

**RESOLUTION DIRECTING WORK TO KLEINFELDER FOR THE  
COLLECTION SYSTEM IMPROVEMENTS - CONTRACT 1 PROJECT**

**MOTIONED BY:** Assadourian

**SECONDED BY:** Velazquez

**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**, Kleinfelder has been selected under resolution 22-127 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**, Kleinfelder has submitted a proposal (Exhibit "A") to provide Engineering Services During Construction for the Collection System Improvements - Contract 1 Project; and

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

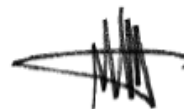
**NOW THEREFORE, BE IT RESOLVED** that the Authority, as recommended by the Facilities Review Board, directs Kleinfelder to provide professional engineering services during construction for the Construction for the Collection System Improvements - Contract 1 Project not to exceed \$136,425.00.

**DATED: FEBRUARY 16, 2023**

**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 FEBRUARY 16, 2023.**




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**SECRETARY**



February 8, 2023

Mr. Frederic J. Pocci, PE  
[fpocci@nhudsonsa.com](mailto:fpocci@nhudsonsa.com)  
Authority Engineer  
North Hudson Sewerage Authority  
1600 Adams Street  
Hoboken, NJ 07030

**SUBJECT: Request for Proposal: Collection System Improvements Contract 1  
Engineering Services During Construction**

Mr. Pocci:

In response to your Request for Proposal (RFP), Kleinfelder is pleased to present our proposal for engineering services during construction for the above-referenced collection system rehabilitation project.

*Kleinfelder routinely completes sewer system evaluation, rehabilitation, and replacement projects for communities faced with similar challenges as the Authority with aging pipes, wet-weather and capacity issues and Combined Sewer Overflows (CSOs). Over the past 10+ years, Kleinfelder has led a sewer rehabilitation program for the City of Pittsfield, Massachusetts that included a multi-phase, multi-year sewer system rehabilitation program focused on both inflow and infiltration removal. Through our work we have provided complete design and construction phase services for the rehabilitation of over 50,000 feet of pipe in that time resulting in a reduction of peak flows at the plant by over 20%. Additionally, We have performed design and construction phase services for each year of the four-year Inflow and Infiltration (I&I) Source Reduction program for Lehigh County Authority in Allentown, Pennsylvania; which has included over 60,000 feet of pipe rehabilitation with actions such as heavy cleaning, full length CIPP, sectional CIPP and joint testing and grouting.*

### **PROJECT UNDERSTANDING**

The North Hudson Sewerage Authority (NHSA) will be rehabilitating approximately 4,900 linear feet of combined sewers, manholes, and service connections in the City of Union City, New Jersey. The scope of the work will include but not be limited to the use of both trenchless technology such as cured-in-place lining and conventional open-cut techniques. Open-cut replacement work includes pipe and service connection repair.

The NHSA Services During Construction Engineer (Engineer) will administer the services during construction for a General Contractor to construct the work in the construction documents as prepared by the Design Engineer (Mott MacDonald).

The Design Engineers construction cost estimate for the project is \$1,500,000, and the anticipated construction duration of the project is 90 calendar days. Field construction work is anticipated to take 60-70 calendar days. The project is being funded by the NHSA. Bids for the construction of the project are being received on January 24, 2023.



## **RESPONSE TO REQUEST FOR PROPOSAL**

### **A. Scope of Services**

#### **Construction Phase Services**

*The construction phase services are as important as all the prior phases. Our philosophy is to provide all relevant information to successfully bid a project. When you provide an adequate level of detail, it eliminates uncertainty, which in turn minimizes risk during construction. Our resident engineers and construction administrators observe the contractor's activities for conformance with the intent of the contract documents. We keep records of quality control and construction progress, constantly tracking budgets and schedules. Our team understands that timely responses to requests for information and shop drawings help lead to a project free of changes and delays.*

#### **Task 1 – Contract Execution and Pre-Construction Meeting**

- 1.1 Prepare and distribute all necessary paperwork required for execution of the Contract between the Contractor and the Authority. Provide three (3) paper copies of the Contract for execution.
- 1.2 Schedule and conduct a pre-construction conference with the Authority, Contractor, town officials, and other key stakeholders. ***We have assumed that the meeting will be held in-person at the Authority's office in Hoboken.***
- 1.3 Prepare minutes of the pre-construction conference and distribute same.
- 1.4 Prepare and issue a Notice to Proceed to the Contractor.

#### **Task 2 – Resident Engineering/Inspection**

*The Resident Engineer serves as the Owner's point of contact for field construction related matters; and is expected to maintain constant communication with our Project Manager as well as the Owner's representatives in the field. The Resident Engineer will advise, report and document on quality and conformance and will maintain orderly files and records at the job site of all construction related information, progress, and quality observations.*

The Engineer will provide a Full Time Resident Engineer and Inspector to perform the services described below. ***We have included 560 hours for the Resident Engineer to cover the anticipated 10 weeks of field construction, with added time for field reconnaissance to be performed prior to work commencing and added time for final inspection and closeout activities after the work has been completed.***

- 2.1 Observe the on-site construction work when the Contractor's field activities are in progress to ensure that the work is being completed in accordance with the Contract Documents. This includes, but is not limited to, the removal of excavated materials, installation of support of excavation systems, construction dewatering and groundwater



treatment and disposal operations, concrete placement, precast structure placement, conveyance pipe installation, and valve installation.

- 2.2 Coordinate with the Contractor and Union City regarding street closures and maintenance of traffic control and pedestrian flow.
- 2.3 Maintain project records, diaries, daily inspection reports/pictures and documents.
- 2.4 Conduct inspections of the work and develop punch lists.
- 2.5 Witness and record the results of all functional and performance tests.
- 2.6 Respond to public complaints, including contacting complainants, determining solutions; prepare letters, etc. in accordance with the Authority's policies, which requires timely action by the Engineer.

### **Task 3 – Authority's Agent During Construction**

The Engineer will perform the following:

- 3.1 Aid the NHSA's General Contractor to obtain construction permits from Union City.
- 3.2 Act as Authority's Agent with regard to the Contractor's compliance with the contract documents.

### **Task 4 – Construction Administration**

*Contract administration services will include observing the construction and advising the Authority as to the progress and quality of the work being performed by the contractor, reviewing and acting upon various submittals; issuing instructions and clarifications to the contractor; preparing and reviewing change orders; reviewing quantities for payment requisitions; and reviewing work including the necessary documentation for substantial completion and final acceptance of the work.*

The Engineer will provide administration of the Contract and represent the Authority in observing the Contractor's compliance with the Contract Documents. The Engineer will perform the following:

- 4.1 Review the Contractor's Health and Safety plan.
- 4.2 Coordinate with the various utility companies.
- 4.3 Meet with the Contractor's representatives and the Authority to assist in implementing the construction progress. Engineer will act as initial interpreter of the requirements of the Contract Documents and judge the acceptability of the work and make decisions on all claims of the Authority and Contractor relating to the acceptability of the work or the



interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the work.

Conduct every other week progress meetings with the Contractor to review and record the progress of the work, and to resolve any problems with the project. Conduct additional meetings as necessary to resolve conflicts or specific problems. Our Project Manager will chair all meetings and submit minutes of meetings to all attendees. **We have assumed participation in six (6) virtual meetings.**

- 4.4 Review, certify and process the Contractor's payment requests on a monthly basis. Prepare a payment application cover letter, engineer's summary payment certificate, Authority payment voucher and submit with recommendations and supporting documentation to the Authority for processing. **We have assumed review and certification of three (3) payment requests.**
- 4.5 Submit a monthly progress report prepared in accordance with the Authority's format outlining all pertinent activities during the month, including but not limited to work performed, milestones, problems, pending change orders and claims, and time delays. The monthly progress report will contain a financial summary of the Construction contract as well as a financial summary of the Engineer's contract with the Authority. Submit the monthly progress report to the Authority one week prior to the Board meeting. **We have assumed preparation of three (3) monthly progress reports.**
- 4.6 Be present at the Authority's Facility Service Committee meetings on an as-needed basis to discuss problems with the project, present construction change orders and answer questions from the Authority on the project.
- 4.7 Provide Construction Management supervision and control of the resident inspection team to ensure quality control and assist with all problems.
- 4.8 Provide technical interpretations of the Contract Documents and evaluate requested deviations from the approved design or specifications per the Division of Work responsibilities for the Engineer and Design Engineer.
- 4.9 Maintain project records, diaries, and documents.
- 4.10 Respond to all Contractor Requests for Information (RFI's) and provide written responses to the Contractor.
- 4.11 Provide technical review of shop drawings, diagrams, illustrations, catalog data, schedules and samples, the results of tests and inspections, and other data which the Contractor is required to submit. Submitted material will be reviewed for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents.

Such review is not intended as an approval of the submittals if they deviate from the Contract Documents or contain errors, omissions, and inconsistencies, nor is it intended to relieve the Contractor of his full responsibility for Contract performance, nor is the



review intended to ensure or guarantee lack of inconsistencies, errors, and/or omissions between the submittals and the Contract requirements.

Shop drawing and RFI work will be performed with the assistance of the Design Engineer utilizing the Allowance item detailed in Section 3 below.

The Design Engineer shall review shop drawings for Technical Specifications Division 2, and 3.

- 4.12 Prepare and administer all necessary Field Orders.
- 4.13 Prepare and administer all necessary Work Change Directives.
- 4.14 Assist in negotiating, with the Contractor, the scope and cost of a reasonable and customary number of change orders. Prepare such change orders as may be required and submit them to the Authority for approval. Following approval by the Authority and the Contractor, administer same with the Contractor. Submit all change orders to the NJDEP Municipal Finance and Construction Element for their review and approval.
- 4.15 Administer all allowance items in the Contract.
- 4.16 Meet with representatives of the Authority and appropriate regulatory agencies when requested and necessary for consultation or conferences regarding construction of the project.
- 4.17 Recommend the acceptability of the work and issue a Certificate of Substantial Completion along with a punch-list upon the Contractor achieving the project milestones.
- 4.18 Prepare routine letters, memorandum, reports, change orders and miscellaneous paperwork as directed by the Authority for signature by the Authority.
- 4.19 Respond to public complaints, including contacting complainants, determining solutions, prepare letters, etc. in accordance with the Authority's policies and procedures, which requires timely action by the Engineer.
- 4.20 Make a final review of the construction to determine if the Work has been completed in conformance with the intent of the Contract Documents. Facilitate a final inspection of the Work by the Contractor, Authority, NJDEP and other appropriate regulatory agencies so they may make the final observation of the construction.
- 4.21 Review As-built drawings provided by the Contractor of changes to the work.  
  
Prepare a final set of record drawings in electronic format based on Contractor's As-built drawings.
- 4.22 Provide appropriate technical assistance during start-up, functional testing, and performance testing. Verify operation of individual valves, common equipment and individual systems and subsystems.



- 4.23 Facilitate training of the Authority's Operations Firm by the equipment manufacturer's representatives. Provide training to the Authority's Operations Firm on the operation of the entire facility as a system. **Based on the nature of the work, we have assumed that training will not be required, and we have not included any time for this task.**
- 4.24 Prepare a project-specific Operations and Maintenance (O&M) Manual to include an overall process operational description, ancillary system operational descriptions, and individual maintenance needs. **Based on the nature of the work, we have assumed that O&M Manuals will not be required, and we have not included any time for this task**
- 4.25 Assist in negotiating final payment for construction and submit a final letter report upon which final settlement and termination of the Construction Contract can be based. Document proceedings of all final settlement negotiations and record basis for final payment.
- 4.26 Prior to recommending release of Final Payment, ensure the Contractor has furnished all administrative items required by the Contract Documents, and verify there are no outstanding liens, or claims.
- 4.27 Prepare and submit all required close-out documentation required for each permit which has been, or will be, necessary for the project. These include but are not limited to; local construction permits.
- 4.28 Engineer will provide the Authority with a complete electronic file in PDF format of all documents that they prepared on behalf of the Authority that is included in this RFP. **Note we will also provide CAD-related files in AutoCAD format for the Record Drawings.**

### **Design Engineer Professional Services**

#### **Task 5 – Design Engineer Services Allowance**

The Design Engineer services allowance includes submittal reviews for the specification sections noted in Task 4. Services also include responding to RFIs for these same divisions.



**B. Fee Summary**

The not-to-exceed fee for the above scope of services is summarized below. The fee is based on our proposed on-call hourly billing rates and includes all labor, overhead, profit, and direct expenses related to this assignment.

Phase	Task Description	Proposed Hours	Proposed Cost
<b>Construction Phase Services</b>			
Task 1	Contract Execution and Pre-Construction Meeting	80	\$12,860
Task 2	Resident Engineering/Inspection	560	\$75,600
Task 3	Authority's Agent During Construction	80	\$12,860
Task 4	Construction Administration	115	\$17,865
	Other Direct Costs	N/A	\$2,240
<b>Design Engineer Professional Services</b>			
Task 5	Design Engineer Services Allowance		\$15,000
<b>Total Proposed Cost</b>			<b>\$136,425</b>

***For your consideration as an alternate, if Kleinfelder were to be awarded both this contract and the Green Infrastructure ESDC contract, we could leverage efficiencies to reduce the overall level of effort, assuming both projects happen concurrently. We anticipate based on efficiencies between both projects, we could reduce Inspection (Task 2) and Construction Administration (Task 4) level of effort and fee by 25%; resulting in a savings of \$23,366.00 on this contract.***

**C. Detailed Project Schedule**

We have attached an anticipated project schedule (Attachment 1) showing projected milestones and durations for the planned construction. The anticipated construction duration of the project is 90 calendar days (13 weeks). Field construction work is anticipated to take 70 calendar days (10 weeks). Bids for the construction of the project were received on January 24, 2023.

Kleinfelder is prepared to provide the staffing and services starting in early February and continuing through the planned completion of the project.





#### **D. Project Team**

Kleinfelder's project team includes team members who are experienced in construction phase services for sanitary sewer rehabilitation work. Note billing category listed in parentheses. We have attached detailed staff resumes in Attachment 2.

- **Resident Engineer – Jordan Nappi, EIT (Senior Inspector)**  
Ms. Nappi is a staff engineer with four years' experience working out of our Princeton, NJ office. She has broad experience in the field of civil and environmental consulting in Construction Observation & Administration Support, Construction Permitting Support, Sewer Main and Water Main Rehabilitation, Stormwater Management, and Site and Civil Design. Ms. Nappi is part of the Lehigh County Authority project team that has performed design and construction phase services for each year of the total 4-year Inflow and Infiltration (I&I) Source Reduction program which includes over 200 sewer pipes in Allentown, to be rehabilitated with actions such as heavy cleaning, full length CIPP, sectional CIPP and joint testing and grouting. **Note that Ms. Nappi resides in Hoboken in close proximity to the planned work.**
- **Project Manager – Felipe Contreras, PE (Senior Project Manager)**  
Mr. Contreras has 22 years leading water and wastewater projects through construction with emphasis in integrated water resources management, water and wastewater treatment and distribution systems, utility efficient operation, and hydraulic modeling. As a Municipal and Utilities Engineer, direct interaction with municipal clients, preparing engineering designs, budgets, plans, specifications, schedules, procurement of grants, and Federal, State, local permits, for a wide variety of projects are some of his responsibilities. He has extensive knowledge in water/wastewater treatment design, water distribution and collection, hydraulic resources management including water supply, sewerage and drainage systems calculations.
- **Program Manager – Neil Kulikauskas, PE (Senior Program Manager)**  
Mr. Kulikauskas has over 25 years of experience managing and leading water and wastewater projects in the Northeast. He is responsible for the overall execution and coordination of individual engineering assignments and regular communications with the Authority. He will ensure that we maintain the highest levels of quality and service to Authority, specifically enforcing that our QA/QC protocols are met and confirming that the appropriate staff has the availability to deliver on Authority projects. Mr. Kulikauskas has also served as the Program Manager for sewer rehabilitation projects for City of Pittsfield, MA; Greater New Haven Water Pollution Control Authority, Borough of Naugatuck, CT; and The Hartford Metropolitan District Commission (MDC). Neil will be available on short notice to respond to specific requests and for meetings with Authority officials, days or nights as required. Neil also has deep experience in oral presentations to boards, commissions, and the public.



***E. Relevant Experience of the Firm***

Kleinfelder routinely completes sewer system evaluation, rehabilitation, and replacement projects for communities faced with similar challenges as the Authority with aging pipes, wet-weather and capacity issues and Combined Sewer Overflows (CSOs). We have included select project experience with similar recent work in Attachment 3.

Thank you again for the opportunity to submit a proposal on this important project. We value the opportunity to develop a partnership with the Authority to help accomplish your goals. We look forward to your decision.

Sincerely,

KLEINFELDER

A handwritten signature in blue ink that reads "Neil V Kulikauskas".

Neil Kulikauskas  
Senior Program Manger

A handwritten signature in blue ink that reads "Felipe Contreras".

Felipe Contreras, PE  
Senior Project Manager

cc: Donald Conger, PE [dconger@nhudsonsa.com](mailto:dconger@nhudsonsa.com)  
Belissa Vega [bvega@nhudsonsa.com](mailto:bvega@nhudsonsa.com)

Attachments:

- 1 – Project Schedule
- 2 – Resumes
- 3 – Firm Experience



## **Attachment 1: Project Schedule**

**NHSA Collection System Improvements Contract 1**  
**ESDC**  
**Anticipated Project Schedule**



	Activity Name	Duration (Work Days)	Start Date	Finish Date	Feb 2023					Mar 2023				Apr 2023				May 2023			
					22	29	5	12	19	26	5	12	19	26	2	9	16	23	30	7	14
1	Receive Bids	1.00	1/24/23	1/24/23	■																
2	Award and Contract Execution	5.00	2/6/23	2/10/23			■														
3	Issue NTP to Contractor	0.00	2/10/23	2/10/23			◆														
4	Pre-Construction Meeting (w/o 2/13/2023)	5.00	2/13/23	2/17/23				■													
5	Contractor Submittals, Approvals, Permits (2 weeks)	10.00	2/13/23	2/24/23				■													
6	Mobilization	0.00	2/27/23	2/27/23						◆											
7	Contract Work (10 weeks)	50.00	2/27/23	5/5/23							■										
8	Substantial Completion	0.00	5/5/23	5/5/23																◆	
9	Punch List and Close-out (1 week)	5.00	5/8/23	5/12/23																■	
10	Contractor Final Completion	0.00	5/12/23	5/12/23																◆	
					22	29	5	12	19	26	5	12	19	26	2	9	16	23	30	7	14



## **Attachment 2: Resumes**



# Jordan Nappi, EIT

## Resident Engineer

Ms. Nappi has broad experience in the field of civil and environmental consulting with four years of experience in the following areas:

- Construction Observation & Administration Support
- Construction Permitting Support
- Sewer Main and Water Main Rehabilitation
- Stormwater Management
- Site and Civil Design
- Wastewater Treatment Plant Retrofit/Rehabilitation Projects
- Water Treatment Plant Upgrades and Improvements Projects
- Water Distribution System Hydraulic Modeling
- Environmental Permitting Support

### Years of Experience

4 years

### Education

Bachelors, Civil Engineering,  
Clemson University, South  
Carolina, 2019

### Registrations

Engineer-in-Training (EIT/FE),  
No. EIT-03733, NCEES

### Professional Affiliations

Professional Women in  
Construction (PWC), New  
Jersey Chapter, Member,  
From date: 11/09/2022

American Water Works  
Association (AWWA), New  
Jersey, Member, From date:  
01/01/2020

### Selected Project Experience

#### I&I Source Reduction - Years 1-3, Lehigh County Authority, Allentown, PA, From 4/6/2020 To Present

Ms. Nappi is part of the design team that prepared the design drawings, construction specifications and design memorandum for each year of the total 4-year Inflow and Infiltration (I&I) Source Reduction program which includes over 200 sewer pipes in Allentown, to be rehabilitated with actions such as heavy cleaning, full length CIPP, sectional CIPP and joint testing and grouting. For the Years 1, 2 and 3 projects which have been completed, Ms. Nappi has provided construction administration services and performed periodic field inspections. Ms. Nappi's responsibilities include management and review of submittals and RFIs, reviewing Contractor's payment applications, reviewing and negotiating change orders, monitoring construction schedule, participating in monthly progress meeting, reviewing pre- and post- CIPP and joint grout sealing CCTV inspection videos, reviewing and approving CIPP samples testing results, and preparing a Closeout Memorandum for each project year. Ms. Nappi has performed field inspections witnessing bypass system set up and operation, and full length CIPP installations.

#### Bioretention Basin Inspections, Princeton Self Storage, Rocky Hill, NJ

Ms. Nappi performed the annual engineer's field inspection for the bioretention basin at Princeton Self Storage that was installed in 2017. Responsibilities included the walk-through inspection, completion of inspection reports and preparation of the technical memorandum.

#### Montgomery Manhole Rehabilitation, Montgomery Township, Montgomery, NJ

Ms. Nappi assisted in the design of the Montgomery Manhole Rehabilitation project which consisted of the replacement of manhole covers and the relining of approximately 20 leaking manholes. The manhole covers were replaced with watertight locking frames and covers, and the manholes were relined by concrete spray or cured-in-place epoxy. Ms. Nappi's responsibilities included initial manhole investigations, production of the design drawings, and field inspections during construction.

#### Philadelphia Water Department Northeast Pollution Control Plant Stormwater Design - CA Services, Whitman, Reardon & Associates, Philadelphia, PA

Following assisting in the design of the stormwater system for the Northeast Pollution Control Plant in Philadelphia, PA, Ms. Nappi has been performing construction administration services for the project, including site and civil submittal reviews, RFI reviews and preparing Engineering Directives.

### **Philadelphia Water Department Northeast Pollution Control Plant Stormwater Design, Whitman, Requardt & Associates, Philadelphia, PA**

Ms. Nappi assisted the stormwater design team in the design of the stormwater system for the Northeast Pollution Control Plant in Philadelphia, PA. Ms., Nappi's responsibilities included the creation of existing and proposed stormwater HydroCAD model, creation of existing and proposed stormwater figures in AutoCAD, preparation of the Stormwater Report, assisting in the design of the bioretention basin, and civil design drawings updates including site plans, yard piping plans, and profiles.

### **Facility Improvements 2018, Madison Chatham Joint Meeting, Chatham, NJ**

Ms. Nappi was part of the Construction Administration team providing Construction Management Services to Madison Chatham Joint Meeting for the Facility Improvements 2018 project which included the replacement of the mechanical screen, new mixing equipment at the oxidation tank, new effluent filtering building, new belt filter press, and raw water pumps. Ms. Nappi's responsibilities included submittal and RFI reviews, management of the submittal and RFI logs, payment application review, project management assistance and on-site construction observation.

### **Process and Operational Upgrades at the Pequannock Water Treatment Plant, City of Newark, West Milford, NJ**

Ms. Nappi has performed part-time construction observation and inspection during the on-going construction at the Pequannock Water Treatment Plant. Responsibilities include holding daily project meetings with Contactor and Owner, over-seeing daily construction, management and review of submittals and RFIs, reviewing Contractor's payment applications, reviewing and negotiating change orders and monitoring construction schedule.

### **Long Hill Township WWTP Phosphorus Removal - CA Services, New Jersey American Water, Long Hill, NJ**

Ms. Nappi provided construction administration services and part-time construction observation for the Long Hill Township Phosphorus Removal project, which included the demolition of the existing abandoned lime slurry system and installation of new chemical storage tanks and coagulant feed system. Ms. Nappi's responsibilities included management and review of submittals and RFIs, reviewing Contractor's payment applications, reviewing and negotiating change orders, monitoring construction schedule, construction observation and field inspection of construction activities, maintenance of as-builts and production of record drawings.

### **Coventry Square Water Main Rehabilitation, New Jersey American Water, Lakewood, NJ**

Following the design to rehabilitate approximately 11,000 linear feet of 6-inch and 8-inch water main in the Coventry Square development utilizing trenchless technology, Ms. Nappi provided construction administration and performed on-site field inspections during the construction of the project. Over a one-year period, Ms. Nappi's project responsibilities included attending pre-construction meeting, management and reviews of submittal, review of the temporary water supply bypass plans, review of Contractor's payment applications, and preparation of change order recommendation. Ms. Nappi's on-site field inspections included inspection of temporary water supply bypass system, CIPP installations, lateral service cut out operations, water main pipe and valve installations, hydrant installation and disinfection and testing.



# Felipe Contreras, PE, CME, CFM

## Project Manager

Mr. Contreras has 22 years civil engineering experience with emphasis in integrated water resources management, water and wastewater treatment and distribution systems, utility efficient operation, and hydraulic modeling. As a Municipal and Utilities Engineer, direct interaction with municipal clients, preparing engineering designs, budgets, plans, specifications, schedules, procurement of grants, and Federal, State, local permits, for a wide variety of projects are some of his responsibilities.

### Selected Project Experience

#### I&I Source Reduction, Year 3, Lehigh County Authority, PA,

Mr. Contreras led the design and development the plans, specifications, the scope of work for the project includes the rehabilitation of existing sewer pipelines, including 6,721 lf of 8-inch heavy cleaning, 738 lf of 10-inch heavy cleaning, 1,016 lf of 12-inch heavy cleaning, 985 joints of 8-inch grout sealing, 163 joints of 10-inch grout sealing, 119 joints of 12-inch grout sealing, 95 joints of 24-inch grout sealing, 240 lf of 8-inch CIPP sectional liner, 145 lf of 10-inch CIPP sectional liner, 2,275 lf of 8-inch CIPP full liner, 163 lf of CIPP full liner, 1,086 lf of 12-inch CIPP full liner and 324 lf of CIPP full liner. All CIPP sectional liners will be a minimum of 15 lf. The project also includes by-passing flows, as necessary, to accomplish the work.

#### I&I Source Reduction, Year 2, Lehigh County Authority, PA,

Mr. Contreras led the design and development the plans, specifications, the scope of work for the project includes the rehabilitation of existing sewer pipelines, including 6,721 lf of 8-inch heavy cleaning, 738 lf of 10-inch heavy cleaning, 1,016 lf of 12-inch heavy cleaning, 985 joints of 8-inch grout sealing, 163 joints of 10-inch grout sealing, 119 joints of 12-inch grout sealing, 95 joints of 24-inch grout sealing, 240 lf of 8-inch CIPP sectional liner, 145 lf of 10-inch CIPP sectional liner, 2,275 lf of 8-inch CIPP full liner, 163 lf of CIPP full liner, 1,086 lf of 12-inch CIPP full liner and 324 lf of CIPP full liner. All CIPP sectional liners will be a minimum of 15 lf. The project also includes by-passing flows, as necessary, to accomplish the work.

#### Cleaning, Televising and Repairs Phase II, Madison Borough, NJ

Mr. Contreras designed and developed the specifications for cleaning and televising 150,000 lf of sanitary sewer main ranging from 6-inch to 24-inch diameter, as part of the critical infrastructure rehabilitation and replacement plan for sanitary sewer.

#### ELSA's Asset Management Plan WWTP, Lawrence, NJ

Mr. Contreras is currently finalizing the development of the Asset Management Tool for the Ewing-Lawrence Sewerage Authority's WWTP to meet the I-Bank (NJEIT) Asset Management loan requirements.

#### Pump Station No. 7 Upgrades, LEHMUA, Little Egg Harbor, NJ

Mr. Contreras is currently finalizing the design of the project. The work includes the construction of a new wet well including pumps, a new electric grinder, and the installation of flooding protection systems to protect the electrical/generator room and chain link fence around the property.

#### Cleaning, Televising and Repairs Phase I, Madison Borough, NJ

Mr. Contreras designed and developed the specifications for cleaning and televising 160,000 lf of sanitary sewer main ranging from 6-inch to 24-inch diameter, as part of the critical infrastructure rehabilitation and replacement plan for sanitary sewer.

### Years of Experience

22 years

### Education

Bachelors, Civil Engineering,  
University of Los Andes, 1999

Masters, Water Resources  
Engineering, University of Los  
Andes, 2000

### Registrations

Professional Engineer (PE),  
No. PE091451, PA

Professional Engineer (PE)-  
Civil, No. 56304, MA

Professional Engineer (PE),  
No. 24 GE 04926000, NJ

### Certifications

Certified Municipal Engineer  
(CME), No. 43300, NJ

Certified Floodplain Manager  
(CFM), No. US-13-06798

### Professional Affiliations

American Society of Civil  
Engineers (ASCE)

International Water  
Association (IWA)

National Society of  
Professional Engineers  
(NSPE)

New Jersey Society of Civil  
Engineers (NJSCE)

Association of State  
Floodplain Managers  
(ASFPM)

New Jersey Association for  
Flood Plain Management  
(NJAFM)



**Critical Infrastructure Condition Assessment, Madison Borough, NJ**

Inspected and developed the sanitary sewer system Critical Infrastructure Condition Assessment, the work included the evaluation of all pumps stations and the review of the collection system performance, prior projects and condition assessment of terminal manholes.

**Pequannock Water Treatment Plant Process and Operational Upgrades, City of Newark, NJ**

Mr. Contreras is the Project Manager and lead process engineer for the 60 MGD Pequannock Water Treatment Plant Process and Operational Upgrades Project. The project includes the optimization of coagulation, the addition of coagulant flash mixing, correction of filter integrity problems (remove crust, verify media sizing), enhancement of filter performance, modification of the filter flow control, and optimization of the filter backwash including pilot testing air scour and improving backwash flow and capacity through backwash pump modifications.

**ELSA Wastewater Treatment Facilities Upgrade Design, Lawrence, NJ**

Mr. Contreras completed his participation in the construction management phase services of improvements to the Ewing-Lawrence Sewerage Authority's 16 MGD WWTP.

**City Wastewater Treatment Plant and Sewer Rehabilitation, Long Hill Township, Morris County, NJ**

Mr. Contreras led the design and development of the plans, specifications, permitting and funding for the WWTP improvements and sewer system rehabilitation. The project included the installation of new phosphorus removal system, new influent pumps, new return pumps, new disc filters and upgrades to the ultraviolet disinfection building.

**Wastewater Treatment Plant Upgrades, Madison Chatham Joint Meeting, Morris County, NJ**

Mr. Contreras is currently leading the design and development of the plans, specifications, permitting and funding for the WWTP improvements; project includes the replacement of the screen, new mixing equipment at the oxidation tank, new effluent filtering building, new belt filter press, and raw water pumps.

**Cleaning and Televising Contract No. 4 - 7, Lacey MUA Engineer**

Mr. Contreras designed and developed the specifications for cleaning and televising 400,000 lf of sanitary sewer main ranging from 8-inch to 24-inch diameter, as part of the rehabilitation and replacement plan for sanitary sewer. This rehabilitation program reduce the I&I by 100MGY.



# Neil Kulikauskas, PE

## Senior Program Manager

Mr. Kulikauskas is a civil and environmental engineer with extensive management experience helping to lead programs with public and private sector water and wastewater clients throughout the Northeast. He carries a diverse background on various types of projects, thoroughly involved in all aspects ranging from feasibility planning and contract administration to technical design and throughout all aspects of construction. His experience covers wastewater treatment plant upgrades, sanitary sewer system design and rehabilitation, pump station design and rehabilitation, hydraulic modeling, drainage systems analysis and design, CSO removal, stormwater management, water distribution system analysis and design.

### Years of Experience

26 years

### Education

Bachelors, Civil Engineering,  
University of Connecticut,  
Connecticut, 1997

Masters, Environmental  
Engineering, University of  
New Haven, Connecticut,  
2008

### Registrations

Professional Engineer (PE)-  
Civil, No. PEN.0023174, CT

Professional Engineer (PE)-  
Civil, No. 48483, MA

### Certifications

Confined Space Entry, OSHA

### Professional Affiliations

American Society of Civil  
Engineers (ASCE)

Connecticut Society of Civil  
Engineers (CSCE)

Water Environment  
Federation (WEF)

New England Water  
Environment Association  
(NEWEA)

Connecticut Association of  
Water Pollution Control  
Authorities (CAWPCA)

Connecticut Water Pollution  
Abatement Association  
(CWPA)

### Selected Project Experience

#### Northern Interceptor Sewer Rehabilitation Preliminary Design, Metropolitan District Commission, East Hartford, CT

Principal-in-Charge for design and construction of the rehabilitation of 9,000 feet of 24-inch to 30-inch vitrified clay and reinforced concrete gravity sewer interceptor in East Hartford.

#### Sanitary Sewer Rehabilitation, City of Pittsfield, Pittsfield, MA

Program Manager for ongoing, multi-phased sewer rehabilitation work throughout the City to reduce infiltration and inflow with over 75,000 feet of sewer rehabilitation from 6-inch to 30-inch diameter pipe.

#### Sewer System Evaluation Survey, City of Pittsfield, MA

Program Manager for on-going sanitary sewer investigations in the City of Pittsfield to identify the cost-effective removal of Inflow and Infiltration

#### Naugatuck Wastewater Facilities Planning and SSES, Borough of Naugatuck, CT

Program Manager for an Inflow and Infiltration (I/I) evaluation followed by a sewer system elimination survey (SSES) in the collection system.

#### Sanitary Sewer Replacement & Rehabilitation, Town of Woodbridge, CT

The rehabilitation included open-cut replacement and various no-dig repairs such as cured-in-place pipe lining, cured-in-place point repairs, joint testing and sealing.

#### Sanitary Sewer Replacement & Rehabilitation, City of Ansonia, CT

Project Engineer for the rehabilitation that included open-cut replacement, manhole repairs and replacements, no-dig repairs, storm sewer repairs and extensions, and a private inflow removal program.

#### Sanitary Sewers Replacement, City of Middletown, CT

Project Engineer for replacement of over 5,000 feet of open-cut replacement for an older section of Middletown.

#### Plains Area Sewers, City of Easthampton, MA

Project Manager for the design and construction of a sanitary sewer extension of 10,000 feet of gravity sewers into the Plains area of Easthampton along with two (2) pumping stations and force main.

#### Critical Sewer Rehabilitation Project, City of Pittsfield, MA

Project Manager for the design and construction administration of the rehabilitation and replacement 2,500 feet of open-cut replacement, 1,000 feet of cured-in-place pipe (CIPP) lining, lateral lining and sealing, and manhole linings.

**Industrial Park Interceptor, City of Northampton, MA**

Project Manager for design and construction of 2,000 feet of 18-inch interceptor sewer extension to accommodate increased flows from a Coca-Cola bottling facility.

**Second Street Sewer Replacement, City of Pittsfield, MA**

Program Manager for design of over 1,000 feet of new sewer to relocate a sewer crossing beneath active rail line in downtown Pittsfield.

**Eaton Lane Water and Sewer Replacement, City of Pittsfield, MA**

Project Manager for the design and construction administration for the replacement of approximately 1,000 feet of water main and sewer main.

**Dalton Division Road Sewer Extension, City of Pittsfield, MA**

Project Manager for the design and construction administration of approximately 1,000 feet of sewer extension to accommodate connection of a small pocket of un-sewered residences.

**Manhole Rehabilitation, City of Pittsfield, MA**

Project Manager for the design and construction administration of a manhole replacement and rehabilitation project focused on removal of Inflow. The work included manhole frame and cover replacements, full manhole replacements, manhole wall linings, and manhole corbel sealings.

**Infiltration and Inflow (I/I) Study, Town of Lee, MA**

Project Engineer for an extensive two-phase flow-metering program to analyze the existence of excessive infiltration and inflow in the sanitary sewer system.

**Sewer Inspection and Analysis, City of Easthampton, MA**

Project Manager for the inspection of the major sewer interceptors in town. He developed a report that identified infiltration sources and structural deficiencies and made recommendations for rehabilitation based on a cost effectiveness analysis.

**Wastewater Asset Inventory, Town of Enfield, CT**

Project Manager for a complete asset inventory of the wastewater collection and treatment system that included a desktop analysis of the collection system piping and manholes available through the Town GIS.

**Infiltration and Inflow (I/I) Flow Monitoring Study, Town of Enfield, CT**

Project Manager for the installation of 15 meters throughout the entire sewer system; analysis of flow data results and development of a report that summarized the priority areas and made recommendations for further investigations.

**Joint Sewage Flow Metering Study, Watertown Fire District, Watertown, CT**

Project Manager for a detailed study of the joint sewage flow meter that provides the basis of billing between the Town's Sewer Authority and the Fire District. The study included a detailed look at the hydraulics of the Palmer-Bowlus Flume as well as the performance of the metering equipment.

**Miller Street Low Pressure Sewer Extension, City of Pittsfield, MA**

Project Manager for the design and construction administration for the replacement of approximately 1,000 feet of water main and installation of low-pressure sewer system to serve approximately ten residences.

**Lebanon Avenue Odor Control Station, City of Pittsfield, MA**

Project manager for an odor study and subsequent design and construction of activated carbon skid system installed to remove odors from the system at the force main discharge location.

**Asset Management Implementation, City of Pittsfield, MA**

Program Manager for the implementation of an Asset Management program for the wastewater collection system; integrating all of the wastewater assets into the program and training staff to utilize the asset collection and reporting features of the program.



## **Attachment 3: Firm Experience**

# LEHIGH COUNTY AUTHORITY WASTEWATER DESIGN AND PLANNING

## CLIENT

Lehigh County Authority,  
Allentown, PA

## RELEVANCE TO THE AUTHORITY

- WWTP Master Plan
- WWTP Expansion
- AO Support
- Sewer Rehabilitation
- Wet-weather Flow Management Plan
- New Outfall Evaluation



Kleinfelder has served the Lehigh County Authority since 2014 (and the City of Allentown since 2007) in addressing a variety of issues related to the 40-MGD Kline's Island Wastewater Treatment Plant (KIWWTP), which is currently operated by the Lehigh County Authority under the terms of a long-term lease. Kleinfelder

also assisted the City of Allentown in complying with an Administrative Order to eliminate sanitary sewer overflows (SSOs).

Specific services provided since 2007 have included the following:

- Development of a Master Plan for the KIWWTP focused on optimizing the existing treatment process, regulatory preparedness, and a detailed condition assessment. The primary objective of this effort was to develop a phased Capital Improvement Plan over a 50-year period.
- Design of five (5) sewer rehabilitation projects to reduce I&I, which was a component of the Regional Flow Management Strategy prepared by Kleinfelder.
- Conceptual design of improvements to the KIWWTP to increase its ability to manage wet-weather flows from 87 MGD to 120 MGD, including the addition of new pumping, screening and grit removal and primary treatment systems, and an innovative approach of implementing improvements to enable the two-stage trickling filter process to operate in parallel as well as series.
- Prepared a 10-year source reduction plan identifying sewer rehabilitation projects over a 10-year period to reduce I&I.
- Prepared a Conceptual Expansion Plan for the KIWWTP to assess the worst case potential economic impact resulting from passage of the proposed Delaware River Basin Commission (DRBC) Special Protection Waters Regulations, considering two regulatory scenarios: (1) expansion to 44 MGD while achieving compliance with current effluent limitations, and (2) expansion to 44 MGD together with upgrades to comply with additional and/or more stringent effluent limitations resulting from designation of the lower Delaware River as Special Protection Waters.
- Evaluated alternatives to identify the most cost-effective option for upgrading the plant and expanding capacity to 44 MGD while complying with anticipated effluent limitations based on DRBC's No Measurable Change Analysis.
- Providing a wide variety of Administrative Order (AO) consulting services to the City of Allentown including interacting closely with the Lehigh County Authority and its AO consultant to evaluate options to control SSOs on a regional basis.
- Prepared reports to USEPA on progress being made to comply with an AO to reduce I&I and eliminate SSOs.
- Developed a wet-weather flow management plan related to the use of Outfall 003 at the KIWWTP and presented it, along with supporting information, to the USEPA and the Pennsylvania Department of Environmental Protection (PADEP).
- Developed seven (7) feasible alternatives to reduce the frequency of use and volume of flow discharged from the plant's emergency bypass Outfall 003, and presented these alternatives, along with supporting information, to USEPA and PADEP.

# CITY OF PITTSFIELD ON-CALL ENGINEERING SERVICES

## LOCATION

Pittsfield, MA

## OWNER

City of Pittsfield, MA  
901 Holmes Street  
Pittsfield, MA 01201

## RELEVANCE

- On-Call Services
- Infiltration and Inflow
- SSES
- Sewer Rehabilitation
- Sewer Extension
- Construction Phase Services



Point repair of a 8-inch VCP gravity sewer prior to Cured-In-Place lining.

We have worked closely with the City's Department of Public Utilities to reduce excess I/I in the sanitary collection system and improve capacity, management, operations and maintenance of their infrastructure. Furthermore, Kleinfelder has led the program to meet the requirements of the NPDES Phase II Stormwater Permit. Duties under this contract have included watershed and sewer infrastructure modeling, GIS surveying and mapping, capital planning, design of infrastructure improvements and upgrades, IDDE, environmental permitting, traffic engineering, and construction management. A representative sample of these services includes the following:

## Wastewater Treatment Plant Facility Tertiary Treatment Upgrade

Kleinfelder led a multi-firm team of engineers in the design and construction services of a nutrient removal upgrade to meet a total effluent phosphorus concentration of 0.1 mg/L. The design process included a comprehensive evaluation and Facilities Plan update of Pittsfield's 17 MGD WWTP to identify high priority needs.

Kleinfelder worked collaboratively with the owner to select the ballasted flocculation process after a comprehensive analysis of alternatives that included life-cycle costs. Pilot testing and the pre-selection of the CoMag ballasted flocculation process were conducted prior to design. Other critical near-term needs that were identified in the updated facilities plan were also included in the design. Components of the upgrade include:

- New CoMag Ballasted Flocculation tertiary treatment process and building for removal of phosphorus down to 0.1mg/L effluent TP.
- Replacement and upgrade of all internal mechanisms for the existing 110 ft. diameter secondary clarifiers and structural tank repairs.
- New gravity thickener for tertiary sludge; upgrade of dewatering process from belt filter presses (BFPs) to rotary presses, increasing efficiency and capacity of the process.
- Upgrade of waste activated sludge (WAS) thickening process from GBTs to rotary drum thickeners, increasing efficiency and capacity of the process.
- Optimization of the secondary treatment system to reduce loading to clarifiers and increase settleability of sludge, thereby decreasing operational costs and risks of permit noncompliance. Changes include removal of trickling filters and conversion of a humus settling tank into a pre-anoxic zone.
- Conversion of an existing trickling filter to a wet weather holding tank.

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## CITY OF PITTSFIELD ON-CALL ENGINEERING SERVICES, *Con't.*

### **Pittsfield Capacity, Management, Operation and Maintenance Program Compliance**

In 2011, as part of a settlement over disputed NPDES permit limits, the U.S. EPA ordered the City of Pittsfield to undertake a CMOM Program Assessment followed by a recommended Corrective Action Plan to address identified deficiencies. The initial Order dictated a strict schedule for completion of these items. As the City's on-call wastewater consultant, Kleinfelder led and continues to lead all the compliance activities. We have prepared the following:

- CMOM Annual Reporting
- CMOM Program Assessment
- Capacity Assessment
- CMOM Program Self-Assessment
- Asset Management Evaluation and Implementation
- Corrective Action Plan
- CMOM Program Document
- Collection System Operations and Maintenance Plan
- Intermunicipal Agreement Development and Standardization
- Sewer Use Ordinance Updates

Through our work with the City, we have implemented many improvements to modernize the management and operations and maintenance of the system.

### **Sanitary Sewer I/I Rehabilitation**

Kleinfelder has performed field investigations, design and construction oversight on several sanitary sewer rehabilitation projects located throughout various sewersheds of the City, based off the City's Sanitary Sewer Evaluation Survey (SSES) that Kleinfelder completed. Manhole and internal pipe (CCTV) inspections were evaluated to produce five-phased recommendations for repair and replacement of infrastructure including sanitary pipe, manholes, and siphons to reduce I/I to the City's WWTP.

Kleinfelder fast-tracked the first phase of the program to resolve the most pressing issues found in field investigations. The Critical Sewer Repair project included 2,500 feet of open-cut replacement, 1,000 feet of CIPP lining, lateral lining and sealing, and manhole linings.

Following this phase Kleinfelder has completed the design and construction oversight of three more phases and is currently preparing final design documents for the fourth phase of the SSES program.

This program will have rehabilitated nearly 40,000 feet of gravity sewer through the means of open-cut replacement, point repairs, CIPP and lateral lining. In addition, Kleinfelder rehabilitated 150 manholes for the removal of infiltration and inflow by manhole frame and cover replacements, full manhole replacements, manhole wall linings, and manhole corbel sealings. This comprehensive SSES program consists of design, construction oversight, cost estimating, traffic engineering and DOT permitting.

# ROCKAWAY VALLEY REGIONAL SEWERAGE AUTHORITY ON-CALL WASTEWATER CONSULTING

## CLIENT

Rockaway Valley Regional Sewerage Authority, NJ

## RELEVANCE TO THE AUTHORITY

- Filtration Alternatives
- NJPDES Support
- Facilities Plan
- Clarifiers Rehab Design
- Construction Services



Kleinfelder has provided a wide range of engineering, permitting and regulatory support services to Rockaway Valley Regional Sewerage Authority (RVRSA) and its 12 MGD wastewater treatment plant for over 20 years. This experience includes NJPDES permitting support, wastewater management planning, anti-degradation studies, local limits development, copper water effects ratio studies, and discharge monitoring report support.

## Diverse Services

In recent years, Kleinfelder has provided a diverse range of engineering services which have included:

- Annual On-Call engineering services
- Development of a 5-Year Planning Report which addresses the current status of the WWTP and interceptor system and presents a recommended five-year Capital Improvement Plan.
- Annual inspection of RVRSA's WWTP and meter chambers.
- Evaluation of effluent filtration alternatives.
- Design services related to replacement of the Bioxide storage and feed system.
- Evaluation of phosphorus removal costs.
- WWTP re-rating study considering both the hydraulic and treatment capacity of each major plant component.
- Comprehensive Facility Planning Study.
- Design of improvements to rehabilitate the existing final clarifiers.
- Construction administration and resident project representative services for the Monroe Street Pumping Station Project and Jersey City Trunk Sewer Rehabilitation project, which have a combined estimated construction cost of \$4.8 million.



# SPRINGFIELD WATER AND SEWER COMMISSION ON-CALL

## LOCATION

Springfield, MA

## OWNER

Springfield Water and Sewer Commission  
250 M Street Extension  
Agawam, MA 01001

## RELEVANCE

- On-Call Services
- Sewer Rehabilitation
- Pump Station Design
- Pump Station Construction
- Pump Station Upgrades
- Collection System Rehabilitation
- Construction Phase Services



Kleinfelder has demonstrated its commitment to prioritization of multi-benefit projects such as York Street Pump Station Upgrade. It not only replaces an aging station, but also significantly reduces CSO's.

Kleinfelder has provided on-call services for the SWSC since 2009 with approximate fees of \$50 million. The following task orders below highlight some services we have provided the SWSC in recent years:

## York Street Pump Station and Connecticut River Crossing

Kleinfelder is currently providing Engineering Services During Construction for a 62 MGD combined sewer pump station for a Connecticut River pipeline project. Elements of the design include construction of a new 62 MGD combined sewer pump station including architectural and structural design of the building, retrofit of the existing 30 MGD flood control pump station, multiple dredged pipeline crossings of the Connecticut River approximately 1,100 feet long, including two 42-inch high-density polyethylene (HDPE) force mains and a 72-inch PCCP sewer siphon. During the Final Design of the pump station, the Commission elected to transition the project from a design-bid-build delivery method to an alternative Construction Manager-At-Risk (CMAR) delivery under MGL ch149A, one of the first such "horizontal" projects in the Commonwealth of Massachusetts.

Design of the crossings includes trenchless crossings of an active Amtrak Rail Corridor, an existing US Army Corps of Engineers (USACE) flood wall constructed in 1939, and excavation and reconstruction of an existing private levee system constructed in the 1970s. Permitting for the crossings also includes a Section 408 authorization through the USACE, Section 404 authorization through the USACE, Section 401 Dredge and Fill Water Quality Certifications through MassDEP, a Chapter 91 permit through MassDEP, a Conservation Management Permit to address endangered species habitats within the project area, and Orders of Conditions from the Town of Agawam and City of Springfield Conservation Commissions.

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## SPRINGFIELD WATER AND SEWER COMMISSION ON-CALL, *Con't.*

### **The Main Interceptor Sewer (MIS Rehabilitation and CSO Outfall Improvements Project)**

Our team completed design and bidding of this complex project intended to address structural failures identified in the Main Intercepting Sewer, one of the SWSC's most critical infrastructure assets. The team used extensive field investigations including sonar, HDTV, laser profiling, test pits, borings, and record research to develop an exceptional understanding of the challenges. The team evaluated alternatives to develop the final design recommendation for the rehabilitation. The most challenging element was the flow bypass design. After careful consideration of risk, the team developed a design to use an adjacent, partially abandoned pipe as a dry weather only, 20 to 25 MGD gravity bypass. With extensive detail and restrictions/sequencing in the specifications, this solution minimized risks during construction.

### **Washburn CSO Improvements Phase I-II**

Kleinfelder completed design, bidding, and construction phase services of this project which included a new CSO regulator structure; a new flood control structure; 300 feet of new 84-inch diameter FRP; and the CIPP rehabilitation of an existing 84-inch diameter brick pipe; installation of a second, new CSO regulator structure; rehabilitation of 1,200 feet of existing 84-inch brick pipe using FRP sliplining; rehabilitation of an existing 66-inch diameter brick pipe using a spray-on geopolymer; and other collection system improvements. During the application of the spray-on geopolymer, the contractor isolated manhole- to-manhole pipe runs and performed local pumped bypassing, which was reviewed and assessed daily by our team.

### **Pipeline Cleaning and Assessment Program**

Kleinfelder works with the Springfield Water and Sewer Commission (SWSC) to perform cleaning and assessment of their existing collection system pipelines, manholes, and structures. Subconsultants are utilized routinely to employ techniques such as CCTV inspection and manhole inspections to obtain the data. From the datasets received, GIS-based maps with asset IDs are developed for use by the field staff and subcontractors as "contract documents," but also to keep up with CMOM guidelines and recommendations.

Field oversight is provided to coordinate site logistics and ensure quality performance of the CCTV in conformance with NASSCO PACP standards. After the data has been validated, it is then incorporated into the SWSC's VUEWorks asset management program. This data supports the Risk Module that is the basis for updated and yearly prioritization and recommendations related to necessary infrastructure improvements to keep the SWSC in compliance with their existing Administrative Consent Order (ACO) and CMOM compliance.

# GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY ON-CALL SERVICES

## LOCATION

New Haven, CT

## OWNER

Greater New Haven Water Pollution Control Authority  
345 East Shore Parkway  
New Haven, CT 06512

## RELEVANCE

- On-Call Services
- Infiltration and Inflow
- SSES
- Sewer Rehabilitation
- CMOM Support
- Construction Phase Services



New CSO 006 installation at New Haven, CT. The new structure will drastically reduce the outflows activation and will be able to adjust weir elevations for fine tuning flows.

The Greater New Haven Water Pollution Control Authority (GNHWPCA) was formed as a regional sewer authority in 2005. GNHWPCA provides wastewater collection and treatment services to 200,000 customers in the City of New Haven and the Towns of Hamden, East Haven and Woodbridge. GNHWPCA owns, operates and maintains a wastewater treatment plant and an extensive sewer system that includes 555 miles of sanitary, separated and combined sewers, 30 pump stations, and a 5-million-gallon CSO storage tank. GNHWPCA has 17 active CSO Regulators and 13 active CSO outfalls throughout its' combined sewer system in New Haven.

## Mill River Trunk Sewer I/I Study

The Mill River Trunk Sewer (MRTS) serves approximately one-third of the population in Hamden. The MRTS starts in the northern part of the Town, in the area of Quinnipiac University, and flows parallel to the Mill River south to New Haven. It has a sewershed of approximately nine square miles and a collection network of about 73 miles of pipe, including 22 miles of pipe from the Shepard Brook sewershed. The MRTS itself has a length of about 12 miles, with pipe diameters between 10 and 42 inches.

Kleinfelder completed a study to identify areas of the MRTS with excessive inflow and infiltration (I/I), developed a program for conducting the I/I analysis, implemented the program, and completed analysis of the flow monitoring data. Recommendations were developed and presented in the final report. Seven metersheds were identified that had high infiltration above the CTDEEP criteria. This project included planning, evaluation, hydraulic modeling, manhole inspections, survey of key elevations and development of recommendations for further study in a Sanitary Sewer Evaluation Survey (SSES).

## Mill River Trunk Sewer Sanitary Sewer Evaluation Survey (SSES)

In October 2017, Kleinfelder completed an Inflow and Infiltration Study for the Mill River Sewershed which included the installation and maintenance of twenty-five (25) flow meters and one rain gauge. The meters divided the Mill River Sewershed into twenty-four (24) metersheds. Based on the results of the flow monitoring program, Kleinfelder identified seven metersheds within the Mill River Sewershed that exhibit excessive infiltration. The SSES Program was split into two phases with Mill River Trunk Sewer Meter Areas 7, 11, 15 and 22 in Phase I and Meter Areas 6, 13 and 19 scheduled in Phase 2.

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## GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY ON-CALL SERVICES, *Con't.*

Kleinfelder is currently conducting the Phase II SSES in Hamden, Connecticut to identify excessive infiltration and RII sources. The work includes 400 manhole inspections; 76,000 lf of flow isolation; 50,000 lf of closed-circuit television inspection; and traffic control. Kleinfelder is currently analyzing the manhole and CCTV inspection data collected and the results and recommendations will be included in the SSES report.

### **Emergency Response Plan**

The GNHWPCA recently took over operations from an outside contractor and is initiating an effort to develop a Comprehensive Emergency Response Plan (ERP) for its full-service area. Kleinfelder was retained by GNHWPCA to develop an Emergency Response Plan (ERP) tailored to the Authority's unique structure and requirements within a strict schedule.

GNHWPCA has a number of critical assets that it must protect to ensure the functionality of its system. These include the East Shore Water Pollution Abatement Facility, five major pump stations, 10 major force mains, two pressure sewers, four sewers adjacent to a major drinking water reservoir, a major siphon, six major trunk sewers, a CSO storage tank, 19 active CSO regulators, and 15 active CSO outfalls.

Kleinfelder developed a Comprehensive Emergency Response Plan in accordance with the 2004 Water Environment Response Plan (WERF) Emergency Response Plan Guidelines for Wastewater Systems. The completed ERP included general emergency planning, the ERP core elements, ERP decision process and ERP activation, emergency response recovery and termination action plans, and ERP approval update process and training.

### **West River CSO Improvement Project**

The purpose of this project was to design improvements to three (3) regulator structures to achieve CSO reduction required as part of GNHWPCA's administrative order issued by EPA (August 2015) to reduce CSOs to the West River. Kleinfelder designed new Regulators 003, 004 and 006 to reduce CSOs to the West River and designed modifications to the existing regulators respectively. All three regulators discharge to outfalls with tide gates to keep extraneous flows out of the system elevations. Each of the three new CSO regulator structures were designed to accommodate new stop log weirs that replace the previous concrete weirs. The weirs were set at higher elevations to reduce CSO activations and fully utilize the storage capacity of the existing collection system. Extensive traffic control and meetings were required with CTDOT as the regulators are located in several State Highways. State environmental permitting was also required along with local City permits including permits with the Parks Department and the City Public Works Department. The designed regulators included a combination of precast concrete structures to expedite construction time and cast-in-place structures. Extensive geotechnical investigations and pile design were required along with investigations on the existing timber piles.

### **Capacity, Management, Operation and Maintenance Program (CMOM) Pump Station Evaluation**

Kleinfelder assisted GNHWPCA in completing a Capacity, Management, Operation, and Maintenance (CMOM) Pump Station Evaluation Program tailored to the Authority's unique structure and requirements. Kleinfelder collected existing data for the 30 pump stations and the James Street siphon including the six East Haven pump stations, Woodbridge pump station and all eight of Hamden's pump stations. In addition, existing information for the East Shore Water Pollution Abatement Facility (WPAF) was collected. During the field visits, interviews were conducted with GNHWPCA and Synagro personnel regarding the maintenance history and any other outstanding issues. The rating system defined by the National Association of Sewer Service Companies (NASSCO) was used to grade all of the assets at each pump station. After grades were assigned to the pump station criteria, an overall rating of each pump station was calculated as described by NASSCO as the Quick Rating System. Pumping station improvement recommendations were developed along with project cost estimates and an implementation schedule.

The CMOM Program Manual for GNHWPCA's wastewater collection system was developed to provide efficient and effective collection system operation and maintenance while protecting public health and the environment. In addition, it was developed to meet all regulatory requirements of the Connecticut Department of Energy and Environmental Protection (CTDEEP) and the United States Environmental Protection Agency (EPA) and build on the 2011 GNHWPCA CMOM Plan.

# HARTFORD METROPOLITAN DISTRICT COMMISSION ENGINEERING SERVICES ON-CALL

## LOCATION

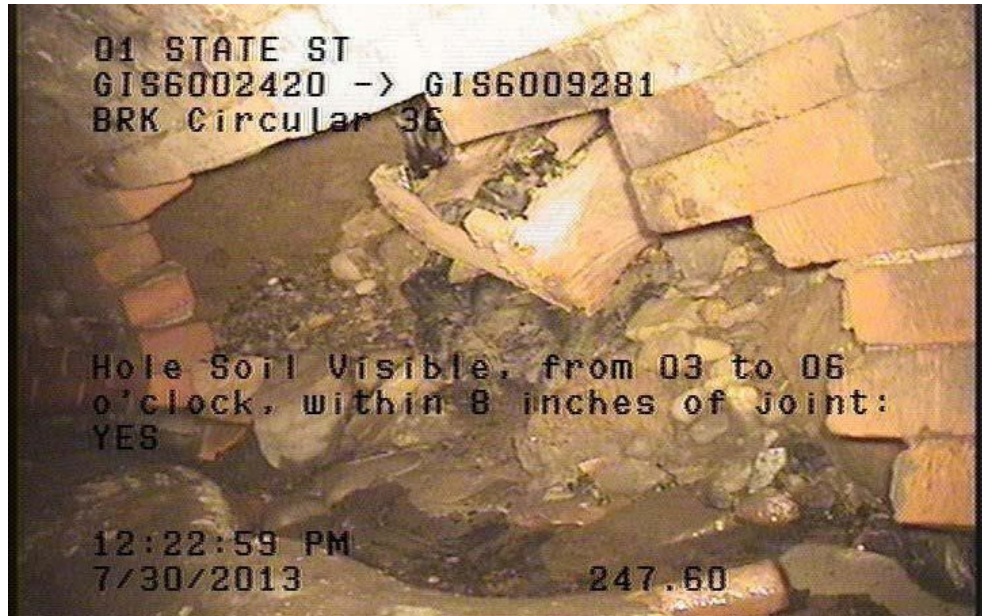
Hartford, CT

## OWNER

Hartford Metropolitan District  
Commission  
240 Brainard Road  
Hartford, CT, 06114

## RELEVANCE

- On-Call Services
- Infiltration and Inflow
- Sewer Rehabilitation
- Sewer Extensions
- Construction Phase Services



State Street sewer CCTV inspections accurate review always lead to accurate value-engineered rehabilitations solutions and cost-effective rehabilitation recommendations.

Kleinfelder has provided On-Call services from 2009 with approximate fees of \$10 million. The following task orders below highlight the select services we have provided.

## **Sewer System Evaluation Survey, Windsor, Bloomfield, Wethersfield, and Hartford, CT**

Kleinfelder was retained by the MDC to provide contract documents for SSES recommendations in Windsor, Bloomfield, Wethersfield and Hartford. The intent of the project was to reduce inflow and infiltration into the MDC's sewer system which supports the long-term goal of eliminating SSO's. The work included reviewing CCTV and conducting detailed MH inspections in support of the MDC's CMOM program for previous SSES recommendations to verify if the proposed work was still required. Since much of the work was located in cross country easements, significant environmental permitting was required for Windsor, Bloomfield and Wethersfield. Additionally, temporary access agreements were required for over 100 properties so that the MDC could access private properties and complete the work. For all of the properties which required temporary access agreements, Kleinfelder completed field investigations to determine the feasibility of completing the work and determine the best way to reduce impact to private property.

## **Franklin Avenue Combined Sewer Separation Package D Contract 5, Hartford, CT**

The Hartford MDC included a complete separation of sanitary and stormwater systems in the Franklin Avenue area, including disconnecting all private clean water sources. The Kleinfelder team conducted intensive combined surface and subsurface investigations including manhole and catch basin inspections, CCTV pipe inspection, field survey, geotechnical borings, environmental sampling, utility company research, and house-to-house inspections. The detailed MH inspections supported MDC's CMOM program. To clarify subsurface utility locations, the team used pipe locators, ground-penetrating radar, and vacuum excavation. They performed a hydraulic model of the collection system and analysis of the existing catch basins. Kleinfelder evaluated green stormwater strategies such as rain gardens, green roofs, and grass swales. The construction included the separation of existing storm drain and sanitary sewer systems in congested City Streets in the City of Hartford with significant rock removal and construction dewatering. The project included the rehabilitation of 10,923 feet of existing 8-inch to 33-inch storm drain and sewer pipe; the installation of 4,411 feet of new 10-inch to 30-inch storm drain pipe, grates and structures; the installation of 8,550 feet of new 8-inch to 24-inch sanitary sewer pipe, gates and structures; the relocation of 7,323 feet of existing 6-inch to 12-inch water mains; the exterior and interior disconnection of 236 buildings; tree removal and surface improvements along with road reconstruction.

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## HARTFORD MDC ENGINEERING SERVICES ON-CALL, *Con't.*

### Northern Interceptor Sewer Rehabilitation, Metropolitan District Commission, East Hartford, CT



Kleinfelder managed the alternative delivery of the successful rehabilitation of the Northern Interceptor sewer in East Hartford, CT. An accelerated design and construction schedule necessitated an innovative approach to restore this critical 115-year-old failing asset. Working together with the owner and on-call contractor, Kleinfelder performed field investigations and partial design services to advance to construction as quickly as possible while mitigating major risk factors. Design, permitting and contingency planning for the bypass, cured-in-place pipe lining and possible open-cut replacement were in place prior to breaking ground. Working closely with the on-call contractor in the capacity of Construction Manager, Kleinfelder coordinated with the owners, Town of East Hartford, CTDOT, East Hartford Water Pollution Control Facility (WPCF) and other local stakeholders.

Northern Interceptor, dating to the early 1900's, is one of two primary influent lines accounting for 40% of the flow into the East Hartford WPCF. Internal inspections revealed hinge cracking and massive root balls along significant portions of the 9,000 foot, 115 year old 30-inch vitrified clay sewer in East Hartford. The project involved two significant (10+ MGD) sewer bypasses, utilizing up to four 12-inch pumps and two 18-inch HDPE discharge pipes, to accommodate cleaning and lining of the pipe. Root masses encompassing the full diameter of the pipe required delicate removal to minimize the potential for pipe collapse. Two major risk factors included the proximity to the East Hartford WPCF and crossing under I-84 and contingencies were implemented to mitigate both. Ultimately, 3,000 feet of 30-inch sewer was successfully lined using both steam and water cure meeting both the owner's and DOT's tight schedule, all while coming in under budget (\$2M).

### Thomson Road, West Hartford, CT



Kleinfelder was retained to provide contract documents for the relocation of approximately 350 linear feet (lf) of 24- inch and 18-inch gravity sewer on Thomson Road in West Hartford, CT. The current sewer is damaged and requires a segment point repair. Since the sewer runs through the backyards of private homeowners via an existing easement, the MDC at the time elected to relocate the sewer to Park and Thomson Road. Kleinfelder determined the best alignment for the new relocated sewer so that there are no conflicts with existing utilities. The new sewer design included the completion of a soil bore under a large existing drainage culvert. MDC ultimately completed a repair of the existing sewer due to cost constraints.

### Upper Mountain Farms Sewer Extension



Kleinfelder designed new sanitary sewers in Old Oak Road, Old Brook Road, High Ridge Road, Cypress Road, The Crossways, and Mountain Farms Road in West Hartford, CT, for the Hartford MDC. The project includes approximately 11,000 lf of 8-inch PVC and DI sanitary sewer, approximately 2,000 linear feet of individual sewer service connections, sewer appurtenances, and reconstruction of affected streets. The project also includes six stream crossings, several of which are located in proximity to existing stone-constructed arched culverts measuring up to 10 feet in width.

Major challenges include existing surface topography, which varies significantly throughout the project area, the stream crossings, and high ledge elevations relative to surface-grade. This led to an extensive evaluation of alternatives to assess the most optimal and cost-effective way to extend sewer service to the neighborhood.

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The alternatives considered included: constructing deep sewers entirely within the roadway right-of-way; constructing selective reaches of the sewer in privately owned cross-country areas to reduce sewer depth and cost; utilizing individual grinder pumps and low-pressure sewer; and various combinations of the alternatives.

The alternatives evaluation included an extensive public outreach effort and survey campaign to weigh public feedback regarding the individual alternatives. For each of the alternatives evaluated, the manner of extending the sewer services to the individual homes was a major consideration, particularly given the presence of the stream crossings, utilities, and other important physical features potentially interfering with the work.

Based on the detailed evaluation, Hartford MDC opted to proceed with an alternative that retained the new sewer alignments entirely within the roadway rights-of-way.

### **State Street Sewer Rehabilitation Project**

Members of our project team are very familiar with rehabilitating old trunk sewers in congested urban areas. Kleinfelder staff recently worked with the Metropolitan District in Hartford to rehabilitate an existing 36-inch old brick sewer on State Street in downtown Hartford, which serves as the primary corridor for commuters arriving to and from the City of Hartford on Interstate 91 and Route 2. The Kleinfelder team identified 500 feet of the pipe to have serious defects, including a 130-foot segment with structural failure.

Given the concern of the collapse, the Metropolitan District requested an emergency trenchless design that would avoid major traffic interruptions and excavation within the recently paved roadway. Kleinfelder team convened an internal panel of its national trenchless experts to review various options including sliplining with centrifugally cast fiberglass-reinforced polymer mortar (CCFRPM, in-situ replacement with centrifugally cast concrete pipe (CCCP known as Centri-Pipe and Link Pipe. Ultimately, a combination of cured-in-place pipe (CIPP liner and reinforced spiral-wound (SPR liner was selected for the various pipe segments. The SPR liner is a new trenchless technology that Kleinfelder is leveraging to rehabilitate structurally failed pipes without any excavation or man- entry. After issues arose during the bidding/ construction phase with the vender supplying the SPR liner it was ultimately decided that the pipe would be replaced with traditional dig and replace.