-water marks observed after the storms. A Google search of references to flooding in the NHSA service area yielded many photographs of significant floods from past major storms, but none of the photos reviewed were of flooding in the UH-1 drainage area. NHSA operations staff are likely to be one of the best sources of understanding of the locations of flooding issues, as they will have the most direct experience in having to respond to the flooding issues.

**Identifying Root Causes.** Once the locations of the sewer backups and flooding issues have been catalogued, the task of identifying root causes can commence. One of the key tools in assessing the root causes will be the NHSA's collection system model for the UH-1 system. Before using the model for diagnostic work, however, the model must be demonstrated to be able to replicate the hydraulic conditions associated with the flooding and backup issues. As part of the July 2018 System Characterization Report for the Adams Street WWTP, one flow meter was installed in the UH-1 area, on the 40x40.75-inch combined sewer on Seacaucus Road (5th Street) near Paterson Plank Road. Review of the calibration plots for this meter showed that the model closely matched the meter on total volume for the calibration period, but the model generally over-predicted the depth. For seven storms in the calibration period, the modeled depth was over 10 feet, but the metered depth was less than six feet. At the time, the focus of the calibration was likely on quantifying the flow, so the depth calibration was less of a concern. However, for the present study, it is important that the model also replicate the measured depth.

The RFP scope calls for up to eight flow meters to be installed for a period of three months to support an update of the calibration of the model in the UH-1 area. It will be important to strategically place these meters, so that the most beneficial information is obtained while also being mindful of the cost of the metering program. Our first thoughts on locations for meters include the following:

- One at the downstream end of the system, near the connection to the Jersey City system, to establish the downstream hydraulic boundary
- One on each of the three major trunk sewers flowing south to 5th Street: JKF Boulevard, Summit Avenue, and West Street
- One on the Palisade Avenue/3rd Street sewer
- One additional meter to be placed in proximity to a known "problem area"

We will work with NHSA to refine these locations based on the locations of the known issues and other input from NHSA staff.

The model calibration process will include assessment of the meter data collected, as well as running the rainfall associated with tropical storm Ida (9/1/2021) and Hurricane Henri (8/21/21) and comparing the modeled flooding locations to locations of known flooding for those events.

Once the model has been calibrated, it will be used in conjunction with available surface elevation data to identify locations at risk of flooding or sewer backups. Model output can be generated with color coding to indicate where the peak hydraulic grade line is within various depths to the ground surface, allowing for a rapid visual assessment of locations at risk of sewer backups into basements. Profiles of the peak hydraulic grade lines can also be generated to identify hydraulic restrictions or bottlenecks in the collection system. The impact of the boundary conditions at the border with Jersey City on upstream flooding risks can also be assessed.

**Developing and Evaluating Alternatives.** Once the root causes of the flooding and sewer backup risks have been identified, alternatives can be developed to specifically target those root causes. The range of technologies anticipated to be evaluated includes green infrastructure, stormwater detention, sewer system rehabilitation, pipeline replacement, pipeline relief, pumping, in-line storage, and off-line storage. These technologies may be evaluated individually or in combination. The evaluation of alternatives will include an assessment of the change in peak flow at the downstream boundary with the Jersey City system.

Per the RFP scope, AECOM will work with NHSA to develop a shortlist of three alternatives, which will be further evaluated in terms of costs, performance and implementation considerations. The evaluations will then be summarized in a draft and final technical memorandum.

AECOM's systematic approach to evaluating collection system wet weather issues is rooted in years of successful experience on wet weather programs across the country, including specifically the work conducted to support the 2007 Adams Street and River Road CSO Control Cost and Performance Analysis Reports. In Don and Greg, NHSA will have



**The U.S. EPA entrusted AECOM to prepare technical guidance for CSO Policy development and implementation. Don Walker was a lead author for portions of the CSO Control Design Manual, including the chapter on CSO control technologies. NHSA can count on AECOM to analyze the performance of the UH-1 combined sewer system to cost-effectively meet your needs.**

access to two of AECOM's most experienced wet weather specialists. In addition to working together on the 2007 NHSA reports, Don and Greg have collaborated on numerous relevant wet weather projects across the country, including the New York City Department of Environmental Protection (both the CSO program and an evaluation of flooding issues in Southeast Queens), the Massachusetts Water Resources Authority, Allegheny County Sewer Authority, and Honolulu, HI.

## II. AECOM Corporate Qualifications

AECOM is a full-service multi-disciplinary planning, engineering, and design firm with broad experience from high-performance and financially sustainable infrastructure and buildings, to resilient communities and environments. As a company focused on “Building a Better World”, we are passionate about our work in advancing infrastructure that improves quality of life and prepares us to meet the challenges ahead. This work will be conducted out of our Manhattan office located at 125 Broad Street, where we have more than 420 staff, with 50 focused on water/wastewater engineering. We will also utilize specialized staff from other AECOM offices as needed.

In the area of sewer system modeling and wet weather planning, AECOM has specific experience with the NHSA system, along with an extensive track record of successful sewer system modeling and wet weather planning projects across the US and internationally. AECOM’s approach to sewer system modeling and wet weather planning has been to use detailed system understanding to develop cost-effective, site-specific alternatives that maximize the use of existing system capacity and target the specific sources of hydraulic issues. Examples of national sewer system modeling and wet weather planning programs for which AECOM has applied this approach are listed in **Table 1**.

**Table 1. AECOM’s national experience in sewer system modeling and wet weather planning spans from coast to coast, and includes a range of combined sewer system sizes. Our national perspective will inform our evaluation of NHSA’s UH-1 drainage system.**

Examples of AECOM Wet Weather / CSO Experience	
NHSA	Allegheny County Sanitary Authority (Pittsburgh)
New York City	Pittsburgh Water and Sewer Authority
Massachusetts Water Resources Authority (Boston)	Akron OH
Springfield MA	Cincinnati OH
Nashua NH	Columbus OH
Portland ME	Northeast Ohio Regional Sewer District (Cleveland)
Bangor ME	Sanitation District No. 1 of Northern Kentucky
DC Water	San Francisco Public Utilities Commission

**\* Additional project information and references related to the above projects can be provided upon request.**

### NHSA Experience

As noted above, AECOM’s experienced CSO planning staff proposed for this work is familiar with the NHSA’s combined sewer system. As part of the work to prepare the 2007 reports, we expanded the level of detail of the collection system model, conducted flow metering, and updated the calibration of the model. The range of CSO control alternatives assessed for the Adams Street WWTP system included individual storage tanks, consolidated storage facilities (tunnels), and increasing flow to the WWTP. As noted above, Don Walker and Greg Heath also participated in the June 2018 CSO Control Alternative Analysis Concept Workshop. Don’s leadership as workshop moderator, coupled with national wet weather control experience and lessons learned contributed by Greg and Don, helped to bolster workshop discussion and provide NHSA with new concepts for consideration.

## National Wet Weather Planning Experience

In addition to their work on the 2007 NHSA reports and the 2018 CSO control alternatives development workshop, Don and Greg have worked together for many years on wet weather planning projects, and collaborated on many of the national programs listed in the section above. Recent experience has included the development and evaluation of CSO control alternatives in the greater metro-New York area. Don served as Project Director for the NYCDEP CSO Long Term Control Planning project, and Greg has provided technical support to that project. While the hydraulic evaluation of the UH-1 area is not a CSO project per se, the approach to the hydraulic evaluations is analogous to many aspects of the work conducted for the NYCDEP’s project, including:

- » Collection system model update, calibration and use for assessing the impact of alternatives on peak hydraulic grade lines
- » Assessment of a range of wet weather technologies and levels of control
- » Development of project costs
- » Assessment of siting impacts and implementation issues

Don and Greg’s extensive experience on wet weather projects will benefit NHSA through the efficient and thorough assessment of the causes of and potential solutions to hydraulic issues in the UH-1 area.

Some initial thoughts on the pending evaluation of the UH-1 area based on our experiences on other wet weather programs are presented in **Table 2**.

**Table 2. AECOM will draw on its experience in formulating potential solutions for the UH-1 drainage area.**

Issue	Approach	Benefit
Assessing the hydraulic benefits of green infrastructure (GI)	Our modelers are familiar with a range of approaches to modelling the performance of GI, based on realistic assessments of the size, type, and locations of feasible installations.	Provides a realistic assessment of the hydraulic performance of GI, particularly in larger storms more associated with flooding.
Addressing aging conveyance piping	Where structural integrity issues may be affecting pipe capacity, pipe lining can be a cost-effective approach to improve structural integrity and potentially increase wet weather capacity through reduction in infiltration and friction losses.	Can potentially address structural and capacity concerns while minimizing construction costs and impacts.
Assessing causes of sewer backups	Typical causes of sewer backups in collection systems include insufficient hydraulic capacity, structural failures, chronic fats, oils and grease (FOG) build-up, and failures/blockages of private connections. AECOM will use available information to develop an understanding of the likely causes of the reported sewer backups.	The most effective solutions to sewer back-ups will depend on understanding the specific causes. Solutions that address one potential cause of back-ups may be ineffective at addressing other potential causes.
Surface flow paths during extreme events	During extreme rainfall events that exceed the capacity of the collection system, potential surface flow paths can be evaluated to route surface flooding away from critical locations.	Can provide mitigation of flooding in critical locations where sufficient improvements to below-grade infrastructure are infeasible.

## Key Personnel

AECOM has assembled an experienced team to lead the evaluation of CSO control alternatives for the South Union City drainage system. As the Principal in Charge, **Paul Storella, PE**, will establish and lead the overall course of the project, and be responsible for ensuring AECOM’s continued staffing capacity for any resourcing needs. **Karen Appell, PE**, will serve as the Project Manager. Karen is a licensed New Jersey Professional Engineer with over 20 years in wastewater treatment operations and engineering in the greater New York area. She will be responsible for overseeing the development of the alternatives, invoicing, and scheduling. **Don Walker, PE**, will serve as the Project Director, with **Greg Heath, PE**, serving as a “hands-on” technical advisor. Don and Greg have worked together for many years on CSO planning projects, including the

2007 Adams Street and River Road Cost and Performance Analysis Reports. Don served for multiple years as the Project Director for the NYCDEP's CSO Long Term Control Plan Program, and Greg is AECOM's National Practice Leader in Wet Weather Treatment. Don and Greg worked together on a street-by-street and property-by-property investigation of surface drainage and flooding issues in Southeast Queens, and many of their recommended improvements have now been built. This experience is directly relevant to your UH-1 project needs. Together, Don and Greg will provide the technical direction and support for the CSO alternatives analysis. Karen will directly coordinate with Don and Greg and communicate as often as necessary to ensure the project's technical needs are being met and the project is staying on schedule and budget. In addition to Paul, Karen, Don, and Greg, the project team includes:

- **Eric Bodnar - Technical Lead.** Eric has more than 31 years of experience including grading, drainage and utility design, hydraulic modeling and storm water management. Based out of our Clifton office, he has worked with Karen on multiple projects including Rebuild By Design - Hudson River.
- **Larry Soucie - Lead InfoWorks Modeler.** Larry has also worked for many years with Don and Greg on a variety of CSO/wet weather projects, including the 2007 Adams Street and River Road reports, providing modeling support for CSO alternatives evaluations.
- **Helder de Almeida - Hydraulics.** Helder has worked directly with Don since 2016 on the NYCDEP CSO Program, and is experienced in developing and evaluating CSO control alternatives and flood mitigation measures.

Our team's combination of knowledge of the NHSA system and extensive experience working together on previous wet weather planning projects will provide the Authority with confidence that the work described herein will be conducted efficiently.

Karen, Don, Greg, Eric, Larry and Helder all have the availability to participate in this project at the budgeted levels of effort. Karen, Helder, and Eric are currently based in our NY Metro area offices in New York or New Jersey. Greg and Don are based in Chelmsford, MA, but can travel to project sites as necessary to provide technical input. Larry is also based in our Chelmsford, MA office, but regularly provides modeling support, both remotely and on-site when needed, to projects across the country. AECOM has additional support staff members in its New York office that are experienced in wet weather planning and will be available for this project.

The project team organization and resumes of key staff members are provided in Appendix A

### III. Proposed Scope of Services

The following services are specifically included as part of this proposal.

#### Task 1 – Project Kickoff

- 1.1 Conduct a virtual kickoff meeting with key members attending from NHSA and AECOM. At a minimum the following from AECOM shall be in attendance: Karen Appell, Don Walker, Greg Heath, and Eric Bodnar.
- 1.2 Prepare draft minutes from the kickoff meeting and submit to NHSA for review.
- 1.3 Incorporate NHSA comments and issue final kickoff meeting minutes.

#### Task 2 – Develop Conceptual Improvements

- 2.1 Conduct monthly virtual meetings with NHSA throughout the conduct of Task 2 to exchange information on progress made and receive input from NHSA to guide next steps. Based on the project schedule (see Figure 1) a total of 14 monthly meetings are assumed.
- 2.2 Assemble and review available information on known locations of flooding during Tropical Storm Ida and Hurricane Henri and information on locations of chronic sewer backups in the UH1 area.
- 2.3 Investigate potential relationships between rainfall and sewer back up complaints

- 2.4 Run the existing InfoWorks ICM model for the Tropical Storm Ida and Hurricane Henri rainfall, and for a design storm representative of rainfall conditions correlated with sewer backup complaints. Assess the ability of the existing model to replicate observed conditions for these events.
- 2.5 Review existing flow monitoring data for meter NHW, which was located at Secaucus Road at Patterson Plank Road in Union City, NJ as documented in the NHSA System Characterization Report for the Adams Street WWTP, July 1, 2018. Compile pertinent existing flow monitoring data.
- 2.6 Prepare a Power Point presentation that will include the initial ICM results and existing flow monitoring data. During one of the initial virtual monthly meetings use the Power Point presentation to conduct a technical discussion of the initial ICM results and to solicit NHSA input into the understanding of system performance.
- 2.7 Conduct a site visit to review initially identified areas of concern, conduct preliminary reconnaissance for potential flow monitoring locations, assess the extent to which survey data may be required, and consider the feasibility of potential collection system improvements. Prepare a memorandum to document findings from the site visit and submit the memorandum to NHSA.
- 2.8 Engage ADS Environmental Services to conduct flow monitoring at key locations in the UH1 drainage area. A total of six (6) flow meters are assumed to be deployed for a period of three (3) months.
- 2.9 Conduct field survey (if necessary) based on review of initial findings of investigations, the site visit, and discussions with NHSA. Scope of field survey shall focus on supplementing, as necessary, understanding of how flow is conveyed to point of discharge to PVSC system and ground elevations in locations of observed or predicted flooding, and shall remain within allowance provided for in the RFP.
- 2.10 Update the ICM model based on results from flow monitoring and field survey. Assume up to six (6) iterative model runs to achieve improved correlation between monitored and modeled depth and rate of flow. Prepare a memorandum to document model update and submit the memorandum to NHSA.
- 2.11 Select a range of design storms for use in ICM modeling. Tropical Storm Ida and Hurricane Henri shall be assessed in addition to two (2) critical yet potentially less severe storm events.
- 2.12 Use the updated ICM model to establish baseline hydraulic grade line and flow conditions for Tropical Storm Ida and Hurricane Henri and for two smaller design storms.
- 2.13 Use the updated ICM model to assess potential alternatives to further identify problem areas and alternatives for future improvements to mitigate flow back-ups and potential drainage issues in the UH1 drainage area. Technologies to be considered, individually and in various combinations, shall include green infrastructure, stormwater detention, sewer system rehabilitation, pipeline replacement, pipeline relief, pumping, in-line storage, and off-line storage. Each individual model configuration, whether of a single technology or of two or more technologies in combination, shall constitute an alternative. A total of eight (8) alternatives shall be simulated for one of the selected design storm events and one of the selected historical storms using the ICM model. Each successive model run shall be informed by results from previous runs to focus on technologies, in various combinations, to maximize the performance of each alternative and maximize the benefit from each model run.
- 2.14 Compile model output to demonstrate the effectiveness of each alternative simulated using the ICM model. Output shall include plots showing hydraulic grade line at key system locations, plans illustrating the extent of flooding, and hydrographs (plots of flow vs. time) at the point of discharge to the PVSC system.
- 2.15 Compare the peak rate of flow at the point of discharge to the PVSC system between each alternative and the baseline peak rate of flow. Tabulate changes (increases or decreases) in the rate of discharge and consider such changes in the assessment of alternatives.

### **Task 3 – Propose Alternatives**

- 3.1 Prepare a Power Point presentation to share information on alternatives simulated using the ICM model during a monthly meeting with NHSA. The presentation shall feature plots, plans and hydrographs showing the impact of alternatives on system performance. The presentation shall also include tabulated data on changes in rate of flow

discharging to the PVSC system. Photographs from the site visit and other visuals shall be included as necessary to supplement output from ICM modeling of alternatives.

- 3.2 Assist and advise NHSA in selecting three (3) alternatives to be further developed and documented in a technical memorandum.

#### Task 4 – Technical Memorandum

- 4.1 Develop conceptual estimates of capital, O&M, and net present value costs for the three alternatives selected under Task 3. Estimates shall be Class 5 with expected accuracy of -50% to +50%.
- 4.2 Assess impacts in terms of the hydraulic grade improvements, community impacts, permitting requirements, and construction feasibility for the three alternatives.
- 4.3 Prepare a draft technical memorandum to present results obtained from ICM modeling and other activities under Task 2, along with conceptual cost estimates, for the three selected alternatives.
- 4.4 Discuss NHSA comments on the draft technical memorandum during a monthly meeting.
- 4.5 Incorporate NHSA comments and prepare a final technical memorandum.

#### Task 5 – Project Management and Controls

- 5.1 Conduct contract start-up activities, including task and budget planning and subcontractor procurement.
- 5.2 Conduct on-going project coordination, budget monitoring and management, and monthly reporting.

### IV. Cost Proposal

The estimated level of effort and fee to perform the above scope of services is as follows:

Task	Hours	Cost
Task 1 - Kickoff Meeting	16	\$3,796.28
Task 2 - Develop Conceptual Improvements	656	\$136,007.20
Task 3 - Propose Alternatives	26	\$5,623.06
Task 4 - Technical Memorandum	138	\$28,100.13
Task 5 - Project Management and Controls	80	\$16,461.65
Subtotal	916	\$189,988.31
Allowances	--	\$65,000.00
Expenses / ODCs	--	\$41,110.00
<b>Total</b>	<b>916</b>	<b>\$296,098.31</b>



Our services will be performed on a time and materials basis with an upper limit. The labor hours and expenses are estimates based on the assumptions in the scope of work and allotted task budgets as described herein above. Refer to Appendix B for the more detailed Engineer's Budget Worksheet.

## Cost Proposal Basis

1. AECOM's services will be in accordance with the terms mentioned in the RFP.
2. The level of effort for AECOM's services is based on the scope of services included in the RFP.
3. All files submitted will be in electronic form, unless requested in hard copy by NHSA.

## V. Schedule

A proposed project schedule is attached on the following page as **Figure 1**.

We look forward to the opportunity to provide these important services to the Authority. Should you have any questions regarding our proposal, please do not hesitate to call me at (212) 984-7379.

Very Truly Yours,

AECOM Water

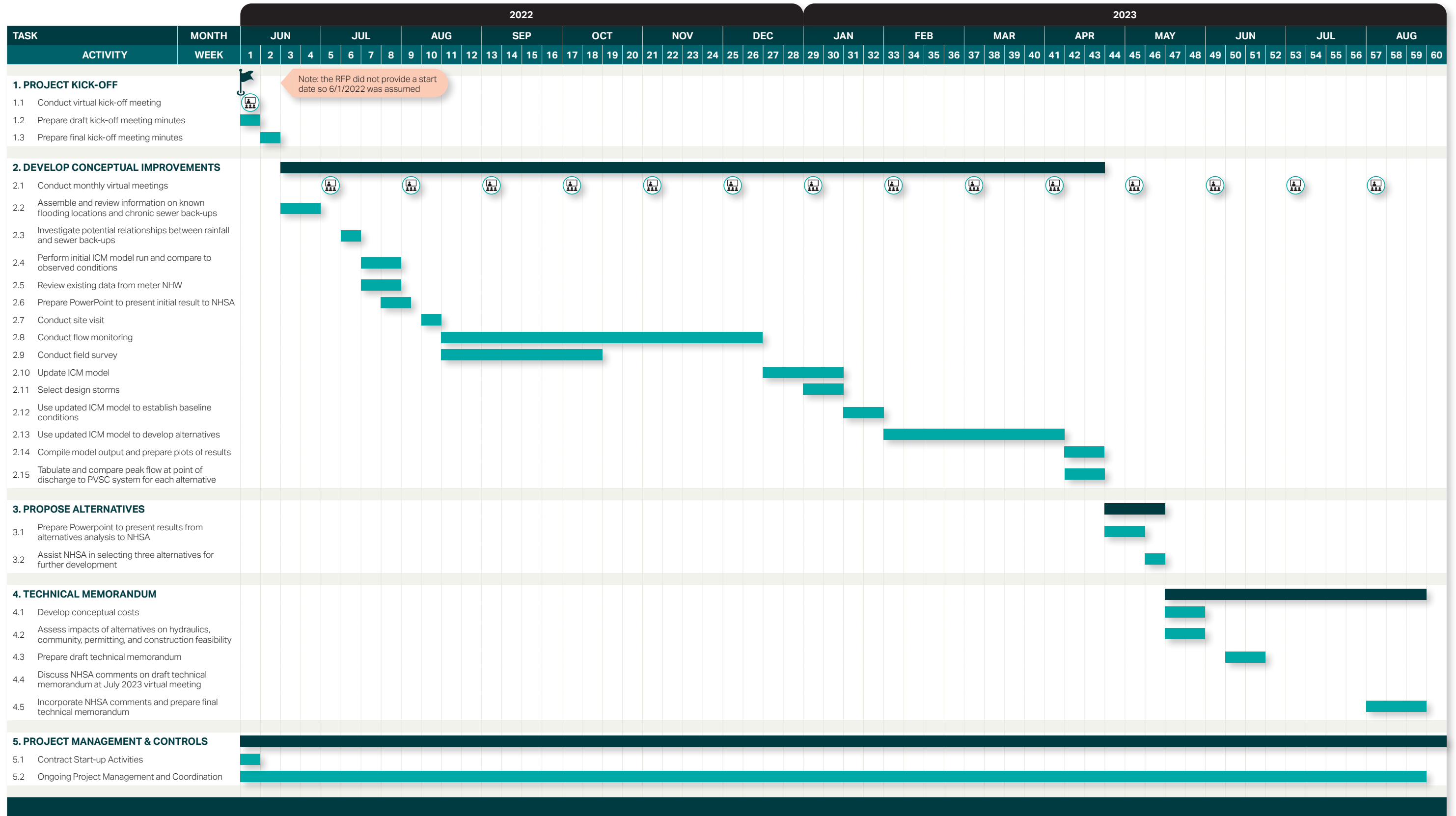


Paul Storella, P.E.  
Senior Vice President

Enclosures

cc: K. Appell, AECOM; D. Walker, AECOM

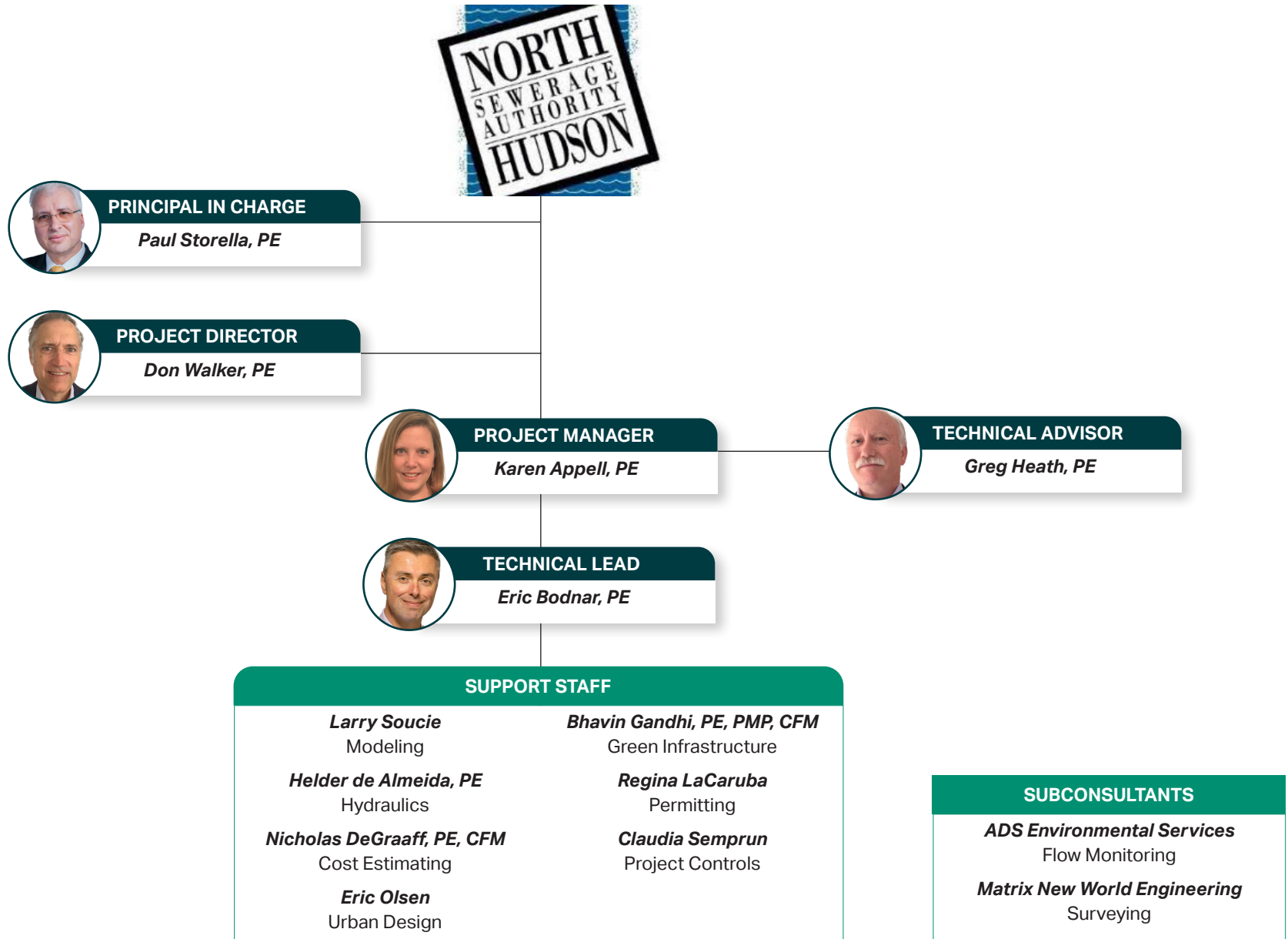
Figure 1. Project Schedule



# Appendix A: Project Team & Resumes

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# Project Team Organization



# Paul Storella, PE

Project Executive

**FIRM**  
AECOM

**FIRM STATUS**  
Full-Time

**EDUCATION**  
MBA, Management, Long Island University  
(C.W. Post)

BET, Mechanical Engineering, Northeastern  
University

**REGISTRATIONS**  
Professional Engineer: NY, MA

**PROFESSIONAL AFFILIATIONS**  
Water Environment Federation

## RELEVANT EXPERIENCE

*Mr. Storella is a senior vice president and leads AECOM's New York Metro NY/NJ Water Business. He oversees offices in New York City, Latham, NY, Buffalo, NY, Piscataway, NJ, and Clifton, NJ, with more than 130 staff members and combined gross annual revenues of more than \$45 million. Mr. Storella is responsible for both operations management and business development throughout the NY/NJ area. In his role as RBLL, he provides leadership to the area staff and is responsible for overall service delivery to our clients, financial performance of the area, as well as strategic planning and new business development. In his career, Mr. Storella has been a project director, project manager and design engineer on large water and wastewater treatment plant projects and has experience in mechanical process engineering, pump station design, solid waste management and transfer stations, landfills and resource recovery facility projects.*

## PROJECT EXPERIENCE

**NYC Department of Environmental Protection (DEP), Engineering Services for the Reconstruction of the Dividing Weir Bridge, Dividing Weir and Ashokan Spillway, Ulster County, NY:** AECOM is the prime consultant and serving as the Design Engineer of Record for this complex infrastructure improvement project that is part of the Ashokan Century Program. The existing Dividing Weir, Dividing Weir Bridge and Ashokan Spillway show signs of deterioration and have exceeded their 100-year service life. Mr. Storella is the Project Director for this challenging project to rehabilitate and reconstruct these aged structures to satisfy New York State's Department of Environmental Conservation's (NYSDEC) new Dam Safety requirements and maintain a safe passage of storm flood events. The Project Design team has developed a number of alternatives that will extend the service life another 100-years, meet NYSDEC new Dam Safety requirements, and safely route design storm events through the reservoir.

**NYCDEP, Jamaica WRRF Study, Design, and Construction, New York, NY:** Mr. Storella was the Project Director/Manager for the \$340-million upgrade of the 100-mgd Jamaica Wastewater Resource Recovery Facility. He

managed design services during construction of Phase 1 and design and design services during construction of Phase 2. He also managed the scope, schedule and budget. Mr. Storella supervised staff for all design services including the evaluation of contract changes and shop drawing review, coordination and communication with NYCDEP, and the resolution of construction issues with the construction manager and contractors.

**NYCDEP, Rockaway WRRF Facilities Plan and Design, New York, NY:** Mr. Storella was the Project Manager for facility planning, upgrade and design of the 45-mgd Rockaway Wastewater Resource Recovery Facility, with an estimated construction cost of \$240 million. He coordinated facility inspection, prioritization of scope, alternative analysis and implementation plan development. He also managed the development of a five-phased implementation plan that addressed the most critical areas in need of upgrade first, due to DEP's budget constraints, allowing the plant to meet permit requirements and to meet the goals of NYCDEP's capital budget. Mr. Storella provided technical direction and supervised AECOM staff in the completion of the facility plan, which included the facility inspection report, remedial alternatives report, the conceptual design report implementation plan and a uniform land acquisition process review that enabled the DEP to purchase adjacent land for future use. He also managed scheduling, staffing and budgeting.

**NYCDEP, Croton Water Filtration Plant, New York, NY:** Mr. Storella is the Principal in Charge for the \$3 billion 290 MGD water filtration plant in Bronx, NY. He is responsible to AECOM and NYCDEP for financial performance and technical delivery of the project. He is also the main point of contact and interfaces with NYCDEP upper management.

**North Hudson Sewerage Authority, Combined Sewer Overflow Long-Term Control Plan Feasibility Study, Hoboken, NJ, and West New York, NY:** Mr. Storella was the Project Manager for the evaluation of alternatives to reduce combined sewer overflow, including expanding the wet-weather treatment capacity of the 25-mgd Adams Street plant in Hoboken and the 10-mgd River Road plant.

**NYCDEP, Owls Head WRRF Study, Design, Construction, and Program Management, New York, NY:** Mr. Storella was the Mechanical Design Engineer for the upgrade of the 120-mgd Owls Head water pollution control plant, which included the addition of a main sewage pump, and rehabilitation of the forebay. He also developed a plan for the construction sequencing that would keep the plant in operation during construction.

**NYCDEP, Jamaica Wastewater Treatment Plant Upgrade, New York, NY:** As the Project Engineer for the upgrade of the Jamaica water pollution control plant, Mr. Storella wrote performance specifications for the 120-mgd temporary pumping station (pumparound) that enabled the main sewage pump station to be bypassed for construction without shutting down the plant. He also wrote performance specifications for a temporary sludge thickener that enabled the rehabilitation of the gravity thickeners without bypassing the sludge thickening process.

**US Agency for International Development, Wastewater Design and Upgrade Phase I, Alexandria, Egypt:** Mr. Storella conducted field surveys and capacity testing of six large raw wastewater pump stations. He developed the basis of design report, detailing the configuration, the test results and the proposed upgrade requirements for each station. He also completed the preliminary design as part of a design-build package that included redesigning one station. Mr. Storella replaced the mechanically cleaned bar screens and provided other miscellaneous upgrades. He conducted field surveys and capacity testing of another 22 raw wastewater pump stations and wrote a technical memorandum detailing conditions, test results and recommendations for addressing capacity problems.

**Massachusetts Water Resources Authority, Deer Island Boston Harbor Lead Design Overview, Boston, MA:** Mr. Storella designed and drafted plumbing and fire protection systems at the Deer Island Wastewater Treatment Plant as part of the Boston Harbor clean-up project. He wrote conceptual design reports, designed all interior potable and service water systems, designed drainage systems and fire protection standpipe systems, and prepared plumbing and fire protection specifications. He also provided shop drawing reviews, interacted with contractors and conducted field visits for construction services phase.

**Town of Rockport, Vacuum Pumping System Design, MA:** Mr. Storella designed a water pumping station, including a vacuum pumping system drawing water from exterior wells for pumping to the water treatment plant. He provided equipment selection, specification preparation, and system design.

**City of Northampton, Water Treatment Plant Mechanical Design, MA:** As the Lead Mechanical Design Engineer for the water treatment plant, Mr. Storella performed hydraulic calculations, selected equipment, and prepared specifications.

# Don Walker, PE

Project Director

**FIRM**  
AECOM

**FIRM STATUS**  
Full-Time

**EDUCATION**  
MS, Environmental Engineering,  
Northeastern University  
BS, Civil Engineering, Northeastern  
University  
BA, Environmental Studies, Middlebury  
College

**REGISTRATIONS**  
Professional Engineer: NY, CT, PE  
**PROFESSIONAL AFFILIATIONS**  
Water Environment Federation  
New York Water Environment Association

## RELEVANT EXPERIENCE

*Mr. Walker is a vice president in the AECOM's wet-weather practice area. He is experienced in the planning, design, and construction management of wastewater collection systems and treatment plants, specializing in facilities for the control of stormwater and combined sewer overflows.*

## PROJECT EXPERIENCE

**NYC Department of Environmental Protection (DEP), CSO Long Term Control Plan II/III, New York, NY:** Mr. Walker is serving as project director for the development of 11 CSO LTCPs for the waters in and around New York City in accordance with a consent order schedule. Work involves coordinating and providing technical direction to the project teams working on the individual LTCPs, maintaining overall schedule and budget compliance, and supporting the client in coordination on regulatory issues.

**North Hudson Sewerage Authority (NHSA), CSO Alternative Analysis Concept Workshop in Support of Long Term Control Plan, Hoboken, NJ:** Mr. Walker served as the workshop facilitator for a workshop supporting the Evaluation of Alternatives Reports for the Adams Street and River Road systems as required by NHSA's NJPDES Permits. As facilitator, Mr. Walker orchestrated the brainstorming session to identify strategies and alternatives for maximizing wastewater treatment and reducing CSOs.

**NHSA, CSO Feasibility Study, Hoboken, NJ:** Mr. Walker served as technical manager on the development of a CSO feasibility study for the North Hudson Sewerage Authority in New Jersey. Updated and recalibrated an existing collection system model, and used the model to identify and evaluate system-wide alternatives to provide a range of levels of CSO control. Presented outcome of the study in a public meeting.

**NYCDEP, Southeast Queens Flooding Analysis Program, New York, NY:** Mr. Walker served as technical manager on a program to conduct field investigations of conditions that may be contributing to surface flooding in sections of Queens and Brooklyn, NY. Study involved the development of a tablet-based data collection system,

collection and analysis of data, and identification of site-specific concepts for mitigating flooding.

**NYCDEP, CSO Long Term Control Plan II, New York, NY:** Mr. Walker served as CSO team leader for the development of the CSO LTCPs for the Hutchinson River and Bronx River systems in New York City. Work involved coordinating water quality sampling, collection system and receiving water modeling, development and evaluation of alternatives, selection of a preferred alternative, and regulatory coordination.

**Massachusetts Water Resources Authority (MWRA), CSO Post Construction Monitoring and Performance Assessment Services, Boston, MA:** Mr. Walker is serving as technical manager on a project to demonstrate compliance of the projects implemented under MWRA's LTCP with the levels of CSO control identified in the original CSO LTCP. Work includes field inspection of active and closed regulators, developing and implementing an extensive flow monitoring program, updating the collection system model, statistical analysis of receiving water quality data and development/calibration of receiving water models to assess remaining CSO impacts, and preparation of reports.

**MWRA, North System Hydraulic Optimization Study, Boston, MA:** Mr. Walker served as technical manager of an evaluation of SSOs under extreme events in the Massachusetts Water Resources Authority's North Metropolitan Interceptor System. Supervised the development and evaluation of alternatives to mitigate SSOs, and presented findings in a series of workshops with the client.

**NYCDEP, Study to Build Reverse Seepage Basins, New York, NY:** Mr. Walker served as technical manager on a study to evaluate the use of reverse seepage basins as a means of reducing groundwater elevations and mitigating basement flooding in Queens, NY. Work involved development of groundwater contour mapping from well data, identification and evaluation of potential locations for reverse seepage basins, development of conceptual layouts, and evaluation of performance.

**MWRA, North Dorchester Bay CSO Storage Tunnel Design/Construction, Boston, MA:** Mr. Walker served as technical manager focusing on control strategies and hydraulics for the design and construction of a CSO and stormwater storage tunnel for the Massachusetts Water Resources Authority. Oversaw the development of an InfoWorks model of the storage tunnel system and the use of the model to optimize storage tunnel performance. Developed control strategy for optimizing the capture of CSO and stormwater in the tunnel using real-time control of hydraulically operated gates. Coordinated the instrumentation design with the design of the gates and hydraulic control system.

**MWRA, North Dorchester Bay CSO Storage Tunnel Design/Construction, Boston, MA:** Mr. Walker served as technical manager focusing on control strategies and hydraulics for the design and construction of a CSO and stormwater storage tunnel for the Massachusetts Water Resources Authority. Oversaw the development of an InfoWorks model of the storage tunnel system and the use of the model to optimize storage tunnel performance. Developed control strategy for optimizing the capture of CSO and stormwater in the tunnel using real-time control of hydraulically operated gates. Coordinated the instrumentation design with the design of the gates and hydraulic control system.

**Boston Water and Sewer Commission, Improvement Program for the Commission's Models, Boston, MA:** Mr. Walker served as technical manager on a project to update and re-calibrate the BWSC's collection system model. The updated model will then be used to support system optimization and other evaluations of the BWSC's system. Work includes tracking progress of stormwater BMP/GI implementation and associated bacteria and nutrient load reductions.

**San Francisco Public Utilities Commission Sewer System Improvement Plan, San Francisco, CA:** Mr. Walker served as technical manager of project to review and validate the San Francisco Public Utilities Commission's Sewer System Improvement Plan. Work involved reviewing performance of flood mitigation projects, identifying and evaluating alternatives to increase levels of CSO control, assessing the performance and trade-offs of implementing green infrastructure, and integrating collection system projects with condition

**MWRA, Wastewater Hydraulic Optimization Project, Massachusetts Boston, MA:** Mr. Walker served as project manager for the Massachusetts Water Resources Authority's wastewater system optimization project. Supervised the conversion of MWRA's system-wide SWMM Extran model to InfoWorks, and used the model to identify and evaluate projects to optimize system performance under normal operating conditions and under conditions of extreme wet weather events. Alternatives evaluated included controlling CSO facility influent gates based on remote level sensors placed at strategic upstream locations.

**Peabody Flood Mitigation Phase I, Peabody, MA:** Mr. Walker served as project manager on the design of approximately 1,950 linear feet of 4-ft x 10-ft twin box culverts to provide flooding relief for the City of Peabody, MA. Work involved selection of final route, and development of preliminary and final design documents for the twin box culverts.



# Karen Appell, PE

Project Manager

**FIRM**  
AECOM

**FIRM STATUS**  
Full-Time

**EDUCATION**  
Graduate Certificate, Water Resources  
Engineering, Stevens Institute of  
Technology

BS, Agricultural and Biological Engineering,  
Cornell University

**REGISTRATIONS**  
Professional Engineer: NJ, NY

**PROFESSIONAL AFFILIATIONS**  
New Jersey Water Environmental  
Association

## RELEVANT EXPERIENCE

*Ms. Appell is an Associate Vice President and Climate Adaptation Lead for the Water Business Line at AECOM Metro New York. She manages multidisciplinary teams in developing strategic solutions for the planning, design, and construction of complex, multipurpose infrastructure projects, focusing on climate adaptation.*

## PROJECT EXPERIENCE

**NJ Department of Environmental Protection (DEP), Bureau of Climate Resilience Design & Engineering, Climate & Flood Resilience Program, Rebuild By Design – Hudson River Project, Hoboken, Jersey City, & Weehawken, NJ:** A winner of the Rebuild by Design competition in response to Hurricane Sandy in 2012, the Rebuild By Design - Hudson River (RBDH) Project is a comprehensive approach to secure a resilient future for the neighborhoods of Hoboken and parts of Jersey City and Weehawken in Hudson County, New Jersey. As a recipient of \$230 million from the United States Department of Housing and Urban Development (HUD), the New Jersey Department of Environmental Protection contracted AECOM for the final design, bid support, and design services during construction for a multipurpose, FEMA-accredited, flood risk reduction system for a design storm event of a 100-year storm level + 2.34 feet of sea level rise. Ms. Appell serves as the Project Manager, responsible for the fiscal and operational success of the project, as well as client satisfaction. She is responsible for all project planning, invoicing, procurement of subcontractors, contract documents, management of the internal finances, client communication, and oversight of a large, multidisciplinary project team totaling over 300 staff.

**New Jersey Meadowlands Commission (NJMC), Restoration of Drainage Ditch System, Rutherford/ East Rutherford, NJ:** As the project manager, Ms. Appell managed the analysis and design efforts for a regional flood control project for Route 17 and its surrounding areas. Ms. Appell was responsible for overall project coordination of this progressively scheduled, high-profile, politically important project. She also oversaw existing hydrologic and hydraulic (H&H) data review, project specific H&H

modeling (HEC-HMS and HEC-RAS) and results analyses, a wetland delineation, and procurement of multi-agency permits (USACE & NJDEP); NJDEP permit approval process required intense coordination. She supervised design development from preliminary through to full construction bid documents including plans, specifications, quantities, cost estimate, and schedule. Provided technical assistance during the construction contract bidding process.

**NYC Department of Design & Construction (NYCDDC), & NYCDEP, McBaine Avenue Sewer Reconstruction Project, Staten Island, NY:** This capital construction project involves the installation of storm and sanitary sewers and the replacement of distribution water mains. Ms. Appell served as the initial Storm Water Pollution Prevention Plan (SWPPP) inspector and Restoration Specialist, responsible for setting up the inspection program for the erosion and sediment control and environmental permit compliance (USACE, NYSDOS, & NYCDEC) for the overall sewer reconstruction project.

**USACE New York, Hudson Raritan Estuary Feasibility Study, New York Harbor, NY & NJ:** In coordination with e4sciences and The Louis Berger Group, AECOM is leading the effort on the U.S. Army Corps of Engineers New York District's (USACE NYD) Hudson Raritan Estuary Ecosystem Restoration Feasibility Study. The Study involves the assessment of the existing conditions at 33 different proposed restoration sites throughout the estuary using Evaluation of Planned Wetlands (EPW), as well as completing broad-spectrum wetland delineations, habitat mapping, and stream morphology mapping. Ms. Appell served as the Project Manager and now as Technical Advisor.

**USACE New York, Sandy Hook to Barnegat Beach Erosion Control Project, Elberon to Loch Arbou, NJ:** The Final Outfall Design at Loch Arbour to Elberon, NJ under the Sandy Hook to Barnegat Beach Erosion Control Project involves the construction of a beach fill berm to provide storm risk management to multiple municipalities along northern New Jersey Coast from Loch Arbour to Elberon affected by Hurricane Sandy. The project also includes modifications to six existing groins, as well as improvements to eighteen outfalls, including ten outfall

extensions, six pre-formed scour holes, and one retention system. The design analysis includes the development of design criteria, design calculations, structural and coastal analyses, including daily and extreme wave loading and wave forces for cyclic load computation, and hydrologic and hydraulic calculations to support the outfall extension designs. Ms. Appell served as the Project Manager.

**USACE New York, South Shore of Staten Island, New York, Beach Erosion Control and Storm Damage Protection, Phase 2, Staten Island, NY:**

The USACE NYD is conducting a reconnaissance level study to evaluate beach erosion control and coastal storm damage reduction plans for the South Shore of Staten Island. Working with e4sciences, LLC, AECOM evaluated existing and proposed structural and non-structural alternatives for storm damage reduction from Great Kills Harbor to Tottenville Beach and determined whether post Sandy plans are economically feasible. Using HEC-FDA, preparing benefit calculations, a preliminary cost analysis, and Quantitative Preliminary Benefit To Cost Ratios. Preparing the economic analyses portion of the Preliminary Alternative Analysis Report. Ms. Appell is serving as the Project Manager.

**NYCDDC & NYCDEP, Annadale Road Sewer Reconstruction Project, Staten Island, NY:**

AECOM is provided professional support services for a capital construction project involving the installation of storm and sanitary sewers, replacement of distribution water mains, and urban stream restoration. In keeping with the NYCDEP's Staten Island Blue Belt Program, the project involved the implementation of a BMP, or "Best Management Practice," which entailed the restoration of a natural drainage system to convey, store, and filter storm water. This BMP system is connected with conventional storm sewers to promote an integrated storm water management system. Ms. Appell served as the assistant resident engineer and restoration specialist, responsible for erosion and sediment control and environmental permit compliance (USACE, NYSDOS, & NYCDEC) for the overall sewer reconstruction project, as well as detailed construction management for the BMP, entailing approximately 600 feet of restored urban stream and associated floodplain.

**USACE New York District, Green Brook Channel Improvements Flood Damage Reduction Project, Somerset County, NJ:**

Ms. Appell served as the Project Manager. AECOM was contracted to develop and implement post-construction monitoring and adaptive management services for the Project's wetland mitigation site, the Finderne Wetland Mitigation Site, a 180-acre parcel of undeveloped land containing 1,100 linear feet

of stream in Somerset County, New Jersey. The goal of the site monitoring and adaptive management plan is to conduct the appropriate monitoring activities and habitat assessments to document the level of success for the mitigation site and then measure compliance with the New Jersey Department of Environmental Protection permit requirements and Corps of Engineers mitigation policy.

**USACE New York, Green Brook Sub-basin of the Raritan River Basin, Flood Risk Reduction Project, Non-Structural Floodproofing Plan, Green Brook, NJ:**

Ms. Appell served as the project manager for this effort. The USACE-NYD is currently working on the preparation of conceptual designs for flood risk reduction for commercial, industrial, and residential structures within the Greenbrook Sub-Basin of the Raritan River Basin. As a Subconsultant to e4sciences, LLC, AECOM provided an internal technical review of the conceptual designs and estimated construction costs that were created for non-structural measures such as dry floodproofing, raising, and construction of ringwalls. Specific review documents included plan views, elevation/cross-section views, and individual structure flood proofing reports for a total of nineteen (19) structures within the municipality of Green Brook within the 150-year floodplain.

# Greg Heath, PE

Technical Advisor

**FIRM**  
AECOM

**FIRM STATUS**  
Full-Time

**EDUCATION**  
MS, Civil and Environmental Engineering,  
Worcester Polytechnic Institute

BS, Civil Engineering, Worcester  
Polytechnic Institute

**REGISTRATIONS**  
Professional Engineer: NH

**PROFESSIONAL AFFILIATIONS**  
Water Environment Federation  
New England Water Environment  
Association

## RELEVANT EXPERIENCE

*Mr. Heath, a vice president, serves as AECOM's wet weather treatment technology leader and has experience in the planning, detailed design, construction, and operation and maintenance of combined sewer overflow facilities and wastewater treatment facilities. With the firm since 1982, Mr. Heath supports the execution of wet weather storage and treatment projects throughout North America and on key international assignments. He is experienced in all phases of project delivery from planning through detailed design, construction, and commissioning.*

## PROJECT EXPERIENCE

**NHSA, Combined Sewer Overflow Long-Term Control Plan Feasibility Study, Hoboken, NJ:** Mr. Heath was the technical manager for the development of a CSO long-term control plan feasibility study for the North Hudson Sewerage Authority in Hoboken, New Jersey. He directed collection system modeling and the evaluation of a range of CSO and wastewater treatment plant alternatives to reduce combined sewer overflows.

**NHSA, CSO Control Alternative Analysis Concept Workshop, Hoboken, NJ:** Mr. Heath participated in the June 2018 CSO control alternative analysis concept workshop in support of NHSA's long-term CSO control planning program.

**Passaic Valley Sewerage Commission (PVSC), Plant Resiliency and Program Management, Newark, NJ:** Mr. Heath provided technical input and assistance in support of design of a stormwater pumping station to protect the WWTP site from flooding.

**Massachusetts Water Resources Authority (MWRA), Sewer System Master Plan and Combined Sewer Overflow Facilities Plan, Boston, MA:** Mr. Heath managed engineering activities associated with the preparation of a CSO long-term control plan (LTCP) and environmental impact report for the Massachusetts Water Resources Authority. He developed alternatives and recommended combined sewer overflow controls for the program's 26 component projects, which include separating sewers, upgrading existing CSO facilities, improving outfalls,

providing hydraulic relief, establishing regional floatables controls, and constructing CSO consolidation-storage conduits and pumping and treatment facilities. Through implementation of the LTCP MWRA rate payers have saved nearly \$1 Billion as compared to the original plan.

**MWRA, CSO Post Construction Monitoring and Performance Assessment Services, Boston, MA:** Mr. Heath was the technical advisor for assessment of level of CSO control achieved following implementation of the MWRA's long-term CSO control plan. His responsibilities included review of key deliverables documenting how actual post-LTCP implementation performance compares to the level of control anticipated during long-term control planning.

**City of Nashua, Combined Sewer Overflow Long-Term Control Plan, Nashua, NH:** Mr. Heath managed the development of a wet weather and CSO long-term control plan for Nashua, New Hampshire. He directed activities to accurately model and characterize the combined sewer system and to develop innovative, cost-effective CSO controls by maximizing the use of existing infrastructure. He also provided overall support for Nashua's wet weather program will save the city nearly \$200 million as compared to the cost estimated in Nashua's previous CSO long-term control plan.

**NYC Department of Environmental Protection, New York, NY:** Mr. Heath provided technical leadership for the development and evaluation of alternatives for development of 11 area-based and one city-wide CSO long-term control plans. He assisted with evaluations of a full range of CSO control options including inflow control, green infrastructure, system optimization, storage, and various treatment alternatives.

**Combined Sewer Overflow Control Projects, Various Locations:** Mr. Heath was the technical advisor for development of the long-term CSO control plan for Gloucester, Massachusetts; a CSO characterization update report for Elyria, Ohio; a CSO long-term control plan treatment plant evaluation for Lakewood, Ohio; the Washington CSO treatment facility project in Nashville, Tennessee; CSO control projects at the Jamaica

wastewater treatment plant in New York City; and a CSO treatment facility in Cleveland, Ohio.

**Springfield Water and Sewer Commission, Combined Sewer Overflow Planning, Springfield, MA:** Mr. Heath managed the development of a long-term CSO control plan for Springfield. He conducted flow monitoring and oversaw the development of a detailed collection system model to establish baseline conditions and assess CSO control alternatives. He also developed and evaluated alternatives to comply with current CSO policies and regulatory agency requirements and assessed affordability using EPA guidance and methods.

**Delaware County Regional Water Quality Control Authority (DELCORA), Chester, PA:** Mr. Heath served as the task lead for development of tunnel system hydraulics, including: tunnel system peak flows; hydraulic modeling to assess potential for surge / transient phenomena and potential for sediment deposition; ventilation, air handling and odor control; drop shaft design; and development of tunnel system operation and control strategy.

**Honouliuli Sanitary Sewer Overflow Facilities Plan, Honolulu, HI:** Mr. Heath was the technical advisor for the Honouliuli facilities planning project in Honolulu, Hawaii, responsible for technical direction among teams evaluating near-surface, deep tunnel, and wastewater/wet weather treatment alternatives to eliminate sanitary sewer overflows and achieve Consent Decree compliance.

**Allegheny County Sanitary Authority, Overflow Control Facilities Planning, Pittsburgh, PA:** Mr. Heath served on the technical leadership team responsible for coordinating the development of a regional wet weather plan for the Allegheny County Sanitary Authority in Pittsburgh, Pennsylvania. He oversaw the work of seven planning basin consultants, each of which developed a portion of the wet-weather plan.

**San Francisco Public Utilities Commission, Sewer System Improvement Program, San Francisco, CA:** Mr. Heath provided technical input and review in support of development of wet weather treatment processes at the Southeast and North Point wastewater treatment facilities.

**Metropolitan Sewer District of Greater Cincinnati, Wet Weather Control Alternatives, Cincinnati, OH:** Mr. Heath served as technical advisor for wet weather assignments for the Metropolitan Sewer District of Greater Cincinnati in support of the development and evaluation of wet weather control alternatives for the Muddy Creek East Branch

interceptor project and development of enhanced high rate treatment alternatives for the Fairgrounds area.

**Watercare, Wet Weather Treatment Facilities, Auckland, New Zealand:** Mr. Heath was an international expert for the planning and design of wet weather treatment facilities for Watercare in Auckland, New Zealand. He assisted with siting and performance evaluations for wet weather treatment at the main wastewater treatment plant and at satellite locations in the collection system.

**Sanitation District No. 1 of Northern Kentucky, Drainage Basin Study and Sewer System Model Upgrade, Kenton County, KY:** Mr. Heath served as technical advisor for development of watershed plans for Sanitary District No. 1 in Northern Kentucky.

**Combined Sewer Overflow Long-Term Control Plan, Nashville, TN:** Mr. Heath was a technical advisor for development of a CSO long-term control plan for Nashville, Tennessee. He assisted with development of the Nine Minimum Controls report. He also participated in a three-day workshop to develop alternatives to maximize treatment of wet weather flow at the wastewater treatment plant as an alternative to CSO controls in the collection system, and assisted with the evaluation and development of system-wide CSO control alternatives.

**City of Edmonton, Alberta, Canada:** Mr. Heath served as a technical advisor for development of system optimization measures throughout the city's combined sewer system. He assisted with evaluation of collection system model output, identifying optimization measures for evaluation, and development of physical modifications to implement optimization measures

**Greater Augusta Utility District, Augusta, ME:** Mr. Heath provided technical advice and review for development of the Phase 3 CSO long-term control plan. The plan elements include off-line storage, system optimization, and targeted sewer separation.

# Eric Bodnar, PE

Technical Lead

**FIRM**  
AECOM

**FIRM STATUS**  
Full-Time

**EDUCATION**  
BE, Civil Engineering, Stevens Institute of  
Technology

**REGISTRATIONS**  
Professional Engineer: NJ  
NJ Certified Municipal Engineer

## RELEVANT EXPERIENCE

*Mr. Bodnar is a civil engineer with more than 31 years of consulting experience, providing a broad range of services to private and public sector clients. His area of expertise includes all aspects of commercial, industrial and residential site development, including grading, drainage and utility design, hydraulic modeling and storm water management, as well as extensive experience in municipal capital and infrastructure projects, including sanitary sewer pump station improvements, water main and sewer extensions, and public open space improvements.*

## PROJECT EXPERIENCE

**NJDEP, Rebuild By Design – Hudson River, Hoboken/ Jersey City, NJ:** Mr. Bodnar is the design lead for the sewer separation and interior drainage portion of Rebuild-By-Design-Hudson River, a multi-discipline project to provide storm surge and flood protection to the Cities of Hoboken & Jersey City during hurricane or other large storm events. He is the team leader for the design of sewer separation of the existing combined sewer system within the project area, sanitary sewer and utility abandonments, preparation of bid documents and permit support. EOR during construction activities responsible for design modifications to the separated stormwater collection system resulting from unmarked utilities or unforeseen conditions.

**USACE, South Shore Staten Island Coastal Storm Risk Management Project (SSSI CSRM), Staten Island, NY:** Mr. Bodnar is the civil design lead for SSSI CSRM, a multi-phase/multi-disciplining project to provide storm surge and flood protection to the south shore of Staten Island from Fort Wadsworth to Oakwood Beach. He is responsible for design of storm water detention/retention structures, stormwater conveyance and water quality structures along the line of flood protection, preparation of bid documents and permit support.

**BCUA, Digester and Flare Tower Improvements, Little Ferry, NJ:** Mr. Bodnar was responsible for the civil engineering design, site improvement layout and utility relocation design (water, gas, and sanitary sewer)

for new digester gas flare tower and related digester improvements.

**NYSOGS/NYSDEC, Region 8 Conduit Repairs, Elmira/ Corning/Canisteo, NY:** Mr. Bodnar was responsible for the design of repairs and abandonments of levee drainage conduits at 9 sites located in NYSDEC Region 8. Services included design of conduit repairs/abandonments, preparation of bid documents, preparation of cost estimates and permit support.

**USPS, NJI&NDC Facility Pavement Replacement, Jersey City, NJ:** Mr. Bodnar was responsible for the design of repairs and replacement of existing parking lots and circulation roads, drainage improvements, watermain repairs and loading facility upgrades. Services included design of facility site repairs, preparation of bid documents, preparation of cost estimates and construction supervision.

**USPS, Brooklyn PDC Facility Pavement Replacement, Brooklyn, NY:** Mr. Bodnar was responsible for the design of repairs and replacement of existing parking lots and circulation roads, drainage improvements and loading facility upgrades. Services included design of facility site repairs, preparation of bid documents, preparation of cost estimates and construction supervision.

**NYCDEP, Jerome Reservoir and Aqueduct Rehabilitation Project, Bronx, NY:** Mr. Bodnar was the Task Order Manager and Lead Civil Engineer for planning, design, and construction services for the NYCDEP, Bureau of Engineering Design & Construction (BEDC), In-House Design (IHD). Lead civil designer for civil, drainage and site improvement design as well as coordination of structural, environmental/ geotechnical design, and testing services for repair and rehabilitation of 120 year old reservoir.

**NYCDEP, Bowery Bay WRRF Petroleum Bulk Storage/ Chemical Bulk Storage Tank Upgrade Project, Astoria, NY:** Mr. Bodnar was the lead designer for the design of new Sodium Hypochlorite and Ferric Chloride chemical storage and feed systems for the existing wastewater treatment facility. Work also included site drainage improvements and demolition and remediation of existing chemical bulk storage tanks and containment facilities.

# Larry Soucie

## Modeling

### FIRM AECOM

### FIRM STATUS Full-Time

### EDUCATION MS, Environmental Engineering, University of Massachusetts

BS, Environmental Science, University of  
Massachusetts

### REGISTRATIONS Engineer in Training: MA

### CERTIFICATIONS OSHA HAZWOPER 40-Hour Training OSHA HAZWOPER 8-Hour Refresher Training

## RELEVANT EXPERIENCE

*Mr. Soucie is a modeling specialist with extensive experience in collection system modeling using a range of software, including InfoWorks, HydroWorks, Mouse, SWMM, and XPSWMM. He also has experience with the assessment of the impacts of point and nonpoint sources of pollution on receiving waters, surface water and groundwater flow, and transport modeling and programming. Mr. Soucie has participated in all phases of combined sewer overflow modeling, including development, calibration, verification, and application.*

## PROJECT EXPERIENCE

**NHSA, Combined Sewer Overflow Long-Term Control Plan Feasibility Study, Hoboken, NJ:** Mr. Soucie was the lead modeler for the development of a CSO long-term control plan feasibility study for the North Hudson Sewerage Authority in Hoboken, New Jersey. Included collection system modeling and the evaluation of a range of CSO and wastewater treatment plant alternatives to reduce combined sewer overflows.

**Pittsburgh Water and Sewer Authority, Combined Sewer Overflow Long-Term Control Plan Program, Pittsburgh, PA:** Mr. Soucie provided technical assistance and direction for the development of a system-wide model of the collection system.

**Massachusetts Water Resources Authority, Union Park Combined Sewer Overflow Detention and Treatment Facility Design, Permitting, and Construction, Boston, MA:** Mr. Soucie supervised hydraulic modeling of the area tributary to the Union Park pump station using the USEPA SWMM model. He determined peak flow rates and hydraulic grade to support design of storage and treatment of combined sewer overflow at the facility.

**Massachusetts Water Resources Authority, Sewer and Combined Sewer Overflow Master Plan Facilities Plan, Boston, MA:** Mr. Soucie oversaw the hydraulic modeling of the stormwater, combined sewerage, and sanitary collection systems tributary to the Alewife Brook pumping station using the USEPA SWMM model to develop alternatives for eliminating overflows into Alewife Brook.

**Metropolitan Sewer District, Capital Improvements Wet Weather Program Planning, St. Louis, MO:** Mr. Soucie provided technical assistance for converting several developed sub-models to the MOUSE modeling system to determine hydraulic deficiencies and prioritize improvements in the system. He expanded the sub-models, connected them, and recalibrated them using available flow meter data.

**Massachusetts Water Resources Authority, Rivers and Streams - Water Quality Standards Variance Investigations, Metropolitan Boston, MA:** Mr. Soucie was a member of the team developing a detailed system-wide model of the authority's collection system. He used the SWMM RUNOFF/EXTRAN model to include all major hydraulic components, such as pump stations, headworks, CSO regulators, and outfalls in all of the 40 member communities. He also applied the model to develop cost-effective solutions to CSO discharges, resulting in a savings of more than \$900 million, compared to a previous plan based on a simpler model.

**Massachusetts Water Resources Authority, Replacement Pump Station and Interceptors, Braintree and Weymouth, MA:** Mr. Soucie supervised hydraulic modeling and analyses in support of the design of the Braintree-Weymouth relief interceptors. He conducted the hydraulic analyses to determine pipe dimensions and inverts, as well as to evaluate the design in terms of the peak hydraulic grade, minimum velocities, and the location, frequency, and volume of overflows.

**Northeast Ohio Regional Sewer District, Mill Creek Watershed Study and Modeling, Cleveland, OH:** Mr. Soucie developed a detailed collection system model of the Mill Creek watershed/sewershed using SWMM EXTRAN. He incorporated all of the important hydrologic/hydraulic features of the collection system for use in assessing wet-weather control alternatives for combined sewer overflow and separate sewer overflows. He used a single, large-scale detailed model of the entire watershed in continuous simulation mode for calibration and alternative evaluations.

# Helder de Almeida, PE

Hydraulics

**FIRM**  
AECOM

**FIRM STATUS**  
Full-Time

**EDUCATION**  
Diploma, Engineering/Water Resource,  
University of Evora

**REGISTRATIONS**  
Professional Engineer: NY, CA

## RELEVANT EXPERIENCE

*Mr. de Almeida is a water resource engineer with 16 years of experience in open channel and closed conduit hydraulics, hydrology, flood risk assessment, floodplain delineation, and dam break analysis. Mr. de Almeida has working knowledge of typical state and municipal level industrial site permitting, calculation origination or review issued for cost estimation, design, and construction.*

## PROJECT EXPERIENCE

### **New York City Department of Environmental Protection, Combined Sewer Overflow Long Term Control Plans:**

As a core member of the technical team, Mr. de Almeida contributed to conceptualization and implementation of data collection programs, production of technical memoranda, evaluation of CSO reduction alternatives, analyses and reports for multiple waterbodies around New York City supporting long-term CSO control planning. These tasks required working knowledge of the NYC sewer system configuration; interpretation of sewer collection system and receiving water quality model simulation outputs and; cost-benefit analysis of green and grey infrastructure CSO reduction alternatives under future scenarios and various background conditions.

### **Battery Park City Authority, South & North Battery Park City Coastal Resiliency:**

Mr. de Almeida provided coordination of interior drainage evaluations for the combined sewer system and stormwater separated system and conceptualization of interior drainage elements for the projects considering coastal storm conditions, projected sea-level rise and extreme rainfall events.

### **New York City Economic Development Corporation, Lower Manhattan Coastal Resiliency:**

Mr. de Almeida contributed to the development of sewer system network models and integration with coastal hydrodynamics models for flooding impacts evaluation. He provided input and preliminary calculations supporting the conceptualization of drainage solutions for the interior drainage areas associated with proposed coastal flooding protection measures, and contributed to the schematic design development of resiliency driven proposed

combined sewer system modifications. He also provided drainage related analyses of long-term impacts and potential mitigation solutions regarding conceptual feasibility and inputs for cost-benefit assessments of future mitigation measures supporting phasing of resiliency projects along Manhattan's east side.

### **NYS DOT Rt. 347, Design-Build Highway Corridor Improvements:**

Mr. de Almeida conducted analyses supporting permitting and redevelopment design of the highway corridor drainage system, including flooding mitigation and stormwater treatment practices per regulatory framework. He provided design storm hyetographs for various annual return intervals, hydrologic and hydraulics modeling of various drainage system configurations, following NYSDEC SMDM requirements for runoff treatment and release.

### **Sacramento County, CA, Strong and Chicken Ranch Slough Watershed Alternative Analysis:**

Mr. de Almeida conducted hydraulics modeling analyses, floodplain delineation and coincident-frequency analyses for various flood risk mitigation solutions for the interior drainage area.

### **Saudi Arabian Mining Company, Ma'aden Industrial City:**

Mr. de Almeida provided stormwater drainage system analysis supporting design of the aluminum smelter, refinery, and overall system-wide interceptor channels.

### **Oceanico Developments Group, Amendoeira Golf Resort:**

Mr. de Almeida designed the project flood mitigation measures as part of river restoration plans and environmental impact evaluation reports. He also advised on civil infrastructure, irrigation, and landscaping teams for flooding-related aspects relevant to their tasks.

# Nicholas DeGraaff, PE, CFM

Cost Estimating

**FIRM**  
AECOM

**FIRM STATUS**  
Full-Time

**EDUCATION**  
MS, Civil Engineering  
BS, Civil Engineering

**REGISTRATIONS**  
Professional Engineer: NJ  
Certified Flood Plain Manager

## RELEVANT EXPERIENCE

*Mr. De Graaff has 14 years of experience in project cost estimating including developing multiple MCACES MII cost estimates for USACE projects including earthen levees, floodwalls, floodgates, drainage structures, pumping stations, , navigable sector gates, associated building structures, temporary and permanent sheetpile structures, berms, cutoff walls, bridge raisings, and dams. In addition to being a Cost Engineer, he is a CFM who performs flood damage reduction analyses, hydrology and hydraulic modeling and mapping, and storm water management design, giving him a deeper understanding of the design and construction techniques for the cost of the structures is estimating.*

## PROJECT EXPERIENCE

**USACE New York District, Passaic Tidal General Reevaluation Report, Lower Passaic River, NJ:** Mr. De Graaff was the Cost Engineer responsible for developing the feasibility level quantity and cost estimate in the MII format. Design consists of eight (8) closure gate segments in addition to several tie-off segments in highly congested urban areas. He developed a Crystal Ball Analysis for project Risk and Schedule Analysis for recommended contingencies. The anticipated construction cost is approximately \$60M. This project is currently at USACEHQ for final approval and is expected to proceed immediately to Preconstruction Engineering and Design (PED).

**USACE New York District, Green Brook Flood Risk Management Project, 902 Cap Analysis, Green Brook, NJ:** Mr. De Graaff was the Cost Engineer that developed the updated feasibility quantity estimate for the 902 Cap Analysis of remainder of construction for the \$1.4B Green Brook FRMP elements. The \$1B of construction remaining includes approximately 78,000 LF of floodwalls and levees, 21 bridge raisings, 8 closure structures, 166 floodproofed buildings, 16 pump stations, and 2 flood control dams. He provided cost estimating review oversight and recommendations of the MII estimate, and participated in the Cost and Schedule Risk Analysis (CSRA) to establish the recommended contingencies.

### **USACE New York District, Coastal Flood Risk Management Project, South Shore Staten Island, NY:**

Mr. De Graaff was the Cost Engineer responsible for developing the quantity estimates and aiding in the layout and QC of various alternatives for this \$600M coastal FRMP. The total project includes approximately 23,000 LF of coastal flood risk management features including a buried seawall, levee tie-offs, floodwall, interior drainage features, and beach access.

### **USACE New York District, Green Brook Flood Risk Management Project, Segment C1, Green Brook, NJ:**

Mr. De Graaff was the Cost Engineer responsible for the quantity estimation and aided in the layout and cost estimate quality review and providing recommendations for the MII Cost Estimate for this unique hydraulic structure. The project includes the construction of a 45-foot wide bridge/culvert to be constructed adjacent to a railroad embankment and installed, via guide rails, in one weekend in order to limit impacts to the high frequency commuter railroad tracks. Total approximate construction cost \$9.1M.

### **USACE New York District, New York District, South River Hurricane Sandy Reevaluation Report, Monmouth County, NJ:**

Mr. De Graaff was the Cost Engineer that developed the project quantities and MII Estimate for the levee, floodwall, 100-foot sector gate across the South River, and a 1,600 cfs pump station. The total anticipated construction cost was approximately \$250M. He was also responsible for developing the levee height analysis and sea level rise calculations, and updated previous designs for the levee and floodwall heights as well as interior drainage design using HEC-HMS and Unsteady HEC-RAS model.



# Eric Olsen

Urban Design

**FIRM**  
AECOM

**FIRM STATUS**  
Full-Time

**EDUCATION**  
MA, Architecture, University of Minnesota,  
College of Design

BA, Environmental Design, University of  
Minnesota, College of Design

**REGISTRATIONS**  
SITES AP

## RELEVANT EXPERIENCE

*Mr. Olsen is a Project/Resilience Lead and Landscape Designer with 9 years of professional experience in landscape architecture, urban design, and community engagement. His professional experience encompasses a wide array of projects spanning many scales and regions, highlighted by a focus on work in the public sector. He has worked on a variety of high-profile projects in the United States and abroad, including public waterfronts, downtown parks, streetscapes, urban plazas, institutional and corporate campuses, and coastal resiliency adaptation. A highlight of Mr. Olsen's work is a devotion to long-term, sustainable futures in urban areas with a focus on creating spaces for people. He has served in both design leadership and project management capacities as a part of large multidisciplinary teams, overseeing projects from conceptual design through construction documentation.*

## PROJECT EXPERIENCE

### **NJ DEP, Rebuild by Design Hudson River, Hoboken, NJ:**

A winner of the Rebuild by Design competition in response to Hurricane Sandy in 2013, the Rebuild by Design Hudson River project is a comprehensive approach to securing a resilient future for the neighborhood of Hoboken and parts of Jersey City and Weehawken in New Jersey. Mr. Olsen serves as Landscape Architecture & Urban Design lead for the project. He also developed and directed the engagement process as the Community Engagement lead on the project which was recognized by the American Planning Association New Jersey chapter and awarded their Outstanding Community Engagement Award in 2019.

### **NJ DEP, Rebuild by Design Meadowlands, Bergen County, NJ:**

AECOM is providing project design and coordination of large scale green infrastructure and open space features that comprise the Rebuild by Design Meadowlands Build plan. Performative open space features are located strategically through the project area to reduce inland and frequent flooding and provide social and recreational benefits. AECOM is leading the project through the Feasibility Studies, Preliminary Design, and Construction Documents, including a Green Infrastructure Strategic Plan. The project improves regional resilience

across a spectrum of flood related-risks while providing new civic amenities and opportunities for ecological enhancements and seeks to integrate resiliency measures with coastal ecology and public realm amenities. Hogan and the AECOM team are developing strategies to enhance existing built and natural systems, implement new green infrastructure and public-realm improvements, and plan and design new public open spaces and improved recreational access for the Meadowlands. Mr. Olsen serves as Landscape Architecture & Urban Design lead for the project.

### **Battery Park City Authority, North Battery Park City Resiliency, New York, NY:**

As a critical component of the resiliency plan for the Battery Park City and Lower Manhattan area, the North Battery Park City Resiliency project aims to complete the second of three segments in a coastal resiliency focused landscape infrastructure project. A redesign of the north esplanade will incorporate ecological infrastructure systems at the water's edge aimed at improving the ecological diversity of the area while simultaneously creating new waterfront experiences for residents and nearby schools. A multi-use flood risk reduction system features passive and deployable elements that are seamlessly integrated into the landscape to complement and enhance the existing urban context. Mr. Olsen serves as a resilient design leader and technical advisor for the project and has assisted in the development of community engagement materials and strategies

### **Riverfront Park, Newark Region, NJ:**

Mr. Olsen served as the Project Lead. The concept for the Riverfront Park is to create a public destination for the East Newark community grounded in two fundamental objectives: social and environmental performance. Together these ideas inspire a series of public spaces bound within an engaging waterfront setting informed by both natural and urban ecologies. Sustainable features, materials, and methods of construction will be incorporated into the park through rain gardens, bioswales, tree filter boxes, rainwater cisterns, porous pavement, vegetated filters, and a new ecological tidal basin. A comprehensive stormwater management system will consist of a tiered set of green infrastructure components that allow for infiltration, collection, storage, and discharge of clean waters back into the tidal basin.

# Bhavin Gandhi, PE, PMP, CFM

Green Infrastructure

**FIRM**  
AECOM

**FIRM STATUS**  
Full-Time

**EDUCATION**  
MS, Civil & Environmental Engineering  
BE, Civil Engineering

**REGISTRATIONS**  
Professional Engineer: NY, NJ  
Project Management Professional  
Certified Floodplain Manager

**PROFESSIONAL AFFILIATIONS**  
XXX

## RELEVANT EXPERIENCE

*Mr. Gandhi has a background in water resources engineering with an emphasis on riverine hydrology and hydraulic analyses studies. He has extensive experience in the detailed hydrologic and hydraulic analyses, production of Digital Flood Insurance Rate Maps (DFIRM), floodplain mapping, flood risk reduction project design, dam break studies, stormwater management, land development and National Flood Insurance Program (NFIP) compliance. In addition to his modeling background, Mr. Gandhi's work has spanned across all project phases, including the formulation and implementation of design feasibility studies, oversight of complex hydraulic and hydrologic modeling, conceptual, preliminary, and final design, and bidding and construction management.*

## PROJECT EXPERIENCE

**NJDEP, Rebuild by Design Meadowlands, Liberty Street & East Riser Ditch Stormwater Drainage Pump Stations, Various Locations, NJ:** Two stormwater drainage pump stations were proposed for NJDEP's Rebuild by Design Meadowlands project on existing developed properties. Mr. Gandhi is serving as the stormwater mitigation design lead for the project and responsible for the stormwater treatment & conveyance design with acceptable NJDEP Green Infrastructure BMPs and Non Green Infrastructure water quality treatments. The project involves design of a bio retention basin and two sand filters for treatment of stormwater runoff from onsite & offsite areas.

**Port Authority of NY & NJ, Investigation of Green Infrastructure Stormwater Management Solutions at the Holland and Lincoln Tunnels, Jersey City & Weehawken, NJ:** Mr. Gandhi is the task lead for stormwater and green infrastructure design development for the Green Infrastructure and sustainability initiative at two Port Authority parking facilities in north jersey. He is responsible for review of existing stormwater infrastructure, hydrologic and hydraulic conditions, development of design alternative to meet current and future stormwater conveyance/storage/water quality requirements based on NJDEP, Port Authority of NY & NJ and NYC climate resiliency guidelines.

**USACE New York District, Port Monmouth Flood Damage Reduction Project, Port Monmouth, NJ:** The Port Monmouth Flood Damage Reduction Project includes 5000 ft. of Levee, 2500 ft. of floodwalls multiple flood closure gates & a tide gage to protect Port Monmouth vicinity in Middletown, NJ. AECOM as a part of e4science JV sub is preparing the NJDEP Wetlands, CZM and Stormwater compliance construction permits for all five individual project contracts. As part of the project work AECOM has designed preliminary wetland mitigation design, ground water budget analysis, Stormwater compliance reports and detailed wetland permit documentation. Mr. Gandhi is serving as Project Manager and Lead Engineer for the project.

**USACE New York, South Shore Staten Island Storm Damage Reduction Project, Staten Island, NY:** The SSSI Coastal Storm Risk Management Project in Richmond County, NY will provide critical coastal storm risk management to the highly vulnerable communities of Staten Island. The project alignment spans 5.3 miles along the Raritan Bay from Fort Wadsworth to Oakwood Beach. The alignment consists 3,400 ft of earthen levee, 1,800 ft of floodwall, and 22,700 ft of buried seawall/armored levee. These structures are supplemented by the mosaic of habitat/tidal wetland mitigation features and by interior drainage improvements including excavated ponds in three drainage areas, road raisings, new tide gates and other gate chambers/culvert structures. Mr. Gandhi is serving as one of Lead Civil Design Engineer for the Levee & Floodwall Segments, utility relocations and wetland water budget analysis for other segments, as well as QA/QC of the various project segments.

**NYCDEP, Dam Hazard Assessment for Class B Dams East of Hudson Watershed, NY:** The project includes field inspection of each dam, detailed hydrologic and hydraulic modeling including dam break study and inundation mapping, stability analyses and review of historic data for each dam. The project also includes NYSDEC applications support and possible mitigation solutions alternative recommendation based on analyses results. Mr. Gandhi is serving on a project as project manager / senior water resource engineer.

# Regina LaCaruba

## Permitting

**FIRM**  
AECOM

**FIRM STATUS**  
Full-Time

**EDUCATION**  
BS, Environmental Science, Moravian  
College

MA, Environmental Science / Management,  
Montclair State University

**CERTIFICATIONS**  
40-hours Health and Safety Training (OSHA)

## RELEVANT EXPERIENCE

*Ms. LaCaruba is an environmental scientist professional with 17 years of experience in environmental consulting, ecological damage assessment, NRDA environmental response research, ecological restoration planning, flood resiliency, and land use and transportation planning. Ms. LaCaruba possesses direct project experience in authoring and preparing technical reports, EA/EISs, proposals, conducting feasibility studies, baseline data collection, and public outreach efforts. She is also regulatory permitting specialist, and as such has experience coordinating with multiple Federal/State agencies (including but not limited to USACOE, FHWA, USFW, NYS SEQRA), with Federal NEPA compliance and its State affiliates, and the regulatory and permitting processes of several states, including policies such as: storm water management, NJDEP Flood Hazard Area, Freshwater Wetlands and Coastal Zone Management Regulations.*

## PROJECT EXPERIENCE

### **NYPA, Harriman State Park Repair and Maintenance of Five Palisades Region Dams, NYS OPRHP, Various Locations, NY:**

Ms. LaCaruba is supporting NYPA as the permitting lead on the AECOM team providing program management services related to the design and construction for rehabilitation of multiple dams throughout New York including Erieville, Jamesville, Kingsley Brook, Madison and Court Street dams. Services included identification of environmental constraints and natural resources in the vicinity of the dams, preliminary identification of permit requirements, and preparation of a program wide agency coordination plan. For the Court Street Dam, services also include permitting support for sediment removal from the dam.

### **NYSOPRHP, Harriman and Olana Dam Rehabilitations, Orange, Rockland and Dutchess Counties, NY:**

Ms. LaCaruba was the permitting specialist lead, responsible for agency coordination and obtaining NYSDEC permits for the rehabilitation of six dams in Harriman State Park and the Olana Dam at the Olana State Historic Site. In addition to state agency coordination, coordination with the USACE was conducted to confirm that project specific federal

permits were not required. State protected species were present near the Harriman State Park dams, necessitating coordination with NYSDEC Division of Fish, Wildlife and Marine Resources. Compliance with visual elements of the historic nature of the Olana Dam was key to obtaining agency approval for that project.

### **NJ DEP, Climate & Flood Resilience Program, Rebuild By Design – Hudson River Project, Hoboken, Jersey City, & Weehawken, NJ:**

Ms. LaCaruba provided EIS document authoring and support, as well as the lead on environmental permitting efforts. She was responsible for identification and/or obtaining all required permits/approvals necessary to construct a federally funded coastal storm risk reduction project along the Hudson River. Project required NJDEP Coastal and FHA permits, Tidelands license/grant; FEMA approvals, and numerous local approvals, including stormwater, SESC, NJPDES (dewatering), etc. She also maintained permit tracking log, coordinated with federal, state and local regulators. Ms. LaCaruba is also working on the project management side of RBDH, responsible for document controls, QA/QC, providing printed plan sets to Client, and additional construction applications, in addition to project permitting.

### **NJ DEP, Rebuild by Design – Meadowlands, NJ:**

Ms. LaCaruba was responsible for identification and/or obtaining all required permits/approvals necessary to construct a federally funded coastal storm risk reduction project in the NJ Meadowlands within the Hackensack River floodplain. Project requires NJDEP Coastal and FHA permits, USACE CWA Permits, Tidelands license/grant; NJ Department of Community Affairs, NJ SEA, and numerous local approvals, including stormwater, SESC, NJPDES (dewatering), etc. Ms. LaCaruba also worked with the public outreach team for a disaster recovery and community rebuilding plan. Outreach efforts include a Citizens Advisory Group, public events such as workshops and charrettes, press releases, and informational graphics and publications.

# Claudia Semprun

## Project Controls

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**FIRM**  
AECOM

**FIRM STATUS**  
Full-Time

**EDUCATION**  
BSc, Industrial Engineering, Universidad del  
Zulia, Venezuela

**CERTIFICATIONS**  
Primavera P6 Certified

## RELEVANT EXPERIENCE

*Ms. Semprun is a Program/Project Controls Manager at AECOM, New York Metro with more than 12 years of experience in Program Management, Project Controls and Subconsultant Management for water projects.*

## PROJECT EXPERIENCE

**NYC Department of Environmental Protection (DEP), Wastewater Resiliency Upgrade - Program and Construction Management, New York, NY:** Ms. Semprun is the Project Controls and Subconsultant Manager on the program management office team for AECOM's \$51M program. She is responsible for day-to-day program/project controls tracking, contract management, planning, financial dashboards, change orders, staffing plan, monthly progress reports, forecast, subconsultant management, invoices, and scheduling controls.

**NYCDEP, Tallman Island Wastewater Resource Recovery Facility, New York, NY:** Ms. Semprun was the project assistant responsible for analyzing and monitoring financial and operational performance, and preparing weekly/monthly financial reports and variance analyses (actuals versus budgeted/forecasted); managing subcontractor work authorizations, certificates of insurance, invoices, and payments; management and maintenance of all control logs (shop drawings, change orders, requests for information, requests for clarification, design modifications and clarifications); maintaining FTP site for history of the deliverables; performing financial analysis and key reports; preparing quality assurance/quality control final invoice and ensuring compliance with client's requirements; and updating the estimate at completion for the monthly report.

**NYCDEP, Environmental Health & Safety Compliance Program, New York, NY:** As the deputy project manager, Ms. Semprun was responsible for assisting in day-to-day financial management and analysis; assisting with assembling cost budget for project pricing; ensuring subcontractor invoices were processed in a timely manner; assisting with preparation of monthly reports; assisting project manager in the development and monitoring of

a project schedule; assisting in junior quality assurance for client deliverables; attending project review meetings to document action items; preparing invoices, reports, memos, letters, client calendar, financial statements, and other documents using word processing, spreadsheet, database, and/or presentation software; and arranging meetings and conference calls, scheduling ongoing meetings with clients, and preparing meeting materials.

**NYCDEP, Facilities Integrated SCADA System, New York, NY:** Ms. Semprun was a database specialist responsible for entering data in the Document Management Information System (DMIS) to ensure project documents were available to the client, contractors, and stakeholders; monitoring, planning, and reporting internal staffing resources, in accordance with the project budget and work breakdown structure; assisting project manager in preparation of monthly invoices.

# Appendix B: Engineer's Budget Worksheet

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Task	Role	Person	Hours	Average Rate	Cost
<b>Task 1. Project Kick-off</b>	Project Director	Don Walker	3	\$ 259.91	\$ 779.74
	Project Manager	Karen Appell	6	\$ 253.18	\$ 1,519.09
	Technical Advisor	Greg Heath	2	\$ 288.49	\$ 576.98
	Technical Lead	Eric Bodnar	5	\$ 184.09	\$ 920.47
<b>Total Task 1</b>			<b>16</b>		<b>\$ 3,796.28</b>
<b>Task 2. Develop Conceptual Improvements</b>	Project Director	Don Walker	72	\$ 266.84	\$ 19,212.82
	Project Manager	Karen Appell	57	\$ 257.80	\$ 14,694.62
	Technical Advisor	Greg Heath	30	\$ 295.03	\$ 8,850.88
	Technical Lead	Eric Bodnar	141	\$ 188.06	\$ 26,516.86
	Modeling	Larry Soucie	218	\$ 181.37	\$ 39,537.73
	Hydraulics	Helder de Almeida	138	\$ 197.06	\$ 27,194.30
<b>Total Task 2</b>			<b>656</b>		<b>\$ 136,007.20</b>
<b>Task 3. Propose Alternatives</b>	Project Director	Don Walker	4	\$ 270.31	\$ 1,081.24
	Project Manager	Karen Appell	2	\$ 263.31	\$ 526.62
	Technical Advisor	Greg Heath	2	\$ 300.03	\$ 600.06
	Technical Lead	Eric Bodnar	6	\$ 191.46	\$ 1,148.74
	Modeling	Larry Soucie	8	\$ 182.75	\$ 1,462.02
	Hydraulics	Helder de Almeida	4	\$ 201.10	\$ 804.38
<b>Total Task 3</b>			<b>26</b>		<b>\$ 5,623.06</b>
<b>Task 4. Technical Memorandum</b>	Project Director	Don Walker	12	\$ 270.31	\$ 3,243.72
	Project Manager	Karen Appell	10	\$ 263.31	\$ 2,633.08
	Technical Advisor	Greg Heath	6	\$ 300.03	\$ 1,800.18
	Technical Lead	Eric Bodnar	36	\$ 191.46	\$ 6,892.47
	Modeling	Larry Soucie	6	\$ 182.75	\$ 1,096.51
	Hydraulics	Helder de Almeida	48	\$ 201.10	\$ 9,652.58
	Cost Estimating	Nicholas DeGraaff	8	\$ 128.74	\$ 1,029.94
	Urban Design	Eric Olsen	4	\$ 116.88	\$ 467.53
	Green Infrastructure	Bhavin Gandhi	4	\$ 195.54	\$ 782.14
	Permitting	Regina LaCaruba	4	\$ 125.49	\$ 501.97
<b>Total Task 4</b>			<b>138</b>		<b>\$ 28,100.13</b>

<b>Task</b>	<b>Role</b>	<b>Person</b>	<b>Hours</b>	<b>Average Rate</b>	<b>Cost</b>
<b>Task 5. Project Management and Controls</b>	Project Manager	Karen Appell	36	\$ 258.80	\$ 9,317.06
	Projet Controls	Claudia Semprun	44	\$ 162.37	\$ 7,144.59
<b>Total Task 5</b>			<b>80</b>		<b>\$ 16,461.65</b>
<b>Allowances</b>					<b>\$ 65,000.00</b>
<b>Expenses - Flow Metering</b>					<b>\$ 40,610 .00</b>
<b>ODCs</b>					<b>\$ 500.00</b>
<b>Grand Total</b>			<b>916</b>		<b>\$ 296,098.31</b>