State of New Jersey
Water Supply

Water Supply

Release Purchase Order

40-23-DEP

P.O. Date: 7/13/2023

Blanket Order Number

23-WAIVE-30360:11

SHOW THIS NUMBER ON ALL PACKAGES, INVOICES AND SHIPPING PAPERS.

Agency Ref. #

VENDOR

Vendor Number: [redacted]
Mott MacDonald LLC

Mott MacDonald
111 Wood Ave South
Iselin, NJ 08830-4112
[redacted]

Vendor Alternate ID: [redacted]

Remit Address:
Patricia Ventura
PO Box 358061
Pittsburgh, PA 15251-5061
US

Email: [redacted]
Phone Number: [redacted]

SHIP TO

[redacted]
DEP-Water Supply
401 East State Street, 4th Floor
Trenton, NJ 08625
US
Email: [redacted]
Phone: ([redacted]

BILL TO

[redacted]
DEP-Water Supply
PO BOX 420; MC 29-01
Trenton, NJ 08625
US
Email: [redacted]
Phone: ([redacted]

INVOICES: Direct invoices in DUPLICATE to the address shown above. TERMS AND CONDITIONS set forth in our Bid or Quotation, on the reverse side hereof or incorporated herein by reference become a part of this

ATTN: Contact [redacted]

Account Code: 21-100-4840- -198-V59K-3610- -2PRVPBLX-WPWS

Solicitation (Bid) No.:

Payment Terms:
Shipping Terms:
Freight Terms:
Delivery Calendar Day(s) A.R.O.: 0

Item # 1
Class-Item 968-92

To engage a contractor to directly manage Trenton Water Works. This will include operations, maintenance, improvement of TWW functions. The waiver has a base term of one (1) year, and contains two (2) one-year extensions to be exercised if needed.

Quantity	Unit Price	UOM	Discount %	Total Discount	Tax Rate	Tax Amount	Freight	Total Cost
1883440.00	$ 1.00	EA	0.00 %	$ 0.00		$ 0.00	$ 0.00	$ 1,883,440.00

LN/FY/Account Code	Dollar Amount
1/24/21-100-4840- -198-V59K-3610- -2PRVPBLX-WPWS	$ 1,883,440.00

TAX:	$ 0.00
FREIGHT:	$ 0.00
TOTAL:	$ 1,883,440.00

APPROVED

By: [redacted]

Phone#: [redacted]

BUYER

October 12, 2022

Request for Proposal for a Services Agreement for Enhanced Monitoring, Oversight, Assessment and Capacity Building for Trenton Water Works Drinking Water System

BACKGROUND

Trenton Water Works (TWW) is a public community surface water system located in Mercer County, New Jersey that provides water to over 200,000 people residing in the City of Trenton and in portions of the surrounding municipalities in Ewing Township, Hamilton Township, Lawrence Township and Hopewell Township. The system relies upon surface water from the Delaware River to meet demand and provide an average of 28 million gallons per day (MGD) with summer peaks of 33 MGD. The water is treated at a conventional filtration plant along Route 29 in the City of Trenton consisting of an intake on the Delaware River, screen house, raw water pumping, rapid mix, chemical feed, four Superpulsators, chlorine contact basins, filters, a clear well, and a high lift pumping station. Pretreatment is provided by the Superpulsators. Potassium permanganate, ferric chloride and a polymer are dosed upstream of the Superpulsators to increase sludge settling ability. From the Superpulsators, water is dosed with sodium hypochlorite and travels through the chlorine contact basins and dual media filters. Downstream of the filters, the water flows into two clear wells, where it is again dosed with sodium hypochlorite for post-chlorination and dosed with lime to raise the pH.

Treated water from the plant is distributed in two different ways: 1) After treatment with zinc orthophosphate for corrosion control, through a 36-inch water main to a gravity zone in downtown Trenton that serves approximately 30% of consumers in the TWW service area; and 2) through a 48-inch main to the Pennington Reservoir, an uncovered finished water reservoir with a capacity of 100 million gallons (MG), of which 78 MG is available for use. The reservoir serves as a balancing tank for pressure purposes and also provides up to three days of water during emergencies affecting the intake or treatment plant. Water leaving the reservoir is pumped through Central Pump Station to serve 70% of TWW customers in the high service area including portions of Trenton, Ewing, Lawrenceville, Hamilton, and Hopewell. When the water treatment plant is offline, the reservoir can supply the gravity zone by opening gate valves which normally isolate the two pressure zones.

TWW also maintains an interconnection with New Jersey American Water – Raritan (NJAW) that could potentially supply TWW with 11.5 MGD. TWW also supplies water to Aqua Hamilton through three (3) interconnections and maintains an interconnection with Aqua Lawrenceville.

STAFFING

The Successful Respondent shall provide a staff of qualified and experienced individuals who have direct experience in operating, maintaining, managing and/or providing engineering services for potable water systems similar in nature and character to TWW's system, and shall act on behalf of the Department of Environmental Protection (Department). The Successful Respondent shall provide such additional third-party support as may be needed to perform the services specified herein in accordance with the direction of the Commissioner of the Department or his designee (Department Designee). The Respondent shall identify a primary project lead and a backup lead that will be primarily responsible for onsite oversight as described in the scope of services below.

MINIMUM QUALIFICATIONS CRITERIA

A Respondent shall possess the resources, staff and personnel necessary to provide all of the required management, and support services as specified herein. An organizational chart must be supplied, which sets forth the staff and personnel to be utilized in connection with the Services described herein.

MINIMUM TECHNICAL QUALIFICATIONS CRITERIA

Respondent shall have at least five (5) years of experience providing services for similarly sized water supply systems.

Respondent shall currently have in its employ, and available to provide the Services requested under this RFQ/RFP, sufficient technical, managerial, engineering, and administrative staff to efficiently and effectively render the Services as specified herein. Resumes of key individuals shall be supplied.

OPERATION AND MANAGEMENT EXPERIENCE

(a) The Respondent shall supply evidence of the ability to conduct plant and system evaluations and engineering reviews and to implement improvements in operations and maintenance practices to improve performance, efficiency, and reliability.

(b) The Respondent shall provide information demonstrating experience with the New Jersey Department of Environmental Protection and in regard to compliance with all regulatory requirements and submissions, and in-depth knowledge of the State and Federal Safe Drinking Water Acts, and State of New Jersey regulatory requirements.

TERM of CONTRACT

The base term of the contract is one (1) year with the possibility of up to two (2) one-year extensions.

The Respondent shall provide a general proposal and quote via email to [redacted] no later than 5:00 PM, on Wednesday October 19, 2022.

QUESTION PERIOD

Due to the emergency nature of this request for proposal (RFP), there will not be a defined period to submit questions. Questions can be submitted to [redacted] with the subject "TWW Scope of Work October 2022" and will be answered as time allows, with responses posted in a shared document at the following link:

https://sonj-my.sharepoint.com/:w:/g/personal/kristin_tedesco_dep_nj_gov/EayezZkVvrFKpKn8tRgvUZMBAkcBtruEtHUKF97EemEz3A?e=kQTtDw

This link will also be emailed to all potential respondents. It is the responsibility of the potential bidder to check this document frequently for updates.

Quote sheet – Attached is a standard price sheet to be used to provide staff titles and loaded hourly rates as part of the proposal packages.

ATTACHMENT A - SCOPE OF SERVICES

Direct Oversight and Monitoring of TWW's System

The Successful Respondent will be responsible for direct oversight and monitoring of TWW's system, including assessing all TWW system operations and maintenance; adding necessary technical and managerial capacity to the system; and making technical, managerial, and financial recommendations necessary to bring the system into compliance with applicable law and to address current identified compliance deficiencies in the September 27, 2022, inspection report.

Enhanced Monitoring and Evaluation of Daily Operations

Responsibilities will include, but is not limited to:

- Oversight of the day-to-day system operations and monitoring.
- Identification of an individual that meets the qualifications of a full-time T-4 licensed operator of record and identification of a second individual that meets the qualifications of a W-4 licensed operator of record. The individuals must be currently unaffiliated with TWW and shall provide oversight of the existing licensees to identify process improvements. In lieu of meeting the qualifications of a New Jersey licensed T-4 or W-4 operator, an individual may be approved by the Department to provide oversight if they are able to demonstrate reciprocity based on experience in other states.
- Oversight of scheduled preventive, predictive maintenance, and asset management functions to ensure the long-term efficient operation of facility infrastructure including operation of the distribution system.
- Oversight of scheduled and unscheduled maintenance, repairs, and replacements as needed on infrastructure components.
- Review operations, maintenance & repair records for all infrastructure components.
- Review the inventory and electronic inventory records for the consumable supplies needed for system operations and maintenance.
- Review logs of all required compliance sampling including calibration and maintenance of sampling equipment and other activities to meet Federal and State SDWA requirements.
- Review and oversee laboratory testing and sampling presently required by plant performance portions of the Safe Drinking Water Act, and/or any Federal, State or local rules and regulations, statutes or ordinances, permit or license requirements. Review the handling of sludge, residuals, spent filter and other treatment plant waste and ensure disposal in accordance with federal and State regulations.
- The operations will be performed to comply with all Federal, State, and local laws and regulations. The Primary Project Lead shall also be responsible for overseeing the operation, maintenance, and management of the Facilities pursuant to the requirements in this scope of work. The services shall be provided in a safe, secure, effective, and efficient manner and shall meet the highest standards prevalent in the industry.

360° Assessment

The Successful Respondent will conduct a 360° assessment of TWW staffing, operations, emergency planning, treatment processes, and capital needs as noted below. Based on the results of this assessment, the Department may request further recommendations on corrective actions or additional steps that should be implemented to optimize the systems.

- Review the Department's September 27, 2022, Inspection Report and develop a Corrective Action Plan. The Corrective Action Plan shall include, at a minimum, a list of equipment that require emergency repairs, root cause analysis, and actions required to address all deficiencies.
- Complete a comprehensive assessment of operations and staffing in the TWW system to ensure that staff are following standard operating procedures (SOPs) for operation and maintenance, conducting preventative maintenance, and reviewing procedures to be followed in the event of an emergency.
- Evaluate existing staff to identify if staff members have been designated to fill positions within the water system including supervising positions, laboratory, field staff, plant operators, and other essential roles.
- Review capital expenditures including records of the purchasing of chemicals and other materials required for the day-to-day operation of the plant and distribution system. Make recommendations on modifications to the existing purchasing schedule and additional long-term investments to optimize system operations.
- Develop draft Scopes of Work including timelines for a Comprehensive Performance Evaluation (CPE) of TWW's Filtration Plan, a Comprehensive Technical Assistance (CTA) utilizing the results of the CPE to identify and implement process improvements, and a comprehensive Technical Managerial and Financial (TMF) assessment.
- Develop a draft Scope of Work for the development and implementation of a comprehensive Reservoir Management Plan for the Pennington Reservoir, an uncovered finished water reservoir. The Plan shall consist of background information, policies and ordinances, operations, maintenance, water quality monitoring, safety and security measures and emergency planning and response surrounding the reservoir.
- Identify goals for distribution system maintenance and optimization to control disinfection byproducts, legionella and other pathogens, while maintaining distribution system water quality. This should include the evaluation of chlorine residual levels, biofilm development, stagnant water, and storage tank maintenance. Developing any checklists for field equipment whose data are critical to becoming an optimized water system.
- Evaluate the existing Process Monitoring Plan throughout the plant. Review supervisory control and data acquisition (SCADA), monitors, set points, calibration schedules, and maintenance procedures. Make immediate changes to ensure that emergencies are captured and addressed.

Capacity Building

- Provide immediate staffing support to build capacity to support the routine operations at the treatment plant and in the distribution system.
- Evaluate the current organization structure including staff qualifications, numbers and types of licensed operators, vacancy rates and hiring process to determine adequacy for TWW's Surface Water Treatment Plant.
- Develop a full-time on-site staffing plan consisting of contractors to conduct a full system evaluation, additionally to address any violations and deficiencies outlined in the Department's inspection letter
- Evaluate TWW's current Operation & Maintenance Manual and SOPs. Make recommendations for additions or improvements.
- Conduct an evaluation of the existing staff training plan and identify steps or recommendations to create an ongoing training program.

Deliverables

- Corrective Action Plan for the items identified in the Department's September 27, 2022, Inspection Report
- Full-time on-site Staffing Plan to support the routine operations in the treatment plant and distribution system
- Identification of individuals that meet the qualifications of a full-time T-4 and W-4 licensed operator.
- Contract Operations Plan – conduct a full system evaluation
- Draft Scope(s) of Work – CPE, CTA, and TMF
- 360° Assessment and requested recommendations requested by the Department
- Additional recommendations, evaluations, and reports as determined necessary by the Department

Progress Reporting Requirements

The Successful Respondent shall be responsible for reporting out on progress as noted below:

- Attend scheduled weekly status meetings with the Department. The Primary Project Lead would be responsible for bringing other contract or TWW staff to attend as appropriate.
- Provide monthly reports by the 5th day of the following month containing updates on each of the areas covered by the contract.
- Provide updates and attend additional meetings as requested by the Department.

MOTT MACDONALD

[redacted], Bureau Chief
NJ Department of Environmental Protection
Division of Water Supply and Geoscience
Bureau of Water System Engineering
Mail Code 401-04Q
401 E. State Street
Trenton, NJ 08625-0420

Your Reference
RFP for a Services Agreement for Enhanced Monitoring, Oversight, Assessment and Capacity Building for Trenton Water Works Drinking Water System

Our Reference
507107710

111 Wood Avenue South
Iselin NJ 08830-4112
United States of America

T +1 (800) 832 3272
F +1 (973) 376 1072
mottmac.com

October 24, 2022

Dear [redacted]:

In accordance with your request, enclosed is a summary of the estimated cost to provide the enhanced monitoring, oversight, assessment and capacity building for the Trenton Water Works (TWW) system as outlined in the Department's RFP and our proposal that was submitted on October 21, 2022.

In developing the cost summary, we made an estimate of the percentage of time that specific categories of staff would be involved for the year. The fee provided is a Time and Materials estimate The estimates of time are subjective and are based on limited detailed knowledge of current plant operations and the current state of O&M Manuals and SOPs. We would expect to be able to provide a better estimate of the time required once we are better informed of current plant operations and training/operations documents. Mott MacDonald will only bill for hours engaged on this project. This gives us the flexibility to work with the Department to optimize the cost based on the Department's needs. The main driver of the cost estimate provided is the effort associated with our Project Manager and T-4 operator who will be directly involved on a daily basis. Due to the emergency nature of this project, we are proposing Joseph Stanley, PE as our Project Manager. Mr. Stanley has an intimate knowledge of the TWW system and will be able to engage with the Department immediately.

Should you have any questions concerning our cost summary, please contact us.

Very truly yours,

Mott MacDonald, LLC

Mark A. Tompeck

Mark A. Tompeck, PE, DBIA
T: [redacted]
[redacted]

Services Agreement for Enhanced Monitoring, Oversight, Assessment and Capacity Building for Trenton Water Works Drinking Water System
State Price Sheet

Mott MacDonald					
Price Line	**Description**	**Percent Contribution**	**Total Hours**	**All-Inclusive Hourly Rate**	**Extended Cost**
Staffing Rates by Title (% of expected contribution)					
1	Project Principal	20%	416	$340.00	$141,440
2	Project Manager	75%	1560	$320.00	$499,200
3	Project Reviewer	15%	312	$300.00	$93,600
4	Principal Engineer	15%	312	$295.00	$92,040
5	SeniorProject Engineer	20%	416	$265.00	$110,240
6	Project Engineer	10%	208	$225.00	$46,800
7	Engineer IV	20%	416	$175.00	$72,800
8	Engineer III	20%	416	$135.00	$56,160
9	Engineer I/II	20%	416	$125.00	$52,000
10	T-4 Operator	50%	1040	$290.00	$301,600
11	W-4 Operator	35%	728	$170.00	$123,760
12	Senior Inspector	30%	624	$210.00	$131,040
13	Water Quality Expert	25%	520	$225.00	$117,000
14	Project Administrator	20%	416	$110.00	$45,760
				Total	**$1,883,440**

MOTT MACDONALD

[redacted] Bureau Chief
NJ Department of Environmental Protection
Division of Water Supply and Geoscience
Bureau of Water System Engineering
Mail Code 401-04Q
401 E. State Street
Trenton, NJ 08625-0420

Your Reference
RFP for a Services Agreement for Enhanced Monitoring, Oversight, Assessment and Capacity Building for Trenton Water Works Drinking Water System

Our Reference
507107710

111 Wood Avenue South
Iselin NJ 08830-4112
United States of America

T +1 (800) 832 3272
F +1 (973) 376 1072
mottmac.com

October 21, 2022

Dear [redacted]

Mott MacDonald appreciates the opportunity to assist the State of New Jersey by providing enhanced monitoring, oversight, assessment and capacity building for the Trenton Water Works (TWW) system.

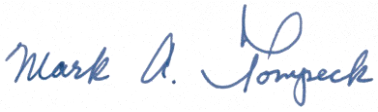
The Mott MacDonald Team assembled for the assignment includes a group of highly skilled and experienced staff that have not only many years of technical, managerial and operational experience, but also have many years of direct and substantial experience with the TWW system.

Out Team will be led by Joseph G. Stanley, PE who will serve as the Project Manager and coordinator for all services provided. Other key staff are highlighted in our proposal that follows.

Should you have any questions concerning our proposal, please contact us.

Very truly yours,

Mott MacDonald, LLC



Mark A. Tompeck, PE, DBIA
T: ([redacted]

MOTT MACDONALD

Professional Services for Enhanced Monitoring, Oversight, Assessment and Capacity Building for Trenton Water Works Drinking Water System

New Jersey Department of Environmental Protection

October 2022

Confidential

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Contents

1 Background / Scope of Services

On September 27, 2022, NJDEP issued a Compliance Evaluation and Assistance Inspection report to Trenton Water Works (TWW). The report was a summary of four facility inspections that were conducted on October 26, 2021, October 27, 2021, November 8, 2021 and February 3, 2022 that outlined significant regulatory compliance issues for the TWW system.

The general categories of the inspection deficiencies are as follows:

- **Operation & Maintenance** including an O&M Manual that complies with NJAC 7:10A-1.12 (a)1, operation and proper maintenance of Superpulsator clarifiers, and operation and proper maintenance of chlorine contact basins;
- **Pre-treatment** associated with the rapid mix process to ensure proper application and mixing of pre-treatment chemicals;
- **Monitoring, Reporting & Recordkeeping** including the failure to collect samples, monitor for required analytical parameters, maintain/calibrate analytical equipment and maintain required records;
- **Security** systems for the raw water intake and finished water supply at the Pennington Reservoir that provide monitoring of the raw and finished water supplies to prevent vandalism, tampering and contamination are inoperative;
- Failure to implement recommended improvements to the four finished water **Storage Tanks** within the distribution system;
- **Central Pumping Station** including the inspection and evaluation of piping systems in the basement of the pump station that supplies the majority of water to the system;
- **Monitoring and Reporting** associated with turbidity analyzers, their calibration, grab sample verification, flushing and basic operations and maintenance;
- **Chemical Feed, Chemical Storage & Treatment** involving maintaining adequate capacity to remove one of the plant's gravity thickeners from service to provide maintenance and cleaning, addressing ponding water in the potassium permanganate feed room and roof leakage in the lime room;
- A wide range of **Additional deficiencies** including:
    - Standing water in the Pennington Reservoir effluent piping chamber
    - Waterfowl management for the open finished water reservoir
    - Addressing the replacement of lead service line replacements
    - Completion of the Pennington Reservoir Replacement Project
    - CCR reporting associated with exceedance of the recommended upper limit for iron
    - Exercising of valves in accordance with the WQAA
    - Preparation of an O&M Manual for the recently completed raw water intake
    - Submission of a revised Corrosion Control Treatment Recommendation for the entire water system

- Updating of the DBP sampling plan to incorporate new distribution system sampling sites
- Incorporating modifications made at the water treatment plant into the plant operations & maintenance procedures/documents and preparing schedules for routine maintenance
- Adjusting standard operating procedures for the return of filters to service following a filter backwash to conform to NJDEP recommended limits
- Evaluate the effectiveness of existing alarm systems and automation of the PAC system
- Addressing a range of water quality issues including disinfection by-products, cryptosporidium, midge flies, cyanobacteria and cyanotoxins

As part of the Department's September 27, 2022 inspection report, details of the violations and corrective actions were provided. The corrective actions will form the basis for the services to be provided for the oversight and monitoring of the TWW system.

Scope of Services

The basis for the services associated with the scope of work included as Attachment A to the request for proposal is ***N.J.A.C. 7:10 Subchapter 13 – Standards for Technical, Managerial and Financial Capacity of Public Community and Noncommunity Water Systems***. Of particular focus is:

- 7:10-13.3 Demonstration of technical capacity for community water systems; and
- 7:10-13.4 Demonstration of managerial and financial capacity for community water systems

Oversight activities are described in detail in Attachment A and since there is sufficient detail provided, we will not repeat the scope of services to be provided. Mott MacDonald and our subcontractors will provide the full scope of services describe in each of the five areas described in Attachment A. However, we are providing some detailed discussion on some of the key elements for each of the five focus areas.

Task 1 – Enhanced Monitoring and Evaluation of Daily Operations

Operations of a large surface water treatment plant requires a detailed understanding of a wide range of factors that impact the instantaneous water quality, treatment process optimization, regulatory compliance and continuous operations of the facility. To ensure that complex water treatment facilities and large water distribution systems are operated properly, NJDEP requires that they are operated by staff with the most stringent licensing requirements. In the case of TWW, the system licensing requires T-4 and W-4 licenses.

The inspections of the TWW system performed by NJDEP highlight a wide range technical and managerial issues related mostly to the water treatment plant but also focus on elements of the storage and pumping systems.

Under Task 1, we will provide a T-4/W-4 licensed operator and other relevant engineering and operations staff with detailed knowledge and understanding of water quality regulations, water treatment process operations, water quality

testing and reporting requirements, and equipment operation and maintenance requirements.

The Mott MacDonald Team will provide key staff that will meet all of the requirements of Enhanced Monitoring and Evaluation of Daily Operations as follows:

Joseph G. Stanley, PE (Project Manager) will lead the Team. Mr. Stanley has over 40 years of experience in the design and operations of water treatment facilities and water distribution systems. Mr. Stanley has served in the role of Regulatory Compliance Support consultant for TWW in the past, assisting TWW on a wide variety of environmental/compliance matters, including the ACO. In addition, Mr. Stanley was the Engineer of Record for the recently completed raw water intake as well as improvements to Central Pump Station.

We will retain the services of Ian Miller to serve in the role of licensed treatment operator oversight. Mr. Miller is very familiar with the TWW facility operations and previously served in a similar role at the plant. In addition, he has extensive experience with treatment of Delaware River water having served as the operator at the NJAW Delran Water Treatment Plant.

We will also retain the services of James Cowley to serve in the oversight role for the distribution system. Mr. Cowley holds the required W-4 license and has an exceptional background in the management of water distribution systems having worked for the Elizabethtown Water Co and NJ American Water for over 35 years.

It should be understood that neither Mott MacDonald nor our subcontractors will assume the role of the T-4/W-4 licensed operator for TWW and that TWW will continue to be the NJDEP Licensed operator of record for the system.

Regulatory compliance including the collection and analysis of water quality samples is a key element for proper system operations. In order to achieve full compliance with regulatory sampling and testing, we will develop a detailed sampling plan that will outlines all required sampling and testing. In addition, we will train sample collection technicians to prepare and collect samples. Mr. Keith Cartnick (Water Quality Expert) will lead the effort in developing the analytical requirements and will also oversee laboratory testing procedures for internal process testing. Mr. Cartnick has more than 30 years' experience serving in the role of environmental compliance officer for United Water/Suez.

Understanding plant equipment operation and maintenance requirements are critically important. Mr. Thomas Rudy (Senior Inspector) will serve in the role of equipment operations and maintenance review. With more than 45 years of industry wide experience, Mr. Rudy will bring a unique perspective to the TWW assignment. When the TWW Mechanical Dewatering Facility (MDF) was originally commissioned, Mr. Rudy was responsible for the initial commissioning of the system and also served as the facility operator for the first year of operation. As such, he is very familiar with the operations at the MDF and will initially focus on issues at the MDF since thickener operations have been identified as a problem area. Supporting Mr. Rudy in this effort will be Mr. John Moolick, PE (Principal Engineer). Mr. Moolick is formerly the Assistant General Manager and Director of Operations for Veolia Water New York. Mr. Moolick's 15 years of experience with Veolia New York including implementation of

operational plans and strategies to balance cost, performance and risk while meeting regulatory requirements will be instrumental in reviewing current operations of the facility.

Process optimization to improve water quality and address on-going water compliance issues will be addressed by Mr. John Civardi, PE (Principal Engineer). Mr. Civardi serves as the Mott MacDonald Global Water Treatment Practice Leader and was one of the key process designers for the TWW Mechanical Dewatering Facility. Mr. Civardi is an expert on distribution system water quality and will initially focus on water quality review and will evaluate what immediate steps can be taken to improve water quality at the treatment plant and in the distribution system.

Understanding the distribution system and the storage elements, especially the Pennington Reservoir is critical given the history of the uncovered finished water reservoir and impacts to water quality. Mr. Michael Altland, PE (Principal Engineer) has provided hydraulic modeling, distribution system rehabilitation design and design of improvements to the Pennington Reservoir for nearly 25 years. Mr. Altland brings unparalleled experience of the TWW system.

Task 2 – 360º Assessment

While Task 1 will focus on many of the technical aspects of the scope, Task 2 will primarily address the managerial and financial aspects of the TWW Operations as required under 7:10-13.4. In Task 2, an assessment of the staffing, operations, emergency planning and capital needs will be performed.

A critical element of Task 2 will be services associated with components of the EPA Handbook, “Optimizing Water Treatment Plant Performance Using the Composite Correction Program”. The scope of work requires the development of draft scopes of work and timelines for a Comprehensive Performance Evaluation (CPE) for the TWW Filtration Plant and subsequent Comprehensive Technical Assistance (CTA) for the implementation of recommended improvements that come from the CPE.

While development of the scopes of work for the CPE and CTA are required, it may be prudent to subcontract directly with Process Applications, Inc. (PAI) of Fort Collins, CO to perform the work. PAI was the author of the EPA Handbook and has conducted many CPE studies and would bring their extensive experience and capabilities to streamline and expedite the important evaluation to improve plant processes.

The primary purpose of a CPE is to understand the limitations of the existing plant processes and to make recommendations for improvements to the process to address operations and water quality compliance. The CPE will:

- Assess plant performance
- Evaluate all major unit processes
- Identify and prioritize performance limiting factors
- Assess the applicability of follow-up activities
- Include a summary report

As noted above, we will undertake the scope of work outlined for Task 2 in Attachment A. The key elements will include:

Preparing a **Corrective Action Plan** to address the Department's September 27, 2022 Inspection Report

Perform a **comprehensive assessment of operations and staffing** and gain an understanding of staff compliance with standard operating procedures, preventative maintenance and emergency operations.

Evaluate existing staff assignments to determine if essential roles are properly staffed.

Review capital expenditures and purchasing procedures and make recommendations to optimize system operations.

Develop a scope of work for the **management of the Pennington Reservoir**. The management plan should include policies, operations & maintenance, water quality and safety issues. Mott MacDonald's past planning and design work associated with the Pennington Reservoir will allow us to quickly address this key issue for TWW.

Develop goals to optimize water distribution system water quality. This would include the evaluation of current operations related to DBP control, maintaining chlorine residual throughout the system, pathogen monitoring and control, operations of water storage tanks to ensure proper turn-over on a daily basis and other on-going water quality issues.

Assess the existing process monitoring (SCADA system) at the water treatment plant to ensure that it is capturing and storing all critical data and that all settings are appropriate and maintenance is being performed.

Task 3 – Capacity Building

Task 3 will be a combination evaluation of the existing organizational structure to determine if the utility is adequately and appropriately staffed and that staff have the qualifications to meet the needs of the system.

In addition, building additional support at the water treatment plant and for the distribution system to meet the operational and routine maintenance requirements will be a key element of building the capacity for proper operations of the TWW system.

The evaluation of existing operations & maintenance manuals and standard operating procedures will be performed and recommendations will be made to provide revisions or additions to existing O&M Manuals and Standard Operating Procedures (SOPs) to strengthen and enhance system operations. We will also review existing training programs to determine if they are adequate or if changes should be made to improve training to build a more robust and skilled organization.

Task 4 – Project Deliverables

The Department's September 27, 2022 Inspection report sets forth a series of findings and corrective actions required on the part of TWW. A key deliverable of our work will be the development of a detailed Corrective Action Report (CAR) that will outline the actions to be taken to address the identified deficiencies/violations and the timeframe for completion of the activities.

Once the analysis of current staffing levels has been completed and compared to the recommended staffing levels, we will develop a full-time staffing plan that identifies critical positions that must be filled along with the staff qualifications. A prioritized listing of staff requirements will be prepared so that the highest priority positions will be addressed first.

The itemized listing under Task 4 includes an evaluation and preparation of a Contract Operations Plan. This scope of work is not identified or described in Task Nos. 1 through 3. As such, the full scope of the evaluation has not been considered at this time. Once a scope for a Contract Operations Plan is developed, we will provide a summary of our work and the associated Plan deliverable.

As noted under Task 2, we will prepare scopes of work for the Comprehensive Performance Evaluation and Comprehensive Technical Assistance tasks. Our summary deliverable will also include an evaluation of compliance with 7:10 Subchapter 13 which addresses having the Technical, Managerial and Financial (TMF) capabilities required by the Utility.

The 360^{o} assessment will include a detailed summary of findings from a wide range of evaluations including staffing, operations, compliance and maintenance. Each of these evaluations will likely be delivered initially as draft Technical Memoranda for review by NJDEP. As each item has been reviewed and comments addressed, they will be incorporated into an overall report that will identify problem areas and make recommendations for improvements.

Task 5 – Progress Reporting

Joseph Stanley, PE, Mott MacDonald's Project lead will be responsible for attending weekly status meetings and preparing monthly status reports. Additional Mott MacDonald and other subcontracted staff will participate in meetings as may be required.

Progress reporting will include monitoring of schedules established for completing the analysis and evaluations under Task Nos. 1 – 3 and should there be delays in completing specific tasks, a recovery schedule will be developed and submitted to NJDEP for review.

2 Credentials and Experience

Mott MacDonald would like to highlight our team's experience with Trenton Water (TWW) in the specific areas noted in the RFP, which will allow us to focus on developing specific plans and action items requested in the RFP, without a learning curve. Our proposed staff have direct TWW project and permitting experience in these areas.

Regulatory Compliance Support

Mott MacDonald provided on-call regulatory compliance support to TWW from 2011 through 2020. In addition to these types of services, Mott MacDonald has assisted the utility in completing numerous capital projects for more than 25 years. Over this period, we have developed a strong understanding of the challenges associated with operating the utility.

Most recently, we prepared the General Air Permit applications for the generators at the Filtration Plant as well as the much more complicated Individual Air Permit, which required air modelling, for the two natural gas driven generators at the Central Pump Station. Those generators are permitted to run near constantly, if required or desired, which provides tremendous flexibility to the utility for load shedding potential.

As part of the on-call regulatory services for TWW, Mott MacDonald has also prepared the following recent regulatory permit filings:

- DPCC permit preparation and renewal
- Annual testing and report on emergency Interconnections (2018-2020)
- Annual water main permit renewals (2018-2020)
- Regular Pennington Reservoir Dam Inspections (most recent 2021)
- 2018 ACO Responses
- Non-revenue water audits

Emergency Response Plans and Assistance and Standard Operating Procedures

As a response to the 2018 Administrative Consent Order, we assisted TWW with documentation to satisfy the deadline for the updating of Emergency Response Plans. Likewise, we assisted in updating and, in certain cases, developing Standard Operating Procedures (SOPs) for various elements of the utility.

In addition, a separate response plan was specifically developed for the operation of the reservoir to detail when and who needed to be contacted during reservoir level decline. Such a response plan and associated SOP was mandated by the NJDEP following episodes of the Filtration Plant going offline and the reservoir level falling. Up until the development of such documents, there was not a good understanding of the impacts upon the distribution system and its various pressure zones at various reservoir levels.

Mott MacDonald has also been providing technical and staffing assistance to TWW by providing resident observation of water main installations by developers. We have developed standard forms and practices for the progress reporting and collecting record information to be included in the TWW GIS database.

Capital Planning and Studies

Mott MacDonald prepared the last comprehensive Capital Improvement Planning Study several years ago. Through our work with TWW in the Past, we have identified several new items to address risk and resiliency, which we suggest be included in future capital improvement plans. Such items include:

- District metering to identify areas for reduction of non-revenue water
- Metered, controlled interconnections between TWW pressure zones to mitigate pump station and tank maintenance shutdowns.
- Additional storage facilities and looping mains to address growth and resiliency in Hopewell Township.
- Backup pumping facilities to the critical Central Pumping Station.

In addition to Capital Planning, we have prepared studies or planning documents for TWW. A small example list of examples includes:

- Evaluation of the Water Utility organizational structure and operation (2017)
- Evaluation of the system's disinfection by-products formation and control (2018)
- Development of the USEPA Water System Vulnerability Study
- Evaluation and preliminary design of the water utility's SCADA system
- Evaluation of additional rechlorination stations at key facilities. (2020)

Water Quality and Hydraulic Modeling

Mott MacDonald developed and maintains the hydraulic model for the TWW distribution system. The model has been used to evaluate water quality parameters such as water age and disinfection residuals using tracer modelling tools. The calibrated hydraulic model that we have developed has been vetted by the USEPA at the request of the NJDEP to determine the degree that it could be relied upon during water emergencies.

The model has also been used by Mott MacDonald to develop unidirectional flushing programs to be performed by TWW staff.

The model is also a key tool used by Mott MacDonald to prioritize and recommend areas of unlined cast iron main for rehabilitation or replacement. Since 2003, Mott MacDonald has designed over 50 miles of distribution system improvements within the TWW distribution system.

Major Capital Projects

In addition to the distribution system improvements described above, Mott MacDonald has designed, permitted, and assisted in the startup and commissioning of the following TWW major capital projects, up through the recently commissioned critical raw water intake.

- Mechanical dewatering facility
- Ascending Main rehabilitation
- Improvements to the critical Central Pump Station
- Hopewell/Brandon Farms hydropillar
- Improvements to the Ewing Booster Station
- Trenton – NJ American Water interconnections
- Temporary storage tanks at the reservoir
- Raw water intake

A selection of case studies is provided on the following pages which further demonstrates Mott MacDonald's experience with and knowledge of the TWW System.

Project

Pennington Reservoir Temporary Tanks

Client

Trenton Water Works (TWW)

Location

Mercer County, NJ

Expertise

Hydraulic Modeling; detailed design; permitting; loan funding; construction administration

Continuing operations using a temporary solution

The City of Trenton was required by Consent Agreement to cover an open finished water reservoir and identified a floating cover as the optimal solution. While the cover was being installed, temporary tanks were constructed to ensure that service of the reservoir was not interrupted.

Opportunity

Trenton Water Works (TWW) serves the City of Trenton and four adjoining municipalities with a combined population of 225,000. As part of the water distribution system, TWW operates an open finished water reservoir. The reservoir has a reported capacity of approximately 104 MG and a surface area of seven acres. The reservoir was constructed in 1896 and consists of concrete walls and earthen embankments that average 41 feet in height. Based upon the construction configuration, the facility is classified as a dam under New Jersey Department of Environmental Protection (NJDEP) and Federal Standards. Water within the reservoir provides storage for the “Gravity Zone” and serves as the suction supply for the adjacent Central Pumping Station that supplies water to the High Service zone. Due to growing concerns regarding the quality of the water TWW needed to evaluate alternatives for covering the reservoir.

Solution

Mott MacDonald evaluated several alternatives including the following:

- Installing a floating cover over the reservoir

- Installing a rigid cover over the reservoir
- Constructing new tanks within the footprint of the existing reservoir
- Abandoning the existing reservoir and constructing new storage tanks elsewhere in the system

The evaluation concluded that installation of a floating cover was the most cost-effective solution. The evaluation also determined the need and location for interim storage facilities during construction. Site constraints would only permit approximately 2 to 3 MG of interim storage. Following completion of the study, the City entered into a Consent Agreement with NJDEP to cover the reservoir.

In order to remove the reservoir from service to install the floating cover and undertake other rehabilitation work, it was necessary to provide temporary storage tanks to allow the system to continue to operate effectively. The volume of storage was limited due to the lack of available space on site.

The temporary storage facilities include two 1.6 MG glass lined storage tanks. The storage tanks were interconnected with the existing transmission main systems supplying the reservoir and Central Pumping Station by 36-inch diameter ductile iron pipes.

Outcome

The temporary tanks were designed to meet applicable NJDEP Safe Drinking Water requirements including appropriate overflow and level control devices. The use of glass lined bolted steel tanks were selected as these tanks were disassembled and removed from the site once the overall reservoir rehabilitation and covering project was completed.

Project

Water Distribution System Modeling and Analysis

Client

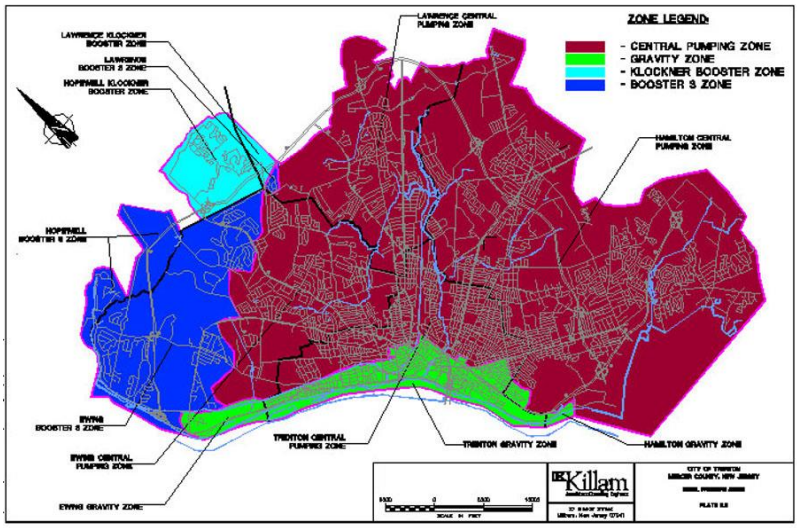
Trenton Water Works (TWW)

Location

Mercer County, NJ

Expertise

Hydraulic Modeling
GIS Applications



Utilizing GIS technology to keep a distribution system running smoothly

The City of Trenton owns and operates a water supply and distribution system that provides service to approximately 60,000 customers in the City of Trenton, and within portions of Ewing, Hamilton, Lawrence and Hopewell Townships. Approximately 26,000 customers are located outside of the City. Due to this high volume of customers, the system experiences natural wear and tear, causing a need to update and anticipate future scenarios to avoid system failure.

Opportunity

The system delivers an average of approximately 29 million gallons per day (MGD). Approximately 45 percent of the supply is used in the City, with the balance going to the surrounding Townships.

Solution

Mott MacDonald was retained to perform detailed analysis of the distribution system under several future scenarios. The study also included a plan of recommended improvements.

A key tool in the analysis was a computer model of the entire distribution system developed by Mott MacDonald. All pipes in the distribution system 4-inch diameter and larger were included in the model. The model contains approximately 6,500 pipes and 4,300 junctions. The model also includes storage facilities and booster pumps. The demands were loaded into the model using GIS techniques to input metered production and consumption records from the City of Trenton. The model was calibrated to existing conditions based upon

system operating conditions and over 20 fire hydrant flow tests conducted by Mott MacDonald.

Outcome

Analyses were performed to identify areas of deficient fire flows, low pressures, and potential degradation of water quality due to poor circulation. Mott MacDonald developed a plan of improvements to address these deficiencies. The model has also been used extensively by Mott MacDonald to help the city prioritize its ongoing water main rehabilitation program

Project

48” Ascending Transmission Main Evaluation, Design and Rehabilitation

Client

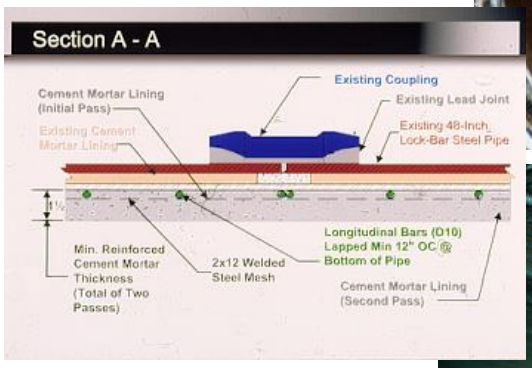
Trenton Water Works (TWW)

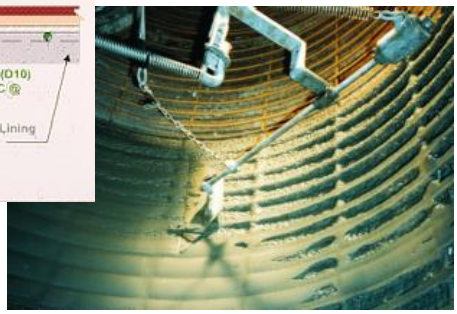
Location

Mercer County, NJ

Expertise

Internal pipe inspection, pipe thickness analysis, plans and specifications, resident inspection, construction services, record plans





Investigation and rehabilitation to reduce Unaccounted-for-water and chronic leak issues

The city of Trenton, as part of an ongoing program to reduce the amount of unaccounted-for-water and the cost of chronic leak repairs, retained Mott MacDonald to conduct a field investigation and design rehabilitation improvements to the City’s 48-inch diameter ascending transmission main.

Opportunity

Trenton Water Works’ (TWW) 48-inch diameter ascending main is one of two main arteries which connect TWW’s water filtration plant with its 100 MG central storage reservoir. The ascending main is approximately 6,200 feet long, of which 5,300 feet is steel lock-bar pipe and approximately 900 feet is cast iron pipe. The main was constructed in 1907 and was repaired with cement mortar lining in 1940. A portion of the main is installed in a tunnel which crosses under abandoned railroad tracks. A portion of the main also crosses under the D&R Canal.

TWW experienced numerous leaks in the main, which required repair projects to be implemented at an annual cost of approximately $45,000. The leaks also caused the disruption of City roadways and presented a safety hazard. It is estimated that leakage in the 48-inch main was approximately 300,000 gpd.

Solution

Mott MacDonald provided internal and external pipe investigation, pipe thickness analysis, corrosion investigation, structural evaluation of 400-foot tunnel, and prepared a report of alternative repair techniques including recommendations for the 5,300-foot steel lock-bar portion of the ascending main. The project was

divided into two phases with the first phase covering the steel lock-bar pipe and tunnel section and the second phase covering the cast iron pipe section.

A plan of the tunnel was also made from the inspections, to include recording known disturbances. Cracks were examined to determine if the tunnel was overstressed. Recommendations of the sealing of all internal pipe joints, reinforced cement mortar lining, spall and steel pipe repairs and abandonment of the tunnel were made and a preliminary budget estimate for rehabilitation was also developed as it was determined to be the most cost-effective approach for TWW, as opposed to replacement or no action.

Outcome

The project was divided into two phases with the first phase covering the steel lock-bar pipe and tunnel section and the second phase covering the cast iron pipe section.

Under Phase 1, we prepared the design of a 1 1/8" thick reinforced cement mortar lining, internal joint repair details, and tunnel abandonment.

Under Phase 2 of the project, the 48" diameter cast iron main in front of TWW's Water Treatment Plant was rehabilitated with the installation of 84 In-Weg internal joint seals. Joint seals were installed in approximately 1,000 feet of pipe.

Project

Trenton Water System Master Plan

Client

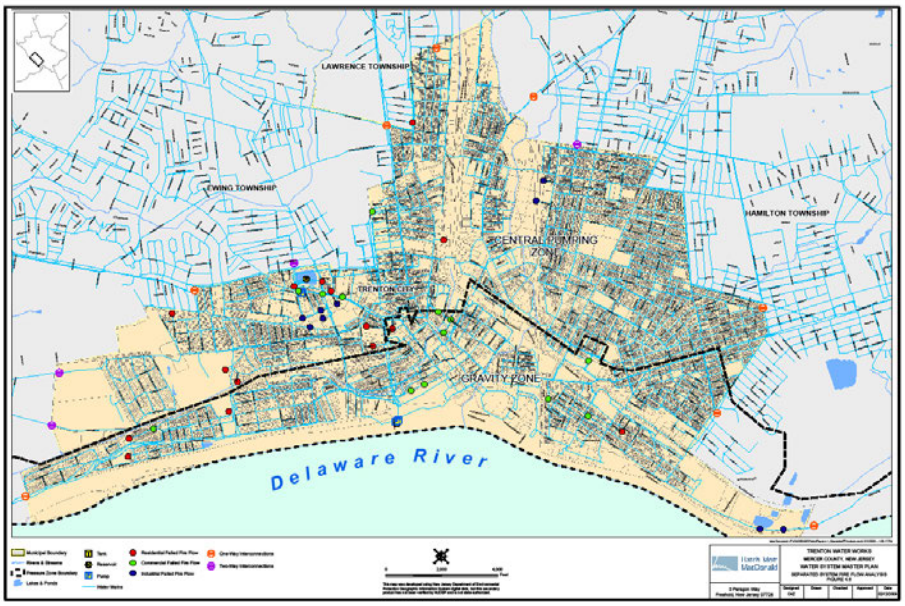
Trenton Water Works (TWW)

Location

Mercer County, NJ

Expertise

Master plan; asset management plan; strategic plan



Planning wisely for the future

A significant investment in Trenton's water supply system extended the life of the critical infrastructure necessary to provide 60,000 customers with safe and clean water.

Opportunity

Trenton Water Works (TWW) owns and operates a water supply system that delivers an average of approximately 30 million gallons per day to approximately 60,000 customers throughout the City and to several other municipalities. The system includes a water treatment plant on the Delaware River, an open, unfinished water reservoir, three booster pumping stations and five storage tanks. TWW was in need of a Capital Improvement Plan (CIP) to address several critical issues in the system.

Solution

Mott MacDonald was retained and geared towards identifying a 10-year, $35 million CIP which included the following:

- Necessary investments at the Central Pumping Station to maintain the station in a reliable operating condition while addressing the need to replace equipment which had reached the end of its useful life
- A plan to address the finished water reservoir
- A review of the renewal needs for 64 miles of distribution system piping including a continuing cleaning and cement-mortar lining program to restore hydraulic capacity and improve water quality within the distribution system

This project also included a detailed hydraulic investigation as to the infrastructure requirements to separate Ewing, Lawrence, and Hamilton

Townships from the existing system for potential sale to another water utility as part of a current strategic plan by the City of Trenton.

A critical component of the project was the development of an Asset Management Plan. This plan was developed to address the required modifications to business process and implementation of instrumentation systems to improve the day-to-day operations and maintenance activities associated with system assets, while providing better data collecting and information processing for long-range water system planning. This effort included evaluating the existing practices in the organization for collecting operation and maintenance information, decision making practices for renewal and replacement of assets, and providing recommendations for improvement.

Project

Water System Improvements – Cleaning and Lining of Water Mains

Client

Trenton Water Works (TWW)

Location

Trenton and Hamilton Township, NJ

Expertise

Hydraulic study; planning document; loan application; plans and specifications; permits; bid phase services; construction phase services

A noticeable difference in flow and quality

A hydraulic study performed on Trenton's water distribution system resulted in the cleaning and lining of 5% of TWW's total water main footage.

Opportunity

The Trenton Water Works distribution system contains approximately 620 miles of water mains. Approximately 200 miles of water mains are unlined cast iron. As part of its ongoing distribution system rehabilitation program, Trenton Water Works (TWW) was interested in upgrading the existing water distribution system in areas with unlined cast iron pipe, some of which was over sixty years old, which had insufficient fire flows, low pressure, and water quality complaints

Solution

Mott MacDonald's scope included performing a hydraulic study using a computer model of the distribution system to determine the optimized (cost-effective) program of system upgrades and rehabilitation. The computer model was field verified in a series of fire flow and coefficient tests. Based on the results of the hydraulic modeling effort, Mott MacDonald recommended a program of main replacement, abandonment of 4-inch mains, and cleaning and cement mortar lining of unlined cast iron mains.

Outcome

The project included the following:

- Installation of 4,000 L.F. of 6" diameter pipe and 22,900 L.F. of 8" diameter pipe
- Cleaning and lining of 13,700 L.F. of 4" diameter pipe, 103,100 L.F. of 6" diameter pipe, 35,700 L.F. of 8" diameter pipe, 2,600 L.F. of 10" diameter pipe and 6,000 L.F. of 12" diameter pipe

Under the Project, the total footage cleaned and lined represents approximately 5% of the total footage in the TWW distribution system. Approximately 27% of the system's water mains remain unlined.

Mott MacDonald's scope of services also included the preparation of contract plans and specifications for the recommended improvements. The project was divided into multiple construction contracts that are being constructed over a

several year interval. Separate sets of contract documents were prepared for each contract.

Mott MacDonald prepared the engineering documents for TWW to apply for state revolving loan funding for the rehabilitation projects. Mott MacDonald also assisted TWW in obtaining the required environmental, cultural resources, and road restoration permits for the projects and provided bid phase services. We also provided complete construction phase services including shop drawing review and resident observation throughout the project.

Project

TWW-NJAW Interconnection Booster Stations

Client

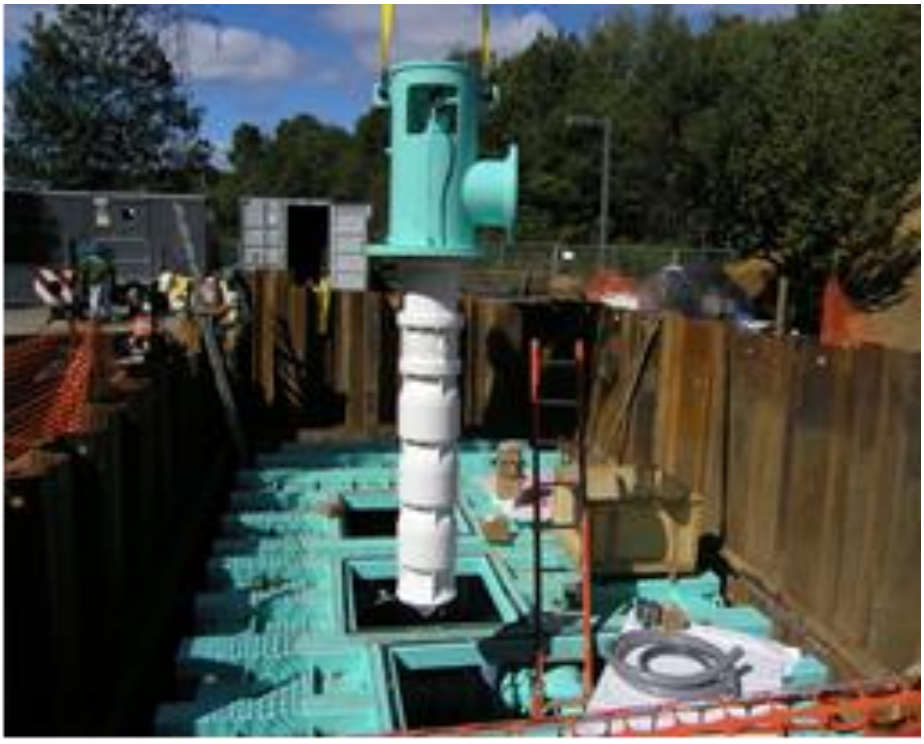
Trenton Water Works
New Jersey American Water

Location

Lawrence Township, Mercer County, NJ

Expertise

Water Booster Pumping Stations



Connecting Regional Water Suppliers

Trenton Water Works (TWW) and New Jersey American Water (NJAW) were interested in improving an existing emergency interconnection between their two water systems.

Opportunity

Mott MacDonald was engaged to perform a study and develop a plan for a major upgrade of interconnection capacity. Mott MacDonald developed a plan that included two new booster pumping stations and several miles of water main extensions. The first phase would provide an initial transfer capacity of up to 10 million gallons per day (MGD) in either direction. The plan included provisions for a second phase to achieve an ultimate flow of 20 MGD in either direction.

Solution

Following completion of the study, Mott MacDonald assisted both TWW and NJAW in developing agreements for the implementation and operation of the interconnections. Both clients engaged Mott MacDonald to perform design, permitting, bid, and construction phase services. One booster station, and water mains within the NJAW system, were designed and constructed under contracts with NJAW. TWW contracted for design and construction of the second booster station and water mains in their system.

Outcome

This project is the largest emergency water interconnection constructed in New Jersey in many years, and results in an ability, in combination with other interconnections, to transfer large volumes of water across several major

regional water systems in Central and Northern New Jersey.

Each of the two booster stations were designed as prefabricated underground facilities, and are among the highest capacity stations of this type ever built in New Jersey. Each station included the following:

- One initial and one future 5 MGD vertical turbine can pump with 300 HP motor
- Variable speed drives
- Valves and controls to allow the stations to pump in either direction
- Bi-directional flow metering
- Instrumentation and controls for remote monitoring and control
- 10 MGD Potable Water Pump Station
- Prefabricated Pump Station

Project

TWW-NJAW Interconnection Mains

Client

Trenton Water Works

Location

Lawrence Township, Mercer County, NJ

Expertise

Hydraulic Study, Plans and Specifications, Permits, Bid Phase Services, Construction Phase Services

Connecting Regional Water Suppliers

Trenton Water Works (TWW) and New Jersey American Water (NJAW) were interested in improving an existing emergency interconnection between their two water systems. Improvements included construction of interconnection transmission water mains to carry water between the two providers.

Opportunity

Trenton Water Works (TWW) was interested in improving the existing emergency interconnections with New Jersey American Water (NJAW) through the construction of a two-way underground, prefabricated booster station and two interconnection transmission water mains. The Interconnection water mains and the Booster Station were included under separate contracts.

The project was initially designed to provide a two-way transfer of up to 10 million gallons per day (MGD) in either direction, with provisions for an expansion to ultimate flow of 20 MGD in either direction.

Solution

The project included installation of 9,800 lf of 24” diameter ductile iron main located along Princeton Pike, Lawrence Township, 2,100 lf of 24-inch ductile iron main located along Quaker Bridge Road, Hamilton Township, 9,300 lf of 16-inch ductile iron main located along Young’s Drive, Thomas Rhodes Industries Drive and Quakerbridge Plaza in Hamilton Townships, crossing of Interstate Highway I-295, including attachment to bridge over the highway, and jack/bore crossings of access ramps. Two stream crossings, including one open-cut crossing and one jack/bore crossing were also constructed, and easement surveys and assistance with easement acquisition was provided.

Outcome

This project is the largest emergency water interconnection constructed in New Jersey in many years, and results in an ability, in combination with other interconnections, to transfer large volumes of water across several major regional water systems in Central and Northern New Jersey.

Project

Central Pump Station Improvements

Client

Trenton Water Works (TWW)

Location

Trenton, NJ

Expertise

Alternatives Evaluation

Design Plans and Specifications

Construction Administration

Resident Engineering

Improving pump stations to avoid electrical failure in Trenton

The Trenton Water System (TWW) is one of the largest municipal water systems in New Jersey. It services approximately 60,000 customers in Trenton, Hamilton, Ewing, Lawrence and Hopewell through 630 miles of transmission and distribution mains. It has an average daily demand of approximately 28 MGD. The service area is divided into four pressure gradients.

Opportunity

Constructed in 1957, the Central Pumping Station (CPS), which directly serves 80% of TWW's customers, contains four pumps (No. 1 – 10 MGD; No. 2 – 15 MGD, No. 3 – 20 MGD and No. 4 – 24 MGD). The No. 3 pump is powered by a natural gas driven engine and the remaining three units are equipped with constant speed electric motors. Two independent 26 KV lines provide power to the station and no other emergency standby means of pump operation available, since electrical power is still required in order for the natural gas driven engine to operate. The critical nature of the station became evident during a failure of the two independent electrical service lines. Following this incident, TWW authorized Mott MacDonald to design improvements to the station to reduce the potential for a repeat occurrence along with other improvements to address vulnerabilities identified under an evaluation conducted in accordance with the requirements of the Public Health Security and Bioterrorism Preparedness and Response Act of 2002.

Solution

Mott MacDonald prepared an evaluation of alternatives and a basis of design report that included:

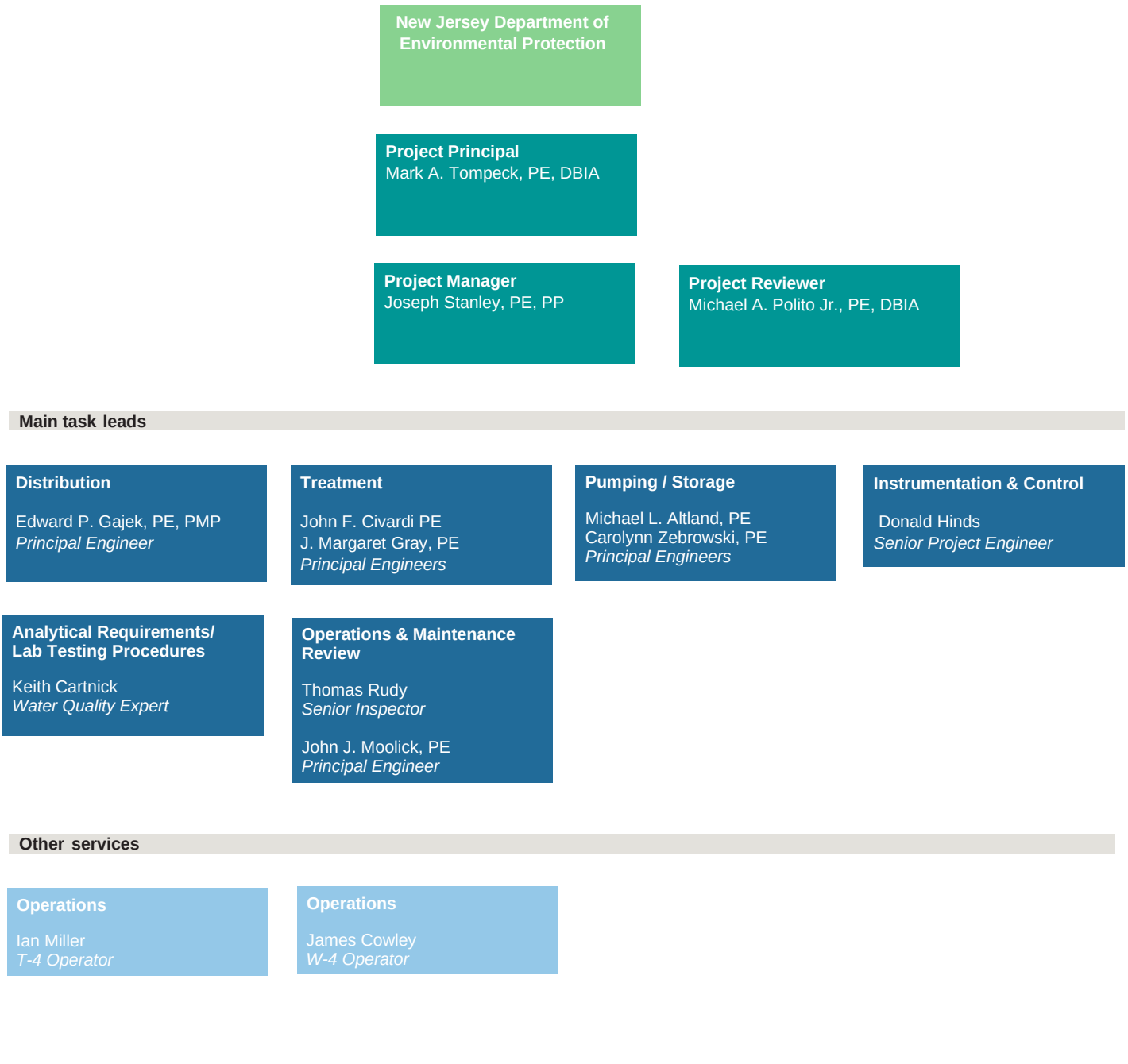
- Methods of maintaining the station in operation during construction of improvements.
- Provide an evaluation of the feasibility for maintaining the existing natural gas engine driven pump given its age; condition; maintenance costs; useful life; operating range; and current utility rebate program.
- Determine the number and combination of pumps that should be capable of operating under power failure conditions and which units should be provided with variable speed drives.
- Determine the most feasible and secure location for the new enclosed substation.
- Evaluate potential generator alternatives.
- Provide an assessment of architectural improvements to the station to mitigate its vulnerabilities and to correct the effects of age.

Outcome

The final design included the replacement of the natural gas engine with an electric motor; two generators (one operating constantly in order to preserve the utility rebate program with the second available as a backup and during power failure conditions); and variable speed drives on the two larger pumping units.

3 Personnel

Organizational Chart



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MOTT MACDONALD

Mark A. Tompeck, PE, DBIA

Personal summary

Education:

MS, Civil Engineering, New Jersey Institute of Technology, 1981

BS, Civil Engineering, New Jersey Institute of Technology, 1979

Registrations:

Professional Engineer

[redacted]

NCEES National Council of Examiners for Eng & Surv [redacted]7, 2013

Designated Design-Build Professional, DBIA, 2011

Envision Sustainability Professional, 2017

OSHA Confined Space Entry

Years with Mott MacDonald:

41

Years with other firms:

0

Professional memberships:

American Water Works Association

International Desalination Association

Mr. Tompeck is a Senior Vice President and is the firm's Water Practice Leader, responsible for the firm's water sector strategy. He has a broad range of engineering experience in the area of water supply, including projects involving feasibility studies, design, preparation of contract plans and specifications, and construction supervision for projects including treatment facilities, wells, pipelines, pumping facilities, and storage tanks. He has developed expertise in many areas of water supply engineering covering all aspects of projects, ranging from planning and design to permitting and construction engineering.

Mr. Tompeck has served as Project Manager on a wide variety of projects involving the design and construction of treatment plants, pumping stations, chemical storage/feed facilities, water and sewer pipelines, storage tanks, and wells. He has provided project management for large and small projects (ranging in size from $500,000 to $67 million) involving both new construction and rehabilitation of existing facilities, completing them on time and within budget.

Mr. Tompeck's water treatment design and construction engineering experience covers a variety of treatment scenarios and technologies, including iron and manganese removal, hardness treatment, micro/ultra-filtration, reverse osmosis, ozonation, ultraviolet (UV) disinfection, Volatile Organic Compounds (VOC) and radionuclide removal, and taste and odor treatment. He has designed numerous chemical storage and feed systems, residuals handling/treatment systems, filtration systems, and instrumentation and control systems for surface water and groundwater supply treatment facilities.

Mr. Tompeck has also designed many water storage facilities and has been extensively involved with the study/evaluation and subsequent rehabilitation of both steel and concrete storage facilities. Work has included detailed field inspection and testing, preparation of evaluation reports, preparation of plans and specifications, and construction administration.

Mr. Tompeck has extensive experience with the State Revolving loan program and has assisted numerous clients with obtaining low interest loans. He has been responsible for the preparation of Drinking Water State Revolving Fund (DWSRF) documentation including preparation of project report, planning documents, and other loan documentation requirements.

Mr. Tompeck also has experience with residuals handling and wastewater system projects, including dewatering and treatment facilities, pumping stations, and sewer systems. He has been responsible for the design of various sewer system improvements, including new sewers and rehabilitation/upgrading of existing sewers.

Mr. Tompeck's experience also includes the study, evaluation, inspection, upgrading, and rehabilitation of dams to remediate seepage conditions and improve dam stability. Recommended designs have included the installation of inclined rock anchors, replacement of inoperative sluice gates, and chemical grouting of embankment areas. He has also been responsible for the preparation of Emergency Action Plans (EAP), Operation and Maintenance Manuals, and Formal Inspection Reports.

Selected projects

Canoe Brook Water Treatment Facility Master Plan, New Jersey American Water, Essex County, NJ: Principal-in-Charge for a treatability study for the 14 MGD treatment facility. Evaluated both rehabilitation and new plant options. The study found that a new treatment plant using Dissolved Air Flotation (DAF) followed by intermediate ozonation and biologically-activated carbon was the optimum treatment process for the facility.

Water Quality Treatability Study and Design, City of Rahway, Union County, NJ: Preparation of a comprehensive study of the City's surface water supply treatment system as a result of Volatile Organic Compound (VOC) contamination as well as an assessment of the impact of proposed regulations, including the Surface Water Treatment Rule, Total Coliform Rule, Lead and Copper Rule, and Disinfection By-products Rule.

Franklin Park District Water Supply Study, Franklin Township, Somerset County, NJ: Preparation of a comprehensive study examining the various alternatives for water supply for the Franklin Park District area of the Township. The study reviewed existing demands, projected future demands, and investigated supply alternatives, and made recommendations for transmission mains, storage tanks, and pumping facilities as well as cost estimates for the various supply alternatives.

St. Elmo's Reservoir Evaluation, VA American Water, Alexandria, VA: Project Engineer for the inspection and structural evaluation of the St. Elmo's Reservoir. The project involved the inspection, structural testing, and evaluation of the 700,000-gallon reinforced concrete finished water reservoir. Work included a detailed inspection of both the interior and exposed exterior of the structure to locate defective areas, structural testing including destructive and non-destructive concrete testing, and a structural analysis to determine compliance with current design codes and standards. An evaluation report was prepared outlining the results of the inspection and analysis, and included recommendations for remediation.

Wyoming Reservoir Rehabilitation, New Jersey American Water, Short Hills, NJ: Project Engineer for the structural rehabilitation of the Wyoming Reservoirs. NJAWC owned and operated two buried reinforced concrete reservoirs with a combined capacity of 2.7 MG. Wyoming Reservoir No. 1 was constructed in the 1930s and was in very poor condition and Wyoming Reservoir No. 2 was constructed in 1942. The project involved the structural evaluation and preparation of an evaluation report recommending improvements to the facilities. The study involved detailed field survey to locate significant cracks and other structural concerns, destructive and non-destructive concrete testing, and structural analysis of the two reservoirs. The evaluation report recommended the abandonment and demolition of Reservoir No. 1 due to its poor structural condition, and the rehabilitation of Reservoir No. 2 utilizing crack and spall repair and coating of the concrete surfaces with a crystalline coating to protect the surfaces from chemical attack. Work subsequently included design and construction services for the recommended improvements.

Jerusalem Road Reservoir Rehabilitation, New Jersey American Water, Scotch Plains, NJ: Project Engineer for the evaluation of causes of the roof failure and development of alternatives for replacement of the roof system. Served as Project Engineer for the design and preparation of contract plans and specifications and construct phases of the fast-track project.

Newman Springs Clearwell Rehabilitation, New Jersey American Water, Middletown, NJ: Project Engineer for the study and design of improvements to the 3.0 MG Newman Springs Clearwell, which was originally an open sedimentation basin and was constructed in the late 1920s. In the early 1980s, the basin was converted to a covered clearwell reservoir with the addition of columns and a precast concrete/membrane roofing system. The Water Company was concerned about excessive leakage and the structural condition of the reservoir. A detailed evaluation of the structural condition was undertaken and included a leakage evaluation, including the mapping of crack and spall areas, non-destructive testing of the concrete surfaces, including windsor probes, and the preparation of a report outlining the conclusions and recommendations for upgrading the structure. The report recommended the repair of crack and spall areas and the sealing of the base joint between the wall and floor of the structure utilizing a flexible, seamless, spray-applied membrane system. Improvements to the clearwell were designed, and construction phase engineering and observation services were also provided. Following the implementation of the recommended improvements, leakage from the reservoir was reduced to nondetectable levels.

Orange Reservoir Dam Rehabilitation, City of Orange, West Orange, NJ: Project Engineer for the study and design of improvements to the Orange Reservoir Dam. Work included an evaluation of alternatives for upgrading of the dam to pass the spillway design flood. Responsible for the design of improvements that included armoring the downstream face of the dam with gabions to act as a spillway during the spillway design flood, and rehabilitation and repairs to the existing spillway. Responsibilities included preparation of cost estimates, assistance with obtaining necessary permits, and construction administration services.

Glendola Reservoir Dam Formal Inspection, New Jersey American Water, Wall, NJ: Project Engineer for the formal inspection of the Glendola Reservoir Dam. Work included on-site inspection of the dam and appurtenances, evaluation of piezometer data, stability analysis, evaluation of recommended remedial improvements, cost estimates, and the preparation of a Formal Dam Inspection Report in compliance with NJDEP regulations.

Canoe Brook Dam Nos. 1, 2, and 3 Rehabilitation, New Jersey American Water, Short Hills, NJ: Project Engineer for the design and construction phases of the improvements to the earth dam structures for Canoe Brook Reservoir Nos. 1, 2, and 3. Work included the design of improvements for seepage control, embankment protection, dam crest leveling, and the installation of a boat launching ramp (Canoe Brook Dam No. 2). Work also included the

preparation of Operation and Maintenance (O&M) Manuals for each dam in compliance with NJDEP requirements.

Jumping Brook Dam Improvements, New Jersey American Water, Neptune, NJ: Project Engineer for the design and construction of improvements to the Jumping Brook Dam. Initial evaluations included a stability analysis of the dam and a review of the regulatory requirements associated with breaching the dam. Design included reconstruction of a portion of the spillway, vegetation removal, infiltration gallery intake design, and permit acquisition. Work also included the preparation of an Operation and Maintenance (O&M) Manual for the dam in conformance with NJDEP requirements.

Finished Water Dam Inspections/Evaluations, Trenton Water Works, Mercer County, NJ: Project Engineer for the NJDEP Formal and Regular Dam Inspections of the Trenton Water Works Finished Water Reservoir Dam. Work included on-site inspection of the 100 MG reservoir earth dam and appurtenances, stability analysis, evaluation of required remedial improvements, cost estimates for recommended improvements, and the preparation of a Formal Inspection Report. Subsequent work has included a follow-up inspection and preparation of a Regular Dam Inspection Report in accordance with NJDEP requirements and regulations.

Engineering and Geotechnical Evaluation of the Weston's Mill Pond Dam, City of New Brunswick, Middlesex County, NJ: Project Engineer for the study and evaluation of the City's Weston's Mill Pond Dam. Directed field survey operations. Also responsible for the dam evaluation and preparation of the final report, which recommended the installation of inclined rock anchors to improve dam stability and increase the factor of safety for the dam, as well as the grouting of the west embankment, rehabilitation of the outlet structure, including sluice gate replacement, and concrete repair utilizing pneumatically-applied mortar. Subsequent work included project management for the design and construction of improvements to the Weston's Mill Pond and Weston's Mill Arch Dams to rehabilitate and upgrade the facilities to meet Dam Safety requirements.

Emergency Action Plan Preparation, City of New Brunswick, Middlesex County, NJ: Responsible for the preparation of Emergency Action Plans (EAPs) and Operation and Maintenance (O&M) Manuals for Farrington Dam, Davidson's Mill Pond Dam, Weston's Mill Arch Dam, and Weston's Mill Pond Dam.

Presentations

Integration of Immersed Membranes at the City of New Brunswick Water Treatment Facility, presented with J. Margaret Gray at the Annual Conference of the American Water Works Association, New Jersey Section, 2009

NJ American Water Springfield Water Treatment Plant Planning and Design, presented at the Spring Conference of the American Water Works Association, NJ Section, 2005

Use of UV Treatment Saves Big Bucks, presented at the Spring Conference of the American Water Works Association, NJ Section, 2005

Passaic Valley Water Treatment Plant Upgrade - Phase I Construction, presented at the Spring Conference of the American Water Works Association, NJ Section, 2003

Passaic Valley Water Treatment Plant Upgrade - Design, presented at the Spring Conference of the American Water Works Association, NJ Section, 2001

Design of the Jamesburg Radium Removal Treatment Facility, presented at the Spring Conference of the American Water Works Association, NJ Section, 2000

Water System Infrastructure Rehabilitation, presented at the Spring Conference of the American Water Works Association, NJ Section, 1998

Raising Instead of Razing (Modifications to an Existing Water Storage Tank in Lieu of Demolition and New Construction), presented at the Spring Conference of the American Water Works Association, NJ Section, 1997

Teamwork in the Planning and Design of the City of Rahway Water Treatment Plant Rehabilitation, presented at the Spring Conference of the American Water Works Association, NJ Section, 1996

Energy/Operations Management, presented at the Spring Conference of the American Water Works Association, NJ Section, 1993

MOTT MACDONALD

Michael A. Polito, Jr., PE, DBIA

Personal summary

Education:

BS, Civil Engineering, University of Delaware, 1997

Registrations:

Professional Engineer

[redacted]

Designated Design-Build Professional, DBIA, 2015

OSHA Confined Space Entry

Years with Mott MacDonald:

25

Years with other firms:

0

Professional memberships:

American Water Works Association

Mr. Polito has developed a broad range of experience in the areas of water supply engineering, including feasibility studies, design, project delivery, and construction management. He has been involved in the design and preparation of plans and specifications, permitting, construction observation, construction phase engineering, and computer hydraulic modeling for such projects as water treatment facilities, wells, pipelines, pumping facilities, storage tanks, and sanitary sewer extensions. As Territory Manager for water services in Mott MacDonald's Iselin, NJ headquarters, Mr. Polito supervises a staff of engineers, designers, and field inspectors involved in the design and construction of new and rehabilitation of existing drinking water infrastructure.

Mr. Polito's water treatment design and construction engineering experience covers a variety of treatment technologies, including iron and manganese removal, hardness treatment, ultraviolet (UV) disinfection, brackish water desalination, Volatile Organic Compounds (VOCs), Perfluoronated chemical (PFC) removal, UV-peroxide advanced oxidation for 1,4-dioxane removal, and radionuclide removal. He has participated in the design of numerous chemical storage and feed systems, filtration systems, and instrumentation and control (I&C) systems for surface water and groundwater supply treatment facilities.

Mr. Polito has been involved with instituting the use of Building Information Modeling (BIM) software for the design of treatment facilities. BIM incorporates a fully integrated 3-dimensional model of the facility and uses Revit MEP software by Autodesk.

Selected projects

Water Treatment Plant Upgrades, City of New Brunswick, Middlesex County, NJ: Project Manager for the design and permitting of upgrades to the 20 MGD surface water treatment plant. The project includes the addition of two stage flocculation and high rate clarification with plate settlers, the addition of a new baffled raw water equalization basin, and an increase in submersed membrane filtration capacity. The raw water basin and clarification system are equipped with automatic sludge collection systems. Work also includes replacement of the bulk hydrated lime storage and feed system, powdered activated carbon system, and improvements to the existing sulfuric acid storage and feed system. A complete replacement of the plant-wide SCADA system is also included. (2018 – present)

Raritan-Millstone Water Treatment Plant Facility Master Plan, New Jersey American Water (NJAW), Middlesex County, NJ: Project Engineer for a master plan for the 190 MGD water treatment plant. The project included the identification of treatment and mechanical deficiencies at the plant and the development of projects to address these deficiencies. Approximately 40 projects were identified. A scoring system was developed to prioritize the projects. Three workshops were held with project stakeholders to identify and prioritize the improvement projects. (2008 – 2010)

Water Supply Master Plan, Monroe Township Municipal Utilities Authority, Middlesex County, NJ: Assisted in the preparation of a comprehensive master plan for the Authority's water system, which consists of over 185 miles of distribution and transmission mains, three pressure zones, and five storage tanks with a combined capacity of 9.61 MG. Water is supplied by six full-time groundwater production wells, two Aquifer Storage and Recovery (ASR) wells, and a bulk interconnection with New Jersey American Water. The system also includes two radium removal treatment facilities. Work included the development of a system-wide Geographic Information System (GIS)-based hydraulic model to evaluate system characteristics, including available fire flow protection, storage requirements, future demand conditions, and system reliability. The hydraulic model was created using Infowater. (2005 – 2008)

Canoe Brook Water Treatment Plant Facility Master Plan, New Jersey American Water, Millburn, NJ: Preparation of a comprehensive Facility Master Plan (FMP), which included a detailed evaluation of the existing plant process equipment and water quality parameters. The planning effort also included generation of conceptual level site and process layouts for 12 separate options for the full replacement and rehabilitation of the facility. The FMP included the generation of capital and Operation and Maintenance (O&M) cost estimates for each option. (2007 – 2008)

Raritan-Millstone Water Treatment Plant Facility Master Plan, New Jersey American Water, Middlesex County, NJ: Project Engineer for a master plan for the 190 MGD surface water treatment plant. The project included the identification of treatment and mechanical deficiencies at the plant and the development of projects to address these deficiencies. Approximately 40 projects were identified. A scoring system was developed to prioritize the projects. Three workshops were held with project stakeholders to identify and prioritize the improvement projects. (2008 – 2009)

Florida Grove Reservoir Improvements, City of Perth Amboy, Middlesex County, NJ: Project Manager and Lead Engineer for the evaluation of and subsequent improvements to the 40 MGD finished water reservoir. Project included development of a revised system operations plan to allow the City to operate the water distribution system without the reservoir on-line. Work included the design and oversight of various system improvements to allow the reservoir to be taken off-line for an extended period. System improvements included the installation of new isolation valves, upgrade of the existing interconnection with the neighboring Water Company, repurposing and reactivation of the Albert Street standpipe, cleaning of the reservoir, and various SCADA improvements. Reservoir improvements included crack repair, upgrade of access hatches, root removal, and upgraded reservoir vents. (2007 – 2011)

Water Storage Tank Rehabilitation, Trenton Water Works, Mercer County, NJ: Assisted in the preparation of the design documents for the rehabilitation of four 1 MG elevated steel water storage tanks. Work also included field inspection of the rehabilitation work.

Finished Water Dam Inspections/Evaluations, Trenton Water Works, Mercer County, NJ: Assisted with the NJDEP Formal and Regular Dam inspections of the Finished Water Reservoir Dam. Work included on-site inspection of the 100 MG reservoir earth dam and appurtenances, preparation of Formal Inspection Report and Regular Dam Inspection Report, and updating the dam Emergency Action Plan and Operation and Maintenance Manual in accordance with NJDEP requirements and regulations.

Pedricktown Road Water Treatment Plant, New Jersey American Water (NJAW), Logan Township, NJ: Project Manager and Lead Process Engineer for the design of a new 2.4 MGD groundwater treatment facility. The new facility provides removal of iron, manganese, and Perfluorooctanoic acid (PFOA) from four new groundwater wells. The treatment process includes manganese greensand for the removal of the iron and manganese followed by granular activated carbon (GAC) for PFOA treatment. Chemical treatment includes sodium hydroxide for pH adjustment, on-site generation of sodium hypochlorite for oxidation and final disinfection, and corrosion inhibitor. The project is being delivered with a design-build delivery method, utilizing Building Information Modeling (BIM) technology to develop a 3-dimensional model of the new treatment process. (2019 – 2021)

Springfield Well Station Water Treatment Plant PFAS Treatment Addition, New Jersey American Water (NJAW), Springfield, NJ: Project Principal for the design and construction administration for the rehabilitation of the 3.0 MGD station. The project includes the removal of an existing cation weak acid exchange system and installation of an anion exchange system (AIX) for the removal of PFOA and PFOS from the groundwater wells. The project was delivered with a design-build delivery method. The existing conditions of the facility were captured with a detailed laser scan, which was used to generate a 3-dimensional Building Information Modeling (BIM) model. Additional aspects of the facility improvements include replacement of the bulk sodium hypochlorite system, relocation of the phosphoric acid system, and installation of a new liquid ammonium sulfate storage and feed system for chloramination. (2020 – 2021)

Ranney Station Improvements, New Jersey American Water, Carneys Point Township, Salem County, NJ: Project Manager and Lead Process Engineer for the design of a new 2.2 MGD groundwater treatment facility. The new facility provides removal of iron, manganese, and Perfluorooctanoic acid (PFOA) from six groundwater wells. The treatment process includes manganese greensand for the removal of the iron and manganese followed by granular activated carbon (GAC) for PFOA treatment. Chemical treatment includes potassium hydroxide for pH adjustment, on-site generation of sodium hypochlorite for oxidation and final disinfection, and corrosion inhibitor. The project was completed with a design-build delivery method, utilizing Building Information Modeling (BIM) technology to develop a 3-dimensional model of the new treatment process. (2011 – 2014)

MOTT MACDONALD

Joseph G. Stanley, PE, PP, CME

Personal summary

Education:

MS, Civil Engineering, New Jersey Institute of Technology, 1985

BS, Civil Engineering, New Jersey Institute of Technology, 1978

Registrations:

Professional Engineer

[redacted]

Professional Planner NJ [redacted] 1985

Certified Municipal Engineer NJ [redacted], 1989

OSHA Confined Space Entry, 1993

Years with Mott MacDonald:

36

Years with other firms:

7

Professional memberships:

American Water Works Association

Chi Epsilon

New Jersey Planning Officials

Key skills:

Water treatment evaluation and design

Pumping Stations

River intakes

Filter evaluation and design

Chemical feed systems

Master planning

Tracer studies

Mr. Stanley has developed an extensive range of experience in the areas of water supply and hydraulic engineering. He has been in responsible charge of projects involving master plans, feasibility studies, design, preparation of contract drawings and technical specifications. He has also supervised construction projects involving surface and groundwater supply, treatment, filtration, distribution, and storage facilities. He has also been involved in the preparation of Operations and Maintenance Manuals for major projects.

Mr. Stanley has specific experience in the upgrading, rehabilitation and retrofitting of various treatment works. His treatment process design experience encompasses a variety of pretreatment and treatment methods, and spans all treatment plant components, from the intakes and pumping equipment, through flocculation, sedimentation, and filtration, to discharge pumping stations. Facilities range in capacity up to 210 MGD and involve both surface and groundwater supplies. He has experience in the evaluation and design of rapid mix facilities, flocculators, and sedimentation basins for large surface water treatment plants. He has significant experience in the evaluation and design of filters for surface water sources. He has been involved in the selection of sand and anthracite dual media systems for uniform bed expansion during backwashing, as well as granular activated carbon (GAC) and sand filters. He has also provided design for filter underdrain replacements and air scour designs. He also has experience in the evaluation and design of water treatment plant residuals handling facilities, particularly related to large surface water treatment plants. Such designs and evaluations include solids separation, thickening, and dewatering. Mr. Stanley is also experienced in conducting tracer tests through various treatment units to obtain regulatory approval for disinfectant residence time values.

In addition to the design of treatment plants, Mr. Stanley has provided design and project management services for raw and finished water pumping stations, ranging in size from 6.0 MGD to 135 MGD. Such pumping facilities include vertical and horizontal pump configurations and high and low head applications. He is also experienced in the evaluation of complex pumping systems involving multiple hydraulic gradient conditions and flow regimes.

Mr. Stanley has been responsible for the design of elevated and ground level storage facilities, with capacities up to 15 MGD. He has specific experience in the design and construction administration of small-scale and regional ductile iron, PVC, and pre-stressed concrete water transmission and distribution mains, ranging in size from 4-inches to 60-inches in diameter, as well as water supply interconnection and metering facilities. He has been the Project Manager for projects ranging in construction cost from $10 thousand to $41 million.

Mr. Stanley's experience also includes the development of master plans for large urban water systems. His responsibilities include the development of demand projections, facility condition assessments, and recommendations for phased Capital Improvement Plans (CIPs).

Selected projects

Environmental Regulatory Compliance Assistance, Trenton Water Works (TWW), Mercer County, NJ: Performed on-call services related to various regulatory issues including TCPA, Safe Drinking Water Act, Disinfection/Disinfection By-Products Act, and other similar issues. Services also include assisting with compliance with various administrative consent orders (ACOs), involving the development of standard operating procedures (SOPs), emergency response planning, development of finished water reservoir covering alternatives, evaluation of historic records and the geographic information system (GIS) to determine likely locations of lead services, updating and calibration of the water system hydraulic model, and review of potential improvements to water system interconnections. Authored the 2017 Technical, Managerial and Financial Capacity Assessment. (2011 – present)

Water Filtration Plant Intake Improvements, Trenton Water Works (TWW), Mercer County, NJ: Project Manager for the evaluation and preliminary design of a 60 MGD Delaware River intake for a water filtration plant that had been plagued with problems of vegetative and frazil ice clogging. (2017 – 2019)

Raritan-Millstone Phosphoric Acid Feed System Improvements, New Jersey American Water, Bound Brook, NJ: Project Manager for improvements to the phosphoric acid feed system including new feed points, replacing of the feed pumps, rehabilitation of existing

chambers, installation of new 60-inch mag meter, and installation of new monitoring and control systems. (2016 – present)

Mechanical Dewatering System Polymer Feed System Improvements, Trenton Water Works (TWW), Mercer County, NJ: Project Manager for the design and construction phase services for the replacement of the polymer feed system serving the Water Filtration Plant's Mechanical Dewatering Facility that serves four 2-meter belt filter presses. (2014 – present)

Raritan-Millstone Improvements to Filters 1-30, New Jersey American Water, Bound Brook, NJ: Project Manager for the design and construction administration of the replacement of filter underdrains and media, the addition of an air scour system, replacement of filter gallery piping and valves, repair or replacement of filter troughs, replacement of filter controls, the complete retrofit of the control room and laboratory area, and addition of a new bathroom. An in-house 3D laser scan survey of the facility was used to develop a digital model, since the facility had undergone several upgrades between the 1920s and 1980s, to assist in the design and to provide an updated record to the Water Company. Project Manager responsible for construction phase services, including shop drawing submittals, operation and maintenance (O&M) manuals, progress payments, responses to requests for information (RFI), and project team coordination. (2018 – present)

Gravity Filter Evaluation, Passaic Valley Water Commission, Passaic County, NJ: Evaluated operational concerns for the gravity filters at the Little Falls Water Treatment Plant, primarily focusing on the backwash process, (2022)

Delaware River Intake Construction, Trenton Water Works, Mercer County, NJ: Engineer-of-Record for the construction phase services of a 60 MGD passive screen intake and air blast system. The new intake replaces an existing at-surface intake that had been experiencing adverse impacts with ice and vegetative build-up at certain times of the year. (2021 – present)

Swimming River Water Treatment Facilities Tracer Study, New Jersey American Water, Monmouth County, NJ: Performed a tracer study of the 36 MGD plant clearwell to verify detention time for disinfectant inactivation of microorganisms. Tests were performed at four separate flow rates in order to determine the T10 detention time using the "Step Dose" method. A technical report summarizing the testing for approval by the NJDEP.

Improvements to Canoe Brook Water Treatment Plant, New Jersey American Water, Millburn, NJ: Designed the 15 MGD capacity dual-media, sand and granular activated carbon (GAC), gravity filters, and air scour systems, as well as the plant residuals handling facilities. Performed Professional Planner services during the municipal land use planning permit process. (2010 – 2011)

Water Treatment Plant Improvements, Jersey City Municipal Utilities Authority, Hudson County, NJ: Project Director for the design of improvements to the 100 MGD surface water treatment plant. The rehabilitation of the gravity filters included valve and underdrain replacement, the design of a 0.5 MG backwash supply storage tank, and air scour systems. Other improvements included backwash separator and sludge thickener rehabilitation, raw water metering, and the installation of a SCADA system, including fiber optic, Ethernet network and distribution control, and PLC system. (2008 – 2009)

Morgan Pretreatment and Residuals Project, City of Cleveland Division of Water, Cuyahoga County, OH: Project Manager for the design of process improvements, including rapid mix, flocculation optimization, tube settlers, chain and flight sludge collectors, and sludge holding and dilution facilities for the 150 MGD drinking water treatment plant. (2007 – 2008)

Water Treatment Plant Improvements, North Jersey District Water Supply Commission, Wanaque, NJ: Performing construction phase services for the improvements to the 210 MGD surface water treatment plant including improvements to the chemical feed facilities, filters, and waste washwater holding tanks.

Canal Road Water Treatment Plant Improvements, New Jersey American Water, Franklin Township, NJ: Design of additional passive, wedge-wire, intake screens, modifications to flocculator inlet piping and flow control, and improvements to gravity filters including the installation of porous plates on the filter underdrains and the removal and replacement of filter media to increase the plant capacity to 70 MGD.

Gravity Filter Rehabilitation, City of New Brunswick, Middlesex County, NJ: Design and construction administration for gravity filter rehabilitation, which included filter underdrain

replacement, selection of anthracite and sand media, trough replacement, replacement and automation of filter valves, and the addition of a surface wash system.

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Improvements to Filter Nos. 8, 9, and 10, North Jersey District Water Supply Commission, Wanaque, NJ: Performed an evaluation of alternatives and the design of the replacement of the existing clay tile block underdrains with low profile units, incorporating porous plates to facilitate increased media depth, the replacement of filter media, and provisions for future air-scour facilities.

Raritan-Millstone Chemical Feed Improvements, New Jersey American Water, Bound Brook, NJ: Design of major upgrade and improvements to convert the existing lime slaker system to a hydrated lime system. Work included design, permitting, and construction phase services.

Evaluation and Preliminary Design of SCADA System Improvements, Trenton Water Works (TWW), Mercer County, NJ: Project Manager for the evaluation of TTW's 60 MGD water system SCADA including facilities at the water filtration plant, remote pump stations, and tanks. Recommendations included changes in the communication methods between sites, security provisions, and improved data historian. (2014 – 2015)

Pequannock Transmission Main Aerial Pipeline Crossing Evaluation, City of Newark, Passaic County, NJ: Evaluated and recommended rehabilitation for various aerial crossings of the Pequannock Aqueducts. The twin 42-inch and 48-inch diameter aqueducts are riveted steel originally constructed in 1891 and 1893. Ultrasonic thickness measurements were taken and supporting structures evaluated prior to developing a recommended rehabilitation program.

Wanaque Transmission Main Evaluation and Rehabilitation, City of Newark, Essex County, NJ: Designed improvements to rehabilitate the 60-inch diameter transmission main, which was originally constructed in the early 1900s and is the major source of supply for the City's lower pressure zone. Improvements included valve replacement, reinforced cement mortar lining, and the installation of surge control measures.

Utility Evaluation and Technical Assistance, Trenton Water Works, Mercer County, NJ: Project Manager for the evaluation of the utility, including facilities, staffing, financial condition, organization, and alternative form of ownership/management. In addition, provided technical assistance to operations personnel, including the preparation of Standard Operating Procedures.

Elizabethtown/Newark Emergency Water Connection, City of Newark, Essex County, NJ: Planning, design, and construction management of the various project elements including the feasibility report, the Virginia Street pumping station (60.0 MGD), the 30-inch diameter high pressure Pequannock transmission main, the rehabilitation of 25,000 lf of 60-inch diameter transmission main consisting of cleaning, cement mortar lining, and construction of a surge relief chamber, and the preparation of the Operations and Maintenance Manual for the pumping and transmission facilities.

Water System Master Plan, City of Newark, Essex County, NJ: Assisted in the development of the City's Water System Master Plan, focusing on the evaluation of the water treatment plant.

Water System Master Plan, Jersey City Municipal Utilities Authority, Hudson County, NJ: Assisted in the development of the water system master plan, focusing on the evaluation of the 100 MGD surface water treatment plant.

Technical/Economic Feasibility Study to Improve the Regional Resiliency of Northern New Jersey's Water Supply Infrastructure, North Jersey District Water Supply Commission, Passaic and Essex Counties, NJ: Prepared a comprehensive report on potential improvements to the water supply interconnections between the North Jersey District Water Supply Commission, the City of Newark Pequannock System, the Passaic Valley Water Commission, the NJ American Water Raritan System, and the Jersey City Municipal Utilities Authority's systems. (2015 – 2016)

Morgan East Reservoir, City of Cleveland Division of Water, Cuyahoga County, OH: Performed the sizing and hydraulic design for a 15 MG, two-compartment, clearwell, with a particular emphasis on interior baffles to minimize short-circuiting and optimizing CT disinfection credit. Directed the in-house team of hydraulic modelers in performing a

computational fluid dynamic (CFD) modeling of the clearwell, which also yielded good correlation with post-construction tracer testing. (2004 – 2009)

Virginia Street Pumping Station, City of Newark, Essex County, NJ: Design and construction management for improvements to the water station, which has an initial design capacity of 30 MGD and an ultimate capacity, after system improvements to remove hydraulic "bottlenecks," of 60.0 MGD. The station serves two separate pressure zones and is equipped with an elaborate transient surge suppression system.

Central Pump Station Improvements, Trenton Water Works (TWW), Mercer County, NJ: As Project Manager, responsible for the planning, design, and State Revolving Fund (SRF) loan application for the facility improvements. The Central Pumping Station (CPS), which was originally constructed in 1957, directly serves 80% of TWW's customers, and contains four pumps with a total capacity of 69 MGD. The final design included the replacement of the natural gas engine with an electric motor, two generators (one operating constantly in order to preserve the utility rebate program with the second available as a backup and during power failure conditions), and variable speed drives on the two larger pumping units. (2009 – 2016)

Fairmount Pump Station Rehabilitation, City of Cleveland Division of Water, Cuyahoga County, OH: Engineer for rehabilitation and upgrade of a potable water pump station serving two pressure districts. Performed a detailed analysis of existing pump curves, new pump curves, and existing system demands to determine a recommended improvement program and verification of the operating conditions of certain pumping units that were to remain in operation. Responsible for pump selection for two new high service pumps to meet 17 MGD demand at 380 feet of head. The total firm output from the station is 134 MGD (nominal). The project included rehabilitation of seven existing high service pumps with new controls and instrumentation, as well as replacement of various internal valves and piping, venturi flow meters for each pump, and several external valves and piping.

WaterSource Project Water Pumping Stations, New Jersey American Water, Morris County, NJ: Design of the Park Avenue pumping station, with a capacity of 6.0 MGD, and the Chatham pumping station, with a capacity of 18.0 MGD. Control valves, surge suppression systems, and emergency generators are also included.

Raw Water Pumping Stations, City of New Brunswick, Middlesex County, NJ: Design of improvements at the City's D&R Canal (17 MGD) and Weston's Mill (19 MGD) raw water pumping stations. The project included the replacement of traveling water screens, pumps, and variable frequency drives (VFDs), as well as upgrading of the controls and SCADA systems and miscellaneous architectural repairs.

Raritan River Basin D&R Canal Interconnecting Pumping Station at 10-Mile Lock, NJ Water Supply Authority, Somerset County, NJ: Design and construction administration for the 60.0-70.0 MGD pumping station. The station, which draws water from the confluence of the Raritan and Millstone Rivers, was provided with an intake screen, a stilling pond, four vertical axial flow pumps, a superstructure to resist high flood waters, and dual discharge force mains (one above and one below the 10-Mile Lock).

Commission Consulting Engineer, North Jersey District Water Supply Commission, Wanaque, NJ: Consulting engineer providing engineering review and advice in relation to the operation of the Commission's reservoir system, pumping stations, 210 MGD treatment plant, and aqueducts, which serve a large portion of northern New Jersey. (1999 – 2008)

Weston's Mill Pond Dam Rehabilitation, City of New Brunswick, Middlesex County, NJ: Design of improvements to the Weston's Mill Pond Dam including rock anchors, new spillway, new sluice gates, armoring of the discharge pool, and construction of a retaining wall. Improvements were also made to the Arch Dam and Davidson's Mill Pond Dam.

Presentations

Filters 101 – Clearing the Mystery of Their Design, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2022

Working Together to Optimize Corrosion Control, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2018

Water Quality Corrosion and Lead, the Ethical Challenges, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2017

New Heart is Central to Pump Station Improvements, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2016

CFD Modeling Results in a Baffling Increase in Reservoir Capacity, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2011

Cleveland Morgan Water Treatment Plant Finished Water Reservoir, presented at the Annual Conference of the American Water Works Association, Ohio Section, 2010

Cleveland Rocks – Large Scale Water Treatment Plant Improvements, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2008

Pumps 101 - Pump Basics, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2007

A Primer on the Proposed LT2ESWTR - What Does It All Mean?, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2003

Re-Rating of Canal Road WTP - How to Achieve 50% more Plant Capacity for 10% of the Cost, presented with Jeff Ulrich (Co-Author), presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2002

Filter Profiling and Assessment - Tools to Stay Out of Trouble, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2000

1999 Drought Issues - Panel Discussion (Program Moderator), presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2000

Modifications of City of New Brunswick Water Treatment Plant to Meet Interim Enhanced Surface Water Treatment Plan Rule and Disinfectants/Disinfection By-Products Rule, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 1999

MOTT MACDONALD

Edward P. Gajek, PE, PMP

Personal summary

Education:

MS, Civil Engineering, Rutgers University, 2001

BE, Environmental Engineering, Stevens Institute of Technology, 1997

Registrations:

Professional Engineer

[redacted]

Project Management Professional #[redacted], 2013

OSHA Confined Space Entry #[redacted]

Years with Mott MacDonald:

25

Years with other firms:

0

Professional memberships:

American Water Works Association

Project Management Institute

Mr. Gajek has developed an increasing range of experience in the area of water supply engineering. He has been involved in the design, preparation of plans and specifications, permitting, construction observation, bid phase, construction phase engineering, and computer hydraulic modeling for a variety of projects.

Mr. Gajek's design experience includes water transmission and distribution mains ranging in diameter from 6-inch to 72-inch, water pumping stations, water treatment plants, sanitary sewer force mains, emergency standby generators, water system interconnections, water supply wells, and rehabilitation of water mains ranging in size from 6-inch to 60-inch. He has also been involved in the development of water system master plans and the recommendation and prioritization of capital improvements. His water transmission and distribution main designs include jack and bore and horizontal directional drill (HDD), and float-and-sink installation methods, as well as conventional installations, and have involved special conditions such as highway and railroad crossings, below ground stream and river crossings, and below high-pressure gas transmission mains. He has experience with various water transmission and distribution main rehabilitation methods, including cleaning and cement-mortar lining, cleaning and reinforced cement-mortar lining, cured-in-place pipe (CIPP) installation, carbon fiber reinforced polymer (CFRP) lining, and sliplining utilizing high-density polyethylene pipe and fusible PVC pipe.

Selected projects

Rehabilitation of "Monmouth Main Zone" Water Transmission Main, New Jersey American Water - 2015, Monmouth County, NJ: Design and preparation of plans, specifications, and permits for the replacement of approximately 400 lf of 30-inch diameter prestressed concrete cylinder pipe (PCCP) with new 30-inch diameter ductile iron pipe (DIP). Member of a team that performed an interior inspection of 25,000 lf of 30-inch diameter PCCP water main. Phase 1 included an acoustic-based inspection and electromagnetic inspection to locate and quantify any leaks, gas pockets, and broken prestressing wire wraps performed by NJAW's pipeline inspection contractor. During the inspection phase, work included assisting NJAW and their pipeline inspection contractor with coordination of the pipe access locations, preparing shutdown and operations sequences, and preparing engineering plans and details for obtaining contractor quotes and permits. The shutdown and sequencing plans included both the shutdown for construction of the access pits and operation of valves during the interior inspection of the water main. The engineering plans included details for the reconnection of the water main after the inspection, installation of new butterfly valves and linestops along the alignment, and installation of precast concrete chambers at the access point locations for future inspection use. The design of the access points was closely coordinated with NJAW's pipeline inspection contractor to consider the size of equipment necessary to inspect the interior of the pipeline. Phase 2 included the replacement of 400 lf of the water main that was identified with the most number of prestressing wire breaks. Work included the preparation of plans and specifications, thrust restraint calculations, design of new in-line valves and linestops, and preparation of County permits. Construction phase management duties included shop drawing reviews, change order reviews, and coordination with on-site resident project representative. (2015 – 2017)

Pipe Condition Assessment "Monmouth Main Zone", New Jersey American Water - 2021, Tinton Falls, Monmouth County, NJ: Project Principal for the condition assessment of approximately 25,000 lf of 30-inch diameter prestressed concrete cylinder pipe (PCCP) transmission main which has a history of breakage. It is noted that this condition assessment was a follow up to the assessment performed in 2015 to determine any changes of the pipeline condition. As part of the condition assessment, a leak and gas pocket acoustic based inspection and an electromagnetic inspection was performed to locate and quantify any leaks, gas pockets, and broken prestressing wire wraps. A structural analysis was also performed to determine the expected condition of the pipe sections identified with broken prestressing wire wraps. Mott MacDonald also assisted with the coordination of the pipe access locations, preparing shutdown and operations sequences, and preparing engineering plans and details. The shutdown and sequencing plans included operation of valves during the interior inspection of the water transmission main. (2021)

Rumson Place Water Main Rehabilitation, New Jersey American Water, Monmouth County, NJ: Project Manager for the design and preparation of plans, specifications, and

permits for approximately 3,500 lf of 36-inch and 8-inch diameter water transmission and distribution mains, including a 225 lf jack-and-bore crossing under NJ Transit railroad tracks within a 48-inch diameter steel casing pipe. Design duties include thrust restraint calculations, carrier pipe and casing pipe thickness calculations, and preparation of NJ Transit permits. Prior to the design and construction phase services, the project included a pipe condition assessment, metallurgical evaluation of a 36-inch diameter pipe segment, and an alternatives evaluation. (2016 – present)

Rehabilitation of Water Distribution Mains (Contract 11-WS2011), City of Newark, Essex County, NJ: Assisted in the cleaning and cement-mortar lining and cured-in-place-pipe (CIPP) design of 56,900 lf of existing 6-inch through 8-inch diameter water mains, and the replacement of valves and fire hydrants. The project design included the preparation of plans, specifications, and detailed by-pass plans. Construction phase management duties included design revisions, shop drawing reviews, payment applications, change order review and approvals, monthly progress reports, and coordination with on-site resident project representatives. As part of the construction phase, the contractor was required to perform acoustic testing on all the existing water mains proposed to be rehabilitated. The results were evaluated and served as the basis for the final selection of existing water mains to receive a non-structural lining (cleaning and cement-mortar lining) or structural liner (CIPP liner). (2016 – 2018)

RENEW 2021, Middlesex Water Company, Metuchen, NJ: Project Principal for the preparation of plans and specifications for the replacement of approximately 42,000 lf of old, undersized water mains as well as valves and fire hydrants for MWC's ongoing small diameter water main replacements program. The project designs include the transfer of existing water services to new 6-inch through 12-inch diameter mains, the abandonment of the existing mains, and the replacement of valves and fire hydrants. Work included thrust restraint and pipe thickness calculations, water main abandonments, and preparation of soil erosion and traffic control plans. Construction phase management duties included Mott MacDonald providing licensed site remediation professional (LSRP) services to assist MWC in completing the necessary requirements in accordance with the NJDEP's requirements. (2020 – 2022)

Water Main Bridge Crossings Evaluations, New Jersey American Water, Various Locations, NJ: Project Principal for the performance of condition assessments and inspections of existing critical water mains. The project included the preparation of comprehensive reports of nine locations. Assessments evaluated the condition, integrity, corrosivity, remaining life expectancy, casing, joints, fittings, connections, and deterioration of critical assets that crossed high risk areas such as railroads and streams. Access permits were obtained to perform on-site inspection. The reports also included a condition assessment checklist, recommendations for repair or replacement, and a condition assessment rating matrix. (2018 – 2020)

Handy Street Water Mains Replacement, City of New Brunswick, Middlesex County, NJ: Project Principal for the preparation of plans and specifications for the replacement of approximately 6,400 lf of 24-inch diameter steel water transmission main and approximately 5,300 lf of old, undersized 6-inch diameter water mains as well as valves and fire hydrants. The project design includes the transfer of existing water services to the new 8-inch diameter main, abandonment of the existing 6-inch diameter water main, the complete removal of the 24-inch diameter steel water main and installation of a new 24-inch diameter water main in the same trench, and the replacement of valves and fire hydrants. Work includes thrust restraint and pipe thickness calculations, preparation of road restoration details and requirements, water main abandonments, preparation of permits, and preparation of a detailed sequence of construction. Work will ultimately include bid phase and construction phase services. Preliminary design work also included the preparation of an engineering study to improve the reliability of the 24-inch diameter steel water transmission main either by pipe rehabilitation, replacement along the entire alignment, or replacement along an alternate alignment within different streets. Other components that were evaluated as part of the engineering study included pipe material replacement and rehabilitation options, constructability, environmental permitting requirements, stakeholder requirements, hydraulic impacts, structural integrity of rehabilitation solutions, and estimated construction costs. (2019 – present)

Water Transmission Main Rehabilitation Engineering Study, New Jersey American Water, Middlesex County, NJ: Project Manager for an engineering feasibility study that evaluated alternatives to improve the reliability of the system either by pipe rehabilitation or replacement of a 3,885 lf segment of 60-inch diameter prestressed concrete cylinder pipe (PCCP). Several alternatives were reviewed, including pipe replacement along the existing

alignment, pipe replacement along a new alignment, sliplining using HDPE pipe, sliplining using steel pipe, installation of a cured-in-place pipe (CIPP) liner, installation of a spray-in-place pipe liner, and installation of a carbon fiber reinforced polymer liner. The study evaluated the potential alternatives and construction techniques based upon permitting requirements, construction schedule, construction techniques, required easement acquisitions, construction costs, and other factors. (2018 – 2019)

Water Transmission Main Rehabilitation, New Jersey American Water, Middlesex County, NJ: Project Manager for the design and preparation of plans, specifications, and permits for the rehabilitation of approximately 3,400 lf of 60-inch diameter prestressed concrete cylinder pipe (PCCP) utilizing a carbon fiber reinforced polymer liner. The design included two additional access points and a new in-line butterfly valve to allow entry into the water transmission main during the construction phase. Construction phase management duties included shop drawing reviews, change order reviews, responses to contractor requests for information (RFIs), and coordination and review of contractor laboratory testing of the carbon fiber reinforced polymer coupons. A total of 270,000 square feet of carbon fiber reinforced polymer lining material was installed and represented the largest carbon fiber reinforced polymer lining installation on a potable water transmission main in the United States at the time of the project's completion. (2019 – 2020)

Point View Raw Water Transmission Main Feasibility Study, Middlesex Water Company, Morris and Passaic Counties, NJ: Preparation of a feasibility study that recommended a route for a proposed 36-inch diameter raw water transmission main. Several alternate routes were reviewed and compared relative to easement and permit requirements, probable conflicts with other utilities, public impact, potential locations of contamination, construction and maintenance access, construction schedule, construction cost, and other additional factors. The evaluation also included the preparation of a recommended Basis of Design for the proposed water transmission main, including a hydraulic analysis, pipe material selection, demand projections, critical crossing locations and installation methods, and a review of various pipeline appurtenances. (2016 – 2017)

Water Transmission Main Route Evaluation Study – Howell-to-Lakewood, New Jersey American Water, Monmouth County, NJ: Project Manager for an engineering study that recommended a route for a proposed 24-inch through 36-inch diameter water transmission main. Several alternate routes were reviewed and compared relative to easement and permit requirements, probable conflicts with other utilities, land and right-of-way constraints, impact to Green Acres encumbered parcels, public impact, potential locations of contamination, construction and maintenance access, construction schedule, construction cost, and other factors. The evaluation included the preparation of a recommended Basis of Design for the proposed water transmission main, including pipe material selection, thickness and thrust restraint design, critical crossing locations, and installation methods, as well as a review of various pipeline appurtenances. (2014 – 2015)

Raw Water Main Protection Alternatives Analysis, New Jersey American Water, Monmouth County, NJ: Project Manager for an engineering study that evaluated methods to protect two exposed 36-inch diameter raw water transmission mains that are not supported or protected where they cross over a tributary to the Swimming River. Several alternatives to protect the existing transmission mains and improve the reliability of the raw water transmission system were reviewed and compared relative to permit requirements, construction schedule, construction cost, and other factors. The evaluation included the preparation of engineering details, wetlands delineations, and installation methods. (2014)

Rancocas Creek Crossing Engineering Study, New Jersey American Water, Burlington County, NJ: Prepared an engineering study that recommended a design solution for crossing the Rancocas Creek so as to provide for additional and redundant capacity. Several alternatives were reviewed, including horizontal directional drilling (HDD), bridge attachment, and microtunneling techniques. The study evaluated potential alternatives and construction techniques based upon permitting requirements, required easement acquisitions, scheduling implications, and construction costs. Work also included the preparation of easement drawings and metes and bounds descriptions so that easement acquisition along the project alignment could proceed in advance of final design.

MOTT MACDONALD

John F. Civardi, PE

Personal summary

Education:

ME, Environmental Engineering, Stevens Institute of Technology, 1988

BE, Civil Engineering, Stevens Institute of Technology, 1986

Registrations:

Professional Engineer NJ [redacted], 1991

RAM-W Training, Haestad Methods, 2002

OSHA Confined Space Entry

Years with Mott MacDonald:

26

Years with other firms:

8

Professional memberships:

American Water Works Association

Membrane System Design Subcommittee member

Ion Exchange Standard Committee member

Mr. Civardi is Mott MacDonald's Global Water and Wastewater Treatment Practice Leader, responsible for coordinating the implementation of best practices. He has a wide range of experience in water treatment, serving as Project Engineer or Project Manager for numerous surface water and groundwater treatment projects. He has been responsible for the pilot testing, evaluation, design, and construction administration of water treatment systems throughout the United States, and has served as Technical Advisor on international projects. Mr. Civardi is the co-author of the 2nd Edition Iron and Manganese Handbook published by the American Water Works Association.

Mr. Civardi has experience with the use of a variety of processes including adsorption clarifier/filters, membranes, Superpulsators, ballasted flocculation, granular activated carbon (GAC), ozone, and dissolved air flotation (DAF). Regarding groundwater treatment, he has been responsible for the evaluation and design of systems to remove iron, manganese, volatile organic compounds (VOCs), and radionuclides using a variety of treatment processes including air stripping, diffused bubble aeration, granular activated carbon (GAC), manganese greensand, ion exchange, membranes, and ultraviolet (UV) disinfection.

Another area of expertise is his knowledge of residuals handling systems. Mr. Civardi has completed the evaluation of residuals handling systems for many utilities. He has designed systems using both belt filter presses and centrifuges, and has coordinated the bench and pilot testing of several residuals handling options.

His understanding of treatment has also allowed Mr. Civardi to assist clients in the evaluation of distribution system water quality. The need of many utilities to comply with the requirements of the Lead and Copper Rule, Disinfection By-products Rule, and Total Coliform Rule have occasionally resulted in compliance problems. Mr. Civardi has assisted utilities in resolving compliance problems through the development of sampling strategies, along with the design, construction, and operation of pipe loops to evaluate treatment changes.

Selected projects

Water Filtration Plant Residuals Management Study, Trenton Water Works, Mercer County, NJ: Prepared a study to determine the best method for handling sludge generated from a 33 MGD surface water plant. Alternatives investigated included lagoons, disposal to sanitary sewer, sand drying beds, coagulant recovery, and mechanical dewatering. The study found that mechanical dewatering in the form of belt presses is the most cost effective viable option. The study involved the evaluation of methods for the treatment of spent filter backwash including plate settlers and conventional settling. Assisted in the design of the full-scale system. (1992)

Haworth System Lead Minimization, Suez Water New Jersey: Principal Investigator for water quality aspects, which involves an analysis of distribution system water quality data and the use of pipe loops and monitoring stations to reduce lead in the distribution system. Providing guidance regarding the use of flushing as part of the lead minimization program. (2019 – present)

Corrosion Investigation, Pittsburgh Water and Sewer Authority (PWSA), Allegheny County, PA: Technical Specialist for the development of a pipeloop program to minimize lead and copper. In 2016 PWSA exceeded the action level for lead and was required to conduct pipe loop testing. Facilitated the development of the pipeloop testing that consists of over 20 recirculation loops and six coupon stations. As part of the full scale implementation of the corrosion strategy, monitoring stations have been deployed in the distribution system to evaluate the performance of the corrosion chemical. Assisting with the data evaluation. (2016 – present)

Corrosion Evaluation, Village of Ridgewood, Bergen County, NJ: Project Manager for the evaluation of blending of 2 MGD of chloraminated surface water with zinc orthophosphate into the Village's groundwater system that uses an ortho/poly corrosion inhibitor. Prepared an initial evaluation that recommended pipe loop type testing. The work also involved the use of two testing stations to evaluate the impact of blending on lead and copper corrosion. Based on the results of the project, the Village has deployed one of the monitoring stations in an area of the distribution system that is receiving blended water. Assisting in the review of the water quality data. (2018 – present)

Distribution System Corrosion Evaluation, Philadelphia Water Department (PWD), Philadelphia, PA: Project Director to assist PWD in the evaluation of their distribution system corrosion program. Mild steel coupons are used in the distribution system as part of the corrosion control monitoring program. The program was evaluated and recommendations provided to improve how the coupon testing could be optimized to improve operations. The evaluation also recommended performing pipe scale analyses on lead service lines. (2017 – present)

Bryant Street Pumping Station Sentinel Pipeloop, District of Columbia Water and Sewer Authority (DC Water), Washington, DC: Project Manager for the design and implementation of a sentinel pipeloop. In order to further optimize distribution system water quality, DC Water requested a new corrosion testing apparatus to be located in the distribution system. The work involved investigation of the multiple pipe loops and pipe loop type testing systems. Based on this investigation a Corrosion Evaluation Rig was selected. Assisted in the development of concept drawings as well as procurement of the system. (2015)

Chalfont and Hatboro Wells PFAS Evaluation, Aqua Pennsylvania: Technical Advisor for the evaluation and design of treatment systems to remove PFAS from two groundwater wells. (2015)

Well Treatment Facility, Artesian Water: Treatment Specialist for the evaluation and design of a 2 MGD treatment facility to remove 1,4 Dioxane from three wells. The project included a feasibility study, bench testing, and preparation of contract documents. (2013 – 2014)

Partnership for Safe Water Distribution System, District of Columbia Water and Sewer Authority (DC Water), Washington, DC: Project Manager for the preparation of the Self Assessment Report and optimization of the distribution system to satisfy the requirements of the American Water Works Association's (AWWA) Partnership for Safe Water for Distribution Systems. (2014 – 2021)

Porter Water Treatment Plant Improvements, City of Wilmington, New Castle County, DE: Technical Advisor for evaluation of improvements to the 30 MGD Porter Water Treatment Plant. The project included evaluation of alternate clarification systems and upgrades to the lime system. (2018)

Potable Water System Improvements, Perry Point Veterans Administration Medical Center, US Department of Veterans Affairs, Cecil County, MD: Project Manager for the design of a new 1.0 MGD surface water treatment plant, which includes plate settler clarification, ultrafilter membrane filtration, granular activated carbon (GAC), chemical storage and feed facilities, and raw water pumping upgrades.

Delaware River Regional Water Treatment Plant Ozone Generator Addition, New Jersey American Water, Burlington County, NJ: Project Manager for the design and construction of the ozone generation facilities expansion at the 40 MGD water treatment plant. The expansion included an additional 1050 ppd ozone generator, a closed-loop cooling water system, a nitrogen system, and integration of the new mechanical, electrical, and controls design into the existing facilities. (2010 – 2011)

Shenango Water Treatment Plant Chlorine Dioxide System Improvements, Aqua Pennsylvania, Mercer County, PA: Project Manager for the demonstration testing and design of a chlorine dioxide system. As part of a treatability study, chlorine dioxide was bench tested as a raw water oxidant to optimize manganese removal and reduce the chlorine dose applied to the filters. Based on the success of the bench testing, a full-scale plant trial was performed using a rental unit, and the trial found a reduction in disinfection by-products. A permanent chlorine dioxide system was designed and placed into service in 2014.

Morgan Pretreatment and Residuals Improvements, Cleveland Water Department, Cuyahoga County, OH: Design of process improvements for the 150 MGD facility, including rapid mix, flocculation optimization, chain and flight sludge collectors, and sludge thickening facilities. Design was completed in mid-2008, and the facility is currently under construction. (2007 – present)

Decant Tank Upgrades, Pequannock Water Treatment Plant, City of Newark, Morris County, NJ: Project Manager for the pilot testing and design of plate settlers for treatment of spent filter backwash water. The plant employs direct filtration, and spent filter backwash water is equalized and treated with the decant recycled to the plant influent and the settled sludge pumped to a lagoon. Spent filter backwash treatment originally consisted of tube settlers, which

were no longer functional after approximately 20 years of operation. Plate settlers were successfully pilot tested, and new plate settlers were designed and retrofitted into the existing decant tanks.

Shenango Water Treatment Plant Filter Evaluation and Improvements, Aqua Pennsylvania, Mercer County, PA: Project Manager and Principal Investigator for the evaluation, piloting testing, and design of filter improvements at the 16 MGD water treatment plant. The plant uses ballasted flocculation in conjunction with dual media filters. Filter performance was not optimized and a filter evaluation was conducted. Led the team that evaluated existing filter performance, alternative chemical addition strategies, and extensive pilot testing of alternative filter media configurations. Managed the design of filter improvements based on the results of the evaluation and piloting.

Shenango Water Treatment Plant Ultraviolet (UV) Advanced Oxidation System, Aqua Pennsylvania, Sharon, PA: Project Manager for the design of a UV-hydrogen peroxide system for the removal of Geosmin and MIB from the 16 MGD water treatment plant.

Pequannock Water Treatment Plant Dissolved Air Flotation (DAF) Pilot Study, City of Newark, Essex County, NJ: Project Manager for a pilot study using DAF at the City's 80 MGD water treatment plant.

Dissolved Air Flotation (DAF) Plant, Montrose Improvement District, Westchester County, NY: Project Engineer for the preliminary design of a 4.0 MGD package dissolved air flotation (DAF) plant.

Neshaminy Water Treatment Plant Improvements, Aqua Pennsylvania, Neshaminy, PA: Project Manager for the pilot testing and design of improvements to the 15 MGD water treatment plant. The new plant includes new coagulant storage and feed systems, new gas chlorine and sulfur dioxide feed systems, a new sulfuric acid feed system, new plate settler clarifier, new raw water pump station, new mechanical dewatering facilities, and new ultraviolet-advanced oxidation system.

Canoe Brook Water Treatment Plant High Rate Dissolved Air Flotation (DAF) Pilot Study, New Jersey American Water, Essex County, NJ: Project Manager for a 4-month pilot study using dissolved air flotation at this 15 MGD water treatment plant. The project involved evaluation of loading rates between 8 gpm/sf and 16 gpm/sf. Activities included development of the pilot protocol, supervising the operation of the pilot operations, facilitating weekly meetings to review operations, and development of a pilot report. (2008 – 2009)

Canoe Brook Water Treatment Plant Facility Master Plan, New Jersey American Water, Essex County, NJ: Project Manager/Principal Investigator for a treatability study and master plan for this 15 MGD water treatment plant. The study included the evaluation of multiple treatment options to upgrade or replace the existing 75-year-old facilities. The recommended option consists of dissolved air flotation (DAF), intermediate ozonation, and biologically-activated carbon (BAC) filtration. (2007 – 2008)

Raritan Millstone Water Treatment Plant Facility Master Plan, New Jersey American Water, Middlesex County, NJ: Project Manager/Principal Investigator for a master plan for this 190 MGD water treatment plant. The project included the identification of treatment and mechanical deficiencies at the plant and the development of projects to address these deficiencies. Approximately 40 projects were identified. A scoring system was developed to prioritize the projects. Facilitated three workshops to identify and prioritize the projects.

Water Treatment Plant Residuals Evaluation, Aqua Pennsylvania, Bristol, PA: Assisted in the evaluation of mechanical dewatering options for the water treatment plant. Options evaluated included belt press, centrifuge, and volute dehydrator. (2007)

Cooper Street Station Treatment Improvements, New Jersey American Water, Edgewater Park, NJ: Lead Engineer for a new 1,300 gpd granular activated carbon (GAC) treatment plant for the removal of tetrachloroethylene from two wells. The project included six 20,000-pound GAC contactors, on-site sodium hypochlorite feed equipment, and sodium hydroxide storage and feed equipment, along with a waste backwash holding tank. Prepared an "alternatives analysis report" comparing GAC and air stripping for the facility. The facility was commissioned in May 2007. (2006 – 2007)

Papers

Creating Esperanto for Membranes, Journal of the American Water Works Association, 2019

Pilot Testing of High Rate DAF at NJAW's Canoe Brook Water Treatment Plant, Proceedings: The 6th International IWA Conference on Flotation for Water and Wastewater Systems, with S. Creel, J. Margaret Gray, L. Olson, A. Sleeper, 2012

Recirculation Pipe Loop Testing Helps Develop Strategies for Minimizing Distribution System Lead, Copper Levels, WaterWorld, with J. Margaret Gray, 2005

Township Project Tackles High Radon Levels, WaterWorld, 2004

Mechanical Dewatering Equipment Selection: Guidance for Drinking Water Systems, WaterWorld, 2003

Mechanical Dewatering Equipment Selection, New England Water Works Association Journal, 2003

Exploring Your Options: What is Membrane Filtration, Technology Update (in-house publication), 2000

Presentations

Evaluation and Implementation of Alternative Chlorination Systems: Tablet Based and On-Site Generation, presented at the Annual Meeting of the American Water Works Association, New Jersey Section, 2004

Radon Removal for 50,000 pCi/L Wells, presented at the Annual Conference of the American Water Works Association, 2004

Chemical Feed Systems for Water and Wastewater, presented at the Cook College School of Continuing Education, 2003

Radon Removal at Greentree and Autumn Hill Wells, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2000

Treatment of Groundwater Under the Influence of Surface Water, presented at the Water Resources Conference of the American Water Works Association, 1999

Small System Compliance with the Surface Water Treatment Rule While Minimizing Forest Disturbance, presented at the Engineering and Construction Conference of the American Water Works Association, 1996

MOTT MACDONALD

J. Margaret Gray, PE

Personal summary

Education:

MS, Civil Engineering, Stanford University, 1997

BS, Civil Engineering, Stanford University, 1996

Registrations:

Professional Engineer

[redacted]

OSHA Confined Space Entry, 2004

Years with Mott MacDonald:

19

Years with other firms:

4

Professional memberships:

American Water Works Association

Ms. Gray has a wide range of experience in drinking water quality and treatment, including the evaluation, design, permitting, and construction phase engineering as well as the development of operation and maintenance manuals and standard operating procedures (SOPs) for water treatment facilities. She has also been involved in treatment system pilot testing and the study of distribution system water quality issues.

Ms. Gray's surface water treatment experience includes a variety of processes, including membranes, dual media filtration, dissolved air flotation (DAF), ballasted flocculation, plate settler clarification, ozone treatment, ultraviolet (UV) advanced oxidation, and UV disinfection. Her groundwater treatment experience includes hardness, iron and manganese, arsenic, and volatile organic compound (VOC), per- and polyfluoroalkyl substances (PFAS), and 1,4-dioxane removal systems using a variety of treatment processes, including air stripping, manganese dioxide coated media, ion exchange, ultraviolet (UV) advanced oxidation, granular activated carbon (GAC), and membranes. Ms. Gray's treatment experience also includes residuals handling systems, including gravity thickening, and belt filter press and centrifuge dewatering processes.

Selected projects

Shenango Water Treatment Plant Treatability Study and Pilot Testing, Aqua Pennsylvania, Sharon, PA: Project Engineer for a treatability study and a pilot study for upgrading the 16 MGD surface water treatment plant. Activities included evaluation of treatment technologies, including dissolved air flotation (DAF) and ozone. The treatability study recommended upgrading the plant to DAF. The pilot testing program involved DAF, filtration, and chlorine dioxide. (2011 – 2012)

Canoe Brook Water Treatment Plant High Rate Dissolved Air Flotation (DAF) Pilot Study, New Jersey American Water, Essex County, NJ: Project Engineer for a 4-month pilot study using DAF at this 15 MGD water treatment plant. The project involved evaluation of DAF loading rates between 6 gpm/sf and 16 gpm/sf. Activities included development of the pilot protocol, supervision of the pilot plant operations, facilitation of weekly meetings to review operations, analysis of water quality data, and development of the pilot reports. (2008 – 2009)

Pequannock Water Treatment Plant High Rate Dissolved Air Flotation (DAF) Pilot Study, City of Newark, Passaic County, NJ: Project Engineer for a 1-month pilot study using DAF at this 45 MGD water treatment plant. The project involved evaluation of DAF loading rates between 8 gpm/sf and 16 gpm/sf. Activities included development of the pilot protocol, supervision of the pilot plant operations, coordination of analytical sampling, facilitation of meetings to review operations, analysis of water quality data, and development of the pilot report. (2009)

Corrosion Investigation, Pittsburgh Water and Sewer Authority, Pittsburgh, PA: Technical specialist for the design of recirculation pipe loops employed in the pipe loop testing program, which was required due to excessive lead levels. Testing consists of over 20 recirculation loops and 6 coupon stations. (2016 – 2019)

Water Treatment Plant Improvements, City of New Brunswick, Middlesex County, NJ: Process Engineer for the preliminary design and Technical Advisor for the detailed design of the 20 MGD pretreatment system upgrades, which include the replacement of two existing flocculation and conventional sedimentation basins with a pre-sedimentation basin followed by chemical mixing facilities and four trains of two stage flocculation and plate settler clarification. (2019 – present)

Hummocks Well Field Treatability Study, New Jersey American Water, Union County, NJ: Process Engineer for the evaluation of treatment options for the removal of 1,4-dioxane, PFOA, and elevated TDS. The evaluation included granular activated carbon (GAC), UV-hydrogen peroxide advanced oxidation process (AOP), ozone-hydrogen peroxide AOP, and nanofiltration. (2016)

Porter Treatment Plant Treatment Evaluation, City of Wilmington, New Castle County, DE: Process Engineer for the evaluation of upgrades to the 30 MGD plant, which utilizes presedimentation, coagulation using ferric chloride, lime addition, clarification, filtration, and disinfection. The project included evaluating options to improve the lime system, including liquid

lime, high density lime, and the addition of a phosphate to reduce scaling. It also included the evaluation of improvements to the clarifiers and clearwells. (2016 – 2018)

Pequannock Water Treatment Plant Residuals Treatment Facility, City of Newark, Passaic County, NJ: Peer Reviewer for the design of the residuals treatment facility for the development of a study to evaluate the feasibility of mechanical dewatering at the 45 MGD direct filtration surface water treatment plant. The design includes gravity thickener and mechanical dewatering using a centrifuge. (2015 – 2020)

Raritan-Millstone Phosphoric Acid Feed System Improvements, New Jersey American Water, Bound Brook, NJ: Process lead for the design of improvements to the phosphoric acid feed system. (2016 – 2017)

Clearwell Redundancy, Pittsburgh Water and Sewer Authority, Pittsburgh, PA: Process Engineer for the evaluation of clearwell redundancy alternatives to provide disinfection for the 117 MGD water treatment plant to allow the existing clearwell to be taken off-line for repairs and rehabilitation. (2015 – 2016)

Pequannock Water Treatment Plant Sludge Lagoon Remediation, City of Newark, Passaic County, NJ: Project Engineer for the preparation of plans and specification for contract desludging of the 40 MG sludge lagoon. The 45 MGD direct filtration surface water treatment plant discharges all residuals to the 40 MG sludge lagoon. The lagoon had reached capacity, requiring desludging until replaced by a new mechanical dewatering facility. (2014)

Backwash Wastewater Improvements, Pequannock Water Treatment Plant Improvements, Phase 1, City of Newark, Passaic County, NJ: Peer Reviewer for the design of modifications to the existing backwash waste clarifier tanks at the 45 MGD direct filtration surface water treatment plant. The improvements included installation of new inclined plate settler units, replacement of the sludge collection system, and chemical feed improvements for polymer feed piping and application points. (2010 – 2014)

Llangollen Water Treatment Plant Improvements, Artesian Water Company, New Castle County, DE: Process Engineer for the treatability study, bench testing, design, ultraviolet (UV) equipment procurement, and construction phases for the treatment of 1,4-dioxane and BCEE using advanced oxidation. Upgrades to the existing 2.2 MGD well field included a new treatment building and chemical feed storage facility for the UV-hydrogen peroxide system and associated ancillary components. These unit processes were incorporated into the existing water treatment plant, which consisted of aeration, granular activated carbon (GAC) contactors, and chemical addition. (2013 – 2014)

Shenango Water Treatment Plant Filter Evaluation, Pilot Testing, and Improvements, Aqua Pennsylvania, Mercer County, PA: Project Engineer for the evaluation, piloting testing, and design of filter improvements. Assisted in evaluating existing filter performance and pilot testing of alternate filter media configurations. Analyzed pilot data and prepared pilot study report. Prepared plans, technical specifications, and permitting documents for the subsequent filter improvements project. (2011 – 2012)

Carl J. Olsen Water Treatment Plant Mechanical Dewatering Facility Evaluation, Middlesex Water Company, Middlesex County, NJ: Process Engineer for the evaluation of residuals treatment alternatives and the preparation of the preliminary basis of design for a mechanical dewatering facility for handling Superpulsator and spent filter backwash residuals at the 60 MGD water treatment plant. Treatment options evaluated included gravity and belt thickening, belt filter presses, and centrifuges. (2012)

Papers

Pilot Testing of High Rate DAF at NJAW's Canoe Brook Water Treatment Plant, Proceedings: 6th Annual International IWA Conference on Flotation for Water and Wastewater Systems, with J. Civardi, S. Creel, L. Olson, and A. Sleeper, 2012

Recirculation Pipe Loop Testing Helps Develop Strategies for Minimizing Distribution System Lead, Copper Levels, WaterWorld, with J. Civardi, 2005

MOTT MACDONALD

Michael L. Altland, PE

Personal summary

Education:

BS, Civil Engineering, Lehigh University, 1988

Registrations:

Professional Engineer

[redacted]

OSHA Hazardous Waste Site Operations, 2003

Years with Mott MacDonald:

34

Years with other firms:

0

Professional memberships:

American Water Works Association

Mike has been involved in various water supply and distribution projects, such as transmission mains, pump stations, and master plan studies. He has been involved in all project stages from design to construction. As part of the design and study of pumping stations and distribution systems, Mike has developed expertise in the use of Steady-state computer analysis and the Surge transient analysis computer model. Typical surge analyses have included power failures at booster stations that pump to gradients with elevation differences of 800 to 2,000 feet. Mike is also familiar with other types of surge transients, such as valve closure, and has applied his experience with surge and pressure transients to several projects. He has been extensively involved in the preparation of comprehensive computer models for large water utilities, which involve modeling the distribution system and preparing recommendations for improvements to meet anticipated future supply and demand conditions.

Mike has also been involved in the detailed design and permitting and provided construction phase engineering for many transmission mains and pumping stations with capacities up to 25 MGD. His responsibilities have included analysis and engineering for surge suppression systems.

Selected projects

Water Distribution System Rehabilitation Program, Trenton Water Works, Mercer County, NJ: Project Manager for the development of a distribution system model for the Trenton System, serving Trenton and portions of Hamilton, Ewing, and Lawrence Townships, including 6,500 pipes and 4,300 junctions. Developed, designed, and managed the on-going construction of a $12 million capital improvements program to address distribution system deficiencies found during analysis of the system.

Trenton Emergency Interconnection Study, New Jersey American Water, Trenton, NJ: Project Engineer for a study of recommendations to interconnect the two purveyors with an initial capacity of 10 MGD and an ultimate capacity of 20 MGD.

Ewing Booster Station Rehabilitation, Trenton Water Works, Mercer County, NJ: Project Director for the mechanical, structural, and architectural renovation of the critical booster pumping station assets. (2016 – present)

Water Distributions System Rehabilitation, Trenton Water Works, Mercer County, NJ: Project Director for the $12 million rehabilitation of the distribution system, involving over 65,000 lf of 4-inch through 16-inch diameter ductile iron pipe (DIP) water mains. (2013 – 2015)

Trenton Water Works – New Jersey American Water Emergency Interconnection Phase II, Trenton Water Works, Mercer County, NJ: Project Director for the design and permitting of 40,000 feet of 16-inch through 24-inch diameter transmission main, including four directional drill (HDD) crossings of state highways and rivers.

Emergency Interconnection, Trenton Water Works/New Jersey American Water, Mercer County, NJ: Project Manager for the hydraulic analysis and feasibility study of proposed interconnections with booster pumping facilities with an ultimate total two-way capacity of 20 MGD. The study also included a recommended water main and booster pump station capital improvements program. Project Manager for the design of Trenton Water Works' portion of the water main extensions and booster pump station.

Water Distribution System Master Plan, Pittsburgh Water and Sewer Authority (PWSA), Allegheny County, PA: Project Manager for the preparation of a comprehensive water distribution system master plan that identified needs and recommended capital improvements for the pumping, storage, transmission, and distribution system, resulting in a capital improvements program of over $400 million for 10 years. (2019)

Water System Assessment Report, Edison Township, Middlesex County, NJ: Leader for the evaluation and capital improvement program (CIP) development for the water system, which services 12,800 residents and includes 810,000 feet of water main. Developed a 10-year $2.2 million per year CIP. (2017)

Capital Improvements Program (CIP), Aquarion Water Company, CT, NH, and MA: Task Leader for the preparation of a 30-year CIP to be included in a due diligence evaluation of the

system for the purposes of a potential sale of assets. The combined capital program for the systems was in excess of $100 million annually. (2016)

Capital Improvements Program (CIP), Suez Water, Rahway, NJ: Project Leader for the development of a 40-year CIP for the City of Rahway water system as part of an operating concession agreement. The program anticipated a total expenditure of approximately $128 million over the life of the program. (2015)

Water System Master Plan, City of New Brunswick, Middlesex County, NJ: Assisted in a distribution system study which included the evaluation of the hydraulic adequacy of the system by examining probable deficient areas and conducting coefficient and fire flow tests, evaluation of their results, and preparing recommendations to eliminate the distribution system deficiencies as part of a Master Plan Report.

Brandon Farms Elevated Storage Tank, K. Hovnanian Companies, Hopewell Township, NJ: Provided project engineering for the start-up and testing of a 600,000 gallon elevated water tank. The dual purpose of the project was to augment the potable water supply for this development and serve as a source of water for fire protection.

Water Distribution System Rehabilitation, Hamilton Township, Mercer County NJ: Project Director for the $ 4.5 million rehabilitation of the distribution system, involving 20,000 lf of 6-inch through 12-inch diameter ductile iron pipe (DIP) water mains. (2015 – 2016)

Potomac Water Treatment Plant Hydropneumatic Tanks, Washington Suburban Sanitary Commission, Montgomery County, MD: Project Manager for the design and construction of a project to control pressure surges in the transmission system of a water utility serving over 1 million people. The design includes two 38-foot diameter hydro-pneumatic sure suppression tanks with a piping, valves, and control systems connected to the main discharge line at the 200 MGD Potomac Water Treatment Plant.

Expert Testimony

Tinton Falls Borough Planning Board

Mansfield Township (Burlington) Planning Board

Middletown Township Planning Board

Princeton Regional Planning Board

Delran Township Planning Board

Bernards Township Planning Board

Millburn Township Planning Board

Logan Township Planning Board

Montgomery Township Planning Board

Howell Township Planning Board

Presentations

Rehabilitation of Concrete Storage Tanks, presented at the Annual Conference of the American Water Works Association, New York Section, 2018

Rehabilitation of Concrete Storage Tanks, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2018

Transient Analysis in Sanitary Force Mains, presented at the Annual Conference of the American Water Works Association, Florida Section, 2017

Transient Analysis in Sanitary Force Mains, presented at the Annual Conference of the Water Environment Federation Technical Exhibition and Conference (WEFTEC), 2016

Retire After 100 Years - 24-inch Cast Iron Water Main Condition Assessment, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2016

Transient Analysis in Sanitary Force Mains, presented at the Annual Conference of the New Jersey Water Environment Association, 2016

Rehabilitate or Replace - 10 Years of Trenton Water Experience, presented at the New Jersey, New York, and Pennsylvania Annual Conferences of the American Water Works Association, 2014

Transient Analysis for Water and Wastewater Utilities of the American Water Works Association Webinar, 2013

Pipe Bridge Restoration Following Hurricane Irene, presented at the Distribution System Symposium of the American Water Works Association, 2012

Comparison of CM at Risk to Traditional Delivery for a Multi-Phase Project, presented at the New Jersey Annual Conference of the American Water Works Association, 2012

Prefabricated Booster Station Design, presented at the Annual Conference of the American Water Works Association, Pennsylvania Section, 2010

Bypass Survey on Large Diameter Transmission Main, presented at the Annual Conference of the American Water Works Association, New Jersey Section, 2009

Start-up and Testing of Surge Control Tanks of the American Water Works Association, Pennsylvania Section, 2007

System Hydraulics and Water Quality, presented at the "Distribution Systems and Water Quality, The Road Ahead" Seminar of the American Water Works Association, New Jersey Section, 2006

Improving the Project Delivery Schedule of the 72-Inch Transmission Main, presented at the Spring Conference of the American Water Works Association, New Jersey Section, 2005

Technical Challenges and Permitting Hurdles Tackled by Water Tunnel Team, presented at the Spring Conference of the American Water Works Association, New Jersey Section, 2004

Lessons Learned at Valley Road - 10 Years of Sodium Hypochlorite Service of the American Water Works Association, New Jersey Section, 2003

Can't Stand the Pressure-Case Studies of Surge Control Devices of the American Water Works Association, New Jersey Section, 2001

MOTT MACDONALD

Carolynn A. Zebrowski, PE

Personal summary

Education:

MS, Civil and Environmental Engineering, Rutgers University, 2011

BS, Bioresource Engineering, Rutgers University, 2006

Registrations:

Professional Engineer

[redacted]

Years with Mott MacDonald:

15

Years with other firms:

0

Professional memberships:

American Water Works Association

Ms. Zebrowski has experience in the areas of water supply, treatment, storage, and distribution, as well as sanitary sewer collection systems. She has been involved in the design and preparation of plans and specifications, permitting, construction observation, construction phase engineering, and computer hydraulic modeling for water supply wells, surface water intakes, water treatment facilities, transmission and distribution mains, water pump stations, and water storage tanks. Wastewater projects have included relief sewers, gravity sewer extensions, pumping stations, force main facilities, and sewer capacity modeling. She is also involved in the development of Master Plan Studies for water distribution and sewer systems, assisting with the evaluation of distribution and production facilities and identifying Capital Improvements to meet anticipated future supply and demand conditions.

Selected projects

Water Supply Master Plan, Trenton Water Works, Mercer County, NJ: Assisted with the development of a distribution system master plan to identify short-term and long-term capital improvements over a 15-year planning period. The effort included customer and demand projections, assessment of pumping, transmission, distribution, and storage facilities, evaluation and recommendations for a formal asset management program, hydraulic modeling, and prioritized capital improvement project (CIP) recommendations. (2008 – 2009)

Trenton Reservoir Dam Inspection, Trenton Water Works, Mercer County, NJ: Performed the Regular Inspection of the Trenton Reservoir Dam. Updated emergency management reports and operations manuals for current Office of Emergency Management (OEM) standards. (2009)

Water System Hydraulic Modeling, Trenton Water Works, Mercer County, NJ: Performed hydraulic computer modeling of the existing water distribution system to determine areas of low pressures and fire flow, and made recommendations for system improvements. Modeling was used to evaluate existing and future demand conditions. System improvements were modeled and used as the basis for the recommended Capital Improvement Program. (2008 – 2009)

Ingrams Mill Water Treatment Plant Intake Improvements Demonstration Study, Aqua Pennsylvania, Inc., East Bradford Township, Chester County, PA: Assisted in the design and permitting of a new 1.4 MGD intake structure to be piloted for several months prior to full-scale implementation. Intake structure will be an in-bed river infiltration gallery constructed in the East Brandywine Creek. (2009 – 2010)

Pequannock Water Treatment Plant Pilot Study, City of Newark, West Milford, Passaic County, NJ: Assisted with data processing for the pilot study for dissolved air flotation (DAF) filtration to remove turbidity at the Pequannock Treatment Plant. (2009 – 2010)

Harrison Elevated Tank, New Jersey American Water, Gloucester County, NJ: Project Engineer for design, bid, and construction phase services for the construction of a new 750,000 gallon elevated tank. The design includes an 800 lf water main extension, site and stormwater improvements, site piping and altitude control valve, electrical and instrumentation systems, and a tank mixing system. The permitting includes NJDEP Safe Drinking Water, Soil Erosion and Sediment Control, NJDOT utility opening, and NJDOT drive access permit. The project also requires approvals from the Township Joint Land Use Board and Gloucester County Planning Board. (2013 – 2018)

Home News Row Tank Rehabilitation and Painting, City of New Brunswick, Middlesex County, NJ: Project Engineer for the design and bid services for the rehabilitation of a 1.5 MG toro-ellipsoidal multi-leg type elevated tank. Project included miscellaneous tank and site repairs and rehabilitation and painting of the interior and exterior surfaces, which contained lead. (2018 – 2019)

Elizabeth Street Standpipe Demolition, Keyport Borough, Monmouth County, NJ: Project Engineer for the decommissioning and demolition of a 293,000 gallon riveted steel standpipe (c. 1896) and restoration of the site. Demolition work included existing water distribution piping, vaults, and associated electrical panels. The project was funded through the USDA-RD program. (2014)

Water Tank Rehabilitation, Sea Girt Borough, Monmouth County, NJ: Project Engineer for the design and construction management for the rehabilitation of a 0.3 MG multi-leg elevated tank. Project included minor repairs and the rehabilitation of the interior and exterior surfaces, which contained lead. Project also included a temporary hydropneumatic tank to maintain system pressure during construction. (2013 – 2014)

Water Supply Master Plan, Jersey City Municipal Utilities Authority, Hudson County, NJ: Assisted with the evaluation of water supply and production infrastructure, including an 80 MGD water treatment facility, water supply and storage facilities, transmission infrastructure, and distribution system. Assisted in the development of the Capital Improvement Plan for the supply and distribution system. (2006 – 2008)

Comprehensive Planning Studies, Arizona American Water, Mohave County, AZ: Assisted with the development of two Master Plan studies for the Lake Havasu and Mohave water systems, with a focus on supply and production. The planning effort included prioritized Capital Improvement projects for the study period. (2007 – 2008)

Water System Comprehensive Planning Study, California American Water, Monterey, CA: Assisted with the development of Master Plan studies for the Monterey water system, with a focus on supply and production. This included identifying priority Capital Improvement projects. (2007 – 2008)

D&R Canal and Westons Mill Pump Stations Upgrade, City of New Brunswick, Middlesex County, NJ: Providing construction administration, shop drawing reviews, and responses to Contractor requests for information (RFIs) for upgrades to traveling screens, pumps, and miscellaneous items to the D&R Canal and Weston's Mill Pump Station sites. (2015 – present)

Ryan Road Booster Pump Station, Gordon's Corner Water Company (GCWC), Marlboro Township, Monmouth County, NJ: Assisted in the design, preparation of plans, and permitting of a 0.5 MGD below-grade water booster pump station. The station gives GCWC the ability to transfer water from their lower Manalapan Pressure Zone to their higher Marlboro Pressure Zone. (2008 – 2009)

Woodland Avenue Tank Circulation Pump, New Jersey American Water, Pleasantville, Atlantic County, NJ: Assisted in the design, permitting, and construction management of a 500 gpm booster pump, building improvements, and altitude valve replacement and modifications. The pump allows operations to circulate water from the existing on-site elevated water tank and into the distribution system. The project required Planning Board submittals and testimony to allow project to proceed. (2006 – 2010)

Downingtown Interconnection Pump Station, Pennsylvania American Water, Caln Township, Chester County, PA: Assisted in the design and permitting of a 0.5 MGD below-grade water booster pump station to deliver water from an adjacent water purveyor. The project included the preparation of applications for PADEP Subsidiary Water Allocation Permit and Delaware River Basin Commission approval. (2006 – 2010)

Berlin and Winslow Interconnection Booster Pump Stations, New Jersey American Water, Voorhees Township, Camden County, NJ: Assisted in the design and permitting of two below-grade water booster pump stations. The Berlin Pump Station was designed for a capacity of 0.6 MGD and the Winslow Pump Station for a capacity of 2.0 MGD. (2006 – 2010)

Teaberry Lift Station, New Jersey American Water, Lakewood Township, Ocean County, NJ: Project Engineer for design and permitting for consolidation of two existing lift stations with a new sanitary gravity sewer, lift station, and force main. Project includes Treatment Works Approval (TWA), local road opening permits, Township Zoning Board Approval, and Ocean County Soil Erosion and Sediment Control certification. (2014 – 2018)

Hydraulic Model Calibration and Parallel Water Main Feasibility Study, Avalon Borough, NJ: Project Engineer for creating, populating, and calibrating a water system model for use to determine size, material, and connection locations for a parallel water main used to increase pressure in the south end of the water system. (2014 – 2015)

Water System Model Calibration and System Evaluations, Monroe Township Utility Department, Middlesex County, NJ: Updated and calibrated the water system model for steady state and extended period scenarios to confirm model accuracy. Used model to evaluate multiple scenarios for optimizing system pressures, operational strategies, and the effect of future developments on the system. (2014)

MOTT MACDONALD

Donald R. Hinds

Personal summary

Education:

BS, Electrical/Environmental Engineering, New Jersey Institute of Technology, 1978

BS, Business Administration, Clarkson College, 1973

Registrations:

OSHA Confined Space Entry, 2007

Years with Mott MacDonald:

16

Years with other firms:

22

Mr. Hinds has extensive experience in the specification, design, programming, and start-up of instrumentation and control systems for a variety of industries. He has served as Instrumentation and Controls (I&C) lead designer on numerous large projects. Mr. Hinds has worked extensively with Allen-Bradley and Modicon programmable logic controllers (PLC), and with Wonderware and Rockwell man-machine interface software. The majority of projects have involved high purity water, potable water, wastewater treatment, or air pollution control systems.

Mr. Hinds' responsibilities include the scheduling and supervision of the development of design phase plans and specifications, including piping and instrumentation diagrams, control panels, instrument specifications, and functional descriptions. His construction phase responsibilities include shop drawing review, response to Requests for Information (RFIs), construction observation, and start-up assistance.

Selected projects

Water System Facilities SCADA Evaluation, Trenton Water Works, Mercer County, NJ: Participated in the field investigation to document and evaluate the current condition and functionality of the instrumentation and controls (I&C) at the treatment plant and remote pump stations and tanks. Co-author of the SCADA System Evaluation Report.

North Hills Well PFAS Treatment, Aqua Pennsylvania, Inc., Bryn Mawr, PA: The well station treated ground water with packed tower aeration. Sodium hypochlorite was fed for disinfection. and chlorine feed for disinfection. Improvements per this project included anion exchange for PFAS treatment and ammonium sulfate addition for chloramination. A new PLC based control panel was provided to replace existing controls. The new PLC was integrated into the Owner's existing supervisory control and data acquisition (SCADA) system. The design used Allen-Bradley CompactLogix PLCs.

Raritan-Millstone Water Treatment Plant Filter Improvements, New Jersey American Water, Bridgewater Township County, NJ: The potable water plant treats surface water from two rivers. Per this project, thirty gravity filters were refurbished. Work included new PLC based control panels for each filter and improvements to the filter building control room. The existing supervisory control and data access (SCADA) system was modified to support 30 new filter control panels and a new human machine interface system constructed in the filter building control room. The design used Allen-Bradley CompactLogix PLCs and iFix human machine interface software.

SCADA System Upgrade, Oak Street Treatment Plant, New Jersey American Water, Tunnel Drainage Control Systems, Parallel Thimble Shoals Tunnel, Chesapeake Bay Bridge Tunnel (CBBT), Cape Charles, VA: Leading the effort to provide technical design for tunnel drainage systems at portals and low-point pump stations. Design includes process and instrumentation diagrams (P&IDs), control panels, instrumentation, advanced fiber optic networking, and NFPA 820 considerations. The design-build project is currently in the detailed design phase. (2017 – present)

Hugh L. Carey/Brooklyn Battery Tunnel Rehabilitation and Flood Mitigation (BB-28), Triborough Bridge and Tunnel Authority (TBTA), New York, NY: Controls and communications design for the traffic signal control system and fiber optic communications network, including a sequence of work for the construction of temporary and permanent communications systems. Responsibilities include piping and instrumentation diagrams, control panel design, control system communications network design, equipment specifications, and functional diagrams, as well as preparing responses to construction phase requests for information (RFIs) and review of shop drawing submittals. (2014 – present)

Ocean County, NJ: The plant treats water from two local wells and three remote wells, and provides pH adjustment with sodium hydroxide and disinfection with sodium hypochlorite. As part of the project, a new radionuclide treatment system are being added, and the SCADA system is being upgraded. Existing Bristol Babcock PLCs is being replaced with Allen-Bradley CompactLogix PLCs and the Serial radio telemetry system was converted to an Ethernet radio network. The plant will communicate with the Owner's command center via a cellular LAN. Responsibilities include piping and instrumentation diagrams, control panel design, control system communications network design, equipment specifications, and functional diagrams. (2015 – present)

SCADA System Upgrades, City of Cape May, NJ: Assisted in the design of a SCADA system upgrade design for a 2 MGD Reverse Osmosis (RO) water treatment plant. The design basis for this upgrade includes upgrades of obsolete PLC equipment utilizing manufacturer upgrade kits with pre-wired cables. This approach provided for a low-risk installation with minimal-to-no downtime. Design also included upgrades of SCADA application software and enhancement of data logging and reporting. (2015 – 2016)

Well Improvements – Wells 3 and 5, Livingston Township, Essex County, NJ: The potable water system includes a number of wells, treatment facilities, and storage tanks. A SCADA system, based on Allen-Bradley PLCs and a Rockwell Automation HMI system, provides remote control and monitoring via a cellular LAN. A new aerator, tablet chlorine feeder, and high lift pumps were installed at the Well No. 3 treatment plant, which also treats water from Well No. 5. As part of the improvements, an Allen-Bradley PLC system was installed and integrated into the Township's existing SCADA system. The PLC system included remote I/O at Well No. 5, connected via a fiber optic Industrial Ethernet network. Responsibilities included piping and instrumentation diagrams, control panel design, control system communications network design, equipment specifications, and functional diagrams. (2014 – 2015)

Water Treatment Plant Upgrade, Membrane Treatment System, US Department of Veterans' Affairs, Perry Point, VA: The existing gravity filter system was replaced with a membrane treatment system. Raw water from the Susquehanna River is pumped to the treatment plant and finished water is pumped to the distribution system to maintain the minimum level in an elevated storage tank. As part of the project, a new Allen-Bradley PLC based SCADA system was designed, and communications between the raw water pump station, treatment plant, and elevated tank was converted to a cellular LAN Ethernet network. Cyber security and disaster recovery were major concerns during design of the SCADA system and the Ethernet communications network. Firewalls and security appliances were used to protect each component in the system. Responsibilities included piping and instrumentation diagrams, control panel design, control system communications network design, equipment specifications, and functional diagrams. (2013 – 2015)

Little Falls Water Treatment Plant SCADA System, Passaic Valley Water Commission, Passaic County, NJ: Lead Instrumentation and Control (I&C) Designer for a supervisory control and data acquisition (SCADA) system to provide remote control and monitoring of eight remote booster pumping and re-chlorination stations. Remote terminal units (RTUs) with programmable logic controllers (PLC) were installed at each location to interface with instrumentation, booster pump controls, and chemical metering pumps. A PC-based human machine interface (HMI) system was installed at the treatment plant. A cellular telephone Ethernet network is used to interconnect the RTUs. Responsibilities included preparation of plans, specifications, and functional descriptions. The SCADA system uses Allen-Bradley PLCs and Genesis HMI software. (2010 –2014)

Manasquan Water Treatment Plant, New Jersey Water Supply Authority, Monmouth County, NJ: Lead Instrumentation and Control (I&C) Designer for the treatment and transmission system I&C upgrades project, which required construction of a supervisory control and data acquisition (SCADA) system that included the treatment plant and six remote metering vaults in the distribution system transmission main. Design phase responsibilities included preparation of plans and specifications, and construction phase services will include shop drawing reviews, responses to Requests for Information (RFIs), and system integration and start-up. Existing equipment in the main control panel was replaced with an Allen-Bradley Controllogix programmable logic controller (PLC) system. New PLC assemblies were mounted in the panel and field wiring was re-terminated. The existing, monitor only, transmission main telemetry system was replaced with an Allen-Bradley Compactlogix PLC-based system that provides remote control of the metering valves, as well as monitoring of flow and pressure. Remote terminal units (RTU) have been installed in each of six metering vaults, and are linked to the treatment plant by an Ethernet network using Cable TV as the broadband media. Operator interface is provided through a human machine interface (HMI) system consisting of two redundant communications servers and one historical data server. The HMI is configured as a client/server system with several client operator workstations. (2008 – 2010)

MOTT MACDONALD

Keith W. Cartnick

Personal summary

Education:

MS, Environmental Science, New Jersey Institute of Technology, 1991

BS, Chemistry, Fairleigh Dickinson University, 1978

Years with Mott MacDonald:

4

Years with other firms:

35

Professional memberships:

American Water Works Association

National Association of Water Companies (NAWC representative for the Partnership for Safe Water Steering Committee, 2007 – 2012)

Mr. Cartnick's experience in the environmental field has focused on water quality and treatment, regulations, and laboratory operations. He has worked with public and private water utilities to develop Public Notice (PN) content and mitigation plans for notice of violations (NOV), including Safe Drinking Water Act Maximum Contaminant Level (MCL) violations and sampling and reporting violations. He worked directly with NJDEP on PN content and mitigation approach(es), and to consolidate and simplify PN language to ensure proper interpretation of the violations by the customers receiving the notices. Most recently, Mr. Cartnick worked with the City of New Brunswick and NJDEP to consolidate multiple sampling & reporting violations, develop PN content for the New Brunswick Consumer Confidence Report, and develop mitigation procedures. He has an excellent working relationship with NJDEP and thorough knowledge of the regulatory requirements associated with violation Tier levels (Tier 1, Tier 2 and Tier 3 violations), mitigation procedures and Public Notification requirements.

Mr. Cartnick has served on several national and state water industry committees, collaborating with the US Geological Society (USGS) and the National Oceanic and Atmospheric Administration (NOAA) and appearing before the US Congress and EPA regarding drinking water quality issues. He was a Steering Committee member for the development of the Water Research Foundation's (WRF) Guidance Manual: Managing Cyanotoxins in Drinking Water: A Technical Guidance Manual for Drinking Water Professionals (Sep 2016).

Mr. Cartnick has been responsible for planning, directing, and overseeing water system operations and research activities, including source of supply management, cyanobacteria management plans, treatment plant operations and optimization, distribution system water quality, and compliance with federal and state drinking water regulations. His laboratory experience includes management of overall operations, sampling, analysis, and regulatory reporting, as well as laboratory QA/QC functions and Laboratory Information Management System (LIMS) management.

Selected projects

Haworth Water Treatment Plant Upgrade, SUEZ, Bergen County, NJ: Water Quality Director Project Advisor for the $100 million upgrade of the 200 MGD filtration plant to address deteriorating source water quality, new regulations, and emerging contaminants. The upgrade included a new ozone generation and contactor system, a new clarification process (high-rate Dissolved Air Flotation (DAF)), and a new disinfection process, utilizing existing settling basins for chlorine contact basins to increase CT.

Haworth Water Treatment Plant Upgrade Pilot Testing, SUEZ, Bergen County, NJ: Responsible for a comprehensive pilot plant facility constructed to facilitate the testing of various treatment options and filter media configurations. The data obtained from over 150 runs provided critical information in determining the final design criteria for the upgrade, as well as optimization guidelines for the new treatment processes.

Cyanotoxin Guide and SUEZ Cyanobacteria Monitoring, Management and Treatment (MMT) Plan, American Water Works Association/Water Research Foundation (AWWA/WRF): Assisted in the development and publication of "A Water Utility Manager's Guide to Cyanotoxins," which includes SUEZ's Cyanobacteria Management Plan. Presented at USEPA's Public Meeting and Webinar "Input on Potential Actions to Prepare and Respond to Cyanotoxins in Drinking Water." Participated in follow-up discussion with EPA, and presented on SUEZ's MMT at various AWWA and state conferences (NJ, NY). Participated in AWWA Cyanotoxin Workshop in Colorado.

Lead Service Line Replacement Workshops, American Water Works Association (AWWA): Worked with the Lead Service Line Replacement Collaborative Best Practices Work Group, which is a joint effort of 24 national public health, water utility, environmental, labor, consumer, housing, and state and local governmental organizations to accelerate full removal of the lead pipes providing drinking water to millions of American homes. Directed efforts to develop a SUEZ Lead & Copper Rule Policy Manual.

Water Quality Monitoring for Super Bowl XLVIII, Meadowlands Sports Complex, East Rutherford, NJ: Facilitated the implementation and provided direct oversight of enhanced online water quality monitoring for Super Bowl XLVIII. The enhanced water quality monitoring program consisted of deploying several multi-parameter online water quality monitors in the

distribution network around the Sports Complex, including an innovative use of a “simulated water quality incident” calibration standard to ensure proper sensor response. Water quality in the network and within the Sports Complex was closely monitored during the months leading up to the event and on game day.

Water Quality Assurance and Compliance, SUEZ, Various States: Senior Director responsible for managing water quality and compliance initiatives for over 80 drinking water operations in 14 states, including SUEZ’s largest operations in NJ, NY and ID. Identified and directed application of processes and systems for continuous improvement of water quality and compliance with regulations, rules, and permits. Facilitated the establishment and support of corporate strategies and policies associated with water quality, compliance, and water treatment operations.

Drinking Water Facilities Water Quality Compliance, SUEZ, Haworth, NJ: Provided consultation and support on quality assurance and performance pertaining to water quality for drinking water facilities. Provided support to water treatment operations, as required. Responsible for implementation and evaluation of key performance indicators, and support for water quality related issues and chemical usage.

Water Facility Water Quality Assurance and Compliance, SUEZ Utility Operations, NJ and NY: Responsible for ensuring consistently high-quality water and compliance with regulatory standards for utility operations by directing proper and efficient operation and maintenance (O&M) of treatment facilities. Supervised operation of Water Quality Laboratory and ensured maintenance of the Laboratory's National Environmental Laboratory Accreditation Program (NELAP) certification status. Provided guidance to the Technical Services Department on matters of water treatment, water quality, research needs, and water quality regulations. Collaborated and maintained an active liaison with state regulatory agencies, relevant outside associations, technical sales representatives, and associates to keep abreast of new developments and/or new products pertinent to drinking water quality and treatment.

Haworth Water Quality Laboratory, SUEZ Utility Operations, Haworth, NJ: Chief Chemist responsible for directing laboratory operations and administration of the Laboratory Information Management System (LIMS). Maintained potable and non-potable water certification for New York and New Jersey, and maintained national certification status under NELAP. Certification categories included bacteriology, microbiology, general chemistry, trace metals, volatile organics, pesticides, and herbicides. Developed schedules and quality control procedures for each section of the laboratory.

Facilities Operation and Maintenance (O&M), SUEZ, Haworth, NJ: Directed proper and efficient O&M of treatment plants and the Haworth Water Quality Laboratory (nationally-certified by the National Environmental Laboratory Accreditation Program (NELAP)). Ensured compliance with all federal and state regulations pertaining to drinking water quality, operations, and environmental regulations.

MOTT MACDONALD

Thomas A. Rudy

Personal summary

Education:

AAS, Civil Technology, Union County Technical Institute, 1972

Registrations:

Building Inspector (HHS) NJ [redacted] 1992

OSHA Confined Space Entry

OSHA Competent Person in an Excavation

Years with Mott MacDonald:

48

Years with other firms:

0

Mr. Rudy has been involved in surveying, layout, and construction inspection for various types of public works projects. These projects include sanitary interceptor and collection sewers, pumping stations, stormwater facilities, and wastewater treatment plant construction projects. He has also served as Resident Representative on major potable water projects, including water mains and water storage facilities.

Mr. Rudy served as Manager of Utility Operations for Mott MacDonald's Operating Services Division. He was responsible for the management of groundwater and domestic and industrial waste treatment facilities for public utilities, freight and passenger transportation entities, chemical and pharmaceutical manufacturers, and commercial developers. In addition, Mr. Rudy oversaw the operation and maintenance of wastewater treatment plants and sanitary collection systems for various municipalities in New Jersey.

Selected projects

Mechanical Dewatering Facility, Trenton Water Works, Mercer County, NJ: Resident Representative for the construction of the sludge dewatering facility. Responsibilities included supervision and operation of the filter press dewatering facility one year after facility construction.

Ascending Main Evaluation and Rehabilitation, Trenton Water Works, Mercer County, NJ: Provided Resident Inspection for the reinforced cement-mortar lining of the 48-inch diameter steel-lock bar pipeline and the replacement of valves.

Sewer Rehabilitation Phase 3-4, Jersey City Municipal Utilities Authority (JCMUA), Hudson County, NJ: Lead Resident Representative for construction administration services for the cured-in-place pipe (CIPP) rehabilitation of the 96-inch diameter combined sewage pipeline that runs under 12th Street and leads to the Holland Tunnel tollbooths.

Marlboro Psychiatric Hospital Water and Sewer Utilities (Project No. A1133-00), State of New Jersey Department of the Treasury Division of Property Management and Construction (NJDPMC), Marlboro, NJ: Resident Representative for the construction of the sanitary force main, water main, and pump station, as well as the completion of the demolition of the remaining buildings on site, including decommissioning of the wastewater treatment plant and hazardous waste abatement.

Liberty State Park Utility Services, Jersey City Municipal Utilities Authority (JCMUA)/National Park Service (NPS), Jersey City NJ: Resident Representative for the construction of utility services to the Statue of Liberty. Multiple trenchless methods were utilized to minimize construction impacts. Construction of the new pipelines included a combination of horizontal directional drilling (HDD), pipebursting, and pipe ramming, incorporating 2,400 feet of 12-inch diameter water and 2,400 feet of 6-inch diameter sewer pipe separately installed by HDD through bedrock, and 3,000 feet of 10-inch diameter and 3,000 feet of 4-inch diameter sewer installed by pipebursting.

Newark Avenue Water Main Rehabilitation, Jersey City Municipal Utilities Authority (JCMUA), Hudson County, NJ: Resident Representative for the cured-in-place pipe (CIPP) rehabilitation of water mains. Due to existing underground utilities, open excavation was not possible. The option was to utilize NSF newly approved materials to recondition the water mains in place.

Southern Transmission Mains, Middlesex Water Co., Middlesex County, NJ: Resident Representative for the extension of the southern transmission mains.

Rehabilitation/Improvements to the Pequannock Aqueduct, City of Newark, Essex County, NJ: Provided Resident Inspection for the reinforced cement-mortar lining of 42-inch and 48-inch diameter riveted-steel pipelines and the replacement of valves.

Tri-County Pipeline, New Jersey American Water, Burlington, Camden, and Gloucester Counties, NJ: Provided Resident Observation for the construction of various sections of a 163,500 lf, 16-inch through 54-inch diameter regional pipeline.

Water System Rehabilitation, City of Newark, Essex County, NJ: Provided Resident Inspection services for the construction of the new buried concrete storage tank, reconstruction of interconnections, and replacement of valves and pipeline segments.

Raw Water Pumping Station, City of New Brunswick, Middlesex County, NJ: Resident Representative for construction of modifications to the Delaware and Raritan raw water pumping station.

Wastewater Treatment Plant Expansion, Verona Township, Essex County, NJ: Resident Representative for the expansion of the Township's existing facility including construction inspection, QA/QC, plant testing, and process start-up. Process involved primary settling, activated sludge, secondary settling, filtration, and ultraviolet (UV) disinfection.

Stabilization Pond Modifications, Chatham Township, Morris County, NJ: Resident Representative for the construction of a modification to the Township's existing stabilization pond, including the installation of an EPDM liner for groundwater protection.

Wastewater Treatment Facility, Bernards Township Sewerage Authority, Basking Ridge, NJ: Resident Representative for the construction of the expansion and process change of the Authority's wastewater treatment facility. Responsibilities included construction inspection, QA/QC, plant testing, and process start-up.

Treatment Facilities, Rockaway Valley Regional Sewerage Authority, Boonton, NJ: Structural Resident Engineering Representative for field inspection of the primary wastewater treatment facility.

Pressure Sewers, Rockaway Valley Regional Sewerage Authority, Boonton, NJ: Resident Representative for the construction of twin 30-inch diameter pressure sewers, the construction of which included liner plate tunnel under a railroad and an interstate highway.

Interceptor Sewer System, North Plainfield Borough, Somerset County, NJ: Resident Representative for construction of a major interceptor sewer project which, included river and state highway crossings.

Sanitary Sewer Systems Highway and River Crossings, NJ Turnpike Authority, Various Sites, NJ: Inspection of tunneled highway crossing and river crossings.

Landfill Leachate Membrane Bioreactor (MBR) Pretreatment Plant, Pollution Control Finance Authority of Warren County, NJ: Project Manager for the start-up and operation of this 50,000 gpd MBR leachate pretreatment facility that services the landfill.

Incinerator Upgrade and Sludge Handling Facilities, Bayshore Regional Sewerage Authority, Union Beach, NJ: Resident Representative for the construction expansion and upgrading of the sludge handling and incinerator disposal of the treated sludge, including process testing and start-up. Process involved chemical feed, filter presses, sludge conveyance, and fluidized bed incineration.

Secondary Treatment Sludge Handling Facilities, Passaic Valley Sewerage Commissioners, Newark, NJ: Structural Resident Engineering Representative for construction of the facility.

Groundwater Remediation System Operations, Various NJ Turnpike and Garden State Parkway Facilities, NJ: Operations Manager overseeing licensed wastewater operations at various sites. Responsible for the operation, maintenance, and compliance monitoring of soil and groundwater remediation systems.

Groundwater Treatment Facility, Public Service Electric and Gas, Paterson, NJ: Project Manager responsible for construction, testing, start-up, and operation of a 100 gpm groundwater treatment facility. Groundwater is pumped from 25 wells located on an 11-acre site to the treatment plant. Process includes an equalization tank, dissolved air flotation (DAF), fluidized bed reactor, clarifier, sand filter, and liquid-phase granulated activatd carbon (LGAC). Other ancillary items include air scrubbing, oxygen generation, HVAC, chemical feed, sludge management, and hazardous waste disposal.

Dewatering Water Treatment Facility, United States Pipe, Burlington, NJ: Project Manager responsible for the start-up, testing, and operation of the cement dewatering and blackened water treatment facility. The plant processed water from the pipe casing and cement lining operation. Treatment process included sedimentation basin, clarifier, mixing tank, chemical feed, and a filter press.

Wastewater Treatment Plant, Union Pacific Railroad, Various Sites, AR, LA, and TX: Project Manager responsible for 12 treatment sites. Operations include processing of wastes from rail yards, wash racks, and repair facilities. Treatment consists of oil separation and treatment. Recovered oils separated and recycled.

MOTT MACDONALD

John J. Moolick, P.E.

Personal summary

Education:

MS, Environmental Engineering, Manhattan College, 2003

BS, Civil Engineering, Rutgers University, 1997

Registrations:

Professional Engineer

[redacted]

Years with Mott MacDonald:

3

Years with other firms:

22

Professional memberships:

American Water Works Association

National Society of Professional Engineers

Key skills:

<Insert short desciption. FORMAT: this should be a list of skills, separated by semi-colons>

Mr. Moolick has developed a broad range of experience in the areas of water supply engineering and water systems operations management. He has been involved in all aspects of project development, from concept through delivery. His experience includes master planning, project management, design, permitting, construction phase engineering and project delivery of water treatment facilities, water transmission and distribution system upgrades, water storage tanks, water pump stations and sanitary sewer system upgrades. He has guided projects through projects through various regulatory approval processes. Prior to joining Mott MacDonald, Mr. Moolick had operational responsibility, including treatment, supply, distribution, collection, system maintenance, asset management, planning, system monitoring and facilities management for the water and wastewater systems in five (5) companies serving a population of approximately 500,000. He was also the operational lead for system acquisition and growth initiatives as well as rate filings.

Selected projects

Veolia Water – New York Division

Developed and implemented operational plans and strategies to balance cost, performance and risk while ensuring environmental and performance standards and regulatory requirements were consistently met. Responsibilities included treatment, supply, distribution, collection, system maintenance, asset management, planning, system monitoring, and facilities management. Collaborated with the capital project delivery team and led operations teams to integrate an annual average of $80M of capital improvements into the operations. The potable water service territories included 5 surface water treatment plants, 5 dams, 107 wells, 34 booster stations, 35 gravity storage tanks, 17 hydropneumatic tanks and over 2,000 miles of water mains serving a population of approximately 500,000. Wastewater responsibilities included 5 wastewater treatment plants and collection systems providing wastewater services to a portion of the water service territories. Operational lead for growth initiatives including evaluation, recommendation, and operational integration of system acquisitions. Facility evaluations included recommendations regarding upgrades required to bring these systems into compliance with local, state and federal regulations.

Water System Master Plan, United Water Delaware, Wilmington, DE
Performed a comprehensive evaluation of the 20-year capital investment needs of the company. The plan considered population growth, demand evolution, effects of conservation and NRW reduction, underground infrastructure renewal/replacement, condition assessment of above-ground facilities, water supply projects and generally all improvements required to ensure that company would continue to meet regulatory requirements and implement best management practices. Worked with UWDE staff and a consultant team to evaluate potential alternatives for providing additional water supply capacity for the company through the 2020 timeframe as required by a state mandate to certify adequacy of supply capacity. A wide range of potential alternatives were considered to increase the available peak water supply during summer demand periods as well as alternatives that would allow water to be stored during non-peak periods and used to supplement peak capacity during the summer. Options considered included augmentation of raw and treated water supply via agreements with neighboring purveyors for releases of raw water from upstream sources and interconnection, construction of a raw water reservoir and diversion of source water during non-peak periods, dredging an existing reservoir to increase available peak water capacity of an existing treatment plant and associated treatment plant upgrades, aquifer storage and recovery (ASR), water reuse and recharge and exploration of other groundwater opportunities such as abandoned sources or planned abandonment of sources.

Water System Master Plan, United Water Lambertville, Lambertville, NJ
Performed a collaborative planning effort for the company to identify the actions required to develop a long range capital infrastructure improvement program and improve collection of operational and infrastructure data. The plan considered potential for population growth, demand evolution and 20-year projections, effects of conservation and NRW reduction,

condition assessment of above-ground facilities, assessments of the distribution system storage, emergency capacity and water supply. The plan was intended to position the company to become more proactive with infrastructure investment, meet regulatory requirements, implement best management practices and maintain continuity of service for customers.

Water System Master Plans, United Water Mid-Atlantic, NJ
Performed a collaborative planning effort for twenty-two (22) water systems in three counties to identify the actions required to develop a long range capital infrastructure improvement program and improve collection of operational and infrastructure data. The plan considered potential for population growth, demand evolution, effects of conservation and NRW reduction, condition assessment of above-ground facilities, assessments of the distribution system storage, emergency capacity and water supply. The plan was intended to position the company to become more proactive with infrastructure investment, meet regulatory requirements, implement best management practices and maintain continuity of service for customers

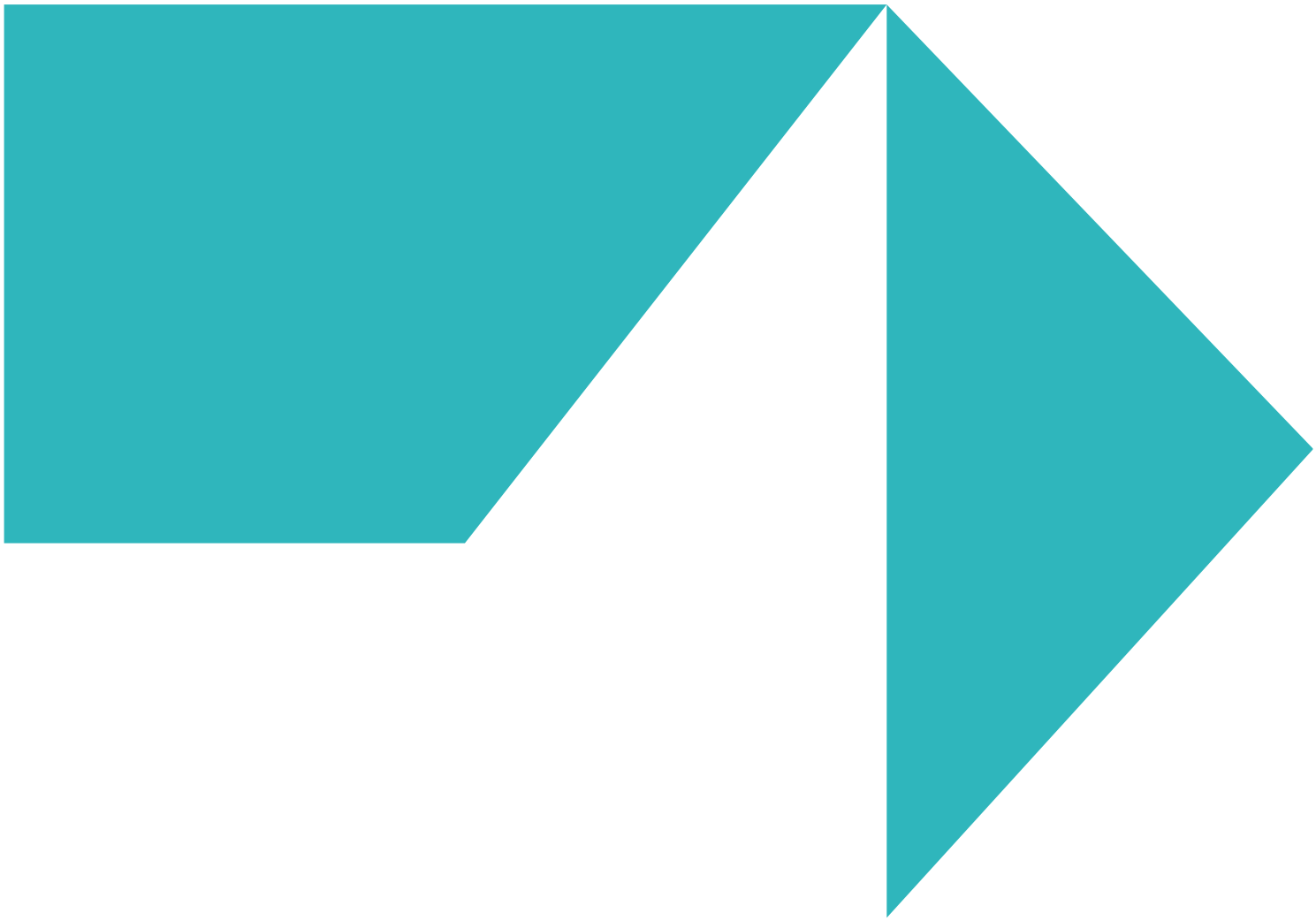
4 Rate Schedule

All-inclusive hourly rates for each project role with an initial estimate of expected contribution is included.

As requested in the RFP, Mott MacDonald has included a rate table of hourly staffing rates identified by project title. The rates provided are all inclusive and cover work through the end of the 2023 calendar year. The rate table also includes an estimate of the percent of expected contribution as an estimate of total annual time for each project role. As the detailed scope of each task is not fully developed at this time, the actual contribution of each staff member will be adjusted based on the actual needs of the Department. Mott MacDonald is committed to providing full support to the Department in this matter and is willing to increase the expected contribution over the initial estimate provided if necessary.

Services Agreement for Enhanced Monitoring, Oversight, Assessment and Capacity Building for Trenton Water Works Drinking Water System
State Price Sheet

Mott MacDonald				
Price Line	**Description**	**Quantity**	**Unit**	**All-Inclusive Hourly Rate**
1	All-Inclusive Hourly Rate	1	Hour	
Staffing Rates by Title (% of expected contribution)				
1	Project Principal (20%)	1	Hour	$340.00
2	Project Manager (75%)	1	Hour	$320.00
3	Project Reviewer (15%)	1	Hour	$300.00
4	Principal Engineer (15%)	1	Hour	$295.00
5	SeniorProject Engineer (20%)	1	Hour	$265.00
6	Project Engineer (10%)	1	Hour	$225.00
7	Engineer IV (20%)	1	Hour	$175.00
8	Engineer III (20%)	1	Hour	$135.00
9	Engineer I/II (20%)	1	Hour	$125.00
10	T-4 Operator (75%)	1	Hour	$290.00
11	W-4 Operator (50%)	1	Hour	$170.00
12	Senior Inspector (30%)	1	Hour	$210.00
13	Water Quality Expert (25%)	1	Hour	$225.00
14	Project Administrator (20%)	1	Hour	$110.00
		1	Hour	
		1	Hour	



State of New Jersey Standard Terms and Conditions

(Revised September 1, 2022)

STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY - DIVISION OF PURCHASE AND PROPERTY
33 WEST STATE STREET, P.O. BOX 230 TRENTON, NEW JERSEY 08625-0230

1.0 STANDARD TERMS AND CONDITIONS APPLICABLE TO THE CONTRACT

The following terms and conditions shall apply to all contracts or purchase agreements made with the State of New Jersey. The State's terms and conditions shall prevail over any conflicts set forth in a Contractor's Quote or Proposal.

2.0 STATE LAW REQUIRING MANDATORY COMPLIANCE BY ALL CONTRACTORS

The statutes, laws, regulations or codes cited herein are available for review at the New Jersey State Library, 185 West State Street, Trenton, New Jersey 08625.

2.1 BUSINESS REGISTRATION

Pursuant to N.J.S.A. 52:32-44, the State is prohibited from entering into a contract with an entity unless the Contractor and each subcontractor named in the proposal have a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services. A subcontractor named in a bid or other proposal shall provide a copy of its business registration to the Contractor who shall provide it to the State.

The contractor shall maintain and submit to the State a list of subcontractors and their addresses that may be updated from time to time with the prior written consent of the Director during the course of contract performance. The contractor shall submit to the State a complete and accurate list of all subcontractors used and their addresses before final payment is made under the contract.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration, or that provides false business registration information, shall be liable for a penalty of $25 for each day of violation, not to exceed $50,000 for each business registration copy not properly provided under a contract with a contracting agency.

The contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall, during the term of the contract, collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the Use Tax due pursuant to the "Sales and Use Tax Act, P.L. 1966, c. 30 (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Revenue at (609) 292-1730. Form NJ-REG can be filed online at https://www.state.nj.us/treasury/revenue/busregcert.shtml.

2.2 OWNERSHIP DISCLOSURE

Pursuant to N.J.S.A. 52:25-24.2, in the event the Contractor is a corporation, partnership or limited liability company, the Contractor must complete an Ownership Disclosure Form.

A current completed Ownership Disclosure Form must be received prior to or accompany the submitted Quote. A Contractor's failure to submit the completed and signed form prior to or with its Quote will result in the Contractor being ineligible for a Contract award, unless the Division has on file a signed and accurate Ownership Disclosure Form dated and received no more than six (6) months prior to the Quote submission deadline for this procurement. If any ownership change has occurred within the last six (6) months, a new Ownership Disclosure Form must be completed, signed and submitted with the Quote.

In the alternative, a Contractor with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a 10 percent or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission or the foreign equivalent, and, if there is any person that holds a 10 percent or greater beneficial interest, also shall submit links to the websites containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent and the relevant page numbers of the filings that contain the information on each person that holds a 10 percent or greater beneficial interest. N.J.S.A. 52:25-24.2.

2.3 DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

Pursuant to N.J.S.A. 52:32-58, the Contractor must utilize this Disclosure of Investment Activities in Iran form to certify that neither the Contractor, nor one (1) of its parents, subsidiaries, and/or affiliates (as defined in N.J.S.A. 52:32-56(e)(3)), is listed on the Department of the Treasury's List of Persons or Entities Engaging in Prohibited Investment Activities in Iran and that neither the Contractor, nor one (1) of its parents, subsidiaries, and/or affiliates, is involved in any of the investment activities set forth in N.J.S.A. 52:32-56(f). If the Contractor is unable to so certify, the Contractor shall provide a detailed and precise description of such activities as directed on the form. A Contractor's failure to submit the completed and signed form will preclude the award of a Contract to said Contractor.

2.4 ANTI-DISCRIMINATION

All parties to any contract with the State agree not to discriminate in employment and agree to abide by all anti-discrimination laws including those contained within N.J.S.A. 10:2-1 through N.J.S.A. 10:2-4, N.J.S.A. 10:5-1 et seq. and N.J.S.A. 10:5-31 through 10:5-38, and all rules and regulations issued thereunder are hereby incorporated by reference. The agreement to abide by the provisions of N.J.S.A. 10:5-31 through 10:5-38 include those provisions indicated for Goods, Professional Service and General Service Contracts (Exhibit A, attached) and Constructions

Contracts (Exhibit B and Exhibit C - Executive Order 151 Requirements) as appropriate.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time.

2.5 AFFIRMATIVE ACTION

In accordance with N.J.A.C. 17:27-1.1, prior to award, the Contractor and subcontractor must submit a copy of a New Jersey Certificate of Employee Information Report, or a copy of Federal Letter of Approval verifying it is operating under a federally approved or sanctioned Affirmative Action program. Contractors or subcontractors not in possession of either a New Jersey Certificate of Employee Information Report or a Federal Letter of Approval must complete the Affirmative Action Employee Information Report (AA-302) located on the web at https://www.state.nj.us/treasury/contract_compliance/.

2.6 AMERICANS WITH DISABILITIES ACT

The contractor must comply with all provisions of the Americans with Disabilities Act (ADA), P.L 101-336, in accordance with 42 U.S.C. 12101, et seq.

2.7 MACBRIDE PRINCIPLES

The Contractor must certify pursuant to N.J.S.A. 52:34-12.2 that it either has no ongoing business activities in Northern Ireland and does not maintain a physical presence therein or that it will take lawful steps in good faith to conduct any business operations it has in Northern Ireland in accordance with the MacBride principles of nondiscrimination in employment as set forth in N.J.S.A. 52:18A-89.5 and in conformance with the United Kingdom's Fair Employment (Northern Ireland) Act of 1989, and permit independent monitoring of their compliance with those principles.

2.8 PAY TO PLAY PROHIBITIONS

Pursuant to N.J.S.A. 19:44A-20.13 et seq. (P.L. 2005, c. 51), The State shall not enter into a Contract to procure services or any material, supplies or equipment, or to acquire, sell, or lease any land or building from any Business Entity, where the value of the transaction exceeds $17,500, if that Business Entity has solicited or made any contribution of money, or pledge of contribution, including in-kind contributions, to a candidate committee and/or election fund of any candidate for or holder of the public office of Governor or Lieutenant Governor, to any State, county, municipal political party committee, or to any legislative leadership committee during certain specified time periods. It shall be a breach of the terms of the contract for the business entity to:

A. Make or solicit a contribution in violation of the statute;
B. Knowingly conceal or misrepresent a contribution given or received;
C. Make or solicit contributions through intermediaries for the purpose of concealing or misrepresenting the source of the contribution;
D. Make or solicit any contribution on the condition or with the agreement that it will be contributed to a campaign committee or any candidate of holder of the public office of Governor or Lieutenant Governor, or to any State or county party committee;
E. Engage or employ a lobbyist or consultant with the intent or understanding that such lobbyist or consultant would make or solicit any contribution, which if made or solicited by the business entity itself, would subject that entity to the restrictions of the Legislation;
F. Fund contributions made by third parties, including consultants, attorneys, family members, and employees;
G. Engage in any exchange of contributions to circumvent the intent of the Legislation; or
H. Directly or indirectly through or by any other person or means, do any act which would subject that entity to the restrictions of the Legislation.

Prior to awarding any Contract or agreement to any Business Entity, the Business Entity proposed as the intended Contractor of the Contract shall submit the Two-Year Chapter 51/Executive Order 117 Vendor Certification and Disclosure of Political Contributions form, certifying that no contributions prohibited by either Chapter 51 or Executive Order No. 117 have been made by the Business Entity and reporting all qualifying contributions made by the Business Entity or any person or entity whose contributions are attributable to the Business Entity. The required form and instructions, available for review on the Division's website at https://www.state.nj.us/treasury/purchase/forms.shtml, shall be provided to the intended Contractor for completion and submission to the Division with the Notice of Intent to Award. Upon receipt of a Notice of Intent to Award a Contract, the intended Contractor shall submit to the Division, in care of the Division Procurement Specialist, the Certification and Disclosure(s) within five (5) business days of the State's request. The Certification and Disclosure(s) may be executed electronically by typing the name of the authorized signatory in the "Signature" block as an alternative to downloading, physically signing the form, scanning the form, and uploading the form. Failure to submit the required forms will preclude award of a Contract under this Bid Solicitation, as well as future Contract opportunities; and

Further, the Contractor is required, on a continuing basis, to report any contributions it makes during the term of the Contract, and any extension(s) thereof, at the time any such contribution is made. The required form and instructions, available for review on the Division's website at https://www.state.nj.us/treasury/purchase/forms.shtml, shall be provided to the intended Contractor with the Notice of Intent to Award.

2.9 POLITICAL CONTRIBUTION DISCLOSURE

The contractor is advised of its responsibility to file an annual disclosure statement on political contributions with the New Jersey Election Law Enforcement Commission (ELEC), pursuant to N.J.S.A. 19:44A-20.27 (P.L. 2005, c. 271, §3 as amended) if in a calendar year the contractor receives one (1) or more contracts valued at $50,000.00 or more. It is the contractor's responsibility to determine if filing is necessary. Failure to file

can result in the imposition of penalties by ELEC. Additional information about this requirement is available from ELEC by calling 1(888)313-3532 or on the internet at http://www.elec.state.nj.us/.

2.10 STANDARDS PROHIBITING CONFLICTS OF INTEREST

The following prohibitions on contractor activities shall apply to all contracts or purchase agreements made with the State of New Jersey, pursuant to Executive Order No. 189 (1988).

A. No vendor shall pay, offer to pay, or agree to pay, either directly or indirectly, any fee, commission, compensation, gift, gratuity, or other thing of value of any kind to any State officer or employee or special State officer or employee, as defined by N.J.S.A. 52:13D-13b. and e., in the Departmentof the Treasury or any other agency with which such vendor transacts or offers or proposes to transact business, or to any member of the immediate family, as defined by N.J.S.A. 52:13D-13i., of any such officer or employee, or partnership, firm or corporation with which they are employed or associated, or in which such officer or employee has an interest within the meaning of N.J.S.A. 52:13D-13g;

B. The solicitation of any fee, commission, compensation, gift, gratuity or other thing of value by any State officer or employee or special State officer or employee from any State vendor shall be reported in writing forthwith by the vendor to the New Jersey Office of the Attorney General and the Executive Commission on Ethical Standards, now known as the State Ethics Commission;

C. No vendor may, directly or indirectly, undertake any private business, commercial or entrepreneurial relationship with, whether or not pursuant to employment, contract or other agreement, express or implied, or sell any interest in such vendor to, any State officer or employee or special State officer or employee having any duties or responsibilities in connection with the purchase, acquisition or sale of any property or services by or to any State agency or any instrumentality thereof, or with any person, firm or entity with which he/she is employed or associated or in which he/she has an interest within the meaning of N.J.S.A. 52:13D-13g. Any relationships subject to this provision shall be reported in writing forthwith to the Executive Commission on Ethical Standards, now known as the State Ethics Commission, which may grant a waiver of this restriction upon application of the State officer or employee or special State officer or employee upon a finding that the present or proposed relationship does not present the potential, actuality or appearance of a conflict of interest;

D. No vendor shall influence, or attempt to influence or cause to be influenced, any State officer or employee or special State officer or employee in his/her official capacity in any manner which might tend to impair the objectivity or independence of judgment of said officer or employee;

E. No vendor shall cause or influence, or attempt to cause or influence, any State officer or employee or special State officer or employee to use, or attempt to use, his/her official position to secure unwarranted privileges or advantages for the vendor or any other person; and

F. The provisions cited above in paragraphs 2.8A through 2.8E shall not be construed to prohibit a State officer or employee or Special State officer or employee from receiving gifts from or contracting with vendors under the same terms and conditions as are offered or made available to members of the general public subject to any guidelines the Executive Commission on Ethical Standards, now known as the State Ethics Commission may promulgate under paragraph 3c of Executive Order No. 189.

2.11 NEW JERSEY BUSINESS ETHICS GUIDE CERTIFICATION

The Treasurer has established a business ethics guide to be followed by a Contractor in dealings with the State. The guide can be found at: https://www.nj.gov/treasury/purchase/pdf/BusinessEthicsGuide.pdf.

2.12 NOTICE TO ALL CONTRACTORS SET-OFF FOR STATE TAX NOTICE

Pursuant to N.J.S.A. 54:49-19, effective January 1, 1996, and notwithstanding any provision of the law to the contrary, whenever any taxpayer, partnership or S corporation under contract to provide goods or services or construction projects to the State of New Jersey or its agencies or instrumentalities, including the legislative and judicial branches of State government, is entitled to payment for those goods or services at the same time a taxpayer, partner or shareholder of that entity is indebted for any State tax, the Director of the Division of Taxation shall seek to set off that taxpayer's or shareholder's share of the payment due the taxpayer, partnership, or S corporation. The amount set off shall not allow for the deduction of any expenses or other deductions which might be attributable to the taxpayer, partner or shareholder subject to set-off under this act.

The Director of the Division of Taxation shall give notice to the set-off to the taxpayer and provide an opportunity for a hearing within 30 days of such notice under the procedures for protests established under R.S. 54:49-18. No requests for conference, protest, or subsequent appeal to the Tax Court from any protest under this section shall stay the collection of the indebtedness. Interest that may be payable by the State, pursuant to P.L. 1987, c.184 (c.52:32-32 et seq.), to the taxpayer shall be stayed.

2.13 COMPLIANCE - LAWS

The contractor must comply with all local, State and Federal laws, rules and regulations applicable to this contract and to the goods delivered and/or services performed hereunder.

2.14 COMPLIANCE - STATE LAWS

It is agreed and understood that any contracts and/or orders placed as a result of [this proposal] shall be governed and construed and the rights and obligations of the parties hereto shall be determined in accordance with the laws of the State of New Jersey.

2.15 WARRANTY OF NO SOLICITATION ON COMMISSION OR CONTINGENT FEE BASIS

The contractor warrants that no person or selling agency has been employed or retained to solicit or secure the contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide employees or bona fide established commercial or selling agencies maintained by the contractor for the purpose of securing business. If a breach or violation of this section occurs, the State shall have the right to terminate the contract without liability or in its discretion to deduct from the contract price or consideration the full amount of such commission, percentage, brokerage or contingent fee.

2.16 DISCLOSURE OF INVESTIGATIONS AND OTHER ACTIONS

The Contractor should submit the Disclosure of Investigations and Other Actions Form which provides a detailed description of any investigation, litigation, including administrative complaints or other administrative proceedings, involving any public sector clients during the past five (5) years, including the nature and status of the investigation, and, for any litigation, the caption of the action, a brief description of the action, the date of inception, current status, and, if applicable, disposition. If a Contractor does not submit the form with the Quote, the Contractor must comply within seven (7) business days of the State's request or the State may deem the Quote non-responsive.

2.17 DISCLOSURE OF PROHIBITED ACTIVITINS WITH RUSSIA OR BELARUS

Pursuant to P.L. 2022, c. 3, a person or entity seeking to enter into, renew, amend or extend a contract for the provision of goods or services shall certify that it is not identified on the Department of the Treasury's List of Persons or Entities Engaging in Prohibited Activities in Russia or Belarus. If the Contractor is unable to so certify because the person or entity, its parents, subsidiaries, or affiliates has engaged in prohibited activities, the Contractor shall provide a detailed and precise description of such activities. A Contractor's failure to submit a certification will preclude the award, renewal, amendment or extension of a Contract to said Contractor.

3.0 STATE LAW REQUIRING MANDATORY COMPLIANCE BY CONTRACTORS UNDER CIRCUMSTANCES SET FORTH IN LAW OR BASED ON THE TYPE OF CONTRACT

3.1 COMPLIANCE - CODES

The contractor must comply with New Jersey Uniform Construction Code and the latest National Electrical Code 70®, B.O.C.A. Basic Building code, Occupational Safety and Health Administration and all applicable codes for this requirement. The contractor shall be responsible for securing and paying all necessary permits, where applicable.

3.2 PREVAILING WAGE ACT

The New Jersey Prevailing Wage Act, N.J.S.A. 34: 11-56.25 et seq. is hereby made part of every contract entered into on behalf of the State of New Jersey through the Division of Purchase and Property, except those contracts which are not within the contemplation of the Act. The Contractor 's signature on [the proposal] is his/her guarantee that neither he/she nor any subcontractors he/she might employ to perform the work covered by [the proposal] has been suspended or debarred by the Commissioner, Department of Labor and Workforce Development for violation of the provisions of the Prevailing Wage Act and/or the Public Works Contractor Registration Acts; the Contractor's signature on the proposal is also his/her guarantee that he/she and any subcontractors he/she might employ to perform the work covered by [the proposal] shall comply with the provisions of the Prevailing Wage and Public Works Contractor Registration Acts, where required.

3.3 PUBLIC WORKS CONTRACTOR REGISTRATION ACT

The New Jersey Public Works Contractor Registration Act requires all contractors, subcontractors and lower tier subcontractor(s) who engage in any contract for public work as defined in N.J.S.A. 34:11-56.26 be first registered with the New Jersey Department of Labor and Workforce Development pursuant to N.J.S.A. 34:11-56.51. Any questions regarding the registration process should be directed to the Division of Wage and Hour Compliance.

3.4 PUBLIC WORKS CONTRACT - ADDITIONAL AFFIRMATIVE ACTION REQUIREMENTS

N.J.S.A. 10:2-1 requires that during the performance of this contract, the contractor must agree as follows:

A. In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall, by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex, discriminate against any person who is qualified and available to perform the work to which the employment relates;

B. No contractor, subcontractor, nor any person on his/her behalf shall, in any manner, discriminate against or intimidate any employee engaged inthe performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, affectional or sexual orientation or sex;

C. There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of $50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and

D. This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

N.J.S.A. 10:5-33 and N.J.A.C. 17:27-3.5 require that during the performance of this contract, the contractor must agree as follows:

A. The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will take affirmative action to ensure that such applicants are recruited and employed, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause;

B. The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex;

C. The contractor or subcontractor where applicable, will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment, N.J.A.C. 17:27-3.7 requires all contractors and subcontractors, if any, to further agree as follows:

1. The contractor or subcontractor agrees to make good faith efforts to meet targeted county employment goals established in accordance with N.J.A.C. 17:27-5.2;
2. The contractor or subcontractor agrees to inform in writing its appropriate recruitment agencies including, but not limited to, employment agencies, placement bureaus, colleges, universities, and labor unions, that it does not discriminate on the basis of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices;
3. The contractor or subcontractor agrees to revise any of its testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job-related testing, as established by the statutes and court decisions of the State of New Jersey and as established by applicable Federal law and applicable Federal court decisions; and
4. In conforming with the targeted employment goals, the contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and layoff to ensure that all such actions are taken without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

3.5 BUILDING SERVICE

Pursuant to N.J.S.A. 34:11-56.58 et seq., in any contract for building services, as defined in N.J.S.A. 34:11-56.59, the employees of the contractor or subcontractors shall be paid prevailing wage for building services rates, as defined in N.J.S.A. 34:11.56.59. The prevailing wage shall be adjusted annually during the term of the contract.

3.6 THE WORKER AND COMMUNITY RIGHT TO KNOW ACT

The provisions of N.J.S.A. 34:5A-1 et seq. which require the labeling of all containers of hazardous substances are applicable to this contract. Therefore, all goods offered for purchase to the State must be labeled by the contractor in compliance with the provisions of the statute.

3.7 SERVICE PERFORMANCE WITHIN U.S.

Under N.J.S.A. 52:34-13.2, all contracts primarily for services awarded by the Director shall be performed within the United States, except when the Director certifies in writing a finding that a required service cannot be provided by a contractor or subcontractor within the United States and the certification is approved by the State Treasurer.

A shift to performance of services outside the United States during the term of the contract shall be deemed a breach of contract. If, during the term of the contract, the contractor or subcontractor, proceeds to shift the performance of any of the services outside the United States, the contractor shall be deemed to be in breach of its contract, which contract shall be subject to termination for cause pursuant to Section 5.7(b) (1) of the Standard Terms and Conditions, unless previously approved by the Director and the Treasurer.

3.8 BUY AMERICAN

Pursuant to N.J.S.A. 52:32-1, if manufactured items or farm products will be provided under this contract to be used in a public work, they shall be manufactured or produced in the United States, whenever available, and the contractor shall be required to so certify.

3.9 DOMESTIC MATERIALS

Pursuant to N.J.S.A. 52:33-2 et seq., if the contract is for the construction, alteration or repair of any public work, the contractor and all subcontractors shall use only domestic materials in the performance of the work unless otherwise noted in the specifications.

3.10 DIANE B. ALLEN EQUAL PAY ACT

Pursuant to N.J.S.A. 34:11-56.14 and N.J.A.C. 12:10-1.1 et seq., a contractor performing "qualifying services" or "public work" to the State or any agency or instrumentality of the State shall provide the Commissioner of Labor and Workforce Development a report regarding the compensation and hours worked by employees categorized by gender, race, ethnicity, and job category. For more information and report templates see https://nj.gov/labor/equalpay/equalpay.html.

3.11 EMPLOYEE MISCLASSIFICATION

In accordance with Governor Murphy's Executive Order #25 and the Task Force's July 2019 Report, employers are required to properly classify their employees. Workers are presumed to be employees and not independent contractors, unless the employer can demonstrate all three factors of the "ABC Test" below:

A. Such individual has been and will continue to be free from control or direction of the performance of such service, but under his or her contract of service and in fact; and
B. Such service is either outside the usual course of business for which such service is performed, or that such service is performed outside of all places of business of the enterprise for which such service is performed; and
C. Such individual is customarily engaged in an independently established trade, occupation, profession or business.

This test has been adopted by New Jersey under its Wage & Hour, Wage Payment and Unemployment Insurance Laws to determine whether a worker is properly classified. Under N.J.S.A. 34:1A-1.17-1.19, the Department of Labor and Workforce Development has the authority to investigate potential violations of these laws and issue penalties and stop work order to employers found to be in violation of the laws.

4.0 INDEMNIFICATION AND INSURANCE

4.1 INDEMNIFICATION

The contractor's liability to the State and its employees in third party suits shall be as follows:

A. Indemnification for Third Party Claims - The contractor shall assume all risk of and responsibility for, and agrees to indemnify, defend, and save harmless the State of New Jersey and its employees from and against any and all claims, demands, suits, actions, recoveries, judgments and costs and expenses in connection therewith which shall arise from or result directly or indirectly from the work and/or materials supplied under this contract, including liability of any nature or kind for or on account of the use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article or appliance furnished or used in the performance of this contract;
B. The contractor's indemnification and liability under subsection (A) is not limited by, but is in addition to the insurance obligations contained in Section 4.2 of these Terms and Conditions; and
C. In the event of a patent and copyright claim or suit, the contractor, at its option, may: (1) procure for the State of New Jersey the legal right to continue the use of the product; (2) replace or modify the product to provide a non-infringing product that is the functional equivalent; or (3) refund the purchase price less a reasonable allowance for use that is agreed to by both parties.

4.2 INSURANCE

The contractor shall secure and maintain in force for the term of the contract insurance as provided herein. All required insurance shall be provided by insurance companies with an A-VIII or better rating by A.M. Best & Company. All policies must be endorsed to provide 30 days' written notice of cancellation or material change to the State of New Jersey at the address shown below. If the contractor's insurer cannot provide 30 days written notice, then it will become the obligation of the contractor to provide the same. The contractor shall provide the State with current certificates of insurance for all coverages and renewals thereof. Renewal certificates shall be provided within 30 days of the expiration of the insurance. The contractor shall not begin to provide services orgoods to the State until evidence of the required insurance is provided. The certificates of insurance shall indicate the contract number or purchase order number and title of the contract in the Description of Operations box and shall list the State of New Jersey, Department of the Treasury, Division of Purchase & Property, Contract Compliance & Audit Unit, P.O. Box 236, Trenton, New Jersey 08625 in the Certificate Holder box. The certificates and any notice of cancelation shall be emailed to the State at: ccau.certificate@treas.nj.gov

The insurance to be provided by the contractor shall be as follows:

A. Occurrence Form Commercial General Liability Insurance or its equivalent: The minimum limit of liability shall be $1,000,000 per occurrence as a combined single limit for bodily injury and property damage. The above required Commercial General Liability Insurance policy or its equivalent shall name the State, its officers, and employees as "Additional Insureds" and include the blanket additional insured endorsement or its equivalent. The coverage to be provided under these policies shall be at least as broad as that provided by the standard basic Commercial General Liability Insurance occurrence coverage forms or its equivalent currently in use in the State of New Jersey, which shall not be circumscribed by any endorsement limiting the breadth of coverage;
B. Automobile Liability Insurance which shall be written to cover any automobile used by the insured. Limits of liability for bodily injury and property damage shall not be less than $1,000,000 per occurrence as a combined single limit. The State must be named as an "Additional Insured" and a blanket additional insured endorsement or its equivalent must be provided when the services being procured involve vehicle use on the State's behalf or on State controlled property;
C. Worker's Compensation Insurance applicable to the laws of the State of New Jersey and Employers Liability Insurance with limits not less than:

1. $1,000,000 BODILY INJURY, EACH OCCURRENCE;
2. $1,000,000 DISEASE EACH EMPLOYEE; and
3. $1,000,000 DISEASE AGGREGATE LIMIT.

This $1,000,000 amount may be raised when deemed necessary by the Director;

In the case of a contract entered into pursuant to N.J.S.A. 52:32-17 et seq., (small business set asides) the minimum amount of insurance coverage in subsections A, B, and B. above may be amended for certain commodities when deemed in the best interests of the State by the Director.

5.0 TERMS GOVERNING ALL CONTRACTS

5.1 CONTRACTOR IS INDEPENDENT CONTRACTOR

The contractor's status shall be that of any independent contractor and not as an employee of the State.

5.2 RESERVED

5.3 CONTRACT TERM AND EXTENSION OPTION

If, in the opinion of the Director, it is in the best interest of the State to extend a contract, the contractor shall be so notified of the Director's Intent at least 30 days prior to the expiration date of the existing contract. The contractor shall have 15 calendar days to respond to the Director's request to extend the term and period of performance of the contract. If the contractor agrees to the extension, all terms and conditions of the original contract shall apply unless more favorable terms for the State have been negotiated.

5.4 STATE'S OPTION TO REDUCE SCOPE OF WORK

The State has the option, in its sole discretion, to reduce the scope of work for any deliverable, task or subtask called for under this contract. In such an event, the Director shall provide to the contractor advance written notice of the change in scope of work and what the Director believes should be the corresponding adjusted contract price. Within five (5) business days of receipt of such written notice, if either is applicable:

A. If the contractor does not agree with the Director's proposed adjusted contract price, the contractor shall submit to the Director any additional information that the contractor believes impacts the adjusted contract price with a request that the Director reconsider the proposed adjusted contract price. The parties shall negotiate the adjusted contract price. If the parties are unable to agree on an adjusted contract price, the Director shall make a prompt decision taking all such information into account, and shall notify the contractor of the final adjusted contract price; and

B. If the contractor has undertaken any work effort toward a deliverable, task or subtask that is being changed or eliminated such that it would not be compensated under the adjusted contract, the contractor shall be compensated for such work effort according to the applicable portions of its price schedule and the contractor shall submit to the Director an itemization of the work effort already completed by deliverable, task or subtask within the scope of work, and any additional information the Director may request. The Director shall make a prompt decision taking all such information into account, and shall notify the contractor of the compensation to be paid for such work effort.

Any changes or modifications to the terms of this Contract shall be valid only when they have been reduced to writing and signed by the Contractor and the Director.

5.5 CHANGE IN LAW

If, after award, a change in applicable law or regulation occurs which affects the Contract, the parties may amend the Contract, including pricing, in order to provide equitable relief for the party disadvantaged by the change in law. The parties shall negotiate in good faith, however if agreement is not possible after reasonable efforts, the Director shall make a prompt decision as to an equitable adjustment, taking all relevant information into account, and shall notify the Contractor of the final adjusted contract price.

5.6 SUSPENSION OF WORK

The State may, for valid reason, issue a stop order directing the contractor to suspend work under the contract for a specific time. The contractor shall be paid for goods ordered, goods delivered, or services requested and performed until the effective date of the stop order. The contractor shall resume work upon the date specified in the stop order, or upon such other date as the State Contract Manager may thereafter direct in writing. The period of suspension shall be deemed added to the contractor's approved schedule of performance. The Director shall make an equitable adjustment, if any is required, to the contract price. The contractor shall provide whatever information that Director may require related to the equitable adjustment.

5.7 TERMINATION OF CONTRACT

A. For Convenience:
Notwithstanding any provision or language in this contract to the contrary, the Directormay terminate this contract at any time, in whole or in part, for the convenience of the State, upon no less than 30 days written notice to the contractor;

B. For Cause:
1. Where a contractor fails to perform or comply with a contract or a portion thereof, and/or fails to comply with the complaints procedure in N.J.A.C. 17:12-4.2 et seq., the Director may terminate the contract, in whole or in part, upon ten (10) days' notice to the contractor

with an opportunity to respond; and

2. Where in the reasonable opinion of the Director, a contractor continues to perform a contract poorly as demonstrated by e.g., formal complaints, late delivery, poor performance of service, short-shipping, so that the Director is required to use the complaints procedure in N.J.A.C. 17:12-4.2 et seq., and there has been a failure on the part of the contractor to make progress towards ameliorating the issue(s) or problem(s) set forth in the complaint, the Director may terminate the contract, in whole or in part, upon ten (10) days' notice to the contractor with an opportunity to respond.

C. In cases of emergency the Director may shorten the time periods of notification and may dispense with an opportunity to respond; and
D. In the event of termination under this section, the contractor shall be compensated for work performed in accordance with the contract, up to the date of termination. Such compensation may be subject to adjustments.

5.8 SUBCONTRACTING

The Contractor may not subcontract other than as identified in the contractor's proposal without the prior written consent of the Director. Such consent, if granted in part, shall not relieve the contractor of any of his/her responsibilities under the contract, nor shall it create privity of contract between the State and any subcontractor. If the contractor uses a subcontractor to fulfill any of its obligations, the contractor shall be responsible for the subcontractor's: (a) performance; (b) compliance with all of the terms and conditions of the contract; and (c) compliance with the requirements of all applicable laws. Nothing contained in any of the contract documents, shall be construed as creating any contractual relationship between any subcontractor and the State.

5.9 RESERVED

5.10 MERGERS, ACQUISITIONS AND ASSIGNMENTS

If, during the term of this contract, the contractor shall merge with or be acquired by another firm, the contractor shall give notice to the Director as soon as practicable and in no event longer than 30 days after said merger or acquisition. The contractor shall provide such documents as may be requested by the Director, which may include but need not be limited to the following: corporate resolutions prepared by the awarded contractor and new entity ratifying acceptance of the original contract, terms, conditions and prices; updated information including ownership disclosure and Federal Employer Identification Number. The documents must be submitted within 30 days of the request. Failure to do so may result in termination of the contract for cause.

If, at any time during the term of the contract, the contractor's partnership, limited liability company, limited liability partnership, professional corporation, or corporation shall dissolve, the Director must be so notified. All responsible parties of the dissolved business entity must submit to the Director in writing, the names of the parties proposed to perform the contract, and the names of the parties to whom payment should be made. No payment shall be made until all parties to the dissolved business entity submit the required documents to the Director.

The contractor may not assign its responsibilities under the contract, in whole or in part, without the prior written consent of the Director.

5.11 PERFORMANCE GUARANTEE OF CONTRACTOR

The contractor hereby certifies that:

A. The equipment offered is standard new equipment, and is the manufacturer's latest model in production, with parts regularly used for the type of equipment offered; that such parts are all in production and not likely to be discontinued; and that no attachment or part has been substituted or applied contrary to manufacturer's recommendations and standard practice;
B. All equipment supplied to the State and operated by electrical current is UL listed where applicable;
C. All new machines are to be guaranteed as fully operational for the period stated in the contract from time of written acceptance by the State. The contractor shall render prompt service without charge, regardless of geographic location;
D. Sufficient quantities of parts necessary for proper service to equipment shall be maintained at distribution points and service headquarters;
E. Trained mechanics are regularly employed to make necessary repairs to equipment in the territory from which the service request might emanate within a 48-hour period or within the time accepted as industry practice;
F. During the warranty period the contractor shall replace immediately any material which is rejected for failure to meet the requirements of the contract; and
G. All services rendered to the State shall be performed in strict and full accordance with the specifications stated in the contract. The contract shall not be considered complete until final approval by the State's using agency is rendered.

5.12 DELIVERY REQUIREMENTS

A. Deliveries shall be made at such time and in such quantities as ordered in strict accordance with conditions contained in the contract;
B. The contractor shall be responsible for the delivery of material in first class condition to the State's using agency or the purchaser under this contract and in accordance with good commercial practice;
C. Items delivered must be strictly in accordance with the contract; and
D. In the event delivery of goods or services is not made within the number of days stipulated or under the schedule defined in the contract, the using agency shall be authorized to obtain the material or service from any available source, the difference in price, if any, to be paid by the contractor.

5.13 APPLICABLE LAW AND JURISDICTION

This contract and any and all litigation arising therefrom or related thereto shall be governed by the applicable laws, regulations and rules of evidence of the State of New Jersey without reference to conflict of laws principles and shall be filed in the appropriate Division of the New Jersey Superior Court.

5.14 CONTRACT AMENDMENT

Except as provided herein, the contract may only be amended by written agreement of the State and the contractor.

5.15 MAINTENANCE OF RECORDS

Pursuant to N.J.A.C. 17:44-2.2, the contractor shall maintain all documentation related to products, transactions or services under this contract for a period of five (5) years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request.

5.16 ASSIGNMENT OF ANTITRUST CLAIM(S)

The contractor recognizes that in actual economic practice, overcharges resulting from antitrust violations are in fact usually borne by the ultimate purchaser. Therefore, and as consideration for executing this contract, the contractor, acting herein by and through its duly authorized agent, hereby conveys, sells, assigns, and transfers to the State of New Jersey, for itself and on behalfof its political subdivisions and public agencies, all right, title and interest to all claims and causes of action it may now or hereafter acquire under the antitrust laws of the United States or the State of New Jersey, relating to the particular goods and services purchased or acquired by the State of New Jersey or any of its political subdivisions or public agencies pursuant to this contract.

In connection with this assignment, the following are the express obligations of the contractor:

A. It shall take no action that will in any way diminish the value of the rights conveyed or assigned hereunder;
B. It shall advise the Attorney General of New Jersey:
    1. In advance of its intention to commence any action on its own behalf regarding anysuch claim or cause(s) of action; and
    2. Immediately upon becoming aware of the fact that an action has been commenced on its behalf by some other person(s) of the pendency of such action.
C. It shall notify the defendants in any antitrust suit of the within assignment at the earliest practicable opportunity after the contractor has initiated an action on its own behalf or becomes aware that such an action has been filed on its behalf by another person. A copy of such notice shall be sent to the Attorney General of New Jersey; and
D. It is understood and agreed that in the event any payment under any such claim or cause of action is made to the contractor, it shall promptly pay over to the State of New Jersey the allotted share thereof, if any, assigned to the State hereunder.

5.17 NEWS RELEASES

The Contractor is not permitted to issue news releases pertaining to any aspect of the services being provided under this Contract without the prior written consent of the Director.

5.18 ADVERTISING

The Contractor shall not use the State's name, logos, images, or any data or results arising from this Contract as a part of any commercial advertising without first obtaining the prior written consent of the Director.

5.19 ORGAN DONATION

As required by N.J.S.A. 52:32-33.1, the State encourages the contractor to disseminate information relative to organ donation and to notify its employees, through information and materials or through an organ and tissue awareness program, of organ donation options. The information provided to employees should be prepared in collaboration with the organ procurement organizations designated pursuant to 42 U.S.C. 1320b-8 to serve in this State.

5.20 LICENSES AND PERMITS

The Contractor shall obtain and maintain in full force and effect all required licenses, permits, and authorizations necessary to perform this Contract. Notwithstanding the requirements of the Bid Solicitation, the Contractor shall supply the State Contract Manager with evidence of all such licenses, permits and authorizations. This evidence shall be submitted subsequent to this Contract award. All costs associated with any such licenses, permits, and authorizations must be considered by the Contractor in its Quote.

5.21 CLAIMS AND REMEDIES

A. All claims asserted against the State by the Contractor shall be subject to the New Jersey Tort Claims Act, N.J.S.A. 59:1-1, et seq., and/or the New Jersey Contractual Liability Act, N.J.S.A. 59:13-1, et seq.
B. Nothing in this Contract shall be construed to be a waiver by the State of any warranty, expressed or implied, of any remedy at law or equity, except as specifically and expressly stated in a writing executed by the Director.
C. In the event that the Contractor fails to comply with any material Contract requirements, the Director may take steps to terminate this Contract in accordance with the SSTC, authorize the delivery of Contract items by any available means, with the difference between the price paid and the defaulting Contractor's price either being deducted from any monies due the defaulting Contractor or being an obligation owed the State by the defaulting Contractor, as provided for in the State administrative code, or take any other action or seek any other remedies

available at law or in equity.

5.22 ACCESSIBILITY COMPLIANCE

The Contractor acknowledges that the State may be required to comply with the accessibility standards of Section 508 of the Rehabilitation Act, 29 U.S.C. §794. The Contractor agrees that any information that it provides to the State in the form of a Voluntary Product Accessibility Template (VPAT) about the accessibility of the Software is accurate to a commercially reasonable standard and the Contractor agrees to provide the State with technical information available to support such VPAT documentation in the event that the State relied on any of Contractor's VPAT information to comply with the accessibility standards of Section 508 of the Rehabilitation Act, 29 U.S.C. §794. In addition, Contractor shall defend any claims against the State that the Software does not meet the accessibility standards set forth in the VPAT provided by Provider in order to comply with the accessibility standards of Section 508 of the Rehabilitation Act, 29 U.S.C. §794 and will indemnify the State with regard to any claim made against the State with regard to any judgment or settlement resulting from those claims to the extent the Provider's Software provided under this Contract was not accessible in the same manner as or to the degree set forth in the Contractor's statements or information about accessibility as set forth in the then-current version of an applicable VPAT.

5.23 CONFIDENTIALITY

A. The obligations of the State under this provision are subject to the New Jersey Open Public Records Act ("OPRA"), N.J.S.A. 47:1A-1 et seq., the New Jersey common law right to know, and any other lawful document request or subpoena;

B. By virtue of this Contract, the parties may have access to information that is confidential to one another. The parties agree to disclose to each other only information that is required for the performance of their obligations under this Contract. Contractor's Confidential Information, to the extent not expressly prohibited by law, shall consist of all information clearly identified as confidential at the time of disclosure Vendor Intellectual Property ("Contractor Confidential Information"). Notwithstanding the previous sentence, the terms and pricing of this Contract are subject to disclosure under OPRA, the common law right to know, and any other lawful document request or subpoena;

C. The State's Confidential Information shall consist of all information or data contained in documents supplied by the State, any information or data gathered by the Contractor in fulfillment of the Contract and any analysis thereof (whether in fulfillment of the Contract or not);

D. A party's Confidential Information shall not include information that: (a) is or becomes a part of the public domain through no act or omission of the other party, except that if the information is personally identifying to a person or entity regardless of whether it has become part of the public domain through other means, the other party must maintain full efforts under the Contract to keep it confidential; (b) was in the other party's lawful possession prior to the disclosure and had not been obtained by the other party either directly or indirectly from the disclosing party; (c) is lawfully disclosed to the other party by a third party without restriction on the disclosure; or (d) is independently developed by the other party;

E. The State agrees to hold Contractor's Confidential Information in confidence, using at least the same degree of care used to protect its own Confidential Information;

F. In the event that the State receives a request for Contractor Confidential Information related to this Contract pursuant to a court order, subpoena, or other operation of law, the State agrees, if permitted by law, to provide Contractor with as much notice, in writing, as is reasonably practicable and the State's intended response to such order of law. Contractor shall take any action it deems appropriate to protect its documents and/or information;

G. In addition, in the event Contractor receives a request for State Confidential Information pursuant to a court order, subpoena, or other operation of law, Contractor shall, if permitted by law, provide the State with as much notice, in writing, as is reasonably practicable and Contractor's intended response to such order of law. The State shall take any action it deems appropriate to protect its documents and/or information; and

H. Notwithstanding the requirements of nondisclosure described in this Section, either party may release the other party's Confidential Information:

   (i) if directed to do so by a court or arbitrator of competent jurisdiction; or

   (ii) pursuant to a lawfully issued subpoena or other lawful document request:

      (a) in the case of the State, if the State determines the documents or information are subject to disclosure and Contractor does not exercise its rights as described in Section 5.23(F), or if Contractor is unsuccessful in defending its rights as described in Section 5.23(F); or

      (b) in the case of Contractor, if Contractor determines the documents or information are subject to disclosure and the State does not exercise its rights described in Section 5.23(G), or if the State is unsuccessful in defending its rights as described in Section 5.23(G).

6.0 TERMS RELATING TO PRICE AND PAYMENT

6.1 PRICE FLUCTUATION DURING CONTRACT

Unless otherwise agreed to in writing by the State, all prices quoted shall be firm through issuance of contract or purchase order and shall not be subject to increase during the period of the contract. In the event of a manufacturer's or contractor's price decrease during the contract period, the State shall receive the full benefit of such price reduction on any undelivered purchase order and on any subsequent order placed during the contract period. The Director must be notified, in writing, of any price reduction within five (5) days of the effective date. Failure to report price reductions may result in cancellation of contract for cause, pursuant to provision 5.7(b)1.

In an exceptional situation the State may consider a price adjustment. Requests for price adjustments must include justification and

documentation.

6.2 TAX CHARGES

The State of New Jersey is exempt from State sales or use taxes and Federal excise taxes. Therefore, price quotations must not include such taxes. The State's Federal Excise Tax Exemption number is 22-75-0050K.

6.3 PAYMENT TO VENDORS

A. The using agency(ies) is (are) authorized to order and the contractor is authorized to ship only those items covered by the contract resulting from the RFP. If a review of orders placed by the using agency(ies) reveals that goods and/or services other than that covered by the contract have been ordered and delivered, such delivery shall be a violation of the terms of the contract and may be considered by the Director as a basis to terminate the contract and/or not award the contractor a subsequent contract. The Director may take such steps as are necessary to have the items returned by the agency, regardless of the time between the date of delivery and discovery of the violation. In such event, the contractor shall reimburse the State the full purchase price;

B. The contractor must submit invoices to the using agency with supporting documentation evidencing that work or goods for which payment is sought has been satisfactorily completed or delivered. For commodity contracts, the invoice, together with the Bill of Lading, and/or other documentation to confirm shipment and receipt of contracted goods must be received by the using agency prior to payment. For contracts featuring services, invoices must reference the tasks or subtasks detailed in the Scope of Work and must be in strict accordance with the firm, fixed prices submitted for each task or subtask. When applicable, invoices should reference the appropriate task or subtask or price line number from the contractor's proposal. All invoices must be approved by the State Contract Manager or using agency before payment will be authorized;

C. In all time and materials contracts, the State Contract Manager or designee shall monitor and approve the hours of work and the work accomplished by contractor and shall document both the work and the approval. Payment shall not be made without such documentation. A form of timekeeping record that should be adapted as appropriate for the Scope of Work being performed can be found at www.nj.gov/treasury/purchase/forms/Vendor_Timesheet.xls; and

D. The contractor shall provide, on a monthly and cumulative basis, a breakdown in accordance with the budget submitted, of all monies paid to any small business, minority or woman-owned subcontractor(s). This breakdown shall be sent to the Office of Diversity and Inclusion.

E. The Contractor shall have sole responsibility for all payments due any Subcontractor

6.4 OPTIONAL PAYMENT METHOD: P-CARD

The State offers contractors the opportunity to be paid through the MasterCard procurement card (p-card). A contractor's acceptance and a State agency's use of the p-card are optional. P-card transactions do not require the submission of a contractor invoice; purchasing transactions using the p-card will usually result in payment to a contractor in three (3) days. A contractor should take note that there will be a transaction-processing fee for each p-card transaction. To participate, a contractor must be capable of accepting the MasterCard. Additional information can be obtained from banks or merchant service companies.

6.5 NEW JERSEY PROMPT PAYMENT ACT

The New Jersey Prompt Payment Act, N.J.S.A. 52:32-32 et seq., requires state agencies to pay for goods and services within 60 days of the agency's receipt of a properly executed State Payment Voucher or within 60 days of receipt and acceptance of goods and services, whichever is later. Properly executed performance security, when required, must be received by the State prior to processing any payments for goods and services accepted by state agencies. Interest will be paid on delinquent accounts at a rate established by the State Treasurer. Interest shall not be paid until it exceeds $5.00 per properly executed invoice. Cash discounts and other payment terms included as part of the original agreement are not affected by the Prompt Payment Act.

6.6 AVAILABILITY OF FUNDS

The State's obligation to make payment under this contract is contingent upon the availability of appropriated funds and receipt of revenues from which payment for contract purposes can be made. No legal liability on the part of the State for payment of any money shall arise unless and until funds are appropriated each fiscal year to the using agency by the State Legislature and made available through receipt of revenue.

7.0 TERMS RELATING TO ALL CONTRACTS FUNDED, IN WHOLE OR IN PART, BY FEDERAL FUNDS

The provisions set forth in this Section of the Standard Terms and Conditions apply to all contracts funded, in whole or in part, by Federal funds as required by 2 CFR 200.317.

7.1 CONTRACTING WITH SMALL AND MINORITY BUSINESSES, WOMEN'S BUSINESS ENTERPRISES, AND LABOR SURPLUS AREA FIRMS.

Pursuant to 2 CFR 200.321, the State must take all necessary affirmative steps to assure that minority businesses, women's business enterprises, and labor surplus area firms are used when possible. Accordingly, if subawards are to be made the Contractor shall:

(1) Include qualified small and minority businesses and women's business enterprises on solicitation lists;
(2) Assure that small and minority businesses, and women's business enterprises are solicited whenever they are potential sources;
(3) Divide total requirements, when economically feasible, into smaller tasks or quantities to permit maximum participation by small and minority businesses, and women's business enterprises;

(4) Establish delivery schedules, where the requirement permits, which encourage participation by small and minority businesses, and women's business enterprises; and,
(5) Use the services and assistance, as appropriate, of such organizations as the Small Business Administration and the Minority Business Development Agency of the Department of Commerce.

7.2 DOMESTIC PREFERENCE FOR PROCUREMENTS

Pursuant to 2 CFR 200.322, where appropriate, the State has a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). If subawards are to be made the Contractor shall include a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products). For purposes of this section:

(1) "Produced in the United States" means, for iron and steel products, that all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States.
(2) "Manufactured products" means items and construction materials composed in whole or in part of nonferrous metals such as aluminum; plastics and polymer-based products such as polyvinyl chloride pipe; aggregates such as concrete; glass, including optical fiber; and lumber.

7.3 PROCUREMENT OF RECOVERED MATERIALS

Where applicable, in the performance of contract, pursuant to 2 CFR 200.323, the contractor must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $ 10,000 or the value of the quantity acquired during the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

To the extent that the scope of work or specifications in the contract requires the contractor to provide recovered materials the scope of work or specifications are modified to require that as follows.

i. In the performance of this contract, the Contractor shall make maximum use of products containing recovered materials that are EPA-designated items unless the product cannot be acquired—
    1. Competitively within a timeframe providing for compliance with the contract performance schedule;
    2. Meeting contract performance requirements; or
    3. At a reasonable price.
ii. Information about this requirement, along with the list of EPA- designated items, is available at EPA's Comprehensive Procurement Guidelines web site, https://www.epa.gov/smm/comprehensive-procurement-guideline-cpg-program.
iii. The Contractor also agrees to comply with all other applicable requirements of Section 6002 of the Solid Waste Disposal Act."

7.4 EQUAL EMPLOYMENT OPPORTUNITY

Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must include the equalopportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 FR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor." See, 2 CFR Part 200, Appendix II, para. C.

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to the following:

    Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.
(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.
(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The contractor will send to each labor union or representative of workers with which he/she has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his/her books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance:

Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, That if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision of such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of Labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from, or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive Order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive Order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

7.5 DAVIS-BACON ACT, 40 U.S.C. 3141-3148, AS AMENDED

When required by Federal program legislation, all prime construction contracts in excess of $ 2,000 shall be done in compliance with the Davis-Bacon Act (40 U.S.C. 3141- 3144, and 3146-3148) and the requirements of 29 C.F.R. pt. 5 as may be applicable. The contractor shall comply with 40 U.S.C. 3141-3144, and 3146-3148 and the requirements of 29 C.F.R. pt. 5 as applicable. Contractors are required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. Additionally, contractors are required to pay wages not less than once a week.

7.6 COPELAND ANTI-KICK-BACK ACT

Where applicable, the Contractor must comply with Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States").

a. Contractor. The Contractor shall comply with 18 U.S.C. § 874, 40 U.S.C. § 3145, and the requirements of 29 C.F.R. pt. 3 as may be applicable, which are incorporated by reference into the OGS centralized contract.

b. Subcontracts. The Contractor or subcontractor shall insert in any subcontracts the clause above and such other clauses as FEMA may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all of these contract clauses.

c. Breach. A breach of the clauses above may be grounds for termination of the OGS centralized contract, and for debarment as a Contractor and subcontractor as provided in 29 C.F.R. § 5.12.

7.7 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT, 40 U.S.C. 3701-3708

Where applicable, all contracts awarded by the non-Federal entity in excess of $ 100,000 that involve the employment of mechanics or laborers must comply with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5).

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph (b)(1) of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (b)(1) of this section, in the sum of $27 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (b)(1) of this section.

(3) Withholding for unpaid wages and liquidated damages. The unauthorized user shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (b)(2) of this section.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (b)(1) through (4) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (b)(1) through (4) of this section.

7.8 RIGHTS TO INVENTIONS MADE UNDER A CONTRACT OR AGREEMENT

If the Federal award meets the definition of "funding agreement" under 37 CFR § 401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

7.9 CLEAN AIR ACT, 42 U.S.C. 7401-7671Q, AND THE FEDERAL WATER POLLUTION CONTROL ACT, 33 U.S.C. 1251-1387, AS AMENDED

Where applicable, Contract and subgrants of amounts in excess of $150,000, must comply with the following:

Clean Air Act

7.9.1.1 The contractor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act, as amended, 42 U.S.C. § 7401 et seq.

7.9.1.2 The contractor agrees to report each violation to the Division of Purchase and Property and understands and agrees that the Division of Purchase and Property will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.

7.9.1.3 The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

Federal Water Pollution Control Act

1. The contractor agrees to comply with all applicable standards, orders, or regulations issued pursuant to the Federal Water Pollution Control Act, as amended, 33 U.S.C. 1251 et seq.
2. The contractor agrees to report each violation to the Division of Purchase and Property and understands and agrees that the Division of Purchase and Property will, in turn, report each violation as required to assure notification to the Federal Emergency Management Agency, and the appropriate Environmental Protection Agency Regional Office.
3. The contractor agrees to include these requirements in each subcontract exceeding $150,000 financed in whole or in part with Federal assistance provided by FEMA.

7.10 DEBARMENT AND SUSPENSION (EXECUTIVE ORDERS 12549 AND 12689)

(1) This contract is a covered transaction for purposes of 2 C.F.R. pt. 180 and 2 C.F.R. pt. 3000. As such, the contractor is required to verify that none of the contractor's principals (defined at 2 C.F.R. § 180.995) or its affiliates (defined at 2 C.F.R. § 180.905) are excluded (defined at 2 C.F.R. § 180.940) or disqualified (defined at 2 C.F.R. § 180.935).

(2) The contractor must comply with 2 C.F.R. pt. 180, subpart C and2 C.F.R. pt. 3000, subpart C, and must include a requirement to comply with these regulations in any lower tier covered transaction it enters into.

(3) This certification is a material representation of fact relied upon by the State or authorized user. If it is later determined that the contractor did not comply with 2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C, in addition to remedies available to the State or authorized user, the Federal Government may pursue available remedies, including but not limited to suspension and/or debarment.

(4) The bidder or proposer agrees to comply with the requirements of2 C.F.R. pt. 180, subpart C and 2 C.F.R. pt. 3000, subpart C while this offer is valid and throughout the period of any contract that may arise from this offer. The bidder or proposer further agrees to include a provision requiring such compliance in its lower tier covered transactions.

7.11 BYRD ANTI-LOBBYING AMENDMENT, 31 U.S.C. 1352

Contractors that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award. Such disclosures are forwarded from tier to tier up to the recipient who in turn will forward the certification(s) to the awarding agency.

7.12 PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

(a) Recipients and subrecipients are prohibited from obligating or expending loan or grant funds to:

(1) Procure or obtain;

(2) Extend or renew a contract to procure or obtain; or

(3) Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in *Public Law 115–232*, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

(i) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(ii) Telecommunications or video surveillance services provided by such entities or using such equipment.

(iii) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

EXHIBIT A - GOODS, GENERAL SERVICE AND PROFESSIONAL SERVICES CONTRACTS

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE
N.J.S.A. 10:5-31 et seq. (P.L. 1975, c. 127)
N.J.A.C. 17:27 et seq.

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union of the contractor's commitments under this chapter and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

The contractor or subcontractor agrees to make good faith efforts to meet targeted county employment goals established in accordance with N.J.A.C. 17:27-5.2.

The contractor or subcontractor agrees to inform in writing its appropriate recruitment agencies including, but not limited to, employment agencies, placement bureaus, colleges, universities, and labor unions, that it does not discriminate on the basis of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices.

The contractor or subcontractor agrees to revise any of its testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job related testing, as established by the statutes and court decisions of the State of New Jersey and as established by applicable Federal law and applicable Federal court decisions.

In conforming with the targeted employment goals, the contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and layoff to ensure that all such actions are taken without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

The contractor shall submit to the public agency, after notification of award but prior to execution of a goods and services contract, one of the following three documents:

- Letter of Federal Affirmative Action Plan Approval;
- Certificate of Employee Information Report; or
- Employee Information Report Form AA302 (electronically provided by the Division and distributed to the public agency through the Division's website at http://www.state.nj.us/treasury/contract_compliance).

The contractor and its subcontractors shall furnish such reports or other documents to the Division of Purchase an Property, CCAU, EEO Monitoring Program as may be requested by the office from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Purchase an Property, CCAU, EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1 et seq.

EXHIBIT B - CONSTRUCTION CONTRACTS

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE
N.J.S.A. 10:5-31 et seq. (P.L. 1975, c. 127)
N.J.S.A. 10:5-39 et seq. (P.L. 1983, c. 197)
N.J.A.C. 17:27-1.1 et seq.

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, up grading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

N.J.S.A. 10:5-39 et seq. requires contractors, subcontractors, and permitted assignees performing construction, alteration, or repair of any building or public work in excess of $250,000 toguarantee equal employment opportunity to veterans.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Dept. of LWD, Construction EEO Monitoring Program may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B and C, as long as the Dept. of LWD, Construction EEO Monitoring Program is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

(A) If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et. seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B) If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:
  (1) To notify the public agency compliance officer, the Dept. of LWD, Construction EEO Monitoring Program, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;

(2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;
(3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;
(4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;
(5) If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and non- discrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;
(6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:
    (i) The contactor or subcontractor shall interview the referred minority or women worker.
    (ii) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Dept. of LWD, Construction EEO Monitoring Program. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.
    (iii) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Dept. of LWD, Construction EEO Monitoring Program, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.
    (iv) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Dept. of LWD, Construction EEO Monitoring Program.
(7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Dept. of LWD, Construction EEO Monitoring Program and submitted promptly to the Dept. of LWD, Construction EEO Monitoring Program upon request.

(C) The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Dept. of LWD, Construction EEO Monitoring Program an initial project workforce report (Form AA-201) electronically provided to the public agency by the Dept. of LWD, Construction EEO Monitoring Program, through its website, for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7.

The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Dept. of LWD, Construction EEO Monitoring Program and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on the job and/or off the job programs for outreach and training of minorities and women.

(D) The contractor and its subcontractors shall furnish such reports or other documents to the Dept. of LWD, Construction EEO Monitoring Program as may be requested by the Dept. of LWD, Construction EEO Monitoring Program from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Dept. of LWD, Construction EEO Monitoring Program for conducting a compliance investigation pursuant to N.J.A.C. 17:27-1.1 et seq.

EXHIBIT C - EXECUTIVE ORDER NO. 151 REQUIREMENTS

It is the policy of the Division of Purchase and Property that its contracts should create a workforce that reflects the diversity of the State of New Jersey. Therefore, contractors engaged by the Division of Purchase and Property to perform under a construction contract shall put forth a good faith effort to engage in recruitment and employment practices that further the goal of fostering equal opportunities to minorities and women.

The contractor must demonstrate to the Division of Purchase and Property's satisfaction that a good faith effort was made to ensure that minorities and women have been afforded equal opportunity to gain employment under the Division of Purchase and Property's contract with the contractor. Payment may be withheld from a contractor's contract for failure to comply with these provisions.

Evidence of a "good faith effort" includes, but is not limited to:

1. The Contractor shall recruit prospective employees through the State Job bank website, managed by the Department of Labor and Workforce Development, available online at https://newjersey.usnlx.com/;
2. The Contractor shall keep specific records of its efforts, including records of all individuals interviewed and hired, including the specific numbers of minorities and women;
3. The Contractor shall actively solicit and shall provide the Division of Purchase and Property with proof of solicitations for employment, including but not limited to advertisements in general circulation media, professional service publications and electronic media; and
4. The Contractor shall provide evidence of efforts described at 2 above to the Division of Purchase and Property no less frequently than once every 12 months.
5. The Contractor shall comply with the requirements set forth at N.J.A.C. 17:27.

This language is in addition to and does not replace good faith efforts requirements for construction contracts required by N.J.A.C. 17:27-3.6, 3.7 and 3.8, also known as Exhibit B.

State of New Jersey Standard Terms and Conditions

(Revised September 1, 2022)

I HEREBY ACCEPT THE TERMS AND CONDITIONS OF THIS CONTRACT

Signature

11-1-22

Date

STEPHEN B. POLCOW, SR. VICE PRESIDENT

Print Name and Title

MOTT MACDONALD, LLC

Print Name of Contractor

WAIVERED CONTRACTS SUPPLEMENT TO THE STATE OF NEW JERSEY STANDARD TERMS AND CONDITIONS

(Revised January 11, 2022)

STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY - DIVISION OF PURCHASE AND PROPERTY
33 WEST STATE STREET, P.O. BOX 230 TRENTON, NEW JERSEY 08625-0230

This Supplement to the State of New Jersey Standard Terms and Conditions ("Supplement") shall apply to all contracts or purchase agreements made with the State of New Jersey ("State") under N.J.S.A. 52:34-9 or -10 ("Waivered Contracts"). The terms in this Supplement are in addition to, or modify the State of New Jersey Standard Terms and Conditions (SSTCs) as applicable and noted below.

I. ADDITIONS TO THE STANDARD TERMS AND CONDITIONS FOR ALL WAIVERED CONTRACTS

A. ORDER OF PRECEDENCE

The "Contract" shall consist of the following documents: (1) this Supplement; (2) the State of New Jersey Standard Terms and Conditions; (3) the agency's scope of work; and, (4) the Contractor's proposal including any attachments or documents incorporated by reference. In the event of a conflict in the terms and conditions among the documents comprising this Contract, the order of precedence, for purposes of interpretation thereof, listed from highest ranking to lowest ranking as noted above.

B. NO ARBITRATION

Notwithstanding anything to the contrary in Contractor's Standard Form Agreement ("SFA") or Scope of Work ("SOW"), the State does not agree to binding arbitration.

C. NO AUTO-RENEWAL

Notwithstanding anything to the contrary in Contractor's SFA or SOW, the State does not agree to auto-renewal of any services, standard software maintenance, technical support or service fees.

II. ADDITIONS TO THE STANDARD TERMS AND CONDITIONS FOR WAIVERED CONTRACTS, AS APPLICABLE

A. STATE'S RIGHT TO INSPECT CONTRACTOR'S FACILITIES

The State reserves the right to inspect the contractor's establishment before making an award, for the purposes of ascertaining whether the contractor has the necessary facilities for performing the Contract. The State may also consult with clients of the contractor to assist the State in making a contract award that is most advantageous to the State.

B. STATE'S RIGHT TO REQUEST FURTHER INFORMATION

The Director reserves the right to request all information which may assist him or her in making a contract award, including factors necessary to evaluate the contractor's financial capabilities to perform the Contract. Further, the Director reserves the right to request a contractor to explain, in detail, how the proposal price was determined.

C. DELIVERY TIME AND COSTS

Unless otherwise noted elsewhere in the scope of work, all delivery times are 30 calendar days after receipt of order (ARO) and prices for items in proposals shall be submitted Freight On Board (F.O.B.) Destination (30 calendar days ARO/F.O.B.). The contractor shall assume all costs, liability and responsibility for the delivery of merchandise in good condition to the State's Using Agency or designated purchaser. Thirty calendar days ARO/F.O.B. does not cover "spotting" but does include delivery on the receiving platform of the Using Agency at any destination in the State of New Jersey unless otherwise specified. No additional charges will be allowed for any additional transportation costs resulting from partial shipments made at the contractor's convenience when a single shipment is ordered. The weights and measures of the State's Using Agency receiving the shipment shall govern.

D. COLLECT ON DELIVERY (C.O.D) TERMS

C.O.D. terms will not be accepted.

E. CASH DISCOUNTS

The contractor is encouraged to offer cash discounts based on expedited payment by the State. The State will make efforts to take advantage of discounts. Should the contractor choose to offer cash discounts the following shall apply:

1. Discount periods shall be calculated starting from the next business day after the Using Agency has accepted the goods or services, received a properly signed and executed invoice and, when required, a properly executed performance security, whichever is latest; and
2. The date on the check issued by the State in payment of that invoice shall be deemed the date of the State's response to that invoice.

F. PERFORMANCE SECURITY

If performance security is required, such security must be submitted with the bid in the amount listed in the scope of work. N.J.A.C. 17:12-2.5. Acceptable forms of performance security are as follows:

1. A properly executed individual or annual performance bond issued by an insurance or security company authorized to do business in the State of New Jersey,

2. A certified or cashier's check drawn to the order of "Treasurer, State of New Jersey," or
3. An irrevocable letter of credit issued by a federally insured financial institution and naming "Treasurer, State of New Jersey," as beneficiary.

The Performance Security must be submitted to the State within 30 days of the effective date of the Contract award and cover the period of the Contract and any extensions thereof. Failure to submit performance security may result in cancellation of the Contract for cause and nonpayment for work performed.

Although the performance bond is required for the full term of the Contract, the Director recognizes that the industry practice of sureties is to issue a one (1) year performance bond for goods and services contracts. Thus, the contractor is permitted to submit a one (1) year performance bond for the amount required under the Contract and, on each succeeding anniversary date of the Contract, provide a continuation or renewal certificate to evidence that the bond is in effect for the next year of the Contract. This procedure will remain in place for each year of the Contract thereafter until the termination of the Contract. Failure to provide such proof on the anniversary date of the Contract shall result in suspension of the Contract, and possibly, termination of the Contract.

For performance bonds based on a percentage of the total estimated Contract price. On each anniversary of the effective date of the Contract, the amount of the required performance bond, unless otherwise noted, is calculated by applying the established RFQ performance bond percentage to the outstanding balance of the estimated amount of the Contract price to be paid to the contractor.

In the event that the Contract price is increased by a Contract Amendment, the contractor may be required to provide, within 30 calendar days of the effective date of the Contract Amendment, performance bond coverage for the increase in Contract price. The required increase in the performance bond amount is calculated by applying the established bond percentage set forth above to the increase in Contract price. Failure to provide such proof to the Director of this required coverage may result in the suspension of payment to the contractor until such time the contractor complies with this requirement.

G. RETAINAGE

If retainage is required on the Contract as stated in the scope of work, the state and/or agency will retain the stated percentage or retainage from each invoice. Payment of retainage will be authorized after satisfactory completion and submission of all services, deliverables or work products by the contractor and acceptance by the agency of all services, deliverables or work products required by the Contract.

For ongoing contracts, the agency will retain the stated percentage of each invoice submitted. At the end of the three (3) month period after payment of each invoice, the agency will review the contractor's performance and if performance has been satisfactory, the agency will release the retainage for the preceding three (3) month period. Following the expiration of the Contract, retained fees will be released to the contractor after certification by the agency's project manager, if any, that all services have been satisfactorily performed.

H. AUDIT NOTICE AND DISPUTE RESOLUTION

To the extent the contractor's proposal or Standard Form Agreement permits the contractor to conduct periodic audits of the State's usage of the Contractor Intellectual Property provided thereunder, such provision is amended to include the following audit notice and dispute resolution process:

1. AUDIT NOTICE – Notwithstanding anything to the contrary in the contractor's proposal or Standard Form Agreement, in the event that the contractor seeks to exercise a right in its proposal or Standard Form Agreement to audit the State's use of Contractor Intellectual Property, the contractor shall deliver simultaneous written notice, no less than thirty days in advance of the audit start date (unless the contractor's notice provides a longer notice period), to the: Agency requesting the waiver contract.
2. The notice shall reference the specific audit provision(s) in the contractor's proposal or Standard Form Agreement being exercised and include copies of same, specify the means by which the contractor will conduct the audit, and shall require the audit to be conducted in accordance with generally accepted standards in the field of such audits.
3. AUDIT DISPUTE RESOLUTION -- If the State, in good faith, provides the contractor with written notice of an alleged error in the amount of underpaid fees due the contractor as a result of an audit (the "dispute"), then the parties will endeavor to resolve the dispute in accordance with this paragraph. Each party will appoint a Vice President, Assistant Director, or the equivalent (hereinafter referred to as "Representative") to discuss the dispute and no formal proceedings for the judicial resolution of such dispute, except for the seeking of equitable relief or those required to avoid non-compliance with the New Jersey Contractual Liability Act, N.J.S.A. 59:13-1 et seq., may begin until either such Representative concludes, after a good faith effort to resolve the dispute, that resolution through continued discussion is unlikely. In addition, the parties shall refrain from exercising any termination right related to the dispute being considered under this paragraph and shall continue to perform their respective obligations under the Contract while they endeavor to resolve the dispute under this paragraph.
4. STATE NOT LIABLE FOR AUDIT COSTS -- Notwithstanding anything to the contrary in the contractor's proposal or Standard Form Agreement, the State will not reimburse the contractor for any costs related to an audit.
5. NO AUDIT RIGHT CREATED -- In the event that the contractor's proposal or Standard Form Agreement does not permit audits of the State's usage of Contractor Intellectual Property, Section 5.19 of this Supplement shall not be interpreted to provide such an audit right.

III. ADDITIONS TO THE STANDARD TERMS AND CONDITIONS FOR PROFESSIONAL SERVICES CONTRACTS

A. INSURANCE FOR PROFESSIONAL SERVICES CONTRACTS

Section 4.2 Insurance of the SSTC is supplemented with the following:

Professional Liability Insurance

The Contractor shall carry Errors and Omissions, Professional Liability Insurance, and/or Professional Liability Malpractice Insurance sufficient to protect the Contractor from any liability arising out the professional obligations performed pursuant to the requirements of this Contract. The insurance shall be in the amount of not less than $1,000,000 and in such policy forms as shall be approved by the State. If the Contractor has claims-made coverage and subsequently changes carriers during the term of this Contract, it shall obtain from its new Errors and Omissions, Professional Liability Insurance, and/or Professional Malpractice Insurance carrier an endorsement for retroactive coverage.

B. LIMITATION OF LIABILITY FOR PROFESSIONAL SERVICES CONTRACTS

Section 4.0 Indemnification and Insurance of the SSTC is supplemented with the following:

4.3 LIMITATION OF LIABILITY

The Contractor's liability to the State for actual, direct damages resulting from the Contractor's performance or non-performance of, or in any manner related to this Contract, for any and all claims, shall be limited in the aggregate to 200% of the total value of this Contract. This limitation of liability shall not apply to the following:

A. The Contractor's obligation to indemnify the State of New Jersey and its employees from and against any claim, demand, loss, damage, or expense relating to bodily injury or the death of any person or damage to real property or tangible personal property, incurred from the work or materials supplied by the Contractor under this Contract caused by negligence or willful misconduct of the Contractor;

B. The Contractor's breach of its obligations of confidentiality; and

C. The Contractor's liability with respect to copyright indemnification.

The Contractor's indemnification obligation is not limited by but is in addition to the insurance obligations.

The Contractor shall not be liable for special, consequential, or incidental damages.

IV. ADDITIONS TO THE STANDARD TERMS AND CONDITIONS FOR ALL INFORMATION TECHNOLOGY CONTRACTS

A. DEFINITIONS

The following definitions shall apply to information technology contracts:

1. The term "Acceptance" means the written confirmation by an Agency that the contractor has completed a Deliverable according to the specified requirements.
2. As defined by N.J.S.A. 56:8-161, the term "Breach of Security" means unauthorized access to electronic files, media, or data containing Personal Data that compromises the security, confidentiality, or integrity of Personal Data when access to the Personal Data has not been secured by encryption or by any other method or technology that renders the Personal Data unreadable or unusable. Good faith acquisition of Personal Data by an employee or agent of the Provider for a legitimate business purpose is not a Breach of Security, provided that the Personal Data is not used for a purposes unrelated to the business or subject to further unauthorized disclosure.
3. The term "Contractor Intellectual Property" means any intellectual property that is owned by the contractor and contained in or necessary for the use of the Deliverables or which the contractor makes available for the State to use as part of the work under the Contract. Contractor Intellectual Property includes COTS or Customized Software owned by the contractor, the contractor's technical documentation, and derivative works and compilations of any Contractor Intellectual Property.
4. The term Commercial Off the Shelf Software ("COTS") means Software provided by the contractor that is intended for general use.
5. The term "Custom Software" means Software and Work Product that is developed by the contractor at the request of the Agency to meet the specific requirements of the Agency and is intended for its use.
6. The term "Customized Software" means COTS that is adapted by the contractor to meet specific requirements of the Agency that differ from the standard requirements of the base product.
7. The term "Deliverable" means the goods, products, Services and Work Product that the contractor is required to deliver to the State under the Contract;
8. The term "End User" means the user of the Provider's solution.
9. The terms "goods" and "products" shall be deemed to include, without limitation, Software and Hardware.
10. The term "Hardware" shall be deemed to include computer equipment and any Software provided with the Hardware that is necessary for the Hardware to operate.
11. The term "Information Technology Contract" shall mean, notwithstanding any definition in New Jersey Statutes, a Contract for one or more of the following: Hardware, Software, Services, telecommunication goods and services, and all related goods.
12. The term "Mobile Device" means any device used by Provider that can move or transmit data, including but not limited to laptops, hard drives, and flash drives.
13. The term "Non-Public Data" means data, other than Personal Data, that is not subject to distribution to the public as public information. Non-Public Data is data that is identified by the State as non-public information or otherwise deemed to be sensitive and confidential by

the State because it contains information that is exempt by statute, ordinance or administrative rule from access by the general public as public information.

14. The term "Personal Data" means:
    a. "Personal Information" as defined in N.J.S.A. 56:8-161, means an individual's first name or first initial and last name linked with any one or more of the following data elements: (1) Social Security number, (2) driver's license number or State identification card number or (3) account number or credit or debit card number, in combination with any required security code, access code, or password that would permit access to an individual's financial account. Dissociated data that, if linked would constitute Personal Information is Personal Information if the means to link the dissociated were accessed in connection with access to the dissociated data. Personal Information shall not include publicly available information that is lawfully made available to the general public from federal, state or local government records, or widely distributed media.
    b. data, either alone or in combination with other data, that includes information relating to an individual that identifies the person or entity by name, identifying number, mark or description that can be readily associated with a particular individual and which is not a public record, including but not limited to, Personally Identifiable Information (PII); government-issued identification numbers (e.g., Social Security, driver's license, passport); Protected Health Information (PHI) as that term is defined in the regulations adopted pursuant to the Health Insurance Portability and Accountability Act of 1996, P.L. No. 104-191 (1996) and found in 45 CFR Parts 160 to 164 and defined below; and Education Records, as that term is defined in the Family Educational Rights and Privacy Act (FERPA), 20 U.S.C. § 1232g.
15. The term "Personally Identifiable Information" or "PII," as defined by the U.S. Department of Commerce, National Institute of Standards and Technology, means any information about an individual maintained by an agency, including (1) any information that can be used to distinguish or trace an individual's identity, such as name, social security number, date and place of birth, mother's maiden name, or biometric records; and (2) any other information that is linked or linkable to an individual, such as medical, educational, financial, and employment information,
16. The term "Protected Health Information" or "PHI," has the same meaning as the term is defined in the regulations adopted pursuant to the Health Insurance Portability and Accountability Act of 1996, P.L. No. 104-191 (1996) and found in 45 CFR Parts 160 to 164 means Individually Identifiable Health Information (as defined below) transmitted by electronic media, maintained in electronic media, or transmitted or maintained in any other form or medium. PHI excludes education records covered by the Family Educational Rights and Privacy Act (FERPA), as amended, 20 U.S.C. 1232g, records described at 20 U.S.C. 1232g(a)(4)(B)(iv) and employment records held by a covered entity in its role as employer. The term "Individually Identifiable Health Information" has the same meaning as the term is defined in the regulations adopted pursuant to the Health Insurance Portability and Accountability Act of 1996, P.L. No. 104-191 (1996) and found in 45 CFR Parts 160 to 164 and means information that is a subset of Protected Health Information, including demographic information collected from an individual, and (1) is created or received by a health care provider, health plan, employer or health care clearinghouse; and (2) relates to the past, present or future physical or mental health or condition of an individual; the provision of health care to an individual; or the past, present or future payment for the provision of health care to an individual; and (a) that identifies the individual; or (b) with respect to which there is a reasonable basis to believe the information can be used to identify the individual.
17. The term "Recovery Time Objective" or "RTO," means the maximum tolerable length of time that the Provider's solution may be unavailable after a failure or disaster occurs.
18. The term "Security Incident" means the potential access by non-authorized person(s) to Personal Data or Non-Public Data that the Provider believes could reasonably result in the use, disclosure, or access or theft of State's unencrypted Personal Data or Non-Public Data within the possession or control of the Provider. A Security Incident may or may not turn into a Breach of Security.
19. The term "Service Level Agreement" or "SLA," means the document that is part of the Provider's SFA that typically includes (1) the technical service level performance promises, (i.e. metrics for performance and intervals for measure), (2) description of service quality, (3) identification of roles and responsibilities, (4) security responsibilities and notice requirements, (5) how disputes are discovered and addressed, and (6) any remedies for performance failures.
20. The terms "Services" shall be deemed to include, without limitation (i) Information Technology ("IT") professional services; (ii) Software and Hardware-related services, including without limitation, installation, configuration, and training and (iii) Software and Hardware maintenance and support and/or Software and Hardware technical support services.
21. The term "Software" means, without limitation, computer programs, source codes, routines, or subroutines supplied by the contractor, including operating software, programming aids, application programs, application programming interfaces and software products, and includes COTS, Customized Software and Custom Software, unless the context indicates otherwise.
22. The term "State Data" means all data and metadata created or in any way originating with the State, and all data that is the output of computer processing of or other electronic manipulation of any data that was created by or in any way originated with the State, whether such data or output is stored on the State's hardware, the Provider's hardware or exists in any system owned, maintained or otherwise controlled by the State or by the Provider. State Data includes Personal Data and Non-Public Data.
23. The term "State Intellectual Property" means any intellectual property that is owned by the State. State Intellectual Property includes any derivative works and compilations of any State Intellectual Property.
24. The term "Third Party Intellectual Property" means any intellectual property owned by parties other than the State or the contractor and contained in or necessary for the use of the Deliverables. Third Party Intellectual Property includes COTS owned by Third Parties, and derivative works and compilations of any Third Party Intellectual Property.
25. The term "Work Product" means every invention, modification, discovery, design, development, customization, configuration, improvement, process, Software program, work of authorship, documentation, formula, datum, technique, know how, secret, or intellectual property right whatsoever or any interest therein (whether patentable or not patentable or registerable under copyright or similar statutes or subject to analogous protection) that is specifically made, conceived, discovered, or reduced to practice by the

contractor or the contractor's subcontractors or a third party engaged by the contractor or its subcontractor pursuant to the Contract. Notwithstanding anything to the contrary in the preceding sentence, Work Product does not include State Intellectual Property, Contractor Intellectual Property or Third Party Intellectual Property.

B. INDEMNIFICATION FOR STANDARD TECHNOLOGY CONTRACTS

Section 4.1 Indemnification of the SSTC is deleted in its entirety and replaced with the following:

4.1 INDEMNIFICATION

The Contractor's liability to the State and its employees in third party suits shall be as follows:

A. The Contractor shall assume all risk of and responsibility for, and agrees to indemnify, defend, and save harmless the State and its officers, agents, servants and employees, from and against any and all third party claims, demands, suits, actions, recoveries, judgments and costs and expenses in connection therewith:
   1. For or on account of the loss of life, property or injury or damage to the person, body or property of any person or persons whatsoever, which shall arise from or result directly or indirectly from the work and/or products supplied under this Contract or the order; and
   2. For or on account of the use of any patent, copyright, trademark, trade secret or other proprietary right of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article or appliance ("Intellectual Property Rights") furnished or used in the performance of this Contract; and
   3. The Contractor's indemnification and liability under subsection (A) is not limited by, but is in addition to the insurance obligations.

B. In the event of a claim or suit involving third-party Intellectual Property Rights, the Contractor, at its option, may:
   1. procure for the State the legal right to continue the use of the product;
   2. replace or modify the product to provide a non-infringing product that is the functional equivalent; or
   3. in the event that the Contractor cannot do (1) or (2) refund the purchase price less a reasonable allowance for use that is agreed to by both parties.

C. The State will:
   1. promptly notify Contractor in writing of the claim or suit;
   2. give Contractor shall have control of the defense and settlement of any claim that is subject to Section 4.1(a); provided; however, that the State must approve any settlement of the alleged claim, which approval shall not be unreasonably withheld. The State may observe the proceedings relating to the alleged claim and confer with the Contractor at its expense.

D. Notwithstanding the foregoing, Contractor has no obligation or liability for any claim or suit concerning third-party Intellectual Property Rights arising from:
   1. the State's unauthorized combination, operation, or use of a product supplied under this Contract with any product, device, or Software not supplied by Contractor;
   2. the State's unauthorized alteration or modification of any product supplied under this Contract;
   3. the Contractor's compliance with the State's designs, specifications, requests, or instructions, provided that if the State provides Contractor with such designs, specifications, requests, or instructions, Contractor reviews same and advises that such designs, specifications, requests or instructions present potential issues of patent or copyright infringement and the State nonetheless directs the Contractor to proceed with one (1) or more designs, specifications, requests or instructions that present potential issues of patent or copyright infringement; or
   4. the State's failure to promptly implement a required update or modification to the product provided by Contractor after the Contractor has given written notice to the State of a need for such an update or modification.

E. Contractor will be relieved of its responsibilities under Subsection 4.1(a)(i) and (ii) for any claims made by an unaffiliated third party that arise solely from the actions or omissions of the State, its officers, employees or agents.

F. Subject to the New Jersey Tort Claims Act (N.J.S.A. 59:1-1 et seq.), the New Jersey Contractual Liability Act (N.J.S.A. 59:13-1 et seq.) and the appropriation and availability of funds, the State will be responsible for any cost or damage arising out of actions or inactions of the State, its employees or agents under Subsection 4.1(a)(i) and (ii) which results in an unaffiliated third party claim. This is Contractor's exclusive remedy for these claims;

G. This section states the entire obligation of Contractor and its suppliers, and the exclusive remedy of the State, in respect of any infringement or alleged infringement of any Intellectual Property Rights. This indemnity obligation and remedy are given to the State solely for its benefit and in lieu of, and Contractor disclaims, all warranties, conditions and other terms of non-infringement or title with respect to any product; and

H. Furthermore, neither Contractor nor any attorney engaged by Contractor shall defend the claim in the name of the State of New Jersey or any Authorized Purchaser, nor purport to act as legal representative of the State of New Jersey or any Authorized Purchaser, without having provided notice to the Director of the Division of Law in the Department of Law and Public Safety and to the Director of the Division of Purchase and Property. The State of New Jersey may, at its election and expense, assume its own defense and settlement; and

I. The State of New Jersey will not indemnify, defend, pay or reimburse for claims or take similar actions on behalf of the Contractor.

C. INSURANCE FOR STANDARD TECHNOLOGY CONTRACTS

Section 4.2 Insurance of the SSTC is supplemented with the following:

Professional Liability Insurance

The Contractor shall carry Errors and Omissions, Professional Liability Insurance, and/or Professional Liability Malpractice Insurance sufficient to protect the Contractor from any liability arising out the professional obligations performed pursuant to the requirements of this Contract. The insurance shall be in the amount of not less than $1,000,000 and in such policy forms as shall be approved by the State. If the Contractor has claims-made coverage and subsequently changes carriers during the term of this Contract, it shall obtain from its new Errors and Omissions, Professional Liability Insurance, and/or Professional Malpractice Insurance carrier an endorsement for retroactive coverage.

D. LIMITATION OF LIABILITY FOR STANDARD TECHNOLOGY CONTRACTS

Section 4.0 Indemnification and Insurance of the SSTC is supplemented with the following:

4.3 LIMITATION OF LIABILITY

The Contractor's liability to the State for actual, direct damages resulting from the Contractor's performance or non-performance of, or in any manner related to this Contract, for any and all claims, shall be limited in the aggregate to 200% of the total value of this Contract. This limitation of liability shall not apply to the following:

A. The Contractor's obligation to indemnify the State of New Jersey and its employees from and against any claim, demand, loss, damage, or expense relating to bodily injury or the death of any person or damage to real property or tangible personal property, incurred from the work or materials supplied by the Contractor under this Contract caused by negligence or willful misconduct of the Contractor;

B. The Contractor's breach of its obligations of confidentiality; and

C. The Contractor's liability with respect to copyright indemnification.

The Contractor's indemnification obligation is not limited by but is in addition to the insurance obligations.

The Contractor shall not be liable for special, consequential, or incidental damages.

E. PERFORMANCE GUARANTEE OF THE CONTRACTOR

Section 5.11 Performance Guarantee of the Contractor of the SSTC is supplemented with the following:

1. COTS and Customized Software
   a. Unless the Contractor Standard Form Agreement provides greater coverage as determined by the State, in its sole discretion, the contractor warrants that COTS and Customized Software products licensed to the State shall operate in all material respects as described in the Solicitation and/or contractor technical documentation for ninety (90) days after Acceptance. The State shall notify the contractor of any COTS or Customized Software product deficiency within ninety (90) days after Acceptance. For a Contract requiring the delivery of COTS or Customized Software and Custom Software, a notice within one hundred eighty (180) days that describes a deficiency in functional terms without specifying whether the deficiency is with COTS, Customized Software or Custom Software shall be deemed a notice that triggers the warranty provisions in both Section 5.11(a) and 5.11(b) of this Supplement.
   b. Except for the portion of the contractor's COTS or Customized Software product that intentionally contains one or more of the following for the purpose of anti-virus protection, the contractor warrants that, at the time of delivery and installation of the COTS or Customized Software provided pursuant to the Contract, its product shall be free of what are commonly defined as viruses, backdoors, worms, spyware, malware and other malicious code that will hamper performance of the COTS or Customized Software, collect unlawful personally identifiable information on users, or prevent the COTS or Customized Software from performing as required under the Contract.
   c. In the event of any breach of this warranty, the contractor shall correct the product errors that caused the breach of warranty, or if the contractor cannot substantially correct such breach in a commercially reasonable manner, the State may end its usage and recover the fees paid to the contractor for the license and any unused, prepaid, technical support fees paid. Under no circumstances does this warranty provision limit the contractor's obligation in the event of a breach of confidentiality.
   d. The contractor does not warrant that COTS or Customized Software is error-free or that it will operate uninterrupted.
2. Custom Software
   a. Unless the Contractor Standard Form Agreement provides greater coverage, as determined by the State, in its sole discretion, the contractor warrants that Custom Software Deliverables shall operate in all material respects as described in the applicable specification documentation for one hundred and eighty (180) days after Acceptance. The State shall notify the contractor of any Custom Software deficiency within one hundred and eighty (180) days after Acceptance of the Custom Software Deliverable (the "Notice Period"). Where the contractor is providing multiple Custom Software Deliverables over the term of the Contract, the Notice Period shall begin to run after the Acceptance of the final Custom Software Deliverable under the Contract. At that time, the State may assert defect claims relating to any and all of the Custom Software Deliverables provided under the Contract; however, the State may also assert claims earlier, in its discretion, without waiving the Notice Period.
   b. For a Contract requiring the delivery of COTS or Customized Software and Custom Software, a notice within one hundred eighty (180) days that describes a deficiency in functional terms without specifying whether the deficiency is with COTS, Customized

Software or Custom Software shall be deemed a notice that triggers the warranty provisions in both Section 5.11(a) and 5.11(b) of this Supplement.

c. The contractor warrants that, at the time of Acceptance of the Custom Software Deliverable provided pursuant to the Contract, its product shall be free of what are commonly defined as viruses, backdoors, worms, spyware, malware and other malicious code that will hamper performance of the Custom Software, collect unlawful personally identifiable information on users, or prevent the Custom Software from performing as required under the Contract. Under no circumstances does this warranty provision limit the contractor's obligation in the event of a breach of confidentiality.

d. In the event of any breach of this warranty, the contractor shall correct the Custom Software errors that caused the breach of warranty, or if the contractor cannot substantially correct such breach in a commercially reasonable manner, the State may recover a portion of the fees paid to the contractor for the Custom Software with the uncorrected defect or in the event that the Custom Software is still deemed, by the State in its sole discretion, to be usable by the State even with the uncorrected defect, the State may recover a portion of the fees paid to the contractor for the Custom Software (up to the total amount of such charges for such Custom Software) to reflect any reduction in the value of the Custom Software Deliverable as a result of the uncorrected defect. Under no circumstances does this warranty provision limit the contractor's obligations in the event of a breach of confidentiality.

e. The contractor does not warrant that Custom Software is error-free or that it will operate uninterrupted.

3. IT Services

a. Unless the Contractor Standard Form Agreement provides greater coverage, as determined by the State, in its sole discretion, the contractor warrants that all Services will be provided in a professional manner consistent with industry standards. The State shall notify the contractor of any Services warranty deficiencies within ninety (90) days from performance of the deficient Services.

b. In the event of any breach of this warranty, the contractor shall re-perform the deficient Services, or if the contractor cannot substantially correct a breach in a commercially reasonable manner, the State may end the relevant Services and recover the fees paid to the contractor for the deficient Services.

4. Hardware

a. Unless the Contractor Standard Form Agreement provides greater coverage, as determined by the State, in its sole discretion, the contractor warrants that the equipment offered is standard new equipment, and is the manufacturer's latest model in production, with parts regularly used for the type of equipment offered; that such parts are all in production and not likely to be discontinued; and that no attachment or part has been substituted or applied contrary to manufacturer's recommendations and standard practice.

b. The contractor warrants that all equipment supplied to the State and operated by electrical current is UL listed where applicable.

c. The contractor warrants that all new machines are to be guaranteed as fully operational for one (1) year from time of Acceptance by the State. For the avoidance of doubt, Acceptance with respect to Hardware in this subsection (d) shall occur no later than sixty (60) days after delivery, as evidenced by a signed delivery receipt. The contractor shall render prompt service without charge, regardless of geographic location.

d. The contractor warrants that sufficient quantities of parts necessary for proper service to equipment shall be maintained at distribution points and service headquarters.

e. The contractor warrants that trained mechanics are regularly employed to make necessary repairs to equipment in the territory from which the service request might emanate within a 48-hour period or within the time accepted as industry practice.

f. The contractor warrants that all Software included with the Hardware shall perform substantially in accordance with specifications, for one (1) year from the time of Acceptance. The contractor warrants that Software media will be free from material defects in materials and workmanship for a period of one (1) year from the date of Acceptance.

g. In the event of any breach of this warranty, the contractor shall promptly repair, replace or refund the purchase price of product rejected for failure to conform with the contractor's product specifications.

5. THE WARRANTIES SET FORTH HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, AND THE CONTRACTOR EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.

V. ADDITIONS TO THE STANDARD TERMS AND CONDITIONS FOR ALL INFORMATION TECHNOLOGY CONTRACTS WHICH INCLUDE SOFTWARE AS A SERVICE (SAAS)/CLOUD SOLUTION

A. ADDITIONAL TERMS FOR A CONTRACTOR'S DATA PROTECTION OBLIGATIONS

1. Data Ownership: The State will own all right, title and interest in its State Data that is related to the services provided by this contract. The Provider shall not use or access State user accounts or State Data, except (i) in the course of data center operations, (ii) in response to service or technical issues, (iii) as required by the express terms of this contract, or (iv) at the State's written request.

   Provider shall not collect, access, or use State Data except as strictly necessary to provide its solution to the State. No information regarding the State's use of the solution may be disclosed, provided, rented or sold to any third party for any reason unless required by law or regulation or by an order of a court of competent jurisdiction. This obligation shall survive and extend beyond the term of this contract.

2. Data Protection: Protection of personal privacy and data shall be an integral part of the business activities of the Provider to ensure that there is no inappropriate or unauthorized use of State Data at any time. To this end, the Provider shall safeguard the confidentiality, integrity, and availability of State Data and comply with the following conditions:

a. The Provider shall implement and maintain appropriate administrative, technical and organizational security measures to safeguard against unauthorized access, disclosure or theft of Personal Data and Non-Public Data. Such security measures shall be in accordance with recognized good industry practice and not less stringent than the measures the Provider applies to its own Personal Data and Non-Public Data of similar kind.
b. All Personal Data shall be encrypted at rest and in transit with controlled access. Provider is responsible for encryption of the Personal Data. The level of protection and encryption for all Personal Data shall be identified and made a part of this contract.
c. Provider shall encrypt all Non-Public Data at rest and in transit. The level of protection and encryption for all Non-Public Data shall be identified and made a part of this contract.
d. Personal Data shall not be stored on Mobile Devices. Where Mobile Devices are required for Provider to accomplish the work, the Provider shall ensure the Mobile Device is hard drive encrypted consistent with validated cryptography standards as referenced in FIPS 140-2, Security Requirements for Cryptographic Modules for all Personal Data.
e. At no time shall any data or processes, which either belongs to or are intended for the use of State or its officers, agents, or employees, be copied, disclosed, or retained by the Provider or any party related to the Provider for subsequent use in any capacity that does not include the State.

3. Data Location: Provider shall provide its services to State and its End Users solely from data centers in the U.S. Storage of State Data at rest shall be located solely in data centers in the U.S. Provider shall not allow its personnel or contractors to store State Data on Mobile Devices, including personal computers, except for devices that are used and kept within the physical structure of its U.S. data centers. Provider shall permit its personnel and contractors to access State Data remotely only as required to provide technical support or upon prior notice and approval. The Provider may provide technical user support on a seven-day by 24-hour basis, unless otherwise prohibited in this contract.

4. Security Incident and Breach of Security Responsibilities.
   a. Security Incident Reporting Requirements: Once Provider reasonably determines that a Security Incident occurred, the Provider shall report a Security Incident to the appropriate State identified contact within 24 hours by the agreed upon method as defined in the contract. Provider will provide the State regular updates and all available relevant information including a description of the incident and those measures taken by Provider in response to the Security Incident.
   b. Breach of Security Reporting Requirements: If the Provider confirms or reasonably believes that there has been a Breach of Security, the Provider shall (1) immediately notify the appropriate State identified contact by the agreed upon method within 24 hours, unless a shorter time is required by applicable law, (2) take commercially reasonable measures to address and investigate the Breach of Security in a timely manner and (3) cooperate with the State as reasonably requested by the State and/or law enforcement to investigate and resolve the Breach of Security. Provider will provide the State regular updates and all available information to assist the State with notification to law enforcement and third parties as required by applicable law, including a description of the Breach of Security and those measures taken by Provider in response to the Breach of Security.
   c. Incident Response: When commercially reasonable to do so, Provider may communicate with outside parties regarding a Security Incident, which may include contacting law enforcement, fielding media inquiries (subject to preapproval by the State if Provider specifically identifies the State or State Data), and seeking external expertise as mutually agreed at the time, defined by law, or contained in the SLA. Discussing Security Incidents with the State should be handled on an urgent as needed basis, as part of Provider communication and mitigation processes as mutually agreed at the time, defined by law, or contained in the SLA.
   d. Following a Security Incident or Breach of Security, Provider shall promptly implement necessary remedial measures, if necessary, and document responsive actions taken related to the Security Incident or Breach of Security, including any post-incident review of events and actions taken to make changes in business practices in providing the services, if necessary.

5. Termination and Suspension of Service:
   a. In the event of termination of the contract, the Provider shall implement an orderly return of State Data in a mutually agreeable format and the subsequent secure disposal of State Data remaining in Provider's possession.
   b. Suspension of services: During any period of suspension, the Provider shall not take any action to intentionally erase any State Data.
   c. Unless otherwise stipulated, in the event of termination of any services, SLA, or this contract in its entirety, the Provider shall not take any action to intentionally erase any State Data for a period of:
      1) 10 business days after the effective date of termination, if the termination is in accordance with the expiration of the defined contract term;
      2) 30 business days after the effective date of termination, if the termination is for convenience; or
      3) 60 business days after the effective date of termination, if the termination is for cause.

      After such period, the Provider shall have no obligation to maintain or provide any State Data and shall thereafter, unless legally prohibited, delete all State Data in its systems or otherwise in its possession or under its control in accordance with subsection (e) below.

   d. Post-Termination Assistance: The State shall be entitled to any post-termination assistance with respect to the services unless a unique data retrieval arrangement has been established as part of the contract.

   e. Secure Data Disposal: When requested by the State, the provider shall destroy all requested data in all of its forms, including but not limited to: disk, CD/DVD, backup tape, and paper. Data shall be permanently deleted and shall not be

recoverable, according to National Institute of Standards and Technology (NIST) approved methods and certificates of destruction shall be provided to the State.

6. Background Checks: The Provider shall conduct criminal background checks and not utilize any staff, including sub-contractors, to fulfill the obligations of the contract who has been convicted of any crime of dishonesty, including but not limited to criminal fraud, or otherwise convicted of any felony or any misdemeanor offense for which incarceration for up to 1 year is an authorized penalty. The Provider shall promote and maintain an awareness of the importance of securing the State's Data among the Provider's employees and agents.

7. Access to security logs and other reports: The Provider shall provide logs and reports to the State in a format as specified in the contract and agreed to by both the Provider and the State. Reports shall include latency statistics, user access, user access IP address, user access history and security logs for all State Data related to this contract, including but not limited to data, file management, transactions, or tools used to provide, manage, secure, or analyze the State's Data. The Provider shall maintain the reports and logs for the contract term and for two (2) years after the conclusion of the term, and shall provide them to the State in the course of a State audit or upon written request from the State.

8. Service Level Audit: The Provider shall allow the State to audit conformance to the contract terms. The State may perform this audit or contract with a third party at its discretion, at the State's expense.

9. Data Center Audit: The Provider shall have an independent third party audit of its data center(s) performed at least annually at their own expense, and provide the audit report to the State upon request.

10. Change Control and Advance Notice: The Provider shall give advance notice to the State of any upgrades (e.g. major upgrades, minor upgrades, system changes) that may impact service availability and performance. Said notice shall be provided at least thirty days in advance of the upgrade, unless otherwise agreed in the SLA.

11. Security: The Provider shall disclose its non-proprietary security processes and technical limitations to the State by completing the State's Security Controls Checklist or equivalent system security document, available upon request from the Office of Information Technology, as updated from time to time, such that adequate protection and flexibility can be attained between the State and the Provider.

12. Non-disclosure and Separation of Duties: The Provider shall enforce separation of job duties, require commercially reasonable non-disclosure agreements, and limit staff knowledge of State Data to that which is absolutely needed to perform job duties.

13. Import and Export of Data: The State shall have the ability to import or export data in piecemeal or in entirety at its discretion without interference from the Provider. This includes the ability for the State to import or export data to/from other Providers.

14. Responsibilities and Uptime Guarantee: The Provider shall be responsible for the acquisition and operation of all hardware, software, and network support related to the services being provided. The technical and professional activities required for establishing, managing, and maintaining the environment are the responsibilities of the Provider. The system shall be available 24 hours per day, 365 days per year (with agreed-upon maintenance downtime), and Provider shall provide service to the State as defined in the Service Level Agreement.

15. Right to Remove Individuals: The State shall have the right at any time to require that the Provider remove from interaction with the State any Provider representative who the State believes is detrimental to its working relationship with the Provider. The State will provide the Provider with notice of its determination, and the reasons it requests the removal. If the State signifies that a potential security violation exists with respect to the request, the Provider shall immediately remove such individual. The Provider shall not assign the person to any aspect of the contract or future work orders without the State's consent.

Business Continuity and Disaster Recovery: The Provider shall provide a business continuity and disaster recovery plan upon request and ensure that the State's Recovery Time Objective (RTO) is met. The RTO shall be defined in the SLA.

B. INDEMNIFICATION FOR SAAS

Section 4.1 Indemnification of the SSTC is deleted in its entirety and replaced with the following;

4.1 INDEMNIFICATION

A. CONTRACTOR RESPONSIBILITIES - The Contractor's liability to the State and its employees in third party suits shall be as follows:

1. The Contractor shall indemnify, defend, and save harmless the State and its officers, agents, servants and employees, from and against any and all third party claims, demands, suits, actions, recoveries, judgments and costs and expenses in connection therewith:

    i. For or on account of the loss of life, tangible property (not including lost or damaged data) or injury or damage to the person, body or property (not including lost or damaged data) of any person or persons whatsoever, which shall arise from or result directly or indirectly from the work and/or products supplied under this Contract; and

ii. For or on account of the use of any patent, copyright, trademark, trade secret or other proprietary right of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, article or appliance ("Intellectual Property Rights") furnished or used in the performance of the contract; and

iii. For or on account of a Breach of Security resulting from Contractor's breach of its obligation to encrypt Personal Data or otherwise prevent its release or misuse; and

iv. The Contractor's indemnification and liability under Section 4.1(A)(1) is not limited by, but is in addition to the insurance obligations contained in Section 4.2 of the State Standard Terms and Conditions.

2. In the event of a claim or suit involving third-party Intellectual Property Rights, the Contractor, at its option, may: (1) procure for the State the legal right to continue the use of the product; (2) replace or modify the product to provide a non-infringing product that is the functional equivalent; or (3) refund the purchase price less a reasonable allowance for use that is agreed to by both parties. The State will: (1) promptly notify Contractor in writing of the claim or suit; (2) Contractor shall have control of the defense and settlement of any claim that is subject to Section 4.1(A)(1); provided, however, that the State must approve any settlement of the alleged claim, which approval shall not be unreasonably withheld. The State may observe the proceedings relating to the alleged claim and confer with the Contractor at its expense. Furthermore, neither Contractor nor any attorney engaged by Contractor shall defend the claim in the name of the State of New Jersey, nor purport to act as legal representative of the State of New Jersey, without having provided notice to the Director of the Division of Law in the Department of Law and Public Safety and to the Director of DPP. The State of New Jersey may, at its election and expense, assume its own defense and settlement.
3. Notwithstanding the foregoing, Contractor has no obligation or liability for any claim or suit concerning third-party Intellectual Property Rights arising from: (1) the State's unauthorized combination, operation, or use of a product supplied under this contract with any product, device, or software not supplied by Contractor; (2) the State's unauthorized alteration or modification of any product supplied under this contract; (3) the Contractor's compliance with the State's designs, specifications, requests, or instructions, provided that if the State provides Contractor with such designs, specifications, requests, or instructions, Contractor shall review same and advise if such designs, specifications, requests or instructions present potential issues of patent or copyright infringement and the State nonetheless directs the Contractor to proceed with one or more designs, specifications, requests or instructions that present potential issues of patent or copyright infringement; or (4) the State's failure to promptly implement a required update, use a new version of the product, or to make a change or modification to the product if requested in writing by Contractor.
4. Contractor will be relieved of its responsibilities under Subsection 4.1(A)(1)(i), (ii), and (iii) for any claims made by an unaffiliated third party that arise solely from the actions or omissions of the State, its officers, employees or agents.
5. This section states the entire obligation of Contractor and the exclusive remedy of the State, in respect of any infringement or alleged infringement of any Intellectual Property Rights. This indemnity obligation and remedy are given to the State solely for its benefit and in lieu of, and Contractor disclaims, all warranties, conditions and other terms of non-infringement or title with respect to any product.
6. The provisions of this indemnification clause shall in no way limit the Contractor's obligations assumed in the Contract, nor shall they be construed to relieve the Contractor from any liability, nor preclude the State from taking any other actions available to it under any other provisions of the contract or otherwise at law or equity.
7. The Contractor agrees that any approval by the State of the work performed and/or reports, plans or specifications provided by the Contractor shall not operate to limit the obligations of the Contractor assumed in the Contract.
8. The State of New Jersey will not indemnify, defend or hold harmless the Contractor. The State will not pay or reimburse for claims absent compliance with Section 4.1(B) below and a determination by the State to pay the claim or a final order of a court of competent jurisdiction.

B. STATE RESPONSIBILITIES - Subject to the New Jersey Tort Claims Act (N.J.S.A. 59:1-1 et seq.), the New Jersey Contractual Liability Act (N.J.S.A. 59:13-1 et seq.) and the appropriation and availability of funds, the State will be responsible for any cost or damage arising out of actions or inactions of the State, its employees or agents under Section 4.1(A)(1)(i), (ii), and (iii) which results in an unaffiliated third party claim. This is Contractor's exclusive remedy for these claims.

B. INSURANCE FOR SAAS

Section 4.2 Insurance of the SSTC is supplemented with the following:

1. Professional Liability Insurance

The Contractor shall carry Errors and Omissions, Professional Liability Insurance, and/or Professional Liability Malpractice Insurance sufficient to protect the Contractor from any liability arising out the professional obligations performed pursuant to the requirements of this Contract. The insurance shall be in the amount of not less than $1,000,000 and in such policy forms as shall be approved by the State. If the Contractor has claims-made coverage and subsequently changes carriers during the term of this Contract, it shall obtain from its new Errors and Omissions, Professional Liability Insurance, and/or Professional Malpractice Insurance carrier an endorsement for retroactive coverage.

2. Cyber Breach Insurance

The Contractor shall carry Cyber Breach Insurance in sufficient to protect the Contractor from any liability arising out of its performance pursuant to the requirements of this Contract. The insurance shall be in an amount of not less than $2,000,000 in such policy forms as shall be approved by the State. The insurance shall at a minimum cover the following: Data loss, ransomware and similar breaches to computers, servers and software; Protection against third-party claims; cost of notifying affected parties; cost of providing credit

monitoring to affected parties; forensics; cost of public relations consultants; regulatory compliance costs; costs to pursue indemnity rights; costs to Data Breach and Credit Monitoring Services analyze the insured's legal response obligations; costs of defending lawsuits; judgments and settlements; regulatory response costs; costs of responding to regulatory investigations; and costs of settling regulatory claims.

C. LIMITATION OF LIABILITY FOR SAAS

Section 4.0 Indemnification and Insurance of the SSTC is supplemented with the following:

4.3 LIMITATION OF LIABILITY

A. The Contractor's liability for actual, direct damages resulting from the Contractor's performance or non-performance of, or in any manner related to, the Contract for any and all third party claims, shall be limited in the aggregate to 200% of the fees paid by the State during the previous twelve months to Contractor for the products or services giving rise to such damages. Notwithstanding the preceding sentence, in no event shall the limit of liability be less than $1,000,000. This limitation of liability shall not apply to the following:
   i. The Contractor's indemnification obligations as described in Section 4.1; and
   ii. The Contractor's breach of its obligations of confidentiality described in this Bid Solicitation.

A. Notwithstanding the foregoing exclusions, where a Breach of Security is a direct result of Contractor's breach of its contractual obligation to encrypt Personal Data pursuant to this Bid Solicitation or otherwise prevent its release as reasonably determined by the State, the Contractor shall bear the costs associated with (1) the investigation and resolution of the Breach of Security; (2) notifications to individuals, regulators, or others required by federal and state laws or as otherwise agreed to; (3) a credit monitoring service required by state or federal law or as otherwise agreed to; (4) a website or a toll-free number and call center for affected individuals required by federal and state laws — all not to exceed the average per record, per person cost calculated for data breaches in the United States in the most recent Cost of Data Breach Study: Global Analysis published by the Ponemon Institute for the public sector at the time of the Breach of Security; and (5) completing all corrective actions as reasonably determined by Contractor based on root cause of the Breach of Security.

B. The Contractor shall not be liable for punitive, special, indirect, incidental, or consequential damages.

I HEREBY ACCEPT THE TERMS AND CONDITIONS OF THIS CONTRACT

Signature

11-1-22
Date

Stephen B. Poland, Sr. Vice President
Print Name and Title

Mott MacDonald, LLC
Print Name of Contractor