

Issue Analysis Form



Date: August 6, 2019
Awards of Contract for the
Blackwater Swamp
Wastewater Treatment Plant
(WWTP) Permitting and
Analysis

Item:

Lead Department(s): Engineering & Utilities

Contact Person(s): Frank Haltom, Director

Description and Current Status

A Request for Proposals (RFP #19-0103-1) was solicited on July 18 with an August 1, 2019 closing date. The solicitation was limited to the engineering firms that are currently servicing the County's Annual Engineering Services Contract.

The solicitation tasks the engineer to:

1. Prepare and submit the permit application and necessary supporting documentation as required to obtain a Virginia Pollutant Discharge Elimination System (VPDES) permit for a wastewater treatment facility;
2. Prepare a cost estimate of the wastewater treatment plant.
3. Optional task - determine the impact of heavy metals effluent generated by industrial wastewater will have on the permit requirements. This task will be completed only after discussions with the Virginia Department of Environmental Quality (VDEQ) determine if this will be required as a condition of the permit. This task may also be required by the County to project the current speculative limits and to estimate capacity available for future industries.

A copy of the solicitation and responses are attached for your information. Staff recommends award of these services to the lowest responsive and responsible bidder to complete Tasks 1 & 2. Task 3 is optional and will be completed only at the County's discretion.

A summary of responses for each project is shown below.

	DEWBERRY	DRAPER ADEN	RKK	TIMMONS	WW ASSOCIATES
TASK 1					
VPDES PERMIT APPLICATION	\$29,150.00	\$14,500.00	\$32,041.96	\$20,000.00	\$12,500.00
TASK 2					
COST ESTIMATES	\$2,500.00	\$5,500.00	\$15,022.64	\$2,000.00	\$4,500.00
TOTAL OF TASK 1 & 2	\$31,650.00	\$20,000.00	\$47,064.60	\$22,000.00	\$17,000.00
OPTIONAL TASK 3					
SPECULATIVE HEAVY METALS LIMIT ANALYSIS	\$18,290.00	\$4,500.00	\$3,500.00	\$8,000.00	\$9,000.00
TOTAL OF TASK 1, 2 AND 3	\$49,940.00	\$24,500.00	\$50,564.60	\$30,000.00	\$26,000.00

Does this require IDA action? Yes No

Does this require BZA action? Yes No

Does This require Planning Commission Action? Yes No

Does this require Board of Supervisors action? Yes No

Does this require a public hearing? Yes No

If so, before what date? Yes No

Board Action Requested:

A resolution to award the contracts of Permitting and Analysis for the Blackwater Swamp WWTP to WW Associates for \$26,000.

Fiscal Impact Statement

The appropriated budget within the CIP fund will cover the cost of these services and no additional appropriation is required.

County Impact

Award will allow for the permitting requirements for a wastewater treatment plant to discharge into the Blackwater Swamp.

Notes

Board of Supervisors
County of Prince George, Virginia

Resolution

At a regular meeting of the Board of Supervisors of the County of Prince George held in the Boardroom, Third Floor, County Administration Building, 6602 Courts Drive, Prince George, Virginia this 13th day of August, 2019.

Present:

Donald R. Hunter, Chairman
Floyd M. Brown, Jr., Vice-Chairman
Alan R. Carmichael
Marlene J. Waymack
T. J. Webb

Vote:

A-1

On motion of _____, which carried unanimously, the following Resolution was adopted:

RESOLUTION; AWARD OF CONTRACT FOR THE BLACKWATER SWAMP WASTEWATER TREATMENT PLANT PERMITTING AND ANALYSIS

WHEREAS, A request for proposals was solicited on July 18 with an August 1, 2019 closing date and the solicitation was limited to the engineering firms that are currently servicing the County's Annual Engineering Services Contract; and

WHEREAS, The solicitation tasks the engineer to prepare and submit the permit application, prepare a cost estimate of the wastewater treatment plant, and determine the impact of heavy metals effluent generated by industrial wastewater will have on the permit requirements; and

WHEREAS, Staff recommends award of these services to WW Associates, the lowest responsive and responsible bidder for \$26,000.

NOW, THEREFORE, BE IT RESOLVED That the Board of the Supervisors of the County of Prince George this 13th day of August, 2019, hereby awards the contract for the Blackwater Swamp Wastewater Treatment Plan Permitting and Analysis to WW Associates for \$26,000.

A Copy Teste:

Percy C. Ashcraft
County Administrator

FEE PROPOSAL SUMMARY

County of Prince George
RFP #19-1301-1
ENGINEERING SERVICES

**PROJECT:
PERMITTING AND ANALYSIS - BLACKWATER
SWAMP WWTP**

DEWBERRY DRAPER ADEN RKK TIMMONS W W ASSOCIATES

	DEWBERRY	DRAPER ADEN	RKK	TIMMONS	W W ASSOCIATES
TASK 1					
VPDES PERMIT APPLICATION	\$29,150.00	\$14,500.00	\$32,041.96	\$20,000.00	\$12,500.00
TASK 2					
COST ESTIMATES	\$2,500.00	\$5,500.00	\$15,022.64	\$2,000.00	\$4,500.00
TOTAL OF TASK 1 & 2	\$31,650.00	\$20,000.00	\$47,064.60	\$22,000.00	\$17,000.00

OPTIONAL TASK 3					
SPECULATIVE HEAVY METALS LIMIT ANALYSIS	\$18,290.00	\$4,500.00	\$3,500.00	\$8,000.00	\$9,000.00
TOTAL OF TASK 1, 2 AND 3	\$49,940.00	\$24,500.00	\$50,564.60	\$30,000.00	\$26,000.00



COUNTY OF PRINCE GEORGE

Finance Department

P.O. Box 68

Prince George, VA 23875

Phone (804) 722-8710 Fax (804) 732-1966

*Betsy Drewry
Director of Finance*

July 18, 2017

WW Associates, Inc.
P O Box 4119
Lynchburg, VA 24502
Herbert F. White, III, President

RE: Contract 19-0103-1 – Engineering Services

Dear Mr. White,

The Utilities Department is requesting your firm to submit a fee proposal to provide Permitting and Analysis for new Wastewater Treatment Plant.

Overview

A report was performed by Dewberry Engineers entitled “Southpoint Business Park Utilities Evaluation,” dated December 2018 to recommend options available to meet the future water and wastewater needs of Prince George County. The County is now evaluating the option to construct a wastewater treatment plant using the sequencing batch reactor process to discharge wastewater into the Blackwater Swamp, as recommended in the report. The purpose of this solicitation is to receive letters of interests from engineering consultants to perform on behalf of Prince George County all necessary requirements to obtain a VPDES permit from the Department of Environmental Quality to discharge up to 6 MGD and a peak discharge of 15 MGD into the Blackwater Swamp.

Task 1: VPDES Permit Application Preparation

The engineer shall prepare and submit the permit application and necessary supporting documentation as required to obtain a VPDES permit for a wastewater treatment facility. The scope of this task includes, but not be limited to, the following items:

1. Attend all necessary meetings with the County and/or Virginia Department of Environmental Quality (VDEQ) to review the proposed project and permitting process, to submit the application, and provide responses to VDEQ.
2. Review existing data, conduct research, and prepare supporting documentation for the preparation of the VPDES permit.
3. Complete a VPDES Permit application – the County shall provide the Permit Fee at the time an application is submitted.
4. Provide responses to satisfy all comments from VDEQ.
5. After comments have been received, prepare a presentation to inform the Prince George County Board of Supervisors of the requirements of the permit and advise them on the next steps and available options to proceed.
6. Attend up to two (2) additional meetings with County and/or VDEQ.

Task 2: Cost Estimate

The engineer shall prepare a cost estimate of the wastewater treatment plant. The estimate should be based on the conceptual layout provided in the report performed by Dewberry Engineers entitled "Southpoint Business Park Utilities Evaluation" along with known additions and/or revisions determined from discussions with VDEQ and the County Board of Supervisors.

Optional Task 3: Speculative Heavy Metals Limits Analysis

At the County's discretion, the engineer will determine the impact of heavy metals effluent generated by industrial wastewater will have on the permit requirements. This task will be completed only after discussions with VDEQ determine if this will be required as a condition of the permit. This task may also be required by the County to project the current speculative limits and to estimate capacity available for future industries.

The County anticipates issuance of the Notice to Proceed on August 14, 2019. The Consultant shall provide a schedule for the completion of each task associated with obtaining the VPDES permit.

Notice to Proceed: August 14, 2019

Complete Data Gathering/Review:

Submit initial VPDES permit application:

Receive DEQ Comments:

Advise Prince George County Board of Supervisors:

Revise VPDES permit application and resubmit:

Receive VPDES permit:

The response to this solicitation has a maximum page-limit of **FOUR** pages. If there are any changes affecting this solicitation, notice will be sent out.

In **four pages**, include the following information:

- Express your interest in the project and understanding of the work.
- Qualifications to do the work.
- Provide references for any projects referenced in response to the items above, as well as other business references from lenders, project tenants, cities/counties where your firm has been involved with this type of project.
- Identify the consultant Project Manager and other key team members
- Recount any information project or team experience that may be informative
- All pages are 8-1/2 X 11"

Please submit one (1) hard copy of your fee proposal pricing, plus one (1) digital USB, PDF version no later than 3:00 P.M. August 1, 2019 to:

Dawn M. Parent, VCA, VCO

Procurement Officer

6602 Courts Drive, 3rd Floor Finance, Prince George, VA 23875

804.722.8715

dparent@princegeorgecountyva.gov

Sincerely,

Frank Haltom, PE

Director of Engineering and Utilities



1001 Boulders Parkway
Suite 300
Richmond, VA 23225

P 804.200.6500
F 804.560.1016
www.timmons.com

August 1, 2019

Frank Haltom, PE, Director of Engineering and Utilities
Prince George County Engineering and Utilities Department
6602 Courts Drive
Prince George, VA 23875

RE: Contract 19-0103-1 – Engineering Services

Mr. Haltom,

Timmons Group is pleased to offer this fee proposal to provide Permitting and Analysis for a new Wastewater Treatment Plant (WWTP) in Prince George County. We look forward to working with you to achieve your vision for this project. Timmons Group has extensive experience providing Virginia Pollutant Discharge Elimination System (VPDES) permitting assistance and design of WWTPs in the Chowan River Basin. Recently, Timmons Group has completed three designs for the following WWTP expansions in the Chowan River Basin. Project description sheets are also attached.

- Greenville County Water & Sewer Authority's Three Creek WWTP, a 2.0 MGD (6.0 MGD peak flow capacity) Modified Ludzack Ettinger (MLE) biological treatment process with chemical phosphorus removal and tertiary filtration. The design incorporated measures for the stringent removal of metals. Permit limits for zinc and copper are 0.059 mg/L and 0.0063 mg/L, respectively.
- Southampton County Public Utilities' Courtland WWTP, a 1.25 MGD (3.75 MGD peak flow capacity) 5 Stage Bardenpho biological treatment process. Ultimate buildout capacity of 3.75 MGD average and 11.25 MGD peak flows.
- Sussex Service Authority's Black Swamp WWTP, a 1.6 MGD (4.8 MGD peak flow capacity) sequential batch reactors (SBR) biological treatment process.

Timmons Group is very familiar with what Virginia Department of Environmental Quality's (VDEQ) requirements and expectations would be in the course of permitting your WWTP discharge. We have the experience and ability to navigate your application through the permit process to successfully gain a VPDES surface water discharge permit for your future WWTP. We recommend working with VDEQ to obtain a permit with several flow tiers to allow flexibility in the operation of your future WWTP. The proposed Scope of Services are as outlined in the Request for Proposals from Prince George County.

I. FEE PROPOSAL

We propose to perform this work in accordance with the following fee schedule:

FIXED FEE

Task 1 – VPDES Permit Application Preparation	\$ 20,000
Task 2 – Cost Estimate	\$ 2,000
Optional Task 3 – Speculative Heavy Metals Analysis	\$ 8,000

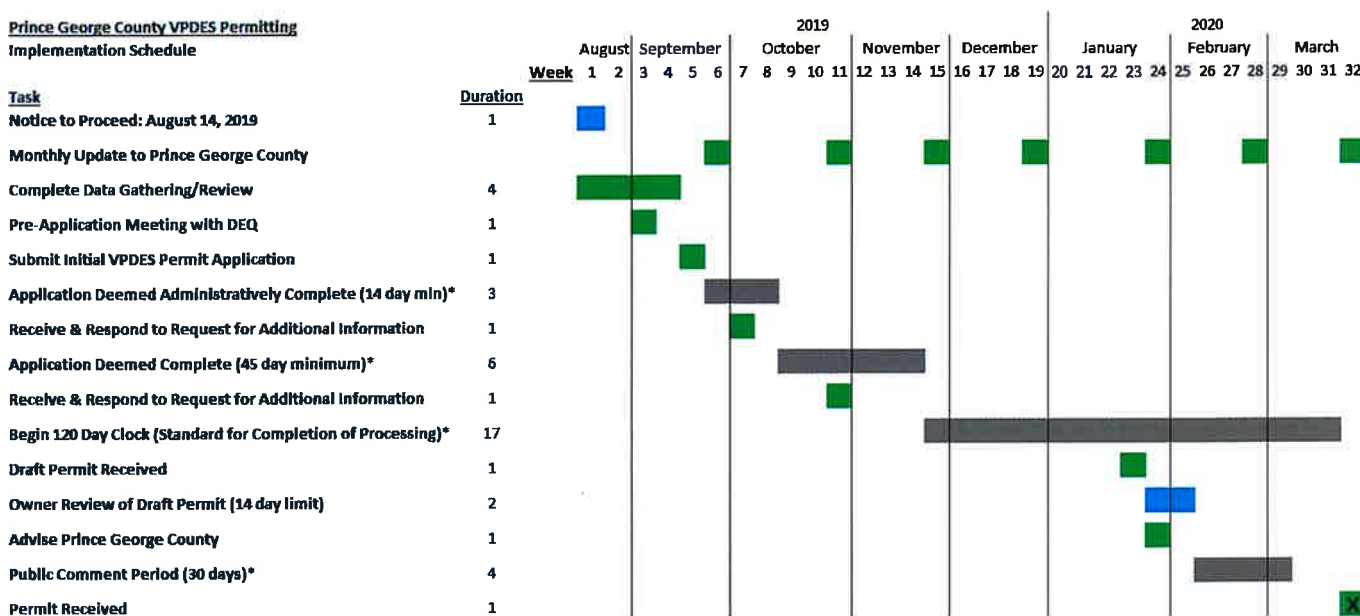
II. ASSUMPTIONS AND CLARIFICATIONS

1. All Permitting fees and Laboratory fees shall be the responsibility of the County.
2. Instream monitoring is sometimes incorporated into the VPDES permit Part I B as a Special Condition. It is unlikely this will be required as it is a means of reopening the permit for reevaluation at a later date, but any work related to instream monitoring for purposes of obtaining

- the permit is not included at this time. This includes water quality sampling, flow measurement, and any other stream assessment.
3. Development of a pretreatment program, while it may be determined during the permit process that one is required, is not included at this time as its development will occur after obtaining the permit. Part F of Form 2A will still be included in the permit application.
 4. It is not expected that a public hearing will be required by DEQ as part of the application process as it requires a minimum of 25 individual requests to be generated during the public comment period. However, if a public hearing is required, additional scope and fee will be necessary.
 5. The level of effort to secure the permit is based on anticipated permit limits of 10 mg/L cBOD5 (carbonaceous biochemical oxygen demand), 10 mg/L TSS (total suspended solids, and 3 mg/L TKN total Kjeldahl nitrogen), or limits for swamp and marsh waters.

III. ANTICIPATED SCHEDULE

A tentative schedule is presented below. Line items in green represent Timmons Group actions items, while line items in gray represent VDEQ action items. County action items are indicated in blue.



Note: * indicates standard application processing and/or review time as required and performed by VDEQ

Thank you once again for the opportunity to submit this proposal for this important project. Should you have any questions or need any additional information, please don't hesitate to contact me directly at 804-200-6385 or via email at wes.hunnius@timmons.com. Please refer to the attached Qualifications and Experience section for the project team resumes/bios and relevant example projects with references.

Sincerely,

Wesley Hunnius, P.E.
Principal – Water Infrastructure

Attachments: Qualifications and Experience (2 pages)

QUALIFICATIONS AND EXPERIENCE



Wesley Hunnius, PE, DBIA, ENV SP

Principal in Charge

Wesley has over twenty-one years of experience in the planning, design, bidding and construction administration of water and wastewater infrastructure projects. He has an established record of managing professional engineering service contracts that include the full range of task orders from planning and permitting to construction and implementation. With more than two decades working in Prince George County, Wesley will serve as the Principal in Charge on this project to ensure the County's goals and vision are met.



Matt Miller, PE, ENV SP

Project Manager

Matt is a valuable member of Timmons Group's Water and Wastewater Group. He has years of experience focused in water and wastewater process engineering. His project responsibilities have included WWTP design, WWTP PERs, WWTP process model evaluations, development of O&M manuals, and VPDES Permitting. His degrees in Mechanical Engineering (BS) from the University of Virginia (UVA) and Civil and Environmental Engineering (MEng) from Massachusetts Institute of Technology (MIT) are a perfect synthesis for WWTP design. Matt also has extensive knowledge with Envirosim's BioWin Wastewater Process Modeling Software.



David Saunders, PE, DBIA, QA/QC

David is a Principal in Timmons Group's Water and Wastewater Group and has almost four decades of experience in the permitting, planning, design and construction administration of major water and wastewater treatment facilities and associated

distribution, storage, pumping and collection systems. He will play an important role of QA/QC, confirmation of plant/discharge siting, and preparation of cost estimates. David was the Principal in Charge of both the Three Creek and Black Swamp projects listed below.



Bruce Strickland, PE

Project Engineer

Bruce has successfully managed planning and design teams for numerous wastewater projects including wastewater collection systems, pump stations, and most recently has focused on preliminary engineering reports for expansion and replacement of multiple WWTPs. Bruce has seven years of experience in the industry and has worked on several projects in Prince George County over that time. Bruce is well versed in navigating projects through the regulatory environment and then managing construction activities once all permits are in place. He is also active in professional organizations and currently serves as the state Chair for the VWEA/AWWA Young Professionals Committee.

Three Creek Wastewater Treatment Plant Upgrades and Expansion, Greensville County, VA

Glen Gibson, Utility Projects Coordinator | ggibson.wsa@greensvillecountyva.gov | 434.348.4245

Timmons Group assisted the Greensville County Water and Sewer Authority with engineering services for the Three Creek Wastewater Treatment Plant. In tandem with the Timmons Group Economic Services division, we collaborated efforts to aid in the planning and ultimate expansion of the Authority's utility services to effectively serve a site to be developed for a future industrial user. This strategic utility planning included an upgrade design for the treatment facility from a 0.75 to a 2.0 MGD average treatment capacity, with a peak flow capacity of 6.0 MGD. The 2.0 MGD facility required nutrient removal measures, as well as design considerations for the continued stringent removal of metals. The proposed design will employ a Modified Ludzack Ettinger (MLE) biological treatment process with chemical phosphorus removal and tertiary filtration.

Timmons Group worked closely with the Authority to evaluate both reliably effective and operationally feasible technologies to meet these anticipated metals discharge limits. Timmons Group has also worked to determine effective methods for either incremental upgrades, or effective repurposing, of the majority of the existing infrastructure in order to keep construction costs minimized.

Permitting: Timmons Group successfully renewed the VPDES permit for this facility and negotiated permit limits according to tiered flows with Virginia DEQ. This will enable the facility to operate with enhanced flexibility as the expansion occurs to the facility and as flows to the facility increase. The flow tiers are 0.75 MGD, 0.99 MGD, and 2.0 MGD. Total phosphorus discharge limits will come into effect with the issuance of the 0.99 MGD tier.

QUALIFICATIONS AND EXPERIENCE

Courtland Water Reclamation Facility, Southampton County, VA

Mike Johnson, County Administrator | mikejohnson@co.southampton.state.va.us | 757.653.3015

Timmons Group teamed with Mid-Eastern Builders to construct this \$30 million project using Virginia's Public Private Education & Infrastructure Act (PPEA) process. The previous 0.303 MGD wastewater treatment facility was replaced with a state-of-the-art 1.25 MGD biological nutrient removal (BNR) facility, which also included tertiary treatment, UV disinfection, aerobic digestion to meet Class B biosolids criteria, a solids dewatering facility that utilizes a centrifuge for minimization of sludge hauling costs, and a fully integrated SCADA system. Since the replacement, the staff has realized a more reliable operation, and has easily met monthly discharge permit parameters. The new facility is designed for mirroring and ease of upgrade in 1.25 MGD increments, for an ultimate future average treatment capacity of 3.75 MGD, with a peak flow capacity of 11.25 MGD.

Permitting: Timmons Group assisted Southampton County with the VPDES permitting process for this facility's expansion. A tiered flow set of permit limits were successfully negotiated with Virginia DEQ. This will enable the facility to operate with enhanced flexibility as the expansion occurs to the facility and as flows to the facility increase. The flow tiers are 0.303 MGD, 0.99 MGD, and 2.5 MGD. The total phosphorus and total nitrogen discharge limits did not come into effect until the issuance of the 2.5 MGD tier.



Black Swamp Wastewater Treatment Facility Upgrade, Sussex County, VA

Mike Kearns, Deputy Director/Engineer at Sussex Service Authority | mkearns@ssa-va.org | 804.834.6903

Black Swamp WWTP is a 0.6 MGD activated sludge secondary wastewater treatment facility. The purpose of the WWTP expansion was to provide for the 20-yr service needs of this region of the SSA service area. The Sussex Service Authority provides water and wastewater utility services to the Towns of Waverly, Wakefield, Stony Creek, and surrounding unincorporated areas of Sussex County, Virginia.

Timmons Group assisted Sussex County secure a \$500K grant from the Virginia Tobacco Commission for the design of the proposed upgrades to the Black Swamp WWTP. Timmons Group prepared the design for upgrading the facility from a 0.6 MGD facility to a 1.6 MGD Sequential Batch Reactor (SBR) biological process treatment facility, with a peak flow capacity of 4.8 MGD. The project includes replacement of existing headworks equipment, modifications to the influent lift station, conversion of the existing flow equalization basin to one of three, (two new) SBRs. Conversion of the existing clarifiers to post flow equalization, modifications to the chlorine contact chamber and chlorine feed systems and modifications to the post aeration chamber.

Permitting: Timmons Group successfully renewed the VPDES permit for this facility and negotiated permit limits according to tiered flows with Virginia DEQ. This will enable the facility to operate with enhanced flexibility as the expansion occurs to the facility and as flows to the facility increase. The flow tiers are 0.60 MGD, 0.99 MGD, and 1.6 MGD. No total phosphorus discharge limits are placed on this WWTP.



CONTRACT 19-0103-1

PERMITTING AND ANALYSIS FOR NEW WASTEWATER TREATMENT PLANT

County of Prince George, VA

AUGUST 1, 2019



SUBMITTED BY

Dewberry Engineers Inc.
4805 Lake Brook Drive, Suite 200
Glen Allen, VA 23260
804.205.3342

SUBMITTED TO

Dawn M. Parent, VCA, VCO
County of Prince George
6602 Courts Drive, 3rd Floor Finance,
Prince George, VA 23875

PERMITTING AND ANALYSIS FOR NEW WASTEWATER TREATMENT PLANT, COUNTY OF PRINCE GEORGE, VA

Understanding of the Work

Dewberry has an unparalleled understanding of the proposed Prince George County (County) wastewater treatment plant (WWTP) through our work with the County on the Southpoint Business Park Utilities Evaluation. In the process of creating the Water and Wastewater Master Plan, we collaborated and partnered with the Planning, Engineering and Utilities, and Economic Development Departments. We are familiar with each department's goals for the direction in which the County is heading. In addition, we have attended and presented at numerous Board of Supervisors meetings, which has allowed us to gain a strong understanding of the current political climate. We have also already discussed this potential permit with the Virginia Department of Environmental Quality (VDEQ) and understand their concerns and requirements.

There will be some unique challenges to this permit, which Dewberry is uniquely qualified to address. The proposed WWTP will be outside of the Chesapeake Bay Watershed, which eliminates the requirement for nutrient removal; however, there are other challenges associated with the plant permitting mainly due to the potential service area (significant industrial component) and the proposed outfall location: a swamp.

Since the proposed WWTP will discharge to a swamp, mixing zones will not be allowed in calculating the effluent limits for heavy metals. Potential heavy metals limits will be an important consideration in the design and operation of the proposed WWTP and in the development of an industrial pretreatment program. As part of the permitting task, it will be important to conduct a speculative heavy metals limits analysis to estimate potential triggers for numerical heavy metals limits in the future.

In order for the proposed WWTP to be successful, it is critical to permit and design the WWTP to handle the industrial constituents of the service area. The County wants to continue to attract industry, which is one of the main drivers for the WWTP; the WWTP and pretreatment limits need to be permitted and structured to support that goal. Dewberry is uniquely qualified to work with the County to successfully permit, plan, and ultimately design a WWTP that meets the County's goals of attracting additional industrial development within the Southpoint Business Park and allow for additional growth within the County's development area.

Qualifications

Dewberry has a strong municipal and industrial treatment team, which will allow us to address both the municipal and industrial components of this permitting process. Our industrial treatment capabilities will be key to achieve the County's objectives for the proposed WWTP.

Dewberry Overview

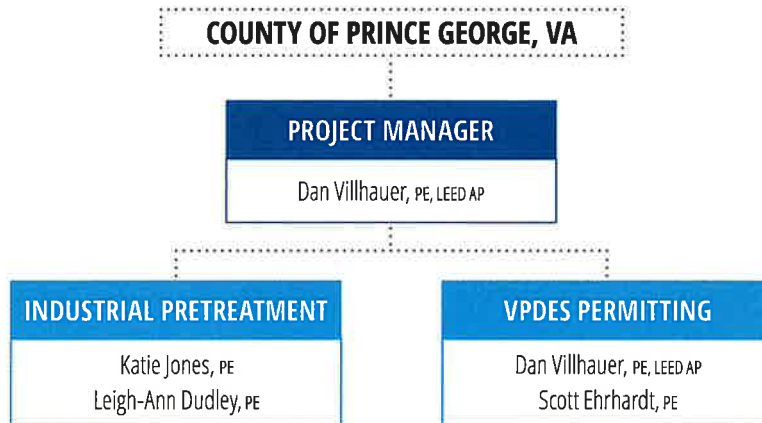
Dewberry is a leading, market-facing firm with a proven history of providing a variety of water and wastewater engineering services. Recognized for combining unsurpassed commitment to client service with deep subject matter expertise, Dewberry is dedicated to solving clients' most complex challenges and transforming their communities. Established in 1956, Dewberry has more than 50 locations and over 2,000 professionals nationwide.

Depth of Treatment Plant Expertise

Dewberry has been providing engineering services for water and wastewater treatment facilities for decades. Our extensive experience includes the design of the first ceramic membrane facility in the United States as part of an indirect potable reuse project. We have an in-house treatability laboratory that supports our process design and evaluation work and verifies the end product will work as planned and designed. Our services include:

- Pretreatment program management
- NPDES permit application packages and permit terms and condition regulatory negotiation
- Reuse water
- Generators
- Power distribution
- SCADA
- Energy conservation efforts
- Bench scale and pilot studies
- Process modeling
- Hydraulic analysis
- Process optimization
- Facility planning
- Equipment evaluation
- Equipment selection and procurement
- Full scale design and construction administration

Key Personnel



Dan Villhauer, PE, LEED AP
PROJECT MANAGER / VPDES PERMITTING

14

years of experience

Registrations
Professional Engineer
LEED Accredited Professional

Dan has extensive experience managing wastewater facility projects throughout Virginia. He excels at providing responsive service and engineering design solutions that meet his clients' goals. His areas of expertise include planning, evaluation, and rehabilitation and/or replacement design of water/wastewater system infrastructure, treatment, pump stations, tanks, and master planning.



Katie Jones, PE
INDUSTRIAL PRETREATMENT

15

years of experience

Registrations
Professional Engineer

Katie is a subject matter expert in wastewater process study and design. She provides life cycle services to clients from concept, permitting, and design, to startup, operation, and optimization. Her areas of technical expertise include WWTP design, WWTP evaluation, optimization, operation, biological wastewater treatment, physical chemical wastewater treatment, water reuse and conservation, water quality permitting, and regulatory plan development.



Scott Ehrhardt, PE
VPDES PERMITTING

35

years of experience

Registrations
Professional Engineer

Scott has extensive experience in operations and design of water and wastewater treatment facilities. He has served as project manager for the design of new and rehabilitation of over 30 small and large water and wastewater treatment facilities. Operational experience at numerous water and wastewater facilities, coupled with design experience, provides him with a unique holistic perspective of troubleshooting, design, operations of biological and physical processes, and process optimization.



Leigh-Ann Dudley, PE
INDUSTRIAL PRETREATMENT

9

years of experience

Registrations
Professional Engineer

Leigh-Ann's technical expertise is predominately physical/chemical treatment processes such as coagulation/flocculation, activated carbon adsorption, and ion exchange. Her work includes treatment plant process evaluations and troubleshooting, bench and pilot scale treatability studies, concept level design, land-based treatment systems, and regulatory negotiation/permitting.

Project Experience

Project References

Louisa County Water Authority

Wesley Basore
Wastewater Operations Manager
wbasore@louisa.org
540.894.3807

Goochland County

Matt Longshore, PE
Director of Public Utilities
mlongshore@goochlandva.us
804.556.5835

Hanover County

David Van Gelder
Chief of Operations & Maintenance
dfvangelder@hanovercounty.gov
804.365.6235



2000⁺ Employees
Nationwide



50⁺ Dewberry Office
Locations in 18 States



60⁺ Years Helping Clients
Shape Their Communities



2019 ENR Southeast Design
Firm of the Year



#2 ENR Top Design Firm
in Virginia (2019)

Louisa County Water Authority

WWTP Expansion, Zion Crossroads, VA

Dewberry prepared a preliminary engineering report, completed permitting, and provided engineering services for the design and construction administration for the expansion of the existing WWTP from 0.10 MGD to a Limit of Technology (LOT) Enhanced Nutrient Removal (ENR) 0.70 MGD WWTP. The plant was designed to meet Total Nitrogen (TN) and Total Phosphorus (TP) limits of 3.0 mg/L and 0.3 mg/L, respectively.

The project included an upgrade of the influent lift station, conversion of the existing SBR reactor to aerobic digesters, and the addition of a new grit chamber, equalization basin/pump station, a 5-Stage Bardenpho biological reactor, secondary clarifiers, tertiary filters, chemical feed facility, UV disinfection basin, post aeration basin, effluent pump station, and biosolids dewatering facility. The plant was also designed to meet Level 1 reclaimed water standards and a County-wide reclaimed water system was developed as part of this project.



Regional WWTP Expansion, Louisa, VA

Dewberry prepared a preliminary engineering report and provided engineering services for the design and construction administration for the expansion of the existing extended aeration WWTP from 0.40 MGD to a biological nutrient removal (BNR) 0.80 MGD WWTP with an A2O (Anaerobic/Anoxic/ Aerobic) process. It was designed to meet TN and TP limits of 8.0 mg/L and 1.0 mg/L, respectively.

The BNR upgrade included the modification of the existing aeration basins for dissolved oxygen (DO) control, through the addition of variable frequency drives (VFDs) and DO probes. A new internal recycle pump station was constructed to recycle nitrates from the aerobic zone to a new pre-anoxic basin. An anoxic swing zone was also included to allow the plant additional flexibility for DO control. Other project components included an upgraded influent lift station and screening and the addition of a grit chamber, a secondary clarifier, tertiary filters, UV disinfection chamber, and biosolids dewatering facility with a 2 M belt press. Funding for the project was obtained from a Water Quality Improvement Fund (WQIF) grant from the Virginia Department of Environmental Quality (VDEQ) and a low interest loan from USDA Rural Development.



Industrial Pretreatment and Strong Waste Program Development, Louisa County, VA

Dewberry prepared industrial local limits evaluation in support of an industrial pretreatment program in the Zion Crossroads and Town of Louisa service areas. This ensured that both WWTPs were able to meet their VPDES discharge limits with industrial discharges to the sewer collection system. Dewberry also completed bench scale testing to assist the Louisa County Water Authority in evaluating if local limits could be adjusted for their largest industrial client to allow for compliance with their industrial pretreatment permit.

Goochland County

Industrial Pretreatment Program Development, Goochland County, VA

Dewberry performed a review and evaluation of Goochland County's (County) current interjurisdictional agreements to provide recommendations for the development of industrial pretreatment programs in order to meet VPDES permit requirements. A cross-comparison matrix of the applicable Federal regulations, Virginia regulations and local sewer use ordinances (SUO) as well as the Region 3 EPA Model Pretreatment Ordinance was developed to provide recommendations to improve the County's codified legal authority. A local limits evaluation was also completed as part of the analysis to ensure compliance with the VPDES discharge limitations. The strong waste program development included a benchmarking of local SUOs to update the County's code to establish legal authority, establishment of nutrient discharge thresholds for commercial customers, and preparation of a surcharge structure.

Goochland Courthouse WWTP Expansion PER, Goochland County, VA

Dewberry prepared a preliminary engineering report to evaluate incrementally expanding the existing 0.3 MGD Sequencing Batch Reactor WWTP to 1.2 MGD to serve the projected Courthouse wastewater flows through 2045. This included an evaluation of not only hydraulic capacity but also the addition of nutrient removal capabilities as it is anticipated that a plant capable of enhanced nutrient removal will be required at the 1.2 MGD capacity.

Hanover County

Hanover County WWTP Upgrades, Hanover County, VA

Dewberry has worked with Hanover County for over 20 years at all four of their wastewater treatment plants. This work has included permitting, evaluations, and the preparation of design plans. Projects have included headworks upgrades, process evaluations, biosolids improvements, clarifier rehabilitation, UV disinfection systems, pumping improvements, and blower system upgrades. For each of these projects Dewberry has provided full service engineering including permitting, evaluation, design, and construction administration services.

Estimated Schedule

ESTIMATED SCHEDULE	
PHASE	DATE
Notice to Proceed	August 14, 2019
Complete Data Gathering/Review	October 14, 2019
Submit initial VPDES permit application	November 14, 2019
Receive DEQ Comments	March 14, 2020
Advise Prince George County Board of Supervisors	March 31, 2020
Revise VPDES permit application and resubmit	April 14, 2020
Receive VPDES permit	November 1, 2020

Fee

Dewberry proposes to complete the scope of work contained in the RFP for the following lump sum fees:

PROPOSED FEE	
TASK	FEE
Task 1 - VPDES Permit Application Preparation	\$29,150
Task 2 - Cost Estimate	\$2,500
Optional Task 3 – Speculative Heavy Metals Limits Analysis	\$18,290



 **Dewberry**

www.dewberry.com



1030 Wilmer Avenue, Suite 100
Richmond, Virginia 23227
804.264.2228
www.daa.com

August 1, 2019

Mr. Frank Haltom, P.E.
Director of Engineering & Utilities
County of Prince George
P.O. Box 68
Prince George, Virginia 23875

**Re: Contract 19-0103-1 – Engineering Services
DAA Proposal No. 19020446-010602**

Dear Mr. Haltom:

Draper Aden Associates (DAA) appreciates the opportunity to submit the following scope of services and fee proposal to the County of Prince George (the County) for the tasks associated with providing permitting and analysis for a new wastewater treatment plant.

I. PROJECT UNDERSTANDING AND APPROACH

Task 1 VPDES Permit Application

DAA will prepare a VPDES permit application for the proposed Prince George County Wastewater Treatment Plant (WWTP). The Southpoint Business Park Utilities will include a mixture of domestic and industrial sewer discharges to the proposed WWTP. As part of our services, DAA will conduct an extensive research including a site visit and desktop review from available resources to determine potential effluent limitations at the WWTP. DAA will interview (via phone calls) other WWTPs in Virginia receiving similar comingled sanitary and industrial waste streams. It may be beneficial to submit Freedom of Information Act (FOIA) requests of their VPDES permits and fact sheets to better understand computational and regulatory reasoning for their effluent limitations. DAA will organize a meeting between the County officials and Virginia Department of Environmental Quality (VDEQ) representatives to discuss the following items:

- Present and discuss research results and other factors that may potentially influence numerical effluent limitations at the WWTP
- Request a copy of the Reasonable Potential Analysis (RPA) workbook that the State uses in determining effluent limits at a proposed discharge location. If the State refuses to share a copy of their RPA workbook, DAA can explore the option to submit a FOIA request to obtain a copy of their documented RPA computational technique. DAA can use this technique to estimate potential effluent limitations for the proposed Outfall at the WWTP.

With this information, DAA will prepare and submit the VPDES permit application forms to VDEQ. DAA will coordinate with VDEQ during application preparation and review process to expedite issuance of the VPDES permit. Once the VPDES permit is issued, DAA will organize a presentation for

the County officials to educate about the proposed effluent limits and other regulatory and monitoring requirements that may be part of the issued permit.

Task 2: Cost Estimate

The Southpoint Business Park Utilities Evaluation (SBPUE) Report recommends the use of Sequencing Batch Reactor (SBR) for treating conventional pollutants (BOD5, TSS, Fecal Coliform, pH) before the effluent is discharged into Blackwater Swamp. This treatment technology was chosen after comparing its advantages over the two other proposed treatment options (Flow through and Oxidation ditch). Before developing cost estimate of this (WWTP), DAA would like to request approval from the County to evaluate feasibility of another treatment option, membrane bioreactor, which has not been documented in SBPUE report. Per preliminary research, MBR requires a smaller foot print and is more efficient in removing heavy metals compared to an SBR treatment process. Thereafter, DAA will prepare and submit a detailed cost estimate of the selected treatment option that will be cost effective and efficient to maintain compliance with regulated parameters in the permit. DAA will also submit a plan/ conceptual layout of this selected treatment technology to VDEQ for review. The final cost estimate of the WWTP may be revised per recommendations from the County officials and VDEQ.

Task 3 Speculative Heavy Metals Analysis (Optional)

As an additional service, Draper Aden Associates can complete an analysis for additional heavy metals. The SBPUE report recommends the County to develop a stringent Pretreatment Program for Significant Industrial (SI) users planning to discharge their wastewater into the proposed County owned WWTP. This measure will necessitate SI users to maintain compliance with these established pretreatment standards. These pollutant standards will assist the WWTP to comply with the regulatory requirements as will be stated in the issued permit. However, if DAA and the County anticipate that a SI user has the potential to impact regulated effluent limits at the WWTP, DAA will undertake the following actions:

- Meet with VDEQ officials to better understand the impacts of such an SI user on the established effluent limitations at the WWTP Outfall.
- DAA will also assist the County in computing RPA for metals and any other pollutants that may added to the existing permit as a result of receiving any new industrial waste stream. Before the permit is reopened for major modification, DAA will inform the County of various potential changes in the issued permit due to the presence of metals in the effluent stream.
- Though not included in the scope of work for this project, DAA will be available to assist the County with major modification of the existing permit, if required to address addition of new high pollutant discharging sources. DAA may coordinate with VDEQ to request for compliance monitoring schedule for the revised list of regulated pollutants. This will enable the County to address these pollutants of concern in a timely manner.

II. DAA's PROJECT TEAM

DAA's project team includes experienced process and permitting experts. Our proposed project manager Aziz Ahmed, PE has 23 plus years of experience in water and wastewater treatment planning, process and detailed design. Our Permitting and Process Technical Leader Dr. Andy Dastidar, previously worked for a state regulatory agency and has nearly 10 years of extensive permitting experience in wastewater process (see individual experience under Qualifications). DAA's team also includes Andy Snyder, PE (44 Years of experience) and Tyrus Clayton, PE (19 years of experience). Aziz and Dr. Dastidar will pull together a team of additional engineers, scientists and cost estimators from our 350 plus strong resource pool of engineers and scientists to efficiently execute the project in-house.

III. FEES

The proposed fees for the above-described services are listed in the table below.

Task	Description	Fee
1.	VPDES Permit Application	\$14,500
2.	Cost Estimates	\$5,500
3.	Speculative Heavy Metals Limit Analysis (Optional Task)	\$4,500
	Total Including Optional Task	\$24,500
	Total Excluding Optional Task	\$20,000

IV. REPRESENTATIVE EXPERIENCE / QUALIFICATIONS

Representative DAA Project Experience

WWTP and Collection/Conveyance System Preliminary Engineering Report, Exmore, Virginia

Reference: Taylor Dukes, Utilities Director/Zoning Administrator;
Phone: (757) 607-7188; email: tdukes@exmore.org

As a result of a Consent Order issued by the Virginia Department of Health, DAA has recently completed a Preliminary Engineering Report where we reviewed and analyzed the existing 60,000 gpd SBR WWTP and effluent dispersal field with respect to current treatment efficiency and expansion options. The PER was funded in part by Rural Development (RD), an agency of the United States Department of Agriculture (USDA) and DAA coordinated all funding compliance requirements.

Hopyard, Oakland Park and Parkins Corner WWTP Feasibility Study, King George County Service Authority, King George, Virginia

Reference: Jonathon Weakley, General Manager;
Phone: (540) 775-2746; email: jweakley@co.kinggeorge.state.va.us

Mr. Frank Haltom
August 1, 2019
Page 4 of 4

DAA conducted a detailed feasibility study to decommission two existing WWTP and divert the flows to the Hopyard WWTP. Infrastructure upgrade needs, treatment modification and impact on permitting needs were analyzed to develop detailed costs to help the King George County Service Authority (KGCSA) in making a smart decision.

Town of Maysville WWTP Improvements, Maysville, North Carolina

Reference: Schumata Brown, Town Manager;
Phone: (910) 743-4441; e-mail: townmanager@bizec.rr.com

DAA evaluated the 40+ year old facility, and identified several upgrades and improvements needs such as new equalization tanks, a retrofit to the tertiary filter, upgrade/expansion of the disinfection system and various other site improvements. A Preliminary Engineering Report was generated which was utilized to gain a USDA Rural Development grant and low interest loan funding for the proposed improvements.

Selective Individual Experience of Dr. Andy Dastidar

Kentucky Department of Environmental Protection, Various, Kentucky

November 2010-July 2015

Dr. Dastidar reviewed and issue Kentucky Pollutant Discharge Elimination System (KPDES) permits for wastewater discharges from major industrial operations; Determined effluent requirements for point source discharges using a combination of State Regulations, Federal Effluent Guidelines, and Waste Load Allocation Model Analysis; Performed in-depth data analysis to determine the need for effluent limitations at the discharge location.

Polynt Composites USA Inc., VPDES Renewal Application, Chatham, Virginia

August 2016-2019

Dr. Dastidar prepared the waiver letter to request for exemptions from sampling some of the specific pollutants on the USEPA NPDES forms as part of the renewal application package.

We look forward to working with Prince George County for the development of a new waste water treatment plant facility. Please contact either of the undersigned at 804-264-2228 should you wish to discuss our proposal in further detail.

DRAPER ADEN ASSOCIATES



Timothy K. Dean, P.E., L.S.I.T.
Principal, Vice President



Aziz Ahmed, P.E., ENV-SP
Utilities Team Leader



July 29, 2019

Ms. Dawn M. Parent, VCA, VCO
Procurement Officer
Prince George County
6602 Courts Drive, 3rd Floor Finance
Prince George, VA 23875

Re: Permitting and Analysis – Blackwater Swamp WWTP

Dear Ms. Parent:

We are pleased to submit this engineering fee proposal to assist the County in obtaining a VPDES permit for the proposed Blackwater Swamp Wastewater Treatment Plant. This application will be in general accord with the Preliminary Engineering Report, entitled *Southpoint Business Park Utilities Evaluation* and your Request for Proposal dated July 18, 2019, Contract 19-0103-1- Engineering Services.

Task 1: VPDES Permit Application Preparation

The VPDES permit application will include the initial permit preparation with supporting graphics. We propose to submit the application for an initial phase of flow of 2.0 MGD, with future flow tiers of 4.0 MGD and 6.0 MGD. This permit will therefore be in the “Major Permit” category. We also propose to attend all necessary meetings with project stakeholders, and attend the DEQ public hearing associated with this application. We propose to provide for all the tasks (Items 1-6) listed in the RFP.

Task 2: Cost Estimate

We propose to provide a project cost estimate for the WWTP based on the Preliminary Engineering Report along with known additions and/or revisions determined from discussions with VDEQ and the County Board of Supervisors.

Optional Task 3: Speculative Heavy Metals Limits Analysis

This optional task will determine the impact of heavy metals effluent generated by industrial wastewater will have on the VPDES permit requirements. This task may also be required by the County to project the current speculative limits and to estimate capacity available for future industries.

P.O. Box 4119 ■ Lynchburg, VA 24502
Telephone (434) 316-6080 ■ Fax (434) 984-2700

Lynchburg ■ Charlottesville
Page 1 of 4

We offer the following proposed schedule for the project:

<u>Description</u>	<u>Start Date</u>	<u>Completion Date</u>
NTP	8.14.19	--
Complete Data Gathering/Review	8.14.19	9.13.19
Submit Application	8.14.19	10.9.19
Receive DEQ Comments	10.9.19	2.28.20
Advise Board of Supervisors	---	3.10.20
Revise and Resubmit	2.28.20	3.25.20
Receive VPDES Permit	3.25.20	5.15.20

We propose to provide the engineering services as described above in accordance with the following fee schedule:

<u>Task</u>	<u>Lump Sum Fee</u>
Task No. 1	\$ 12,500
Task No. 2	\$ 4,500
Optional Task No. 3	\$ 9,000

Invoicing for services will be on a monthly basis based on our estimate of percent completion. Payment for these services will be within 30 calendar days from the time the bill is issued by WW Associates, Inc. We are available to proceed immediately with this project! We appreciate the opportunity to be of service to you and look forward to a successful completion of this project.

Additional qualification information is included in this proposal. Further qualification information is included in our Engineering Service proposal, dated February 7, 2019 for reference. Should this proposal be deemed acceptable, please issue a purchase order which will be considered our Notice to Proceed.

Sincerely,

WW Associates, Inc.



Herbert F. White, III, P.E.
President

P.O. Box 4119 ■ Lynchburg, VA 24502
Telephone (434) 316-6080 ■ Fax (434) 984-2700

Lynchburg ■ Charlottesville
Page 2 of 4



WW Associates will provide the County of Prince George with a responsive and highly motivated professional team encompassing a wide range of engineering, surveying, and planning expertise. WW Associates has the staff resources to provide the County with a prompt response to this project.

Key personnel for this project are proposed as follows:

<u>Name</u>	<u>Project Position</u>
Herbert F. White III, P.E.	Project Manager
Karen S. Austin	VPDES Permit Specialist

Herb has over 30 years' experience in the planning, design, project management, and construction on wastewater treatment plant projects. He has applied for, and negotiated, VPDES permits and consent orders for numerous facilities.

We propose that Karen Austin will be the professional assigned to applying for the VPDES permit. Karen brings over 25 years of professional experience to this project, including 8 years as a VPDES permit writer for the Virginia Department of Environmental Quality.

Our VPDES permit experience includes:

<u>Facility</u>	<u>Contact Information</u>
South Central Wastewater Authority	Robert T. Wichser, PhD, PE, BCEE 804-590-1145
Rapidan Wastewater Treatment Authority	Tracey Morris, Director of Finance Greene County 434-985-5201
Town of Elkton WWTP	Troy Shifflett, Public Works Director 540-298-1330
Town of Amherst WWTP	Sarah Carter, Town Manager 434-946-7885
Town of Washington WWTP	Laura Dodd, Town Clerk 540-675-3128



Education:

M.S. Civil (Environmental)
Engineering – 1979
Virginia Polytechnic Institute
and State University

B.S. Civil Engineering –1976
Virginia Military Institute

Professional Registration:

Professional Engineer
Virginia – 1980 – #12257
Maryland #25121
North Carolina #37053
West Virginia #19711
Pennsylvania #080277

Professional Association:

Water Environment Federation,
American Water Works Assoc.,
Virginia Water and Waste
Authorities Association,
Virginia Nutrient Credit
Exchange Association,
Virginia Municipal League

Education:

M.S. Environmental
Engineering 1993
Virginia Polytechnic Institute
and State University

M.S. Public Health 1986
University of North Carolina,
Chapel Hill

B.S. Biology 1985
Virginia Polytechnic Institute
and State University

Paralegal Certificate 2013
James Madison University

KEY INDIVIDUAL EXPERIENCE

HERBERT F. WHITE III, P.E. – PROJECT MANAGER

Herb has over 30 years of experience in planning, design, project management, and construction of civil engineering projects. He has spent the majority of his career in the water and wastewater industry where he is a known expert. Herb's expertise includes wastewater treatment facilities, wastewater collection systems, wastewater pump stations and force mains, and planning assessments. He has successfully completed numerous wastewater treatment facility designs, sewer system and pump station designs, utility master plans, capacity studies, and sewer rehabilitation action plans and designs.

Herb has assisted municipalities and service authorities on projects involving planning, design, construction, funding, annual maintenance inspections, preparation of capital improvement plans, economic analyses and bond issues. He is well versed in regulatory issues and has presented to Boards of Supervisors, Town Councils, residential and business groups, as well as Departments of State.

South Central Wastewater Authority, Petersburg, VA

- Consultant of Record / Term Contract
- Wastewater Treatment Plant Improvements (Phase 1)
- Wastewater Treatment Plant Improvements (Phase 2)
- Petersburg Wastewater Treatment Plant Upgrade Priority I (SCWWA)

Greene County, VA

- Rapidan Wastewater Treatment Plant

Town of Elkton, VA

- Wastewater Treatment Plant and System Improvements

Town of Washington, VA

- Wastewater Treatment Facilities Design and Construction

Town of Amherst, VA

- Wastewater Treatment Plant & Sanitary Sewer Rehabilitation/Improvements

Culpeper County, VA

- Airpark Site Plan and WWTP Improvements

Town of Culpeper VA

- Wastewater Treatment Plant Headworks Improvements

KAREN S. AUSTIN – VPDES PERMIT SPECIALIST

Karen brings over 25 years of professional experience including 12 years as the Executive Director of Rockbridge County Public Service Authority, 8 years with DEQ as an environmental engineer, and 2 years as an environmental specialist/manager with VDH.

Town of Elkton, VA

- Wastewater Treatment Plant Improvements
- VPDES Permit Application

Town of Amherst, VA

- Wastewater Treatment Plant Improvements
- VPDES Permit Application

Town of Woodstock

- VPDES Permit Application

Rockbridge County Public Service Authority (RCPSA) – Lexington, VA

- Executive Director for 12 years –Negotiated, managed and administered construction contracts from \$1M to \$14M: Administered water and wastewater projects handling permitting, financing, design, easements, and construction administration, including \$14.6M, 20-mile sewer project with 3 pump stations.

Department of Environmental Quality – Roanoke, VA

- Environmental Engineer for 7 years – Issued wastewater VPDES discharge permits, inspected wastewater and water treatment plants for compliance with permits, reviewed plans, specifications and operating manuals.

SUMMARY OF QUALIFICATIONS

Dear Ms. Parent,

In response to your letter requesting a fee proposal dated July 18, 2019 (Mr. Haltom’s letter), **Rummel, Klepper & Kahl, LLP (RK&K)** is pleased to submit our proposal to the Prince George County Utilities Department (County) for engineering services for permitting and analysis of a new wastewater treatment plant (WWTP) with the proposed discharge into the Blackwater Swamp. We have assembled a team of experienced staff and are very interested in your project and excited to work for the County. Our proposal includes 1) our understanding of your project, 2) key team members and qualifications, 3) project experience and relevant information, 4) proposed schedule and 5) RK&K’s fee and basis of fee.

Our project understanding comes from the review of 1) Mr. Haltom’s letter requesting services under Contract 19-0103-1, 2) the report Southpoint Business Park Utilities Evaluation dated Dec. 2018 and prepared by Dewberry (Dewberry report), and 3) the County’s Water and Wastewater Master Plan . The scope of work will be to perform on behalf of Prince George County all necessary requirements to obtain a VPDES permit from the Department of Environmental Quality to discharge up to 6 MGD and a peak discharge of 15 MGD into the Blackwater Swamp and provide the services listed in Mr. Haltom’s request for services.

The proposed work is divided into the following three (3) tasks:

- Task 1 – VPDES Permit Application Preparation for a proposed WWTP
- Task 2 – Cost Estimate for the proposed WWTP conceptually laid out by Dewberry
- Task 3 (Optional) – Speculative Heavy Metal Limits Analysis from industrial wastewater

Dewberry’s report selected Sequencing Batch Reactors (SBRs) as the preferred secondary treatment technology and recommended a phased construction sequence starting at an average daily permitted flow of 2 million gallons per day (MGD), with two plant expansions to 4 and 6 MGD as wastewater flow increases in the future. In addition to SBRs, primary and tertiary treatment processes are also proposed for the new WWTP with a design peak flow of 2.5 times the permitted flow for each phase of the project.

Dewberry also cited the DEQ issued “Advisory Notification of Effluent Limits for Swamp and Marsh Waters” dated March 9, 1987, to derive the following speculative permit limits (Ref. Table 5-2) for a new facility discharging into the Blackwater Swamp.

Parameter	Concentration (mg/L)
cBOD5	10
TSS	10
TKN as N	3
Nitrate + Nitrite as N	No Limit
Phosphorus, Total	No Limit
Total Residual Chlorine	0.011
E. Coli	126 (N/100mL)

PROJECT TEAM

The RK&K Team is well qualified to perform all project tasks as the professionals presented below bring unique capabilities, diverse technical backgrounds and an understanding from a variety of projects that will be at the County’s dispense. Our team has completed similar permitting and engineering tasks for new and upgraded facilities.

Jeffrey P. Kapinos, PE will serve as RK&K’s Project Manager. He has over 30 years’ experience in permitting, design and construction of water/wastewater infrastructure, including VPDES permit applications. Mr. Kapinos is an experienced project manager with extensive experience in maintaining the project schedule and budget; managing multi-discipline teams with subconsultants; coordinating with stakeholders; communicating progress; and resolving project challenges. Mr. Kapinos has worked on several projects involving DEQ permitting.

Retaw Engineering, LLC (Retaw) will provide permitting services and optional heavy metal analysis as a subconsultant to RK&K. **Ignatius Mutoti, PhD, PE, BCEE** will serve as our Team’s lead for the VPDES permit application as he has provided similar services for several other Counties in the Commonwealth, including King George, Washington and Southampton.

Retaw brings a wealth of knowledge and experience with engineering design, and wastewater treatment operations and maintenance. Mr. Mutoti is both a licensed PE and a practicing Class 1 Virginia licensed wastewater Operator and Class 2 water operator. Retaw fully understands the impact and implications of permits and permit conditions as they deal with them daily as operators. Retaw also has intimate knowledge of the tools used to address metal limitations both from a permit limitation negotiation to get fair limits, and from a design viewpoint to ensure that much of the compliance requirements are integrated into the design, and not solely rely on the



SUMMARY OF QUALIFICATIONS

operator or the permittee. Retaw has used many of the DEQ internal tools and ingenuity to predict permit limitations for metals and other parameters, as well as develop methods to counter stringent or prescriptive limitations that are difficult, if not impossible for the permittee to comply with.

In addition to the work RK&K performs related to infrastructure, the RK&K team also has extensive experience in wastewater treatment including studies, design, permitting, construction, and start-up services encompassing a wide variety of liquids and solids unit processes at numerous wastewater treatment plants. RK&K is a leading wastewater engineering firm in the mid-Atlantic region and has provided engineering services at more than 65 municipal wastewater treatment plants in the mid-Atlantic region. Our experience includes ENR facilities, small-to-medium and large treatment plants, a variety of activated sludge reactors including SBRs, tertiary filters, solids handling and processing including, digestion, thickening, dewatering and drying. For this project, RK&K's wastewater design team will provide cost estimating for Task 2 and support services related to treatment process capabilities in meeting proposed effluent limits.

Kelly C. Duffy, PE has more than 20 years' experience in the study, design and start-up of wastewater treatment plants and is one of the lead members of RK&K's treatment group. She has performed cost estimates for numerous treatment projects, ranging from conceptual to final designs of WWTPs. Ms. Duffy will lead the RK&K wastewater treatment staff for this project.

Katherine Marshal, PE, Env. SP, LEED AP has extensive experience in the coordination, permitting, rehabilitation, new design and construction of public utilities in Virginia. RK&K recognizes that the tasks in this proposal do not include the Blackwater Swamp Interceptor, however, we wanted to offer Ms. Marshal's wide-range of knowledge to the County for any overlap that may occur to the VDPES permitting effort.

David "DJ" Wacker, PE is a process engineer in RK&K's treatment group and has experience in the study, design, construction, start-up and troubleshooting of WWTPs. He is very knowledgeable of project economics and has performed numerous life cycle cost analysis from a single treatment process up to the entire facility. Mr. Wacker will lead cost estimation efforts for this project.

PROJECT EXPERIENCE AND RELEVANT INFORMATION

The table below and on the next page summarizes our Team's project experience related to submitting VPDES permit applications and designs of new WWTPs. Similar to the phased WWTP expansion proposed in Dewberry's report, several projects below had phased permitting and design efforts for plant expansions. This is a strength that the RK&K Team offers to the County as we have the experience and understanding of what it takes from a planning, permitting, design and constructability perspective to implement a new facility and

Project	Client	Description/Relevance
The Sustainability Park WWTP	The Sustainability Park, LLC, Chester, VA	Tiered VPDES permit for 0.65 MGD, 2.1 MGD and 3.0 MGD
Washington County	Washington County Service Authority	Tiered permit for 0.5 MGD, 1.0 MGD and 1.5 MGD
Courtland WRF	Southampton County	Tiered VDPES permit for 1.25 MGD, 2.5 MGD and 3.75 MGD
Dahlgren WWTP	King George County Service Authority	VPDES permit renewal and modification to reduce permitted flow from 1.0 to 0.97 MGD, allowing the plant to avoid certain requirements.
Oakland Park WWTP	King George County Service Authority	0.14 MGD VPDES permit
Purkins Corner	King George County Service Authority	0.12 MGD VPDES permit
Haynesville Correctional Facility	King George County Service Authority	0.178 MGD VPDES permit
Safety Rest Area WWTPs	VDOT	VPDES permits
Vint Hill WWTP	Fauquier County WSA	Study, design and construction services for a new phased 0.6 MGD and 0.95 MGD WWTP with SBRs and tertiary filters.

SUMMARY OF QUALIFICATIONS

Project	Client	Description/Relevance
Northern Mineral County Regional Sewer System	Frankfort Public Service District, WV	Study, design and construction services for a new phased 0.6 MGD and 1.0 MGD WWTP with SBRs and tertiary filters.
Greensboro Regional Wastewater System	Town of Greensboro, MD	Study, design and construction services for a new 0.33 MGD WWTP with SBRs and tertiary filters. Currently performing preliminary engineering for a plant expansion to 0.43 MGD; effluent permitting evaluation with MDE.
Trout Run and Oakland PER	Garrett County, MD	Study for a new 1.8 MGD WWTP. Evaluated 6 alternatives with SBRs and tertiary filters selected as the preferred technologies.
Prince Frederick WWTP	Calvert County, MD	Study for a new 1.1 MGD WWTP. Evaluated several activated sludge technologies; effluent permitting evaluation with MDE.
Broadneck WRF ENR Upgrade and Expansion	Anne Arundel County, MD	Design and construction services for ENR upgrade and expansion from 6 to 8 MGD. Including improvements to existing oxidations and new tertiary filters.

RK&K provides construction cost estimates for the majority of our wastewater treatment projects. We have experience in providing them in every stage of the project of conceptual layouts and preliminary designs to bid-ready construction documents. We routinely compare our cost estimates to contractor's bids following the bidding phase so that we stay current with the contractor market.

If selected for your project, our Team would first work with the County to determine an estimated timeline for each phase of the new WWTP and plant expansions. It is important to understand the capacity requirements per year/phase. For example, if wastewater production is expected to be less than 1 MGD for the first several years of operation, the new plant could still be designed for 2 MGD but permitted with flow tiers in order to reduce the requirements and fees associated with a major permit. Submitting the application with tiered flows would allow the new WWTP to qualify for a minor permit during the first several years of operation with the phased approach for ultimately attaining the 6 MGD discharge permit.

It is important to recognize the differences in discharging to the Blackwater Swamp as opposed to the Chesapeake Bay. This will likely present both benefits and challenges as the receiving waters are critical to obtaining the VPDES permit. DEQ may require additional sampling and testing that could impact the timeline of the permit application. Our Team will identify all sampling and testing requirements early in the project to help reduce and potential delays.

Lastly, after receiving initial comments from DEQ, the RK&K Team convey all the requirements of the permit to the County to identify if there are any constraints that would make it difficult for the proposed WWTP to achieve such conditions.

CONSULTANT SCHEDULE

As requested in Mr. Haltom's letter, proposed completion dates have been provided for each task associated with the VPDES permit. It is our Team's experience that we could obtain the permit within DEQ's standard time frame of six months.

Description	Duration, days	Date
Notice to Proceed: August 14, 2019	0	Wed, Aug 14, 2019
Complete data gathering/review	30	Fri, Sept 13, 2019
Submit initial VPDES permit application/initial cost estimate	14	Fri, Sep 27, 2019
Receive DEQ comments	91	Fri, Dec 27, 2019
Advise Prince George County Board of Supervisors	10	Mon, Jan 6, 2020
Revise VPDES permit application and resubmit	4	Fri, Jan 10, 2020
Receive VPDES permit/submit revised cost estimate	31	Mon, Feb 10, 2020
Total number of days	180	

SUMMARY OF QUALIFICATIONS

SCOPE & FEE PROPOSAL CLIENT REFERENCE

Our base bid, including Task 1 and 2, is \$47,064.60 and is derived from RK&K's hourly rate schedule in our Contract #19-0103-1, dated April 1, 2019 and Retaw's standard hourly rates. Additional fee for optional Task 3 and additional meetings are provided below, along with exclusions to our proposal fee. The RK&K Team's proposal fee is provided below.

Contract 19-0103-1: Engineering Services Permitting and Analysis for New Wastewater Treatment Plant					
Task #	Description	Units	QTY	Rate	Amount
1.a	Complete Data Gathering/Review				
	<i>Retaw Senior Engineer</i>	Hr	10	\$160	\$1,600.00
	<i>Retaw Project Engineer / Wastewater Operator</i>	Hr	20	\$100	\$2,000.00
1.b	Submit initial VPDES permit application				
	<i>Retaw Senior Engineer</i>	Hr	30	\$160	\$4,800.00
	<i>Retaw Project Engineer / Wastewater Operator</i>	Hr	40	\$100	\$4,000.00
1.c	Receive DEQ Comments	Hr	12	\$160	\$1,920.00
1.d	Advise Prince George County Board of Supervisors	Hr	20	\$160	\$3,200.00
1.e	Revise VPDES permit application and resubmit				
	<i>Retaw Senior Engineer</i>	Hr	4	\$160	\$640.00
	<i>Retaw Project Engineer / Wastewater Operator</i>	Hr	6	\$100	\$600.00
1.f	Receive VPDES permit	Hr	2	\$160	\$320.00
2.a	Cost Estimate				
	<i>Senior Engineer</i>	Hr	80	\$150.58	\$12,046.40
	<i>Senior Manager</i>	Hr	12	\$248.02	\$2,976.24
3	Speculative Heavy Metals Limit Analysis (see adder)				N/A
4	Meetings (assumes a total of 4)	Hr	24	\$248.02	\$5,952.48
5	Project Management	Hr	24	\$248.02	\$5,952.48
6	Direct Expenses				
	<i>Mileage</i>	Mi	960	\$0.58	\$557.00
	<i>Reproduction</i>	LS	1	\$500	\$500.00
	TOTAL				\$47,064.60
	ADDITIONAL				
	Meetings, each				\$2,000.00
	Task 3: Speculative Heavy Metals Limits Analysis				\$3,500.00

EXCLUSIONS

Permit fees, sampling, laboratory testing fees, survey, engineering design and construction period services.

REFERENCES



King George County, VA

Chris Thomas, PE
(Formerly with King George)
804.501.5181
THO149@henrico.us



GREENSBORO MARYLAND

Town of Greensboro, MD

Dave Kibler
410.482.6935
dkibler@greensboromd.com

RETAW'S FULL RATE SCHEDULE AVAILABLE UPON REQUEST.