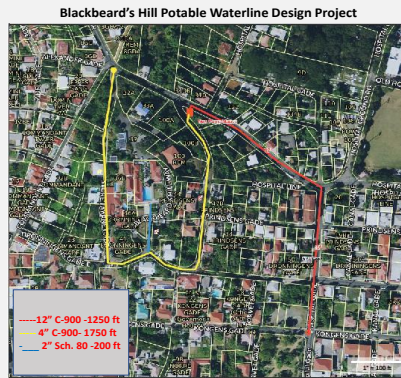


PR-01-22
Blackbeard's Hill
Potable Waterline Design Proposal
St. Thomas
U.S. Virgin Islands

Submitted to the
Virgin Islands Water and Power Authority



Prepared by
Caritech Group LLC
P. O. Box 5018
Kingshill, St. Croix VI 00851



August 13th, 2021



P.O. Box 5018
Kingshill, St. Croix VI 00851
D-U-N-S No: 080747451
CAGE NO: 8F6Y4

Ms. Nicole Aubain
Acting Manager of Contracts Administration
Virgin Islands Water and Power Authority
Contracts Services Department
PO Box 1450
St Thomas, USVI 00804-1450

August 13th, 2021

Re: PR-01-22 -Blackbeard's Hill Waterline Replacement Design Project Proposal-St. Thomas

Dear Ms. Aubain:

Caritech Group, LLC (Caritech) is pleased to submit this Statement of Qualifications and Proposal for the above-referenced waterline design project for Black Beard's Hill, Charlotte Amalie, St. Thomas.

Caritech has assembled a **Team** that will deliver a successful design project to the Virgin Islands Water and Power Authority (VIWAPA). This **Team** has successfully completed waterline rehabilitation design projects for Estate Hannah's Rest, Whim/Campo Rico and Frederiksted Phase II on St. Croix the last three years. The Team is comprised of Caritech, Sanborn Head & Associates (Sanborn Head) and BCSC-Dospiva LLC. Key members of our proposed project team have had the opportunity to work on VIWAPA water distribution projects in the past which include project management, preliminary evaluation and final design, surveying and development of traffic control plans. Please reference the Project Team section in the accompanying proposal. We believe we have assembled a team with exceptional qualifications.

Our proposal has been designed to address the requirements of your Request for Proposals. We are confident that our exceptional team of professionals can design and produce construction plans and specifications which will be cost effective, biddable and constructible. We are prepared to commit the necessary resources to meet the project schedule presented in this proposal.

Caritech is looking forward to the opportunity of working with VIWAPA as it continues on its water system rehabilitation program. If you have any questions regarding the content of this proposal, please contact me.

Yours truly,
CARITECH GROUP, LLC.

A handwritten signature in blue ink, appearing to read 'Eric Douglas', is written over a horizontal line.

Eric Douglas, MSc, PE
Principal/General Manager

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PROJECT FIRMS

Introduction

CARITECH GROUP LLC (Caritech) has assembled a project team which compliments each other's expertise to address the requirements of the RFP. The focus of the team is in three areas:

- Project Management
- Surveying
- Water Distribution Design

The following firms will be associated with Caritech:

- Sanborn Head and Associates Inc. –Concord New Hampshire –Corporate Office
- BCSC-Dospiva LLC, Christiansted St. Croix U.S. Virgin Islands

Caritech will be the prime consultant with the other members participating on the Project as sub-consultants. Caritech will be responsible for project management, review of system design drawings, construction documents and cost estimates; Sanborn Head will do the water distribution system design and construction documents (plans and specifications); and BCSC Dospiva LLC (BSCS) will be responsible for preparing the surveys and the establishing of project survey controls.

Eric Douglas, Principal of Caritech, will provide coordination of all project meetings. He will be available to assist in the presentation of the project to Government Regulatory Agencies. He will also be available to assist with meeting with property owners in the case of construction beyond the VIWAPA property lines.

Caritech Group LLC

Caritech Group, LLC (Caritech) is an engineering consulting firm based in the U.S. Virgin Islands which was **established in 2010**. Caritech's Principal and General Manager, Eric Douglas, is a consulting engineer with over thirty years of industrial and engineering experience and has a strong background in project management, process design, technical training, environmental permitting and regulations. Mr. Douglas is and has been a Licensed Professional Engineer since 1995. Over the last twenty years, Mr. Douglas has worked on and managed a wide range of projects for Virgin Islands Government Agencies including the Virgin Islands Water and Power Authority (VIWAPA), the Virgin Islands Port Authority (VIPA), the Virgin Islands Housing Authority (VIHA, the Virgin Islands Housing Finance Authority, VIHFA), the Virgin Islands Waste Management Authority (VIWMA) and the Virgin Islands Department of Planning & Natural Resources (VIDPNR).

The firm is a minority-owned Small Business and **SAM-Active**, Federal US SBA 8(a) registered consulting firm.

Sanborn Head & Associates, Inc.

Sanborn Head is a 115-person multidisciplinary engineering consulting firm with a resource pool of over 80 technical staff in the areas of process mechanical, site civil, geotechnical, electrical, controls and environmental engineering. They have offices throughout the New England states, New York and Ohio from which they serve a diverse set of industrial and commercial clients.

Since its founding in 1993, Sanborn Head has completed over 5,000 projects at sites located throughout both the United States and worldwide. Its clients include Fortune 500 industrial companies, regional and local businesses, public institutions, as well as state and local government agencies.

BCSC-Dospiva LLC

BCSC-Dospiva is a U.S. Virgin Islands-licensed firm which provides surveying, construction, engineering, and environmental consultation services to public and private sector clients. Its comprehensive set of surveying services include boundary surveying, topographical surveying, land title surveying, right-of-way establishment, and construction surveying.

BCSC-Dospiva has performed topographic, hydrographic, geophysical and underwater engineering inspection surveys for the Virgin Islands Water and Power Authority LPG Conversion Project on St. Thomas and St. Croix for Vitol. BCSC-Dospiva performed boundary and topographic surveys, utility locations, and water resource management for both projects including, soil erosion and sedimentation control plans, grading design, Stormwater Pollution Prevention Plans and assistance with local permitting. In addition, the firm performed offshore surveys using an echosounder, sub bottom profiler, magnetometer, and sidescan sonar, for the areas around the fueling docks at both plants, as well as underwater engineering inspections of docks at both plants, including steel thickness measurements, videography and sample collection. It also performed structure and roadway inspections pre-construction, to document existing conditions using videos and still frame photography.

Names of Principals and Registrations

Caritech Group LLC

Eric D. Douglas, MSc, P.E. General Manager

Ashlee E. Douglas, MA, Executive Administrator

Bernard P. Douglas, Construction Manager

PROJECT UNDERSTANDING

Background

The Virgin Islands Water and Power Authority (VIWAPA) is soliciting proposals from qualified and licensed engineering firms for Engineering Design Services to replace the potable water distribution line that serves Black Beard's Hill on Torvet Gade along Hospital Gade Street, Charlotte Amalie, St. Thomas, US Virgin Islands.

Project Goals

VIWAPA's primary objective is to design a water system that will result in the installation of about 1,000 linear feet of 12-Inch C-900 DR-14 PVC pipe which will be connected to a 24-inch existing main from the intersection of Education Street and Hospital Line and flow up to the hill towards the Mauve Proudfoot Road and Blackbeard Hill intersection. At that point, approximately 1800 linear ft of 4-inch C-900 DR-14 PVC pipe will be installed to replace the old 4-icase iron pipe that currently serves the Black Beard's Hill area. In addition, about 200 linear of Sch. 80 PVC pipe will be installed to serve Blackbeard's Hill Hotel.

Additionally, VIWAPA has requested the design of a new pump station which will be located at the intersection of Mauve Proudfoot Road and Blackbeard Hill Road intersection which will be called Blackbeard's Hill Pump Station. This Pump Station will replace the old Roberts Pump Station and will include two sets of pumps. One set of pumps will provide the required hydraulic pressure to the new 4-inch C-900 Dr-14 PVC pipe and the other set of umps will be designed to provide the hydraulic pressure to force the water up past Mafolie Hill (future pipe-line expansion project).

Subsoil Investigation

We do not anticipate the need for soil borings. Our team will conduct a limited subsoil investigation to approximate the location of potentially dense material that may be encountered during excavation of soils within the proposed pipeline routes in Blackbeard's Hill by using **Ground Penetrating Radar (GPR) technology**. This limited subsoil investigation will provide bidding Contractors with as much information on subsurface conditions as possible to allow them to better refine their quotes and avoid potential change orders as the project progresses. This technique has been used successfully in other VIWAPA water design projects such as Frederiksted Phase II, Estate Hannah's Rest and Whim/Campo Rico.

Given the depth required for water mains, we do not believe borings are the right application. In many instances, subsurface investigations fall short because they render details on single points and sometimes are not indicative of what is prevalent along a route.

Our team will review multiple sources of information to evaluate where dense material may be encountered during excavation, including soil classification data obtained from the US Virgin Islands Geospatial Information Systems and "Soil Survey of the United States Virgin Islands" (the Soil Survey) prepared by the US Department of Agriculture and the Natural Resources Conservation Service and **GPR** data to be collected by the Surveyor, BCSC-Dospiva, LLC.

A review of the US Virgin Islands Geospatial Information Systems and the Soil Survey will indicate the types of soil or land type in the Blackbeard's Hill area. Descriptions of these soil classifications and the approximate locations of these soil types within the Blackbeard's Hill area will be highlighted and displayed graphically. GPR data will be reviewed to approximate the horizontal extent of potentially dense material that may be encountered within the vertical extent of the trench excavation along the entire system pipe alignments. These areas of potentially dense material will be approximated based on interpretation of the GPR data to be collected. The resulting horizontal extent of potentially dense subsurface material will be displayed graphically and in the profile views on sheets of the engineering design drawings. This approach was successfully used in the recent Estate Hannah's Rest, Estate Whim/Campo Rico and Frederiksted Waterline Rehabilitation Design Phase II Projects. The soil density profile along the installation routes for the Frederiksted Project is depicted in Figure 1. below:

Figure 1.



PROJECT APPROACH

Technical Approach

Caritech proposes the following technical approach to complete the project within the shortest possible time frame and in the most cost-effective manner.

1. The Caritech **Team** will provide the surveying services necessary to prepare the base plans for the project. Planimetric information (building, tree, street locations, etc.), and topographic pertinent information will be edited and updated as required to reflect existing conditions. Field surveys to obtain; existing utility information, detailed field data at critical areas and proposed easements will be performed concurrently.
2. The Caritech Team will contact relevant government agencies, which has permitting and approval jurisdiction over this project, early in the data collection phase. It has been Caritech's experience that this early dialogue with the permitting agencies helps to expedite final approvals when the designs are completed. Soon after 100% design is completed, VIWAPA should be ready to submit the required permit applications to the various public and local agencies, as needed. Caritech proposes a program of continuous dialogue with each of the permitting agencies during the design phase. This allows the agency to review designs as they are developed and, therefore, eliminates extensive review and comment periods when the final permit applications are submitted.
3. The construction plans and profiles will be prepared at a scale of 1" =20' Hor. and 1"=4' Vert. Based on our current understanding of the project, we anticipate developing the following plans for designing +/- 2700 linear feet of new 6-Inch C-900 DR-14 PVC pipe in the Estate Blackbeard's Hill. The plans will include:
 - a. Title Plan
 - b. Location map,
 - c. index, general notes & legends
 - d. Subsoil Information along proposed routes for waterlines
 - e. Datum plane and Survey reference points
 - f. Water line plans
 - g. Water line profiles
 - h. Project Detail Plans, water line
 - i. Disinfection and water treatment details
 - j. Leak detection system details
 - k. Service connection and meter boxes
 - l. Fire protection system
 - m. Appurtenances and special structures
 - n. Standards of constructability
 - o. Standard construction traffic control plan
 - p. Project construction schedule
4. The Construction specifications will be prepared in accordance with VIWAPA's standard format as provided by the Authority. The documents will include an Advertisement for Bids, Information for Bidders, Bid Schedule, Contract Agreement, Bonds and Certificates, Contract General Conditions,

Special Conditions, General Requirements and Technical Specifications

5. Our proposed work schedule has been designed to provide completed final design plans and specifications within **90 Calendar Days** of contract award, excluding the number of days that VIWAPA will take to complete its review of the preliminary design package (70% design Complete). Our project team is committed to provide the necessary resources to meet this schedule.
6. Caritech's philosophy of maintaining frequent communication with our clients on a routine basis is an integral part of our services. We will attend meetings of VIWAPA, and others, as necessary. We will generate and submit written status reports to VIWAPA after the following milestones:
 - Information Gathering
 - Conceptual Design (30% Complete)
 - Preliminary Design – Completion of Final Design (70%)
 - One Hundred Percent (100%) Completion of Final Design

The following information will be included in our written status reports:

- Major Items of Work performed after completing each milestone
 - Major Items of Work to be performed during the following milestone
 - Problems encountered
 - Solutions anticipated for problems
 - Solutions assistance required from VIWAPA
7. As part of the design, The Caritech Team will develop a traffic control plan, construction schedules and cost estimates for the water main construction contract. As per the RFP, the required Road Excavation and Utility Permit for the VIDPW and the Earth Change Permit and Building Permit for from the Department of Planning and Natural Resources will be obtained by VIWAPA.

Management Approach

Project Team Concept

Caritech proposes to use the “Project Team Concept” for this project, where team leadership is provided through an organization structure coordinated by an assigned Project Manager. The role of the Project Manager is to direct the overall efforts of the Team and have ultimate responsibility for all recommendations. The Project Manager serves as the primary point of contact and communication between the Client and the Caritech Team and is responsible for project related technical steps taken during the project period. Additionally, the Project Manager is to focus upon engineering design issues and ensure, through design review exercises, that the conclusions reached represent the most cost-effective, efficient, and functional design solutions possible. The Project Manager is responsible for overall direction and coordination for all project activities and for the execution of the Caritech Team's commitment to the Client.

Workload Capacity

Caritech will ensure that appropriate staff are available to meet the schedules and design goals of this project.

Coordination & Communication

Communication is an integral part of project management. The project manager typically will prepare an agenda, attend and prepare minutes for all formally scheduled meetings as required to complete the work effort.

The project manager is the main point of contact on the project. He or She is responsible for coordinating the project team's work efforts with the Client, other Consultants, as well as for coordinating the team's efforts. Our project team's experienced staff has been involved in numerous projects which require scheduling and coordination with existing facilities and operations. Our work, evaluations and recommendations are sensitive to neighborhood communication and concerns; environmental and constructability issues; hydraulics and hydrology impacts on local waterways; maintaining operations during construction; construction activity impacts upon the neighborhood and environment; and developing cost effective solutions for our clients to comply with the federal and local requirements.

Quality Assurance/Quality Control

For this project, we will develop and implement a Quality Assurance/Quality Control Plan which involves all required project disciplines, incorporating mandatory checklists and review guides for each task of the project. These checklists are very detailed and encompass every potential aspect of a project including General Contract Drawings, Specifications and Cost Estimating Design Review.

Scope of Work Reference

Caritech will provide the professional engineering consulting services that are described in VIWAPA's RFP (PR-01-22) Scope of Work dated July 2021 with clarifications from addendum No.1 dated August 2021. A copy of the Scope of Work is included in the Appendix of our proposal.

PROJECT STAFFING

Introduction

Caritech proposes to utilize the Project Team Concept of organization for this project. The Project Team proposed for this project has been organized to offer experience, ability, willingness and particular expertise in providing the professional services that are required for this project.

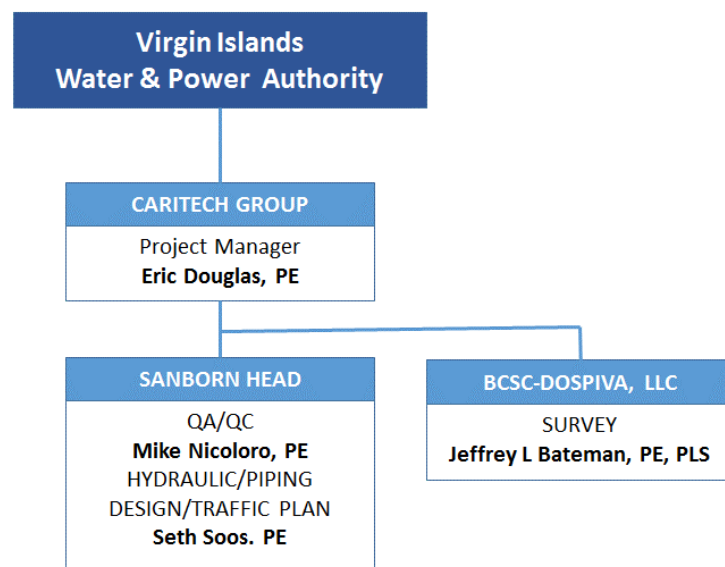
Under the Project Team Concept, team leadership is provided through an organization structure coordinated by an assigned Project Manager. The role of the Project Manager is to direct the overall efforts of the Team and have ultimate responsibility for all recommendations. He or she serves as the primary point of contact and communication between the Client and the Project Team and is responsible for all actions and design steps taken during the project period. Additionally, the Project Manager is to focus upon engineering design issues and ensure, through review exercises, that the conclusions reached represent the most cost-effective, efficient, and functional solutions possible. He is responsible for overall direction and coordination pertaining to project activities and the execution of the Team's commitment to the Client.

The proposed Project Team is composed of highly qualified, long-term Caritech/Sanborn Head /BCSC-Dospiva engineering professionals. These experienced Team members offer excellent qualifications in the area of water systems design engineering.

Project Team Organizational Chart

The assembled project team brings both qualified personnel and related projects to this endeavor. Please refer to the Project Team Organization Chart below which identifies the key team members and their proposed roles:

Project Team Organizational Chart Mahogany Estate Portable Water Design Project



Key Personnel Resumes

Eric Douglas, MSc, PE Principal/General Manager



KEY AREAS OF PRACTICE

Project Management
Water Systems Design
Industrial Training
Industrial Process Operations
Process Simulation and Optimization
Environmental Regulatory Compliance & Permitting

EDUCATION

M.Sc., Chemical Engineering, Auburn University, 1984
B.S., Chemistry, University of the Virgin Islands, 1981

REGISTRATIONS / CERTIFICATIONS

Professional Engineer – VI

PROFESSIONAL AFFILIATIONS

American Institute of Chemical Engineers
American Chemical Society

YEARS OF EXPERIENCE

Total: 36

EXPERIENCE SUMMARY

Mr. Douglas has over thirty years of engineering experience in the private sector and in academia. Mr. Douglas began his career at Dow Chemical in Baton Rouge, LA as a research engineer and rose to the rank of Group Leader. He was engaged in numerous research activities including coal gasification, math modelling and computer process simulation of petrochemical processes such as ethylene and propylene production plants and statistical data analysis.

Mr. Douglas was then hired as a senior process engineer at the Hess Oil Virgin Islands Refinery, St. Croix where he worked in a technical support role to refinery operational units including atmospheric distillation towers, vacuum distillation towers, visbreakers, distillate desulfurizers, platformers, sulfur recovery and treatment units, and wastewater treatment units.

Subsequently, Mr. Douglas worked for the VIWAPA as a Project Manager in the Water Department engaged in the construction management of potable water system projects including water purification and treatment, waterline installation, meter sizing, and reverse osmosis plant commissioning and operations.

In 1996, Douglas became a Senior Project Manager and the Virgin Islands Location Manager for Maguire Group Inc. - a Northeastern United States-based Civil and Architectural firm. Mr. Douglas helped expand the commitment of this firm to its USVI clients and projects. Responsibilities included administration of the Virgin Islands office, marketing of engineering services, generating environmental assessment reports, applying for environmental permits (CZM, Air Permits, TPDES, Terminal License, Earth Change), proposal and technical report writing, providing construction inspection and management of an assortment of projects including power generation, solid waste management, landfill design and operations, demolition of buildings, marine facilities design and construction, flood control design, and water systems design.

In 2002, Mr. Douglas became a full-time professor and Program Director for the Process Technology while still maintaining a working relationship with Maguire. He managed the Associate of Applied Science (AAS) degree program in Process Technology at the University of the Virgin Islands for fourteen years. The program has produced over one hundred and twenty (120) graduates and prepares students for employment as operations technicians in the process industry such as the HOVENSA Oil Refinery and Diageo Rum Distillery.

Mr. Douglas is a Principal and General Manager of Caritech Group, LLC – U.S. Virgin Islands based engineering consulting firm which provides services to clients in the Caribbean Region primarily in Project

Management and Regulatory Environmental Compliance

RELEVANT PROJECT EXPERIENCE

VIWAPA Estate Hannah's Rest Water Rehabilitation Design Project, St. Croix (PR-08-20)

Mr. Douglas was the Project Manager for the design of a new water main distribution network, including review of existing plans/data, preparation of water main design drawings, technical specifications, and subsurface conditions report for Estate Hannah's Rest, St. Croix. The construction of this project will result in the replacement of approximately 10,500 linear feet of 6-Inch Ductile Iron pipe with same size 6-Inch C-900 DR-14 PVC pipe. The implementation of this project will significantly address water line losses and "red-water" issues in that part of the west end of St. Croix.

VIWAPA Estate Whim/Campo Rico Water Rehabilitation Water Design Project, St. Croix (PR-0-20)

Mr. Douglas was the Project Manager for the design of a new water main distribution network, including review of existing plans/data, preparation of water main design drawings, technical specifications, and subsurface conditions report for Estate Whim/Campo Rico, St. Croix. The construction of this project will result in the replacement of approximately 13,600 linear feet of old 6-Inch Ductile Iron pipe with same size 6-Inch C-900 DR-14 PVC pipe, as well as the as well as replace approximately 5,200 linear feet of old 8-Inch Ductile Iron pipe with 10-Inch C-900 DR-14 PVC pipe. The implementation of this project will significantly address water line losses and "red-water" issues in Estate Whim/Campo Rico.

VIWAPA Frederiksted Water Rehabilitation Phase II Water Design Project, St. Croix (PR-23-17)

Mr. Douglas was the Project Manager for the design of a new water main distribution network, including review of existing plans/data, preparation of water main design drawings, technical specifications, and a subsurface conditions report. This redesign has resulted in the replacement of approximately 16,500 linear feet of water main piping, including all fittings, valves, hydrants, and appurtenances. The implementation of this project will significantly address "red-water" issues in the Town of Frederiksted.

Christiansted Phase II Water Distribution System, St. Croix

Mr. Douglas was the Project Manager and VIWAPA Assistant Water Superintendent for this \$1.2 million dollar project undertaken to upgrade the water system in Christiansted, from Richmond to the end of King Street St. Croix. The project involved the installation of new PVC lines to replace old corroded ductile iron waterlines.

Estate St. George Waterline Expansion Project, St. Croix

Mr. Douglas was the Project Manager and VIWAPA Assistant Water Superintendent for this \$300,000 project. Also prepared the request for proposal (RFP) for the design and construction of waterline expansion

project. The project involved the installation of new PVC lines.

Frederiksted Waterline Rehabilitation Project- Phase I, St. Croix

Mr. Douglas was the Project Manager for this \$780,000 project undertaken by VIWAPA to upgrade the water system in Frederiksted, St. Croix. The project involved the installation of new PVC lines to replace old corroded ductile iron waterlines.

Reverse Osmosis Water Desalination Unit, St. Croix

Mr. Douglas Project Manager for the commissioning of a 250,000 gallon per day (gpd) reverse osmosis desalination unit to upgrade the quality of brackish water from the Fair Plains well field close to the Alexander Hamilton Airport to upgrade the public utility's potable water quality standards.

VIWAPA Unit 24 HRSG Construction (PR-11-24)

Mr. Douglas was the Assistant Manager Dana Smith, Resident Manager for Maguire who provided construction management services for the installation of a new heat recovery steam generator (Unit 24) at the Richmond Power Plant on St. Croix for eighteen months. Project construction cost was \$30 million.

Project Manager-LEB Demolition Design and Debris Disposal Project, VIHA

Managed the development and implementation of comprehensive demolition plans for nineteen buildings at the Louis E. Brown Public Housing Complex, St. Croix

Diageo USVI Boilers and Multi-Effect Heat Exchanger Replacement

Diageo USVI Inc. (Diageo) plans to install a new 80,000 lb. boiler to replace its two 55,000 lb. boilers and to modify its multi-effect evaporation unit with a replacement of the two E-605 heat exchangers with one plate and frame heat exchanger. Mr. Douglas prepared and submitted a modification a Major Coastal Zone Management (CZM) Permit modification request for the installation of the above-mentioned process equipment.

Diageo USVI Process Control Building Relocation

Diageo USVI Inc. (Diageo) plans to install a new building that will house a new process control room and training classrooms for its rum distillery. Mr. Douglas prepared, submitted and obtained all the environmental and building construction permits required for the successful completion of this project.

Cruzan Rum Distillery LPG Power Generation Facility Design, St. Croix, U.S. Virgin Islands

Mr. Douglas was part of a team which involved identifying permitting requirements for a for a liquefied petroleum gas (LPG) facility for the distillery to displace its diesel fuel usage. Preliminary siting of an LNG facility was also performed as part of the initial evaluation. Mr. Douglas

participated in the code compliance review from both an LPG and LNG perspective.

Cruzan Rum LPG Storage Facility, Major Earth Change Permit Application

Cruzan Rum constructed a Liquefied Petroleum Gas (LPG) fuel storage facility at their current facility at Parcel 5 Estate Diamond, St. Croix, US Virgin Islands (USVI). The project involved the installation of two 30,000-gallon LPG storage tanks with associated truck unloading manifold and pumps, supply manifold, pumps, water-bath vaporizer and distribution piping to transfer LPG from the storage facility to the boilers and power generators at the distillery. Mr. Douglas was contracted by Cruzan Rum Distilleries to provide environmental permitting services, including the development of an Environmental Assessment Report and submission of a Major Earth Change Permit for the construction of the LPG Storage Facility.

Diageo USVI LPG Storage Facility and Gas Turbine Installation Project – Major CZM Modification Request Permits

Diageo USVI installed an LPG Storage Facility and a combined heat and power unit (CHP) to continuously supply its energy needs at its rum distillery using low-cost liquefied propane gas (LPG). The CHP unit consists of a 3.8 MW gas-fired turbine and a 75,000 lb/hr Heat Recovery Steam Generation (HRSG) system. Mr. Douglas of Caritech Group was contracted by Diageo USVI to produce an Environmental Assessment Report and submit a Major CZM Modification Request for the install of the LPG Storage Facility and CHP unit.

Diageo USVI Rum Distillery Project, Environmental Permitting Services

Diageo USVI constructed a \$265 Million state-of-the art LEED certified-Captain Morgan Rum Distillery located at St. Croix Renaissance Group Industrial Park and Port St. Croix on the southern coast of St. Croix, United States Virgin Islands. Maguire Group Inc. (Maguire) was contracted by Diageo USVI to provide environmental permitting services, including an Environmental Assessment Report (EAR), Major CZM Permit application, Facility Response Plan, Terminal Facility License Application, for the construction of the distillery and a barrel warehouse. Mr. Douglas, who was then employed by Maguire played a significant and pivotal role in obtaining all the environmental and construction permits required for the successful construction and start-up of the distillery.

Cruzan Rum CMS Wastewater Treatment Plant Major Earth Change Permit Application

Cruzan Rum Distilleries contracted Maguire to provide environmental permitting services for the installation of a Vinasse Evaporator System to concentrate the vinasse effluent from the facility that is currently discharged to the ocean. The design of the two-stage evaporator system utilizes falling film evaporation technology and forced circulation concentration technology to efficiently concentrate vinasse to 70%

dissolved solids (DS) or greater while minimizing fouling and subsequent washing requirements. Maguire was specifically contracted to prepare and submit a Land Clearing Permit, Major Earth Change Permit, and a Building Construction Permit. One of the principals of Caritech Group LLC, Mr. Eric Douglas, was employed by Maguire then and was actively involved in the environmental permitting process.

VI Waste Management Authority St. Croix Transfer Station, St. Croix

Maguire was contracted by the VIWMA to prepare design/build 30% plans and an Environmental Assessment Report (EAR) along with a Major Coastal Zone Management (CZM) permit application for the St. Croix Transfer Station. Mr. Douglas, who was employed by Maguire then, was actively involved in the preliminary design and CZM permitting process.

William & Punch Marina, Casino & Residential Golf Resort, St. Croix

As a Maguire employee, Mr. Douglas was part of a team that worked on the Environmental Permitting/Preliminary Civil Engineering Design for a proposed Marina, Casino & Residential Golf Resort on the west end of St. Croix.

Geonet Ethanol LLC Ethanol Dehydration Plant Major CZM Permit Application

Geonet Ethanol LLC constructed an ethanol dehydration plant at the St. Croix Renaissance Group Industrial Park on the South Shore. The purpose for the construction of this ethanol dehydration facility was to provide fuel-grade ethanol for sale to the United States, and potentially other buyers. Maguire was contracted by Geonet Ethanol LLC to provide environmental permitting services, including an Environmental Assessment Report (EAR) and a Major Coastal Zone Management Permit Application, for the construction of the ethanol dehydration facility. Mr. Douglas was employed by Maguire then and was actively involved in the environmental permitting process.

VIWMA Wastewater Treatment Plant CZM Application, St. Thomas

The GVI contracted with Veolia Water North America (VWNA) Caribbean LLC to design, build and operate, for 20 years, a new 4 million gallon per day (mgd) wastewater treatment facility on St. Thomas. As part of the permit requirements, this Environmental Assessment Report (EAR) was prepared to accompany the Coastal Zone Management (CZM) permit application. Maguire was hired to work on the environmental permits and preliminary plant design. Mr. Douglas was a significant contributing member of the Maguire Team.

Solid Waste Management Facility, Phoenix, Arizona

Provided start-up coverage for a 320 ton/day Materials Recovery Facility designed by Maguire Group Inc. for the City of Phoenix, Arizona. He conducted a performance test on the facility including the measurement and calculations of system throughput capacity, sampling and calculations

for materials recover efficiencies and recovered materials quality.

Gallows Bay Marine Terminal Renovation, St. Croix VI

Assisted with the site inspection and evaluation of Gallows Bay Marine Terminal. Scope of work included above and below water inspection, concrete testing, and evaluation of deficiencies and preparation of preliminary construction document for the implementation of a repair program. Damage of the facility included spalled concrete pile caps, fascia beams, impact damage of the pile foundation system and impact damage

St. Georges Villas, St. Croix, VI

Assisted with the investigation to determine the cause of the settlement and deterioration seen in the single-story modular houses that were built for low to moderate income families at Estate St. Georges. A site investigation was conducted, and it was determined that the primary reason for the observed distress was foundation settlement caused by unsuitable soils supporting the houses. As part of a team of engineers, visual inspections were done to review structural and geo-technical conditions of the houses.

Enighed Pond Marine Terminal, St. John, VI

Assisted in the process of submitting permit application to the United States Army Corp. of Engineers for construction of a marine cargo terminal at Enighed Pond.

St. John Police Station, St. John, VI

Secured earth change and construction permits for fast-track project. Conceptual design of building was completed within a two-day period. The site for the building is in a Seismic Zone 4 and subject to Exposure D, the most severe category with 110 mph. Maguire completed all architecture and civil, structural, mechanical, electrical and plumbing for the building.

Hess Oil Virgin Islands Corporation, St. Croix, VI.

Conducted several ambient air quality monitoring programs for Hess Oil Virgin Island Corporation (HOVIC) as part of a procedure required by the Department of Planning and Natural Resources during the decommissioning and commissioning of the refinery's flare system.

MICHAEL A. NICOLORO, P.E. Senior Vice President- Sanborn Head



KEY AREAS OF PRACTICE

Water Infrastructure Design
Watershed Protection
Water Treatment
Stormwater & Wastewater Management

EDUCATION

M.S., Construction Management,
Northeastern University, 1983
B.S., Civil Engineering, Northeastern
University, 1977

REGISTRATIONS / CERTIFICATIONS

Professional Engineer – AZ, CT, MA, ME,
NH, PA, WV

PROFESSIONAL AFFILIATIONS

American Water Works Association
New England Water Works Association
Northeast Gas Association
American Society of Civil Engineers
Northeast Energy and Commerce
Association
MWRA Advisory Board (former)

YEARS OF EXPERIENCE

Total: 40

Mr. Nicoloro has over 40 years of experience as a civil engineer and was the City of Cambridge Water Department (CWD) Managing Director for six years. While working for CWD, he was responsible for managing the largest public works initiative in the City's history. Mr. Nicoloro holds a Massachusetts Grade 4 Drinking Water Treatment Plant Operators license.

RELEVANT EXPERIENCE

Fresh Pond Reservation Water Purification Facility, Cambridge, MA

Mr. Nicoloro was the Managing Director of the Cambridge Water Department for a six-year term overseeing a workforce of 70 employees comprised of union and management personnel. In the capacity of Managing Director, Mr. Nicoloro managed the largest public works project ever undertaken by the City of Cambridge involving the construction of an \$80 million state-of-the-art 24 MGD water purification facility at the Fresh Pond Reservation. Management of the project involved: securing funds; acquiring local, state and federal permitting; siting; engaging with public outreach/education programs; design; contractor selection and construction. Mr. Nicoloro was responsible for the entire water operation which included: administration, engineering, watershed distribution, transmission, and water treatment.

Payson Park Belmont Finished Water Reservoir Preventative Maintenance Program, Cambridge, MA

As the Managing Director of the Cambridge Water Department, Mr. Nicoloro developed and implemented a Preventative Maintenance Program for a 32 mg concrete finished reservoir in Belmont that supplied Cambridge with finished water. The program consisted of performing routine internal inspections utilizing dive teams to evaluate general conditions that include structural integrity, water quality, condition of piping and leak detection. The tank has two equal-sized components that can be taken out of service sequentially to allow for repairs to be made as required. Mr. Nicoloro was responsible for developing the necessary operating and maintenance plans that include confined space entry provisions and performance of rehabilitation as required.

Stormwater Management Program, Cambridge, MA

As the Managing Director of the Cambridge Water Department, Mr. Nicoloro was responsible for the operation of the New Street Pump Station that is used to control groundwater levels in the immediate area of the Fresh Pond Reservation during a storm event. Mr. Nicoloro assisted with the city-wide stormwater management and sewer separation projects in coordination with CWD projects.

Fresh Pond Reservation Natural Resource Stewardship and Drainage Plan, Cambridge, MA

Mr. Nicoloro was directly involved with the creation and implementation of this plan that addresses the preservation of the largest piece of open space in the city. The plan was conceived with strong public involvement that resulted in the recommendation for long-term, cost-efficient strategies for supporting biodiversity in the Reservation for long-term, cost-efficient strategies for supporting biodiversity in the Reservation's ecosystems. Some of the major elements of the plan were: improving site drainage and storm water management; revitalizing pedestrian walkways; improved signage and

community outreach; reservoir shoreline improvements including vegetation control and riprap repairs and inclusion of public art.

36"/60" Diameter Transmission Line Rehabilitation Project, Cambridge, MA

As Managing Director of Cambridge Water Department, Mr. Nicoloro oversaw a water transmission line rehabilitation upgrade program for the City of Cambridge.

Larch Road Area Cleaning and Lining Project, City of Cambridge, MA

As Managing Director of the Cambridge Water Department, Mr. Nicoloro managed a pipeline rehabilitation program in a densely populated urban setting that involved cleaning and lining of about one mile of 6" - 12" cast iron water distribution main. Additionally, the project involved an upgrade of main line valves, elimination of lead-lined services, replacement of antiquated water meters, temporary water bypass systems, installation of AWWA sample stations and public outreach.

Comprehensive Water Resource Management Plan/ NPDES Phase II Storm Water Management Plan, Wilmington MA

Mr. Nicoloro was the Project Manager for the development of a Comprehensive Water Resource Management Plan (CWRMP) and related NPDES Phase II Storm Water Management Plan for the Town of Wilmington (Town). The purpose of the CWRMP which embodies the NPDES Phase II Storm Water Plan is to manage the Town's water supply, wastewater and storm water needs in an integrated and balanced manner. An important goal of the plan is to look concurrently at the water, wastewater and storm water issues facing the Town and develop a single plan that meets short-term and long-term needs of the community, while also contributing a regional effort to mitigate impacts to the Ipswich River. The project is consistent with the Commonwealth's goal of restoring and protecting the Ipswich River and its associated watershed resources. Mr. Nicoloro duties involved: the establishment and administering the Citizen's Advisory Committee; performing existing conditions and future needs analysis; analyzing management techniques and performing screening analysis; and finalizing a report that will result in an Environmental Impact Report (EIR).

MWRA Advisory Board Executive Committee

During his tenure as the Managing Director of the Cambridge Water Department, Mr. Nicoloro was a member of the MWRA Advisory Board.

MWRA Water Transition Plan and Meter Station Rehabilitation Project, Cambridge, MA

As the Managing Director of the Cambridge Water Department, Mr. Nicoloro was responsible for the planning and implementation of Cambridge's transition to the MWRA water supply. This was needed to supply Cambridge for a two-and-a-half-year period during construction of a new state-of-the-art water treatment plant at Fresh Pond Reservation. A diverse work team of Cambridge Water Department personnel, MWRA Operations and regulatory officials collaborated to develop a detailed implementation plan that involved a flushing plan, dechlorination strategies, hydraulic analyses, pipeline facility upgrades including valve repairs, distribution water main rehabilitation, elimination of dead-ends, and lead service replacement program, public outreach, water quality monitoring, and inclusion of SCADA/instrumentation technology.

Hydraulic and Water Quality Modeling Program, Cambridge, MA

While serving as the Managing Director of the Cambridge Water Department, Mr. Nicoloro initiated the planning and selection of a hydraulic and water quality model for the city's water distribution and transmission network. The first step undertaken was a thorough review of existing distribution data and ultimate conversion to a GIS. Subsequent to data scrubbing of the GIS, flow test data and other hydraulic data was obtained and Cybernet (Water CAD) software was selected. The end result yielded a decision-support system for supporting capital and operating improvements, such as water main rehabilitation, valve replacement, dead-end elimination, and water quality improvements.

Cross Connection Control Program, Cambridge, MA

Mr. Nicoloro provided general oversight of the Cambridge Water Department's (CWD) Cross Connection Control Department. The program was responsible for conducting over 5,000 back flow prevention devices annually with CWD state-certified testers. In addition to testing, the Cross Connection Control Division also performs routine surveys of new establishments with CWD certified personnel. Mr. Nicoloro developed and conducted annual public information programs pursuant to 310 CMR 22.22. These programs were televised on local cable television to maximize its reach to the public.

Laboratory Information Management System (LIMS) Program, Cambridge, MA

While serving as the Managing Director of the Cambridge Water Department, Mr. Nicoloro led the initiative for the development of a Laboratory Information Management System (LIMS) in preparation for the new state-of-the-art water treatment facility. The Cambridge Water Department maintains a state-certified laboratory augmented with a LIMS will enhance the Department's ability in maintaining high water quality in the most proactive manner.

Stormwater Management Program, Cambridge, MA

As the Managing Director of the CWD, Mr. Nicoloro was responsible for the operation of the New Street Pump Station that is used to control groundwater levels in the immediate area of the Fresh Pond Reservation during a storm event. Mr. Nicoloro assisted with the city-wide stormwater management and sewer separation projects in coordination with CWD projects.

Town of Chelmsford, MA, Water Service Study

Mr. Nicoloro was the Project Manager for this water study for the Town of Chelmsford. The intent of the study was to analyze water as a local resource and to evaluate the adequacy of current systems in the meeting the short/long term needs of the Town as a whole. This study provided assistance in considering use of municipal lands, creation of general and zoning by-laws, organizational structures and review of the land development proposals.

Drainage/Sanitary/Water/Surface Enhancement CIP Facilitation, Chelsea, MA

As Project Manager, Mr. Nicoloro is assisting Chief Financial Officer of the City of Chelsea with identifying, prioritizing and consolidating proposed capital improvements in connection with the creation of the Fiscal Year 2001 Capital Improvement Plan. Also, the fiscal and work force capacities are being assessed so that the work plan recommended is achievable and affordable with minimal disruption to the public. Added value associated with the facilitation services being provided includes augmentation of innovative engineering techniques such as storm water detention systems; trenchless technologies and GIS.

Watershed Protection Plan, Cambridge, MA

Serving as Managing Director of the Cambridge Water Department (CWD), Mr. Nicoloro was responsible for the development and implementation of the City's Watershed Protection Plan. The City's watershed consists of four reservoirs and appurtenant facilities located in Cambridge, Belmont, Lexington, Waltham, Lincoln, Weston and Lexington covering approximately 24 square miles. Some of the major elements of the Plan are: implementation of a "Source Water" Protection Plan; Instituting best-management-practices (BMP's) associated with stormwater management; developing and instituting flood protection and emergency response contingency plans; performing community outreach; utilizing Geographic Information System (GIS) to track land use and to monitor water quality parameters; providing site review of major developments in the watershed; developing business partnerships and working in collaboration with local watershed advocacy groups such as the Metropolitan Area Planning Council (MAPC) and the Charles River Watershed Advisory (CRWA) and dealing with permitting agencies in securing the necessary permits such as NPDES.

Reservoir Facilities Improvements Program, Cambridge, MA

Mr. Nicoloro as Managing Director of the CWD oversaw the Phase 1 design for improvements to the 2 major reservoir gatehouses and appurtenant facilities. The design improvements involve the following items of work: spillway modification; replacement of 30" sluice gates; stabilization of embankments; providing surface run-off drainage facilities; adding electrical and telephone services; performing structural and cosmetic modifications to historic building structures.

Water Treatment Plant Clearwell Rehabilitation Project, Cambridge, MA

While serving as the Managing Director of the Cambridge Water Department, Mr. Nicoloro oversaw the rehabilitation of a five-million-gallon un-reinforced concrete buried clearwell. The rehabilitation was necessitated as a result of deterioration of piping penetrations and degradation of the concrete structure that resulted in tank leakage. While maintaining operation, divers were used to conduct the inspections to determine potential sources of leakage and other anomalies. A rehabilitation plan was developed and implemented to minimize the downtime in the production of water.

GIS Watershed Management Tool, Cambridge, MA

Under the direction of Mr. Nicoloro, a computerized GIS Watershed Management Tool was developed and implemented to enable the CWD to efficiently map, track and report watershed activities as well as to assist the CWD in all components of the source water protection program. GIS infrastructure maps were also developed to augment the database in facilitating the proposed capital improvements to the City's Stony Brook Conduit transmission line. The GIS is useful in managing easements and land ownership. It also provides a quantifiable methodology for the management of natural resources.

Fresh Pond Reservation Natural Resource Stewardship and Drainage Plan, Cambridge, MA

Mr. Nicoloro was directly involved with the creation and implementation of this plan that addresses the preservation of the largest piece of open space in the city. The plan was conceived with strong public involvement that resulted in the recommendation for long-term, cost-efficient strategies for supporting biodiversity in the Reservation for long-term, cost-efficient strategies for supporting biodiversity in the Reservation's ecosystems. Some of the major elements of the plan were: improving site drainage and storm water management; revitalizing

pedestrian walkways; improved signage and community outreach; reservoir shoreline improvements including vegetation control and riprap repairs and inclusion of public art.

SETH P. SOOS, P.E. Senior Project Manager



KEY AREAS OF PRACTICE

Water Infrastructure Design
Liquefied Natural Gas
Remediation System Design and Construction
Vapor Intrusion Assessment and Mitigation
Investigation and Characterization
Treatment System Operation and Maintenance

EDUCATION

B.S., Environmental Engineering,
University of New Hampshire, 2003

REGISTRATIONS / CERTIFICATIONS

Professional Engineer – CA

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers
International Facility Management
Association

Mr. Soos has 15 years of experience as a consulting engineer in technical, design, and managerial roles. He has a broad range of experience with soil, soil vapor, and groundwater remediation with particular emphasis on the design and construction of remedial treatment systems. **He is currently the lead design engineer and project manager for a waterline replacement in Frederiksted, St. Croix.** Mr. Soos has provided technical support on projects implementing soil vapor and multi-phase extraction, in-situ and ex-situ bioremediation, in-situ and ex-situ thermal treatment, advanced oxidation, in-situ chemical oxidation, and granular activated carbon treatment technologies. Mr. Soos also has extensive experience with vapor intrusion assessment and mitigation for planned or existing structures. In addition, Mr. Soos has managed multiple LNG projects for the firm's energy practice.

RELEVANT EXPERIENCE

Virgin Islands Water and Power Authority, Frederiksted Town Waterline Rehabilitation Design, St. Croix, U.S. Virgin Islands

Managing the design of a new water main distribution network, including review of existing plans/data, preparation of water main design drawings, technical specifications, and a subsurface conditions report. Performed system walkdown to confirm installation details and assess constructability. This redesign will result in the replacement of approximately 3 miles of water main piping, including all fittings, valves, hydrants, and appurtenances necessary to complete the job in place and return the project area to pre-construction conditions.

Groundwater Capture System, North Adams, MA

Senior Project Engineer responsible for the completion of a design package, including design drawings and specifications, for a groundwater well curtain consisting of 22 extraction wells over an approximate half mile distance. The package included the design of an access road and foot bridge, groundwater extraction wells, conveyance piping, and tie-in to the existing treatment process. Also included was the addition of a new electrical service and distribution of power and control over the approximate half mile distance. Special design considerations were made to ensure the compatibility of equipment and materials with the high pH (>12.5) groundwater.

Conveyance Pipeline Analysis, Tesoro LAR, Wilmington, CA

Project Engineer providing field assistance, civil design, and oversight during a large scale civil/piping project at Tesoro's Los Angeles refinery. The project included identification of pipelines, removal of soil from around process pipelines passing through earthen containment berms, inspection, repair, sleeving of the pipes, and backfill/reconstruction of the berms. The project also included stabilization of the berms subsequent to reconstruction.

Liberty Utilities (NH) Granite Bridge LNG Project, Epping, NH

Project Manager directing a team that is providing owner's engineering services for a proposed 2 BCF LNG storage, vaporization and liquefaction facility. Service being provided include performing siting analyses, preliminary design and permitting support.

REV LNG, Dynegy Lee Station FEED, Lee, IL

Project manager for the Front End Engineering Design (FEED) study of a 1.4 MMG liquified natural gas (LNG) storage and vaporization facility capable of a 8,750

MMBTU/Hr send out rate. The facility would support an electrical generation station during times of insufficient pipeline gas flow or curtailment.

REV LNG, Dynegy Liberty Station LNG Owner's Engineering, Eddystone, PA

Owner's Engineer for the FEED study of a 1.1 MMG liquified natural gas (LNG) storage and vaporization facility capable of a 5,000 MMBTU/Hr send out rate. The facility would support an electrical generation station during times of insufficient pipeline gas flow or curtailment.

Confidential Client, LNG Facility Siting and Design, Mid-Atlantic

Owner's Engineer for the pre-FEED Study of an LNG liquefaction, storage, and vaporization facility capable of liquefying up to 15 MMSCFD, storing up to 3 BCF, and vaporizing up to 250 MMSCFD.

REV LNG, Towanda Liquefaction and LNG Storage, PA

Project Manager for the evaluation of an LNG liquefaction and storage facility design, including the initial opinion of probable construction costs.

Vapor Intrusion Assessment and Mitigation, Poughkeepsie, NY

Project Manager assisting with vapor intrusion assessment and leading mitigation efforts at a large campus of industrial manufacturing and office space in New York. The campus included multiple large buildings with a combined footprint totaling more than 700,000 square feet. Mr. Soos led the testing, design, and construction of multiple sub-slab vapor extraction systems installed within multiple buildings.

Vapor Intrusion Assessment and Mitigation, Manassas, VA

Senior Project Engineer supporting vapor intrusion assessment, and later the Senior Project Manager responsible for the pilot testing, design, and installation of two soil vapor extraction systems at a RCRA-regulated site involving industrial and residential properties overlying a plume of chlorinated solvents in groundwater. The vapor extraction systems support contaminant mass removal and reduce the potential for off-site vapor migration and vapor intrusion.

Vapor Intrusion Mitigation, Tacoma, WA

Senior Project Manager responsible for the design of a vapor intrusion mitigation system for a new YMCA facility constructed into a significant grade change, causing the building to intersect a CVOC groundwater plume, which resulted in mitigation measures along multiple sides of the building in addition to below the slab.

Subsurface Vapor Extraction System Design, Hopewell Junction, NY

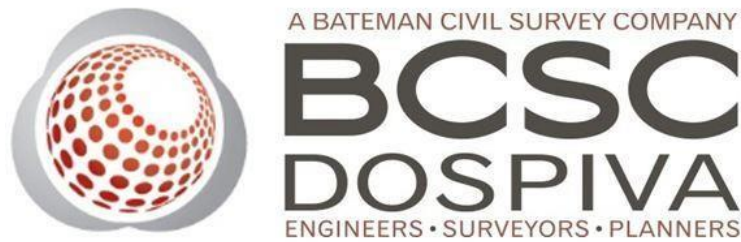
Senior Project Engineer responsible for the testing, design, and construction of multiple subsurface vapor extraction systems to mitigate elevated indoor air concentrations within mixed use buildings at an industrial manufacturing facility. The systems were designed and installed to limit disruption to a continuously operating manufacturing facility.

Fire Suppression System Upgrades, Tesoro LAR, Wilmington, CA

Project Engineer providing hydraulic analysis and civil design assistance for a fire suppression system at a Los Angeles refinery. The project included the complete re-design of the refinery's fire suppression system including storage tanks, pumping requirements, conveyance piping and monitor/hydrant placement in accordance with all governing codes/regulations.

Vapor Intrusion Mitigation, Newport Beach, CA

Project Engineer responsible for design, procurement, and construction of a methane and hydrogen sulfide active mitigation



Jeffrey L. Bateman, PE, PLS

Summary of Professional Experience

Mr. Bateman is responsible for a multi-disciplined staff of engineers, construction managers, environmental specialists, surveyors, and technical and administrative support staff. His experience includes the design and calculation of residential, commercial, agricultural and industrial development projects including stormwater and utility extensions; surveying for transportation and construction projects utilizing subsurface utility engineering (SUE) and global positioning systems (GPS), and Planning actions including rezonings, amendments and variances.

Education

- ❖ B.S./1987/Surveying Engineering/The Ohio State University, Columbus, Ohio
- ❖ B.S./1988/Civil Engineering/The Ohio State University, Columbus, Ohio
- ❖ 40 Hour OSHA Hazwopper, Transportation Workers Identification Credentialed

Professional Registrations

- ❖ Professional Engineer/1992/**North Carolina**, No. 18663, **Florida**, No.45142
- ❖ Professional Engineer/1997/**Virginia**, No.030873
- ❖ Professional Engineer/1999/**Kentucky**, No. 21120, **Georgia**, No.26573
- ❖ Professional Engineer/1996/**South Carolina**, No.17216
- ❖ Professional Engineer/1995/**Ohio**, No. 59299
- ❖ Professional Engineer/2003/**New Jersey**, No.24GE04476100
- ❖ Professional Engineer/2009/**US Virgin Islands**, No. 1052 E
- ❖ Professional Engineer/2010/**Alabama**, No.31139-E
- ❖ Professional Land Surveyor/1992/**North Carolina**, No. L-3502
- ❖ Professional Land Surveyor/1996/**Virginia**, No.001301
- ❖ Professional Land Surveyor/1991/**Florida**, No. 4884
- ❖ Professional Land Surveyor/1999/**Kentucky**, No. 3490
- ❖ Professional Land Surveyor/1995/**South Carolina**, No. 17216, **Ohio**, No. 7748
- ❖ Professional Land Surveyor/2002/**Georgia**, No. 2904
- ❖ Professional Land Surveyor/2009/**Virgin Islands**, No. 1053, **Alabama** 30807-S
- ❖ Professional Land Surveyor/2010/**Mississippi**, PS-3161

**Project
Experience**

- ❖ **2002 – 2017:** President, Bateman Civil Survey Company, PC / BCSC Dospiva, LLC
- ❖ Watergate Villas East Condominium Association, Estate Bolongo, St. Thomas, VI. BCSC Dospiva performed field surveys, Environmental Assessments, civil engineering and construction administration services for this project which involved designing a solution to a severe erosion issue. This project is situated directly on the beach and ultimately involved the construction of a toewall, installation of plantings on the beach and in the water, sand replenishment and all associated permitting through DPNR, CZM, Fish & Wildlife, and the local Building Permit process.
- ❖ Rattan Road (Rt 74) Route Surveying and Level B Subsurface Utility Engineering, Christiansted, St Croix. BCSC Dospiva is performing a route survey of approximately 3.5 miles of Rattan Rd including location of all underground utilities for a drainage and safety improvement project. This work is being performed under an on-call contract with the Department of Public Works.
- ❖ Brookman Quarry, St. Thomas, VI. BCSC Dospiva is currently performing engineering duties to address USEPA concerns at the quarry complex. Project Improvement plans, SWPPP, SPCC, IPWW TPDES permits and associated exhibits have been prepared. New topography was performed using sUAS (small Unmanned Aircraft System) at both St Thomas and St Croix facilities.
- ❖ Coastal Interceptor Relocation, Christiansted, St Croix. BCSC Dospiva is performing boundary, topographic and planimetric surveys for the design build of this sewer relocation project. Underground utilities were also located in portions of the project.
- ❖ University of the Virgin Islands Athletic Field Construction, Kingshill, St. Croix, VI. BCSC Dospiva performed boundary verification and topographic surveys, coordinated the archeological and environmental permitting, and the geotechnical evaluations, designed the FIFA Soccer Facility and practice fields including, erosion and sedimentation control, grading, drainage, field underdrains, turf and lighting specifications, irrigation and the preparation of a Stormwater Pollution Prevention Plan, and the administration and observation of the construction process
- ❖ Metro Motors, St. Thomas and Centerline Auto Rentals, St. Croix. BCSC Dospiva was part of design build teams for each of these projects Services provided include site planning, grading, erosion control, utility services and construction observation.
- ❖ Subsurface Utility Engineering: BCSC has performed Level A and Level B SUE services on various projects for environmental consulting firms, construction companies and professional engineering firms, including the use of Ground Penetrating Radar on several power/chemical industrial facilities. BCSC currently provides 24/7 On-Call SUE services for the US Army at Ft. Stewart and Hunter Army Airfield in Savannah, GA.
- ❖ Communication Facility Surveys: BCSC has completed numerous surveys for communication tower facilities including FAA 1A and 2C certifications, as well as boundary and topographic surveys, balloon tests, and zoning and title research, for projects throughout the southeastern US, Puerto Rico and the US Virgin Islands.
- ❖ **1993-1995, 2002-2006:** Instructor, Wake Technical Community College, Raleigh, North Carolina: Conducted full semester classes in the Civil Engineering and

Surveying curriculums. Specific courses included Drafting, CADD 1 & 2, Hydrology, Photogrammetry/GPS, Surveying 1, 2 & 3, Surveying Law, Business Management and Operations, Statics & Strength of Materials, and Soil Mechanics.

- ❖ **1999 – 2002:** Regional Manager, Draper Aden Associates, Apex, NC. Performed regional office management duties including opening regional office, client development, project management, accounts payable and receivable, project development and human resources.
- ❖ **1994-1999:** Regional Manager, Taylor Wiseman & Taylor, Raleigh, North Carolina: Performed client development, project management, accounts payable and receivable, project development and human resources. Directed over \$2.5 million of contracts with the North Carolina Department of Transportation, including Subsurface Utility Engineering, Route Surveying, GPS Surveys, and Roadway Design. Performed civil design of residential and commercial projects, directed boundary surveys as large as 850 acres, managed construction surveys of major roadway, industrial and residential projects, certified county-wide GPS survey of Wake County, NC for aerial mapping project, landfill closures and construction, wireless communication sites, and houseline services with major homebuilders.
- ❖ **1993-1994:** Project Engineer, Geotrack, Raleigh, North Carolina: Performed Resident Professional and Project Management duties for Subsurface Utility Engineering contract with the North Carolina Department of Transportation. Responsibilities included scoping meetings, estimate preparation, supervision of work products, submittals and contract administration.
- ❖ **1991-1993:** Senior Engineer, Collier County Government, Naples, Florida: Performed the review of all land development projects. Areas of review responsibility included review for South Florida Water Management District regulations, environmental review including wetlands and endangered species, water and sanitary sewer extensions, and construction conformance with development ordinances. Represented County Development Services on the County Environmental Advisory Board, which conducted public meetings for major projects. Selected to sit on Quality-Plus committees.
- ❖ **1989-1991:** Project Engineer, BCI, Ft. Myers, Florida: Performed engineering calculations and design of residential, commercial and agricultural projects. Design included stormwater management, utility design, grading and permitting. Performed occasional surveying project management.
- ❖ **1988:** Project Engineer, Hoppes Engineering, Springfield, Ohio: Performed calculations for stormwater management, utility design of water and sewer extensions, and grading of residential and commercial projects

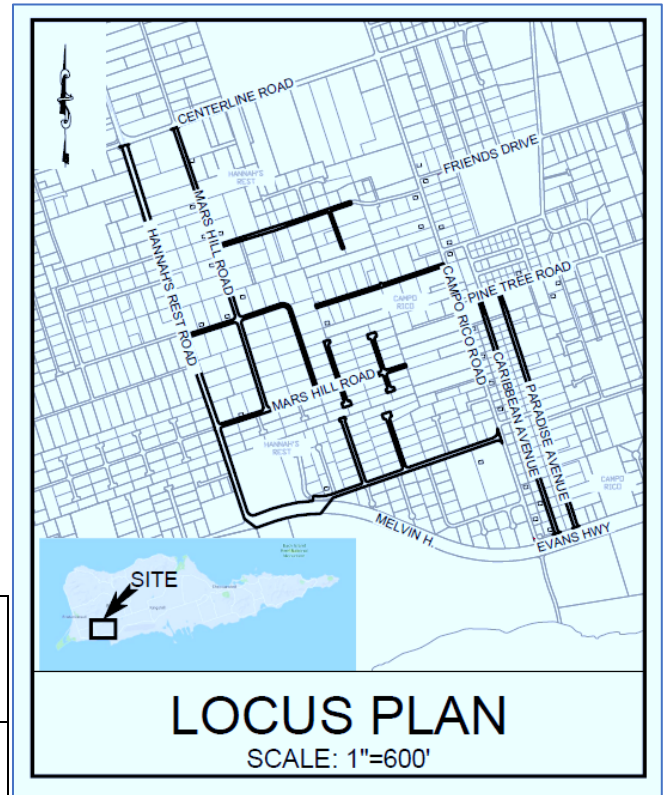
LIST OF RELEVANT COMPLETED PROJECTS

VIWAPA Estate Whim/Campo Rico Waterline Rehabilitation Design Project, St. Croix, U.S. Virgin Islands

Caritech Group & Sanborn Head have completed the design of a water system that will result in the replacement of approximately 13,600 linear feet of aged 6-Inch Ductile Iron pipe and approximately 5,200 linear feet of 8-inch Ductile Iron pipe in the Town of Frederiksted. The ductile iron pipe will be replaced with 6-inch and 10-inch C-900 DR-14 PVC pipe respectively, including all fittings, valves, hydrants, and appurtenances.

Upon successful construction of this design project, water unaccountable and the quality of the potable water delivered to residential and commercial customers in Estate Whim/Campo Rico and its environs will be significantly improved.

<i>Design Cost:</i>	\$194,400.00
<i>Estimated Construction Cost:</i>	\$1.54 Million
<i>Final Design & Construction Cost:</i>	N/A
<i>Project Date:</i>	Jul -Nov-2020

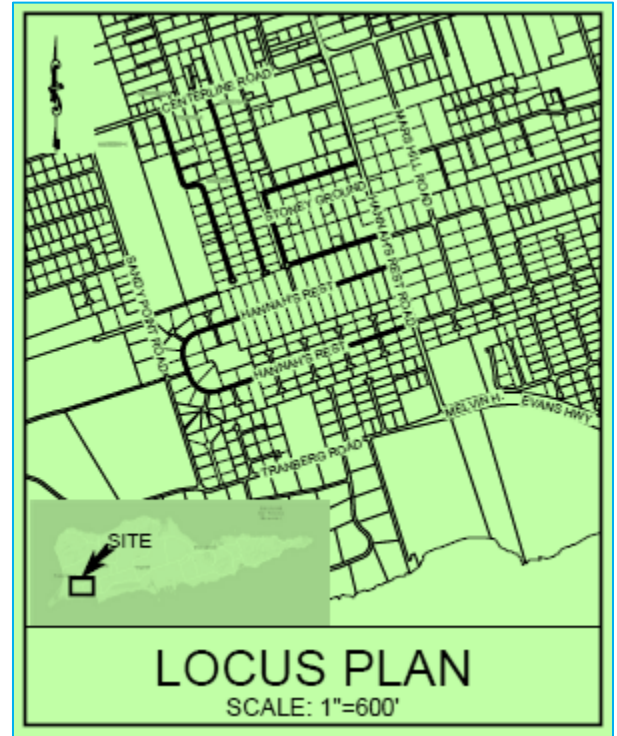


**VIWAPA Estate Hannah's Rest Design Waterline Rehabilitation Project, St. Croix,
U.S. Virgin Islands**

Caritech Group & Sanborn Head have completed the design of a water system that will result in the replacement of approximately 10,500 linear feet of aged 6-Inch Ductile Iron pipe in Estates Hannah's Rest and Stony Ground. The ductile iron pipe will be replaced with 6-inch C-900 DR-14 PVC pipe including all fittings, valves, hydrants, and appurtenances.

Upon successful construction of this design project, the quality of the potable water delivered to residential customers in Hannah's Rest/Stony Ground and its environs will be significantly improved and water line losses should drop.

<i>Design Cost:</i>	\$115,700.00
<i>Estimated Construction Cost:</i>	\$1.2 Million
<i>Final Design & Construction Cost:</i>	N/A
<i>Project Dates:</i>	Jul-Nov-2020



VIWAPA Frederiksted Phase II Design Waterline Rehabilitation Project, St. Croix, U.S. Virgin Islands

Caritech Group & Sanborn Head have completed the design of a water system that will result in the replacement of approximately 2,800 linear feet of aged 10-Inch Ductile Iron pipe and approximately 13,700 linear feet of 6-inch Ductile Iron pipe in the Town of Frederiksted. The ductile iron pipe will be replaced with 6-iC-900 DR-14 PVC pipe including all fittings, valves, hydrants, and appurtenances.

Upon successful construction of this design project, the quality of the potable water delivered to residential and commercial customers in Frederiksted, and its environs will be significantly improved.

<i>Design Cost:</i>	\$163,000.00
<i>Estimated Construction Cost:</i>	\$2.3 Million
<i>Final Design & Construction Cost:</i>	N/A
<i>Project Dates:</i>	2018-2019



<i>Original Design & Construction Cost:</i>	\$1.2 million
<i>Final Design & Construction Cost:</i>	\$1.2 Million
<i>Project Dates:</i>	1996;

VIWAPA Frederiksted Phase I Waterline Rehabilitation Project, St. Croix, U.S. Virgin Islands

In 1994, Metcalf & Eddy completed a preliminary design report for the Frederiksted Water Distribution System. As a result of that study, Metcalf & Eddy recommended conducting a replacement/ rehabilitation of the water system in phases. Construction Phase I Rehabilitation began in 1995.

Mr. Eric Douglas who was the VIWAPA Assistant Water Superintendent on St. Croix at the time was assigned as the Project Manager for this \$780,000 project undertaken to upgrade a segment of the water distribution system in Frederiksted, including Sections of Route 70, Marshall Road and areas of Smithfield. The project involved the installation of new 10" PVC lines to replace old corroded ductile iron waterlines.

The project involved the installation of approximately 11,000 linear feet of C-900 DR-14 10" and 6" pipe. The project was successfully completed within schedule and budget.



*Original Design &
Construction Cost:* \$780,000
*Final Design &
Construction Cost:* \$780,000
Project Dates: 1995-1996;

Estate St. Georges Waterline Expansion Project, St. Croix, U.S. Virgin Islands

Mr. Douglas was the Project Manager for this \$300,000 project. He also prepared the request for proposal (RFP) for the design and construction of waterline expansion project.

Approximately 5000 linear feet of 4" and 6" C-900 piping and associated lateral service lines were installed to serve a housing community across from the Estate St. Georges Botanical Gardens. This housing development was financed by the Virgin Islands Housing Finance Authority. More than sixty houses were connected to the VIWAPA water distribution system. The project was successfully completed within schedule and budget.



*Original Design &
Construction Cost:* \$300,000
*Final Design &
Construction Cost:* \$300,000
Project Dates: 1996;

PERSONNEL RATE SCHEDULE

CARITECH GROUP LLC/ SANBORN, HEAD & ASSOCIATES, INC. 2021 Schedule of Fees

Senior Vice President/Principal	\$300
Vice President/Senior Associate	\$260
Project Director/Associate	\$248
Senior Project Manager	\$230
Project Manager	\$195
Senior Engineer/Geologist	\$175
Project Engineer/Geologist	\$155
Engineer/Geologist	\$145
Supervising Technician	\$130
Senior Engineering Technician/Senior Drafter	\$125
Engineering Technician/Drafter	\$100
Support Staff	\$90
Subcontractors and Outside Services	Cost plus 15%
Other Direct Expenses	Cost plus 10%

Hourly rates will be charged for time worked on the project and for the time required for travel between the office and the meeting or project site. Local travel will be at IRS allowed rates.

Overtime hours will be charged using the hourly rates listed above.

Table 1. DESIGN AND PAYMENT SUBMITTAL SCHEDULE

Design and Payment Schedule		
COMPONENT	PERCENTAGE (%)	AMOUNT (\$)
INFORMATION GATHERING	30	\$25,357.50
CONCEPTUAL DESIGN	30	\$25,357.50
PRELIMINARY DESIGN (70% COMPLETE)	30	\$25,357.50
FINAL DESIGN (100% COMPLETE)	10	\$8,452.50
TOTAL		\$84,525.00

Table 2. PROJECT COST PER SCOPE OF WORK ITEM


VIRGIN ISLANDS WATER AND POWER AUTHORITY					
PROJECT MANAGEMENT FORM					
					
Note: Project Cost Estimate is based upon a 120-Day Design Schedule.					
CLIENT:		Virgin Islands Water and Power Authority		BLACKBEARD'S HILL RFP	
PROJECT:		Black Beard's Portable Water Line Design		PROJECT LOCATION: STT	
Scope Item	Description			Cost per Item	
	SURVEY WORK (BCSC-DOSPIVA)				
1	1	Topography and Base Map		\$	7,800
2	2	Survey of Pipe Routes		\$	7,325
3	3	GPR Survey of Pipe Routes		\$	11,325
4	4	Detailed As-built Survey of Pipe Routes		\$	5,400
5	5	Utilities Location		\$	6,350
6	6	Boundary Survey of Plot for Pump Station		\$	1,000
	SUBTOTAL SURVEY WORK			\$	39,200
6	SUBSURFACE SOIL INVESTIGATION				
	1	subsurface soil investigation*		\$	5,820
	SUBTOTAL SOIL INVESTIGATION			\$	5,820
7	COORDINATION MEETINGS WITH UTILITY COMPANIES				
	1	coordination with utility companies		\$	1,520
	SUBTOTAL COORDINATION MEETINGS			\$	1,520
8	PIPING DESIGN				
	1	Generation of Engineering Drawings		\$	9,530
	2	Generation of BID Docs and Contract Specs.		\$	6,320
	3	Estimation of Cost of Construction		\$	1,840
	4	Field Inspection of Design		\$	1,650
	5	Output (Print-outs)		\$	550
	SUBTOTAL PIPING DESIGN			\$	19,890
9	PUMP STATION, PUMP HOUSE & RETAIN. WALL DESIGN				
	1	Design of Pump Station, Pump House and Wall		\$	12,100
	SUBTOTAL PUMP STATION AND RETAINING WALL DESIGN			\$	12,100
10	HYDRAULIC MODELLING				
	1	Hydraulic Modelling		\$	3,075
	SUBTOTAL HYDRAULIC MODELLING			\$	3,075
10	GENERATION OF STATUS REPORTS				
		Status Reports		\$	2,920
	SUBTOTAL GENERATION OF BID STATUS REPORTS			\$	2,920
TOTAL PROPOSAL COST \$				\$	84,525.00

Table 3. CPM SCHEDULE

CPM Schedule		
TASK	TIME FOR TASK (Calendar Days)	COMPLETION AFTER NTP
DATA COLLECTION & CONCEPTUAL DESIGN	42 days	42 days
PRELIMINARY DESIGN (70% DESIGN COMPLETE)	42 days	84 days
VIWAPA REVIEW	10 days	
DESIGN COMPLETION (100%)	21 days	105 days
VIWAPA REVIEW	5 days	110 days
FINAL OUTPUT	10 days	120 Days
TOTAL TIME		120 days (Excluding VIWAPA Preliminary Design Review days)

APPENDICES

APPENDIX A

VIWAPA RFP PR-01-22 SCOPE OF WORKS

SCOPE OF WORK

1. Design Pump Station: The new Blackbeard's Waterline Pump station design includes the following: new pump station building to include all necessary waterlines, electrical components, communication components and retaining walls to support the property and building. The new pump station building must have double access doors, a single access door, and shutter windows. The design limit for the electrical service is from the weather head to the pump station.

New 4 pump 480-volt skid with SCADA control panel and VFD power panel. The design for hydraulic modeling for 4 skid Grundfos brand pumps.

2. Design Water Line installation

Designs for approximately +/-1000 LF of 12" AWWA C-900, DR-14 PVC water main, 1,800 LF of 4" AWWA C-900, DR-14 PVC and approximately 200 ft of SCH 80 PVC.

A. Information Gathering & Conceptual Design

The Scope of Work is to design a potable water distribution system in the Black Beard Hill neighborhood. The design project involves the preparation of plans, specifications, bid items list, bid schedule, and construction cost estimate. The Offeror shall coordinate with WAPA designated project engineer throughout the design period. The design must be in accordance with the American Water Works Association ("AWWA") Standards where applicable. The selected firm has **ninety (90) calendar days** to complete the design and obtain all pertinent information from the various agencies and individuals that directly relate to the subject project such as WAPA, Waste Management Authority ("WMA"), Department of Public Works ("DPW"), VIYA Company, and other pertinent agencies. The selected Design Firm shall perform all but not limited to the following data collection:

1. Topography and Base Maps

Obtain the most recent topography maps of the project area and utilize to create a base map for the project. Establish a baseline with well-established survey points, which would not be destroyed by the construction work and will be useful for as-built data collection. Strip maps along the alignment are to show all substantial surface structures at least 40 feet beyond the edge of the right-of-way, any walls in proximity of the proposed work are to be shown. Verify existing above and underground features shown on these maps by field checking; and edit as necessary. Show utility poles, traffic signal devices, and any other structures in proximity of the proposed work and/or road right of way.

2. Survey of Pipe Route

Perform a field survey of the waterline route. Establish baseline on street for control for line and grade, new construction, and existing utilities. Key survey monuments must be tied to at least two (2) reference points. Sketch of tie line configuration for each key survey point is to be included in field notes and submitted to the Authority. Verify the number of residences and the desired location for each service within public right-of-way. Make note of limit and type of material of pavements, sidewalks and other features, which would affect the design, or construction of the water lines.

3. Ground Penetrating Radar ("GPR") Survey of Pipe Route

- A. Obtain two longitudinal scans along pipe route, one at center of each roadway lane. Place distance paint marks along roadway at each 50-foot location.
- B. One lateral scan across the roadway at all locations where there are curb cuts. Identify station location and direction of each lateral scan.
- C. All buried facilities shall be located by station and distance right or left along the roadway centerline.
- D. Locate all objects within 6 feet deep, scan to 10 feet in areas of drainage structures.
- E. Save all scanned files for future reference.

4. Detailed As-Built Survey of Pipe Route

- A. Walk thru pipe route with copy of field survey and obtain added as-built information
- B. Height of walls
- C. Details of landscape features
- D. Other features that need to be included on the base plans

5. Utilities Location

Obtain horizontal and vertical survey information of Property Boundary, Curb cuts, new land developments requiring water service, Walls, SSMH's invert, top, Sewer Service Lines, pipe size and direction of flow, STM-MH's and pipe's invert and top, Catch Basins, Electrical-MH's invert and top, Communication MH's invert and top utility poles, fences, and underground utilities to be marked by GPR. It is desirable to locate those features and utilities within six inches of their actual position. The Design Firm must show all of the above-mentioned utilities and conduct visual inspections to confirm existing utilities not shown on the as built. WAPA personnel will assist, if necessary, to indicate location of water and electrical lines in the field. The Design Firm will be responsible for surveying and mapping. However, further verification and confirmation with a pipe location device is necessary and will be consultant's responsibility. Show all existing water valves, hydrants, air/vacuum release valves, pressure control valves and other appurtenances to a precision of inches. All the collected data must be plotted onto the plan and profile drawings and tied to the survey baseline by station and offset or other survey methods.

6. Subsoil Investigation

Obtain subsoil information for the project route. If necessary and if Design Firm recommends, perform subsoil borings to determine subsoil information and where rock is likely to be encountered. Assemble the drilling data in a report form and also show drilled points and subsoil information on the design plans. Explore the suitability of the existing soil to be used as backfill. Submit findings in a brief report including cost control solutions and recommendations if soil conditions are poor.

7. Coordination meeting with other Utilities/Parties.

Hold meeting with appropriate representatives from the DPW, VIYA Telephone, Virgin Islands Fire Department (“VIFD”), WMA, and any other pertinent agencies to introduce the project, solicit any concerns, and identify any potential conflicts that may arise from planned construction by other parties. It will be the Design Firm’s responsibility to search for information. All contacts and inquiries shall be documented.

8. Hydraulic Modeling

Conduct modeling of the proposed design solution and reasonable alternatives to confirm that required pressure and flow is achieved and to indicate areas where pressure and flow reduction may be needed. The system is pressurized and fed from the WAPA Water Distribution Facility and must be able to maintain a fire fighting. The Design Firm is required to model the proposed design to ensure that there are no flow restrictions and that the adequate pressures and flows are obtained through the system. A pressure profile of the system is required. Design Firm should consult WAPA project engineer to obtain data (pressure, level, elevation, etc.) on WAPA existing system. The Design Firm is required to submit pressure profile of the concept plan.

9. Status Report

Provide a neatly prepared status report (1 electronic version) at the milestone deliverable, summarizing all items in the Data Collection Phase. Include documentation and drawings to verify completion of each item (1 copy). All pertinent information must be submitted to WAPA for its records.

PRELIMINARY DESIGN – COMPLETION OF FINAL DESIGN

Coordinate closely with the Authority’s assigned project engineer throughout the entirety of the design. Coordination with the Authority’s assigned project engineer is required for minimum delays in the design work.

1. Contents of Drawings

- A. Arrangement – The most logical arrangement for a set of plans develops the project from general views to more specific views and finally to more minute details. The following paragraphs are arranged to follow this generally accepted order of plan presentation.
- B. Index – Plans should contain an index which lists all the drawings in the set by title and drawing number in order of presentation. Include a sheet index on the general plan map to identify the sheets which show the details for each length of water main on the general plan. A legend must be provided to identify all symbols and abbreviations used in the drawing set.
- C. Location Map – Either on the cover page of the plans or on the page immediately following, there should be a general location map showing the location of all work in the contract and its relationship to the community. This location map may also be used as an index map as outlined in the preceding paragraph.
- D. Subsoil Information – Location of soil borings made during the design phase are to be shown on the plans. Provide information obtained from the local soils map specific to this area and discuss how it impacts the design.

- E. Datum Plane and Survey Reference Points – The datum plane is used for determining elevations shown permanent benchmarks. Survey points in the street and property lines should be indicated wherever pertinent to the proposed work. Distance stationing along the water line shall be tied to the survey reference points.
- F. Waterline Plans – A continuous strip map, drawn directly above the profile, to indicate the plan locations of all work as well as relevant surface topography and existing improvements must be provided for each water main plan and profile drawing. Underground and overhead utilities along, across or near the proposed construction route should be shown. Only that surface topography which directly affects construction or access of the work is necessary to be included in the plan and profile drawings. Plans/profiles need to show both dimension scales and graphic scales. Distance stationing along the pipeline shall be shown. Plans for water mains to be constructed in easements in private property should show survey and alignment data. Widths of temporary and permanent easements should be dimensioned. Each plan should include a north arrow. Match lines should be easily identifiable. Any special construction requirement such as sheeting to be left in place should be shown on the plans. Where interference with other structures is known to exist, explanatory cross sections, if necessary, should be enlarged in scale, identified as to exact location, and placed on the plan and profile drawing where the section is cut. Proximity and depth of sewers will be critical. Waterlines must have a 3-foot minimum horizontal separation from the sewers or be 18 inches above the sewers; otherwise, concrete encasement will be required. Water plans shall be prepared using Auto Cad.
- G. Waterline Profile – Contract drawings must include a continuous profile of all waterlines runs showing ground surface and waterline elevations and grades. The profile should also show the size, slope, and type of pipe, the limits of each size, pipe length, and the locations of special structures and appurtenances. The profile must be located immediately under the plan for easy reference. Stationing shown on the plan should be repeated on the profile. All existing utilities, known to exist crossing or parallel the proposed water line shall be shown.
- H. Waterline Details – Provide separate sheets of waterline details to include pipe bedding, valves, service connections, thrust blocks, meters and master meters, air/vacuum release valves, fire hydrants, bends, sleeves, manhole frames and covers, valve boxes, meter boxes, interconnections and lateral mains, any special concrete structures, any other standard details, and any other waterline related hardware. Manufacturer and catalog numbers, as approved by the Authority, should be on the plans. Any master meters shall be designed to current industry standards and WAPA's requirements. Reasonable access for future meter maintenance is essential. Consult with WAPA for specific equipment to be used. The most current details will be provided and updated by the design engineer as necessary.
- I. Disinfection and Water Treatment System Details – The treatment system should be presented in plan and profile views. If necessary, equipment details should indicate the manufacturers and catalog numbers on the plans. Treatment system components include automatic flush points, water quality sampling stations and disinfection stub out points. Design engineer shall consult WAPA for equipment to be used.
- J. Leak Detection System Details – The leak detection system should be presented in plan and profile views. Acoustic access points (consult WAPA Engineer) should be spaced every 300 ft., maximum, for leak detection. Main line valves are also considered leak detection points and can take the place of an acoustic access point if within 300 ft of the previous acoustic point.

If necessary, equipment details should indicate the manufacturers and catalog number on the plans. Design engineer shall consult WAPA for equipment to be used.

- K. Service Connections and Meter Boxes – All service connections locations should be presented in plan and profile view. Meter boxes should be presented in plan view. The plan view should show the approximate location of the service connections and indicate the service connection size per the number of meter boxes or customers it feeds. The plan view should also show the approximate locations of the meter boxes. The standard is to locate a duplex meter installation at a common property line of two (2) properties or as required by field conditions and WAPA Engineer. If necessary, equipment details should indicate the manufacturers and catalog number on the plans. Design engineer shall consult WAPA for equipment to be used.
- L. Fire Protection System – The fire protection system should be presented in plan and profile views. The system should be modeled to maintain a fire flow; and fire hydrants are to be placed where needed according to concept plan, the hydraulic model or as recommended by the Virgin Islands Fire Department. The fire system consists of a 6" resilient gate valve, tee, and the fire hydrant. The fire hydrant, tee, and valve must be thrust blocked or mechanically restrained. Bollards must be placed around hydrants if necessary. If necessary, equipment details should indicate the manufacturers and catalog number on the plans. Design engineer shall consult WAPA for equipment to be used.
- M. Appurtenances and special structures – Special structures must be detailed fully to ensure that the finished work is structurally sound and hydraulically correct. Design engineer shall consult WAPA for equipment to be used.
- N. All designs shall meet reasonable standards of constructability.
- O. The traffic construction plan is to be developed using the Manual of Uniform Traffic Control Devices. The project site is considered residential, but there is a federal highway running through it. At a minimum, the Virgin Islands Police Department and the Department of Public Works ("DPW") must be consulted, and their directions must be included in the design. DPW's approval is required for traffic plans. Construction traffic plans are to include both graphic details (plans) and specifications. The plan must include schedules when work is allowable.
- P. Construction Phases or Schedule – Along with the traffic plans the Design Firm must create a construction schedule for the project. This schedule could be a separate sheet of its own or be incorporated with the general notes. This schedule should demonstrate the most feasible sequence of construction.

2. Contents of Specifications and Offeror Proposal Documents

- A. Assemble the specifications and Offeror Proposal Documents in the following order. The most current version of these documents will be provided by the Authority and updated by the Design Engineer as necessary.
- B. Proposal Form

- I. Request for Proposal – The format and contents will be provided by the Authority. Include a brief description of the project as approved by the Authority and discuss the Scope of Work.
 - II. Proposal Form – Develop a contractor proposal form to identify the lump sum cost per bid item and a detailed payment schedule. The general proposal items normally include linear foot of pipe, air release/vacuum valves, hydrants, resilient gate valves, service connections, meter boxes, etc. The payment schedule should identify specific construction items as necessary to evaluate proposals. Also included in the proposal and payment schedule should be unit cost items for work incidental to the project and beyond the Scope of Work. These items should include rock excavation, concrete encasement of pipe, backfill material, pipe material, asphalt paving and other relevant items. The asphalt paving should have a unit cost included in the optional bid item. Develop a ‘Measurements and Payments’ section to further detail the invoicing process. An Offeror questionnaire relevant to the work must also be prepared.
- C. Specific and General Provisions – This section shall itemize specific and general concerns pertaining to the project. The following will be provided by WAPA and updated by the Design Engineer as needed.
- I. General Requirements – General items include the following: conditions of the work, safety procedures, site access, coordination with other contractors, scheduling, facilities available, traffic rerouting, coordination with other agencies to ensure that other community services are minimally impacted, development of record drawings, and other project documentation.
 - II. Specific Provisions – Specific concerns in relation to this project are to be addressed here. This should include, but is not limited to, specific underground conflict areas as shown on the plans and unforeseen conflicts with underground utilities and structures, cost for unforeseen work, explanatory excavations, survey work employed in the event of unforeseen underground conflicts, and specific areas where utility relocation is required.
- D. Technical Specifications – Develop and prepare written technical specifications for installation, materials, and equipment applicable to the project. The Authority has already developed some specifications and requirements which will be presented to the Design Engineer. These specifications and requirements are to be included and updated where necessary. Added specifications for this project may need to be developed, as necessary. Provide product specifications for all items specified by manufacturer and catalog number. Specification to be provided shall be consistent in format with those in use by WAPA.

3. Estimate for Construction

Provide an estimate for construction cost following the format of the Proposal Schedule developed. Provide an estimate for the project construction schedule. After the bid schedule, provide a proposal items list, identifying the items to bid on such as valves, acoustic points, meter boxes, service connections, etc. Please be sure to include their corresponding station number on the plans.

4. Field Inspection of Design

After preliminary design has been submitted to and reviewed by WAPA, coordinate and conduct an on-site review of the entire design, including underground utilities, areas of utilities conflict, areas where relocation of underground utilities will or may occur, locations of service connections, and other potential concerns.

5. Output

Provide electronically three (3) copies of plans and specifications and proposal documents and (1) electronic version for review upon completion of work in this phase. Also, please provide three (3) copies and (1) electronic version of the estimate for construction cost. Review plans shall be in an 11" x 17" sheet size, reduced as necessary from the original drawings. A graphic scale must be shown. Lettering must be legible at this size.

6. WAPA shall review and comment on design work within ten (10) working days.

A meeting with the Project Engineer may will be required to discuss review comments to minimize delays caused by misinterpretation. Design Firm shall incorporate requested changes in documents. Time used by the Authority to review plans will be in addition to the proposed time allowance.

COMPLETION OF FINAL DESIGN

Submit one hundred percent (100%) design completion; proposal documents, construction cost estimates, schedules, bid items list and specifications incorporating any revisions requested by WAPA for preliminary design. At this point of the design, the waterline layout should show all service connections, meter boxes, hydrants, etc. The plans should include detailed water details, general notes section, completed profiles and layouts, traffic plans and details, construction schedule and any special structures and all relevant information.

1. Final Review

Provide one (1) copy of plans (11"x17") and one (1) electronic copy of the specifications in Microsoft Word for review. Allow ten (10) working days for WAPA final review and comments.

2. WAPA shall review for completeness. Design Firm is required to correct any errors and resubmit within ten (10) working days.

3. Final Output

4. Final submission:

Three (3) hard copies 24" x 36", one (1) AutoCAD copy and one (1) PDF copy of the plans; and one (1) hard copy and one (1) electronic MS Word copy of the RFQ (Contractor Bid Documents); and three (3) hard copies and one (1) electronic copy of the estimate, schedules, etc.

PERMITTING

WAPA shall apply for all required construction permits. However, the Design Firm must research the permit requirements and submit drawings that are 'permissible'.

APPENDIX B

ADDENDUM NO.1 TO VIWAPA RFP PR-01-22



VIRGIN ISLANDS WATER & POWER AUTHORITY

PR-01-22

DESIGN OF BLACKBEARD'S HILL REPLACEMENT OF POTABLE WATERLINE

ADDENDUM I

1. The selected firm project schedule will be extended from 90 calendar days to 120 calendar days.
2. The selected firm will be responsible for conducting an "alta" survey for the pump station parcel. The selected firm will be required to procure and file all necessary documents for the survey and transfer of parcel from the VI Government to WAPA.
3. Under project information in the RFP it states "this project consists of the design for the installation of 1,300 ft of new 4 in. C-900 pipe", this should be 1,800 ft of new 4 in. C-900 pipe.