Date: February 28, 2014

Mr. Michael DeFrancisci
Executive Director
Passaic Valley Sewerage Commission
600 Wilson Avenue
Newark, New Jersey 07105

Dear Mr. DeFrancisci:

The undersigned hereby submits the enclosed proposal for the position of **DESIGN SERVICES AND DESIGN SERVICES DURING CONSTRUCTION FOR THE PLANTWIDE REPLACEMENT OF ELECTRICAL POWER CABLES**

The undersigned hereby undertakes and promises to provide services for **DESIGN SERVICES AND DESIGN SERVICES DURING CONSTRUCTION FOR THE PLANTWIDE REPLACEMENT OF ELECTRICAL POWER CABLES** and to do all work requested as appropriate and required herein as well as the contract documents concerning the same, including all written amendments and changes thereto, if any, which are incorporated herein by reference and made a part of this proposal.

SIGNATURE	Hazen and Sawyer BUSINESS NAME
Paul D. Saurer Type or Print Full Name	Vice President Title — 2/28/14 Date
212-539-7076 Telephone Number	212-614-9049 Fax-Telephone Number

February 28, 2014

Mr. Michael DeFrancisci
Executive Director
Passaic Valley Sewerage Commission
600 Wilson Avenue
Newark, NJ 07105

Dear Mr. DeFrancisci:

I hereby submit the enclosed compensation proposal for the DESIGN SERVICES AND DESIGN SERVICES DURING CONSTRUCTION FOR THE PLANTWIDE REPLACEMENT OF ELECTRICAL POWER CABLES.

I affirm and certify that I am an authorized agent of this firm submitting this compensation proposal for this project to make this commitment.

Signature

Hazen and Sawyer, P.C.
Firm Name

Paul D. Saurer, P.E.
Print Name

Vice President
Title

Attachment H

Summary of Total Project Cost

DESCRIPTION OF WORK	Estimate of Labor Costs							
	Project Manager	Project Engineer	Principal Engineer	Engineer/ Scientist	Designer/ Drafter	Technician	Support	Total Labor Cost
Hourly Rates --------->	$194	$162	$108	$86	$51	0	$65	
Task 1 – Investigation & Concept. Design (per S of W)								
1.1 Investigation (Including Workshops)	$3,110	$12,960	$34,560	$27,648	$24,624	$0	$0	$102,902
1.2 Conceptual Design	$12,442	$12,960	$47,520	$34,560	$28,728	$0	$2,592	$138,802
Task 2 – Design Services (per Scope of Work)								
2.1 Design	$3,110	$12,960	$60,480	$62,208	$49,248	$0	$2,074	$190,080
2.2 Meetings	$6,221	$5,184	$0	$0	$0	$0	$0	$11,405
2.3 Bidding Assistance	$6,221	$1,296	$0	$0	$0	$0	$2,592	$10,109
Task 3 - DSDC (per Scope of Work)								
3.1 Notice to Proceed	$0	$1,296	$0	$0	$0	$0	$0	$1,296
3.2 Liaison and Administration - (Included in 3.3)	$0	$0	$0	$0	$0	$0	$0	$0
3.3 Meetings	$46,656	$46,656	$31,104	$0	$0	$0	$0	$124,416
3.4 Baselines and Benchmarks	$0	$1,296	$864	$0	$0	$0	$0	$2,160
3.5 Approval of Manufacturers/vendors	$0	$0	$1,728	$1,382	$0	$0	$0	$3,110
3.6 Shop Drawings	$0	$0	$17,280	$71,194	$0	$0	$12,442	$100,915
3.7 Contractor Initiated Substitutions - (Included in 3.6)	$0	$0	$0	$0	$0	$0	$0	$0
3.8 Testing - (Included in 3.6)	$0	$0	$0	$0	$0	$0	$0	$0
3.9 RFI's & Field Orders	$0	$0	$0	$6,912	$0	$0	$0	$6,912
3.10 Change Orders	$0	$0	$31,968	$0	$0	$0	$0	$31,968
3.11 Payment Requests	$3,110	$46,656	$0	$0	$0	$0	$0	$49,766
3.12 Start-Up Services - (Included in 3.6 and 3.13)	$0	$0	$0	$0	$0	$0	$0	$0
3.13 Post Construction Assistance	$6,221	$6,480	$6,912	$0	$16,416	$0	$15,552	$51,581
						TOTAL LABOR Cost		$825,422

Summary of Costs

Description	Cost
Task 1 - Investigation/Concept Design	$241,704
Task 2 - Design Services	$211,594
Task 3 - DSOC	$372,125
Task 4 - Other Direct Costs	$10,000
Task 5 - Allowances	$100,000
Task 6 - Admin. PVSC Funding Req.	$10,000
Task 7 - Speciality Consulting Services	$50,000
TOTAL PROJECT COST	**$995,422**

Attachment G

DESCRIPTION OF WORK	Estimate of Man-Days: Project Manager	Project Engineer	Principal Engineer	Engineer/ Scientist	Designer/ Drafter	Technician	Support	Total Man-Days
Hourly Rates ---------->								
Task 1 -- Investigation & Conceptual Design								
1.1 Investigation	2	10	40	40	60	0	0	152
1.2 Conceptual Design	8	10	55	50	70	0	5	198
Subtotals	10	20	95	90	130	0	5	350
Task 2 -- Design Services (per Scope of Work)								
2.1 Design	2	10	70	90	120	0	4	296
2.2 Meetings	4	4	0	0	0	0	0	8
2.3 Bidding Assistance	4	1	0	0	0	0	5	10
Subtotals	10	15	70	90	120	0	9	314
Task 3 - DSDC (per Scope of Work)								
3.1 Notice to Proceed	0	1	0	0	0	0	0	1
3.2 Liaison and Administration **- (Included in 3.3)**	-	-	-	-	-	-	-	0
3.3 Meetings	30	36	36	0	0	0	0	102
3.4 Baselines and Benchmarks	0	1	1	0	0	0	0	2
3.5 Approval of Manufacturers/vendors	0	0	2	2	0	0	0	4
3.6 Shop Drawings	0	0	20	103	0	0	24	147
3.7 Contractor Initiated Substitutions **- (Included in 3.6)**	-	-	-	-	-	-	-	0
3.8 Testing **- (Included in 3.6)**	-	-	-	-	-	-	-	0
3.9 RFI's & Field Orders	0	0	0	10	0	0	0	10
3.10 Change Orders	0	0	37	0	0	0	0	37
3.11 Payment Requests	2	36	0	0	0	0	0	38
3.12 Start-Up Services **- (Included in 3.6 and 3.13)**	-	-	-	-	-	-	-	0
3.13 Post Construction Assistance	4	5	8	0	40	0	30	87
Subtotals	36	79	104	115	40	0	54	428
							Total Man-Day Estimate	1092

SOQ/TECHNICAL PROPOSAL

EXECUTIVE SUMMARY

The 330 mgd wastewater treatment owned and operated by Passaic Valley Sewage Commission (PVSC) suffered extensive damage due to Superstorm Sandy in 2012. Specifically for this project, electrical power distribution cables in the utility tunnel were damaged and require replacement at this time to restore full reliability of the plant network. Although the storm event occurred over one year ago, this project has all elements of emergency work and needs to be fast-tracked. At the same time, the replacement alternatives require careful examination and execution to properly deliver this project. It is with this basic understanding of the project that we have assembled an engineering team to complete this important assignment. The key elements of our proposal are summarized below.

- Hazen and Sawyer is multi-disciplined design firm focused exclusively on water and wastewater. Our Electrical Design group consists of 31 electrical professionals skilled in all aspects of electrical power distribution systems.
- We have showcased five projects that demonstrate our qualifications in electrical design and emergency oriented-work for this assignment. Two of the projects, Newtown Creek WPCP and DC Water, satisfy the RFP requirement of design of 15 KV electrical service for plants with capacities of 200 mgd or more.
- We have identified the critical issues and challenges within our Technical Approach. Our Team believes that the key to this project lies in the initial task of investigation and conceptual design. Our proposed approach is to apply ample resources in the first 60 days and solve all layout challenges in the conceptual design phase. This will be done working closely with PVSC at all times.
- Our project team will consist of staff from New York City as well as our Raleigh office. Raleigh office staff will be temporarily relocated to the Newark area in the first 60 days of the project. Our project leaders will be Paul Saurer, George Markou, Vincent Tomarch and Gerald Ratasky. This team has the ability to bring all necessary firm resources to this important project.
- We have added Paulus, Sokolowski and Sartor (PS&S) to our team in small, but important role. Frank Mescall and Everton West will help with the examination of existing conditions and FEMA coordination.

Our project team is in a ready-mode for this assignment and we look forward to working closely with PVSC.

RESPONDENT'S EXPERIENCE

Since its founding in New York City in 1951, Hazen and Sawyer has successfully completed thousands of projects across the United States. We have a proven track record in the planning and design of all types of water and wastewater treatment facilities for a diverse range of clients – large cities, small municipalities, utilities, and industries, such as power, food, pharmaceuticals, and chemical manufacturers. We have successfully completed thousands of wastewater treatment plant upgrades for municipal clients, spanning a variety of treatment technologies, plant sizes, and treatment needs. We have helped clients develop new, technologically-advanced wastewater treatment plants with capacities ranging from less than one to more than 300 mgd, each uniquely designed and built to meet specific desired outcomes. Just as often, we have assisted in the rehabilitation, upgrading, and expansion of existing plants. Our engineers are skilled in maximizing the

use of existing structures and equipment, and our careful project sequencing keeps plants in service during the phase-in of new facilities.

Hazen and Sawyer is the number one ranked firm by *Engineering News Record* exclusively focused on the domestic wastewater market. Headquartered in NYC and with 43 offices and over 750 professionals on staff (including more than 360 licensed professional engineers), we have received numerous awards for our projects from publications and professional societies. The firm is committed to maintaining its position at the helm of advancing wastewater and water management technologies as our core business.

Degree of Expertise in Areas Outlined in the PVSC RFQ/RFP

The most accurate predictor of future performance is past success. Hazen and Sawyer, as a one-stop-shop for water and wastewater facilities, employs a staff that has extensive experience in a broad range of specialties, including the needs of the PVSC for the replacement of electrical power cables and appurtenances.

On October 29th, 2012, Superstorm Sandy pushed into the NY-NJ Metro area and caused widespread and unprecedented damage to coastal communities, low-lying residential neighborhoods, and public infrastructure. PVSC owns and operates a 330-mgd secondary wastewater treatment facility located in Newark, New Jersey. In the wake of Superstorm Sandy, many of PVSC's facilities suffered extensive damage from flood water that submerged the electrical equipment and distribution feeders located in basements, equipment galleries and utility tunnels. We understand that the necessary services include investigation, conceptual design, design services, design services during construction, and administration of PVSC funding. The work scope includes the provision of complete Design and Contract Documents, and coordination with FEMA representatives and requirements.

Hazen and Sawyer is currently providing similar services to several facilities strongly affected by the storm, including the Bay Park Sewage Treatment Plant (for the Nassau County Department of Public Works on Long Island) and the Manhattan Pump Station (for the New York City Department of Environmental Protection). Likewise, we provided flood recovery assistance for the wastewater treatment plant in the City of Clarksville, TN after severe rainfall that produced more than 12 inches of rain in Clarksville and more than 13 inches of rain in areas upstream of Clarksville, resulting in a historic flood.

Newtown Creek WWTP Electrical Work

The 310-mgd Newtown Creek modified aeration plant was originally designed to achieve 60 to 70% BOD and SS removal. A multi-firm joint-venture consulting team, including Hazen and Sawyer, developed a comprehensive facilities plan and prepared construction documents for major expansion and renovation, which increased peak wet weather flow to 700 mgd. The final upgrade, while the plant remains in full operation, includes these items:

- Upgrading of the Brooklyn/ Queens Pump Station at Newtown Creek WWTP and Manhattan Pump Station in southeastern Manhattan, which include new screens, new odor control systems, upgraded electrical systems, and higher-capacity pumps and motors with variable-frequency drives.
- New battery of aeration and final settling tanks with new blowers and renovation of the two existing batteries.
- New disinfection building, new chlorine contact tank tanks, and new secondary Whale Creek outfall.
- New thickening centrifuges and new sludge handling facilities, including egg-shaped digesters, storage tanks, and gas holder.
- New 26.4kV, 54MVA electrical substation.
- New central residuals building, including secondary influent and sludge screens, screenings, and scum and grit collection.
- New support building and renovated administrative offices, labs, and shops in the

main building.

- **New 13.8kV electrical distribution system to power the aforementioned process areas.**
- **New 13.8kV, 28MVA emergency power distribution system**

The program for the plant's final upgrade consisted of approximately 46 separate prime construction contracts awarded to complete the final upgrade. Most of these contracts were required to be completed by milestone dates established by a court-ordered Consent Decree.

In addition to the preparation of construction documents for major expansion and renovation, other key tasks included assessment of upgrade/ expansion alternatives; activities required under the Uniform Land Use Review Procedure, additional land acquisition, and capacity expansion analysis; site assessment; biological nutrient removal technology assessment; preparation of an EIS; a value engineering study of the recommended plan; and development and implementation of a public participation program.

District of Columbia Water and Sewer Authority

Hazen and Sawyer has completed the evaluation and design of improvements to the nitrification facilities at the 740 MGD advanced wastewater treatment plant at Blue Plains.

The initial phase of the project entailed development of a Preliminary Design Report (PDR). In Phase 2 of the project, design documents were prepared to implement the recommended improve-ments identified in the PDR. The construction project consists of approximately $100 M worth of process modifications and upgrades. In addition to the major treatment improvements, modifications to the plant's electrical power distribution system were a significant component of the total project.

Specifically, Hazen and Sawyer designed the modifi-cations to Area Substation 3 including:

- **The design of a new underground raceway system and 15kV class power cable from the plant's main substation to Area Substation 3.**
- **The addition of one new 12/16/20 MVA 13.8-4.16 kV liquid filled transformer and its respective 15 kV class, 1200 A primary vacuum circuit breaker at Area Substation 3.**
- The installation of new 3000 A, 4.16 kV power bus duct and bus to cable transition box.
- The construction of a rigid conduit raceway system from the transition box to new blow-er switchgear.

To provide a level of system reliability consistent with the rest of the plant's power system, the new indoor 5 kV class 3000 A blower switchgear was configured in a Main-Tie-Main-Tie-Main configuration. Each main vacuum circuit breaker is supplied from its respective transformer at Area Substation 3. Feeder circuit breakers complete with protective relays were configured to individually supply five (5) 4000 HP blowers. Additional feeder breakers were included in the line-up to re-supply two existing 500 kVA 4.16 kV-480 V power transformers serving existing motor control centers.

Detailed demolition and modification drawings were prepared for this project. Plan drawings showing the routing of all specific routing of all medium voltage power cables was included in the set.

Bay Park Sewage Treatment Plant: Superstorm Sandy-Related Work

The Bay Park Sewage Treatment Plant, owned by the NCDPW, which serves close to half a million residents, was among the many facilities that were damaged by flooding, power loss, and high winds. The Bay Park STP was partially submerged and the major electrical systems, pumping facilities, and processes were inundated with salt water from the nearby bay area. The plant shut down on October 30th, resulted in backup of raw sewage into local streets and into homes, further exacerbating the damage to local residents.

Hazen and Sawyer was notified by NCDPW at midnight during the storm and immediately mobilized a team of engineers and construction managers.

We were on site at 2:00 am, assessing the situation and worked feverishly during and after the storm to assess the damage, triage critical needs, and re-establishing basic plant functions with the objective of restoring the Bay Park STP to full secondary treatment in order to comply with SPDES permit requirements.

The day after the storm, Hazen and Sawyer was named as the Program Manager for the Bay Park Emergency Recovery effort to lead a team of consultants and contractors to restore plant operation. By Thursday morning at 5:56 AM, November 1st, 2012, Influent and Effluent pumping resumed, relieving the collection system and ceasing all street and home flooding due to the surcharged sewer system.

Hazen and Sawyer worked alongside County staff, seven days a week and two shifts per day (in many cases three shifts per day), to fully restore the plant's critical functions. The team developed an emergency repair program, which included a workflow process to carefully track the damage assessments, work orders, and costs. The team also established a set of process milestones and committed to ensuring that those milestones would be met.

We continued to make significant progress with the emergency restoration effort and by November 15th, 2012, the following progress was made on the Treatment Process Units:

- All influent bar screens were available for operation;
- All raw sewage pumps were available for operation;
- Grit tanks were in operation;
- Five of eight primary settling tanks were in

Flooded equipment and raw sewage at Bay Park STP in the Effluent Screening and Disinfection Building (ESDB).

Flooding (15' depth) in the Bay Park Effluent Pumping Facility due to Superstorm Sandy. Image shows tide pumps and magnetic drives on lower level completely submerged in salt water.

operation, including sludge collection and pumping;
- All aeration tanks were available for operation; two process air blowers were in operation at full capacity (approx. 33,000 cfm), a third blower is available as standby;
- Return Sludge Pumps were in operation;
- Sludge digesters were in operation;
- Temporary Sludge dewatering facility were in full operation;
- All effluent was being disinfected (manual dosing);
- The Dechlorination system was operational.

On December 14th, our team had met each major milestone for the emergency actions to mitigate adverse health and environmental effects, and successfully restored the Bay Park STP to full secondary treatment.

Of note and of direct similarity to this project is the development of an electrical design to both stabilize the plant and harden the electrical backbone against future storms. Several of the engineers who worked to restore plant operations and who developed this design are included in our organizational chart, taking advantage of prior similar successful work.

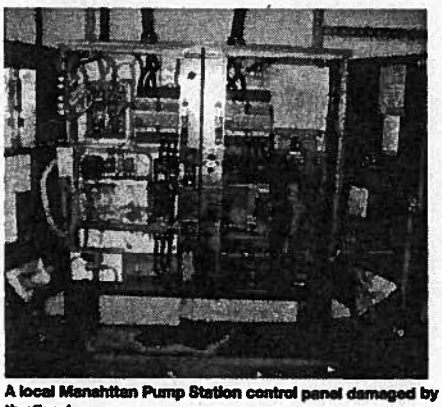
Manhattan Pump Station: Superstorm Sandy Recovery

The Manhattan Pump Station (MPS) located adjacent to the East River was inundated by a 10-foot tidal surge in the aftermath of Superstorm Sandy. The local flood level was approximately 2.75 feet above grade. Following the loss of utility power, floodwater overtopped the station's first floor. Saltwater rushed into the facility and the dry side of the station was rapidly submerged by approximately 30 feet of standing water. Critical mechanical and electrical equipment located on the four floors below grade was submerged, including main wastewater pumps, valve actuators, power panels, and local control panels.

Manhattan Pump Station: Flooding of subgrade elevation.

In the immediate aftermath of Superstorm Sandy, Hazen and Sawyer conducted numerous site walkthroughs and developed a comprehensive damage assessment and recovery plan. Hazen and Sawyer coordinated with the Owner and Operating Bureau to prioritize the repair of damaged systems. Hazen and Sawyer simultaneously coordinated with FEMA representatives to categorize emergency, restoration, and mitigation measures as follows to seek FEMA reimbursement.

- Category B: Emergency Protective Measures taken before, during, and after a disaster to save lives, protect public health and safety, and prevent damage to improved public and private property.
- Category F: Restoration Measures taken to restore a facility to its previous condition.
- Sections 404 and 406: Mitigation Measures to enhance a facility's ability to resist similar damage in future events.



A local Manahttan Pump Station control panel damaged by the flood.

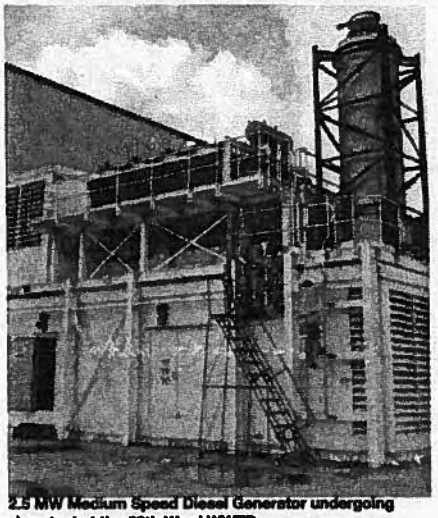
Hazen and Sawyer coordinated with all project stakeholders to compile records for Category B work, identify Category F work, and design Section 404 and 406 work. The resulting work plan included 62 major items and over 250 sub-tasks. Hazen and Sawyer issued design specifications and drawings to the four prime contractors to provide the detailed scopes of work required. Hazen and Sawyer developed detailed cost estimate breakdowns in which every line item was categorized per FEMA standards in order to complete the FEMA project worksheets and provide budgetary values totaling $17 million to facilitate reimbursement.

NYCDEP 26th Ward WWTP

Since 2003, Hazen and Sawyer has been providing both design and construction management services to the NYCDEP at its 85-mgd 26th Ward WWTP. This plant upgrade program, which is currently forecast to run through 2014, includes five major phases. The emergency generator project - Contract 13 - featured the installation of an emergency electrical generator to provide power redundancy to critical plant operations in the event of a blackout.

Partial canopy covering walkway in courtyard of emergency generator building at 26th Ward WWTP.

Hazen and Sawyer provided design and construction management for the NYCDEP's 26th Ward emergency generators, involving the replacement of two turbine units with three medium speed (900 rpm) units. As part of our efforts on that project, Hazen and Sawyer prepared a detailed Maintenance of Plant Operations (MOPO) plan, whereby the new generator units were installed seamlessly into the same location as the existing emergency generator station, without interruption to plant operations or impact on emergency power requirements. The project involved design and construction management services for



2.5 MW Medium Speed Diesel Generator undergoing shop test at the 26th Ward WWTP.

replacement of the plant's emergency generator.

Construction began in 2010 for replacement of gas turbine generators with medium speed diesel generators to satisfy the plant's emergency power demand. To secure Federal Stimulus funding, we accelerated the design and assisted the City to monitor and expedite the procurement process.

The Emergency Generator Building, located west of the Main Building, was constructed in 1992 under the Citywide Sludge Management Plan. The structure is defined by two distinct areas: an open "courtyard" area (without a roof or canopy) that housed two gas

turbine generators (operating on No. 2 diesel fuel), and an enclosed area with a control room, electrical or switchgear room, fuel oil pump room, with load banks on the roof.

Intended to increase reliability for maintaining treatment at the plant, the 26th Ward construction contracts include the following key elements:

- Replacement of two gas turbine generators with three new medium-speed diesel engine generator sets.
- Removal of two load banks and installation of one new load bank.
- Replacement of the fuel transfer system.
- Replacement of emergency switchgear and modification of the primary substation.
- Installation of interim standby power system and modification of temporary petroleum bulk fuel storage tanks.
- Installation of canopy system within the generator courtyard area.
- Construction of a Battery Room connected to the Emergency Generator Building for operation of emergency generator switchgear, emergency lights, and auxiliaries upon loss of utility power.
- Installation of one high speed diesel engine generator set for black start service.

This project was completed within budgetary constraints and schedule expectations, enabling the DEP to obtain the necessary federal funding.

RESPONDENT'S PROPOSED TECHNICAL APPROACH

Hazen and Sawyer understands PVSC's urgent concern based on prior power cable feeder failures in the plant and that current feeders in service are prone to failure as well. We know that meeting the aggressive schedule is critical and that we herein commit to performing all of the tasks and subtasks required to carry out this project. In the Appendix, we provide a Scope of Services listed task by task. It shows that all of the activities outlined in RFP Attachment have been included.

Project Understanding

A functioning electrical system serves as a plant's central nervous system. We will seek to satisfy the immediate needs of PVSC as well as establish permanent solutions to PVSC's electrical system for the mitigation of future potential floods.
Although much of the plant's electrical distribution equipment has been re-energized as part of the flood recovery effort, the integrity of many of the feeder cables has been compromised by their exposure to salt water. We will review and assess the damage for all feeder cables identified in the RFP and implement permanent solutions. Due to the critical nature of the equipment served, this project will be expedited to restore reliability to the portions of the electrical system identified within this RFP. In addition, as most if not all of this work is considered storm damage, Hazen and Sawyer will work with FEMA representatives to facilitate reimbursement for the services of this contract as well as complete the paperwork for approval of this electrical power cable replacement project. The required paperwork will include:

- A cost benefit analysis of the proposed alternatives for the replacement of each set of cables;
- A recommendation for the preferred method of replacement for each set of cables with justification and supporting documentation for

the choice;

- The necessary information/documentation to modify or create new project worksheets for the FEMA reimbursement of the services for this contract.

Investigation and Conceptual Design: The key to this project lies in the initial task of investigation and conceptual design. Hazen and Sawyer will conduct an intensive and thorough field investigation, review and assessment of all existing cable routing conditions, the state of the existing cables, and verify the cable lengths identified in the RFP. Hazen and Sawyer will also conduct a minimum of five, three-hour workshops with PVSC staff to gain understanding and knowledge of the existing electrical cabling and associated equipment in the scope of this project. A complete understanding will be gained regarding the history, present condition, operation, lengths, serviceability, reliability, redundancy, criticality, and Code compliance of each affected cable. Hazen and Sawyer will identify all cables that require additional testing based off of the initial inspections.

This knowledge and investigation report will be shared with the PVSC staff to better comprehend the task at hand leading to a quality project that will be delivered and constructed on time and within budget. Also, meetings with the PVSC staff will determine equipment shutdowns so as not to impact PVSC's ability to meet NJPDES permit requirements and/or Title V Air Permit requirements.

Hazen and Sawyer will determine the new cabling required and sizing based on the existing equipment loading derived from the existing plant drawings, operation and maintenance records, shop drawing records and confirmed via field verification, discussions with operations staff and projected future plant loads.

Once the complete understanding of all failed cables as well as cables that will remain in service is attained, the conceptual design alternatives will be compiled in the Conceptual Design Report. As mentioned under the MOPO section above, the installation of an interim power feeder distribution system will benefit the project in multiple areas:

- Enable PVSC to issue multiple construction contracts to expedite the overall construction.
- Create the ability to demolish all existing failed feeders, failed raceway supports, and other obstructions clearing out the tunnel for the new work to proceed.
- Allow space for rerouting of existing auxiliary systems that will remain in service.
- Generate the flexibility for the permanent installation to create a separation of 'A' Bus feeders from 'B' Bus feeders.
- Provide minimal interference with the existing construction contracts on-site.

Hazen and Sawyer staff will compile all data, cost estimates, and design alternatives to meet the critical nature of the schedule. With a solid knowledge base established up front, our staff will be able to determine the permanent solutions to keep the treatment plant processes remaining operational during the construction/replacement phase as well as provide a design to mitigate the possibilities of future storm damage. All areas within the general vicinity of the existing location will be evaluated in order to take into account the new FEMA zoning maps as well as confirm the feasibility of the required new conduit runs. All new installations will adhere to all National Electrical Code requirements.

Design Services: The transition into the final design phase will be seamless as the concepts developed previously lay a solid foundation for the permanent installation. The construction documents including detailed specifications will be finalized in conjunction with the MOPO to ensure plant operations are maintained without interruption. The PVSC standard format front end documents will be tailored for this project along with the latest edition of the Standard General Conditions of the Construction Contract prepared by the Engineers Joint Contract Documents Committee (EJCDC) with supplementary conditions as required. Documents will be modified to include NJEIT funding requirements.

The contract drawings will contain detailed

information including plans, profiles, sections, details, elevations, one-lines, risers, and schedules of suitable scales and clarity to fully depict the intended installation and construction regarding all cable routing paths. This is critical as space is extremely restricted in some areas of the utility tunnels. Although congested, the utility tunnels remain the prime choice for replacement cable routing from a schedule and cost perspective as well as creating ease of testing and maintenance in the future.

Also, just as critical will be the construction phasing plans. These detailed plan drawings will be designed to sequence the work to not only keep the plant operational at all times, but also work around the many on-going construction projects in the plant. It is through these plans that Hazen and Sawyer will develop the segregation of 'A' Bus feeders from 'B' Bus feeders. Any temporary relocation of process utilities required due to construction phasing will be distinctly identified. Communication with the PVSC staff will achieve approval prior to de-energization and relocation of any process utilities.

Demolition plans will be developed in order to clearly identify the cables to be removed and their respective raceway system if applicable, These detailed drawings will also identify the limits of work and show details for the protection of remaining structures and equipment. Site plans will detail the maintaining of plant access roads, staging areas, and any structures required for temporary use. Other disciplines such as Structural (supports), Civil (temporary site locations), Architectural (material finishes) will provide drawings as required to create a complete project.

During the bid phase of the project Hazen and Sawyer will assist PVSC in soliciting of Bids as noted in this RFP. Other Bid Phase serives will include attendance at the Pre-Bid meeting, Preparation of the Bid Tabulation document and the Recommendation to Award letter.

Maintenance of Plant Operations (MOPO): The electrical distribution system is critical to maintaining plant operation and our Team understands the importance of minimizing electrical service interruptions. Construction phasing plans will be developed in order to maintain current process requirements during the replacement and initialization of plant critical process equipment affected by the cabling replacement.

As part of our investigation and conceptual design, we will evaluate options for installing an interim power feeder distribution system to supply power to the plant. Once installed and energized, this system will allow the speed and flexibility of the permanent power feeder distribution system to be installed without interruption. Our intimate knowledge of the plant's electrical distribution system and its current state is key in coordinating this restoration project in order to minimize outages.

The work will be phased to minimize interruptions in service as well as minimize the impact on the current on-going construction projects within the plant.

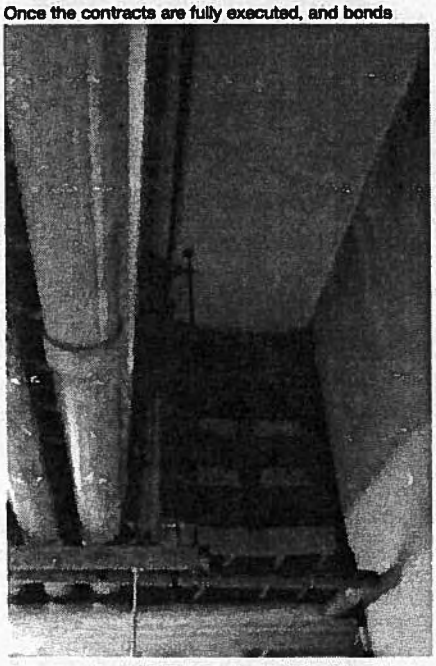
Confirmation of Existing Conditions and As-Built Drawings: When connection to and/or continued use of existing equipment and facilities is planned, as is the intent for the proposed project, it is important to field-confirm the dimensions of the existing facilities (e.g. tunnels, raceways) and their location, the availability of spare space, and the physical condition (i.e. age, functionality) of all equipment that is intended for continued use. Through intensive field investigations, we will confirm all existing and as-built conditions as related to these facilities and areas slated for re-use. This will minimize the probability for change orders during the construction phase of work and greatly reduce the risk of time delays and cost increases.

Construction Staging and Laydown: Construction staging areas often cannot fit where shown on the contract drawings. The contractor ultimately brings in more equipment than originally anticipated during the design phase. In addition, the location of the staging area may not be convenient for the job location – it may not have suitable utilities, may be too distant, or can be blocked by existing infrastructure, thus

causing delays and additional costs for installation of temporary utilities. To address this concern, our Team will proactively work with PVSC to identify areas that will be suitable for staging and laydown.

Client Communication: As with every successful project, open communication between all parties creates a better working atmosphere and eliminates unpleasant surprises. The project kickoff meeting will be held to review the work scope and construction methods with PVSC. Hazen and Sawyer will attend monthly progress meetings to review findings, options, and recommendations for the proposed work as well as brief PVSC on the status of the design effort as well as design document review meetings.

Design Services During Construction: Hazen and Sawyer will continue to assist the PVSC staff during construction to ensure the project is completed on-time and within the allotted budget. Hazen and Sawyer will review the bonds and insurance documents for contract compliance. Once the contracts are fully executed, and bonds and insurance documents are acceptable, Hazen and Sawyer, with the PVSC's approval, will issue the Notice to Proceed to the Contractor, which will establish the start date of the construction contract. In order to maintain the proposed schedule, Hazen and Sawyer envisions a minimum of five (5) construction contracts being awarded through the services contained in this RFP. The first contract will be the installation of the temporary power system. This will be followed by the demolition of existing systems. With a clear area now given for the permanent systems, the next three contracts can be issued servicing the tunnel, ductbanks, and the dry side process areas respectively.



Existing stacked cable trays carrying storm damaged feeders.

All manufacturers and vendors will be approved prior to shop drawing submittals. Shop drawing reviews will be expedited as the list of proposed shop drawings to be received has been included in the table at the end of this section. Should the contractor propose alternates from the contract documents, Hazen and Sawyer will evaluate the substitution by considering compliance with design objectives and technical feasibility. If the substitution is considered acceptable, Hazen and Sawyer will prepare a cost estimate of the credit due to PVSC.

Hazen and Sawyer will conduct monthly construction progress meetings as well as visit the construction site with regularity to review the progress and quality of the construction work. All observations will be recorded to advise the PVSC staff if work is progressing according to the contract documents or if other courses of action need to be taken. Hazen and Sawyer will review all contractor test reports to confirm that the results certified indicate compliance with the Contract Documents. Should any work be deemed defective, the PVSC staff will be advised and the contractor's work will be rejected.

As RFI's and RFC's are issued by the contractor, Hazen and Sawyer will expedite the responses and clarifications in order to maintain the construction schedule. Should a change order need to be issued as a result of the response or clarification, the change order package will be completed within 30 days and issued to the contractor for implementation.

In addition, Hazen and Sawyer will assist the PVSC staff with contractor payment recommendations, start-up services, and provide record as-built drawings showing appropriate record information based on project annotated record documents received from the Contractor. In order to close out the project upon completion of construction, Hazen and Sawyer will assist in ensuring all contract documents, supporting documentation, change orders, submittals, as-built drawings, warranties, and similar documents are on file with PVSC. Hazen and Sawyer will then conduct a final inspection to determine if the completed work of the Contractor is acceptable so that final payment to the Contractor can be issued closing the contract.

Effective Project Management: Meeting Quality, Schedule, and Budgetary Requirements
Effective project management involves two key criteria:

1. Proven project managers who can manage projects within PVSC's scope, schedule, safety, budget, and quality objectives.
2. Arming those project managers with the tools to provide PVSC with a high quality design that is delivered in accordance with our Project Delivery System (PDS).

From "day one" on the project, we will foster a strong teaming and partnering relationship with PVSC. The PDS has layers of important project delivery, quality management, regulatory compliance, and cost estimating steps that must be followed during all phases of the proposed assignments.

As shown in the Organization Chart in the Project Team section, we are providing a well-organized Project Team to ensure efficient and effective communications between Team members and PVSC. In addition, we have assigned highly experienced project management personnel, consisting of senior staff who have worked on several other PVSC projects.

Quality Management: A core element of Hazen and Sawyer's business practice is to provide quality engineering services and products. Commitment to providing quality to our clients is an attitude that is inherent to Hazen and Sawyer's culture in every work product we deliver. To support this commitment, Hazen and Sawyer has developed a comprehensive Quality Assurance Policy Manual to provide guidance to staff during the execution of projects undertaken by the Firm. Our QA/QC plan builds on our established approach and provides a policy and mechanism to ensure that quality assurance and control continues to be integrated into all of our projects. It will also be used to provide independent quality reviews of in-house design support.
Our quality control approach defines and implements quality procedures to ensure adequate oversight of all submittals and enhance the quality of the work product. Key aspects include:

- Continuous supervision by our most experienced staff;
- Immediate review of completed work for accuracy and completeness; and
- Accurate documentation of all decisions.

Existing storm damaged feeders routed up to equipment.

assumptions, and recommendations.

All quality reviews utilize Hazen and Sawyer's internal quality management checklists, cost estimating, environmental health & safety, constructability/ biddability, MOPO, and operability reviews and signoffs. Quality audits are used to ensure that quality processes identified in the Quality Management Plan are being followed and that the identified corrective actions result in a quality product. If issues need to be addressed, a timeframe is set for corrective action and subsequent monitoring. A summary report of findings is documented for all quality reviews.

We understand that improved Quality Assurance/ Quality Control is a global priority for the PVSC, to reduce the number and cost of change orders on its construction contracts, as well as the associated impacts on the project's schedule and budget. We will integrate QA/QC throughout the design and DSDC process, and not just at the "gatepoints" of the 25%, 75%, and 100% design completion milestones. It is our firm belief that the need to deliver a design expeditiously and integrate QA/QC and PDS requirements are not mutually competing objectives. While advancing work in parallel at multiple sites and delivering a top-quality, implementable design that minimizes changes during construction could be considered a challenge, it is one that we are well-prepared to meet.

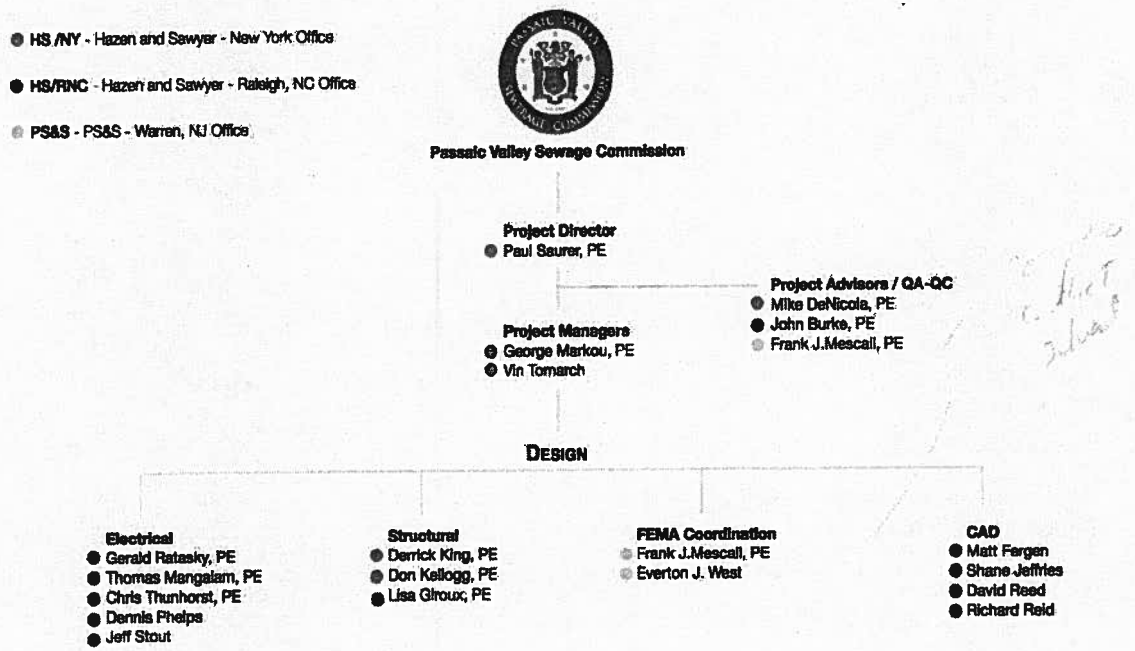
Schedule Control: The key to successfully accomplish the goals of scheduling and project controls involves the development of an overall roadmap for the project and its associated resource requirements. The Hazen and Sawyer team will identify the priorities for each project task, subtask, and their associated key activities, and develop a master schedule to meet these priorities, recognizing the linkages and hierarchies between tasks and their potential schedule risks. We will assure that the work is broken down to a level of detail that accurately defines realistic and achievable task milestone and deliverables dates, thus affording us the ability to achieve effective schedule monitoring and control. The schedule will be reviewed regularly, and adjustments will be made to expedite urgent work, add or reduce staff, and implement schedule recovery plans to provide project deliverables on or ahead of schedule. A baseline schedule with task-related resource loading will be developed to track, monitor, and report all investigations, inspections, testing, planning, design, and construction progress against actual performance. The result is a well-planned work sequence (or recovery plan when needed) that utilizes available float, maintains a constant focus on the dynamics of the critical path, and properly coordinates all of the activities within and across individual pursuits.

Budget Management: Our team will manage the preliminary and baseline project budgets and monitor the budget against the approved baseline. All budget variances will be identified early in the assignments and communicated to the PVSC PM. In addition, we will proactively manage the baseline budget by minimizing the addition of any new scope of work. All budget risks will be identified and mitigating actions taken, as appropriate.

RESPONDENT'S PROPOSED PROJECT TEAM

The following pages provide an organization chart and resumes for the proposed Project Team. We have indicated office locations for each team member. PS&S joins our Team to help with examination of existing conditions and coordination with FEMA. As discussed in preceding sections, we believe the key to this project lies in the conceptual design phase. The Raleigh team members will be relocated to the Newark, NJ area for the start of the project.

PS&S was retained by Witt/O'Brien's Associates to provide a team to assist in their efforts to help the Passaic Valley Sewerage Commission (PVSC) coordinate and document PVSC's efforts related to Super Storm Sandy recovery and relief. PS&S provided support for PVSC personnel tasked with providing information on damaged elements within the plant to FEMA Project Specialists. One major component of the assistance effort was related to the damaged piping and conduit and wiring located within the tunnels. Testing and investigation work for replacement of major portions of the tunnel conduit and cables was estimated to be $43.0 M through PS&S's work. PS&S also assisted PVSC in the development of contract documents for the implementation of standby emergency power for the tunnel sump pumps and the provision of tunnel bulkheads for the isolation and protection of the tunnel infrastructure. Through these work efforts PS&S has an invaluable knowledge of the PVSC tunnel infrastructure making them a good addition to the Team.

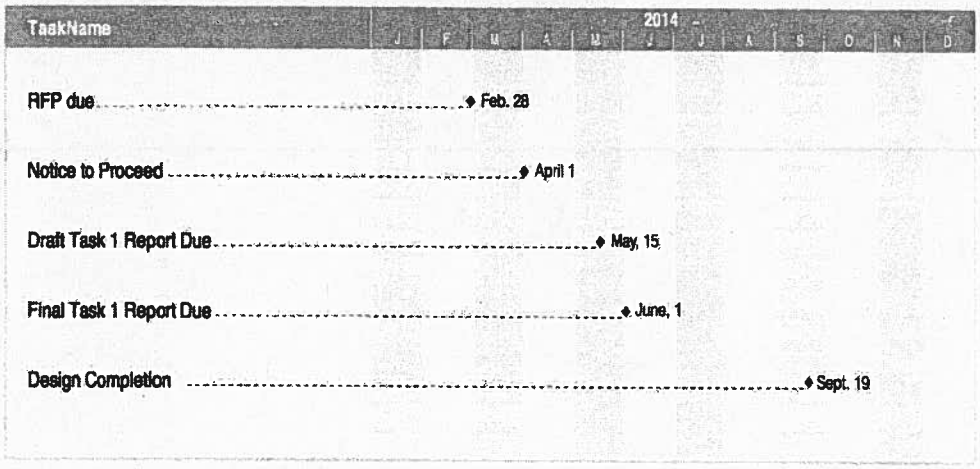


Organization Chart

PROPOSED SCHEDULE, LISTS, AND FORMS

In this section we provide our proposed schedule for the power cable replacement, as well as a specification list with proposed number of shop drawings. Directly following this section are all required forms per the RFP.

Passaic Valley Sewerage Commission: Power Cable Replacement



Project Schedule

Specification List with Proposed Number of Shop Drawings

02100	Clearing and Grubbing
02200	Earthwork
02207	Aggregate Materials
02276	Erosion and Sedimentation control
	Erosion Controls (8)
02510	Paving and Surfacing
	Pavement, Curb, and Sidewalk material (10)
02960	Traffic Control
	Traffic Control Devices (4)
02910	Final Grading and Landscaping
05092	Metal Fastenings (3)
15060	Hangers and Supports (8)
16010	General Electrical Requirements
	Contractor working drawings and point-to-point wiring diagrams (100)
16020	Temporary Electrical system
	Temporary construction power layout (1)
16035	Demolition Electrical
	Demolition drawings (50)
16036	Testing
16061	Grounding
16071	Supporting Devices
	Conduit and tray supporting devices (10)
16076	Labeling and Identification
	Labeling and identification of conduit and cable (5)
16121	Electric Wires and Cables
	Wire and cables (5)
16131	Electric Conduit System
	Conduit, boxes, fittings (10)
16132	Electric Cable Tray
	Cable Tray (5)
16133	Underground Ducts - Ducts in Concrete
16134	Electric Manholes
16900	Cable and Conduit Schedule

Electrical Drawing List

E6	Single Line Diagram	1
E7-E16	Riser Diagrams	10
E17-E18	Miscellaneous Details - Hangers and Supports	2
E19-E20	Miscellaneous Details - Cable Trays, Racks (2)	2
E21	Typical Conduit Thru Wall and Thru Floor Details	1
E22	Typical Grounding Details	1
E23-E30	Demolition Drawings (Utility Tunnel, Part Plan, Section)	8

Electrical Drawing List

E31-E46	Construction Drawings (Utility Tunnel, Part Plan, Section)	16
E47-E66	Elevation/Profiles and Details at Intersections	20
	Subtotal	**66**
	Temporary Power Distribution	**Number**
T1	Cover Sheet	1
T2	Drawing Index	1
T3	Symbols and Abbreviations	1
T4	Site Plan	1
T5	Existing Distribution Power Layout	1
T6	Temporary Distribution Power Layout	1
T7	Single Line Diagram	1
T8	Miscellaneous Details - Supports	1
T9	Typical Conduit Thru Wall & Thru Floor	1
T10	Typical Grounding Details	1
T11-T12	Demolition Drawings (Utility, Part Plan, Sections)	2
T13-18	Construction Drawings (Utility, Part Plan, Sections)	16
	Subtotal	**28**
	TOTAL	**94**

Structural/Civil Drawing List

Drawing Number		Number of Drawings (22x34)
C01	Site Plan	1
C02	Miscellaneous Details	2
MPT1	Maintenance and Protection of Traffic Notes and Plans	3
Total Number of Plans for the Final Design Set		**4**