

**ENGINEERING DESIGN PHASE  
CONTRACT FOR PROFESSIONAL SERVICES  
FOR  
TREATMENT WORKS**

CITY OF BERLIN, NEW HAMPSHIRE

This AGREEMENT made and entered into at COOS County, New Hampshire, this \_\_\_\_\_ day of AUGUST 2019, by and between City of BERLIN hereinafter called the OWNER, and WRIGHT-PIERCE hereinafter called the ENGINEER.

WITNESSETH:

WHEREAS, the OWNER intends to conduct a Phase 2, Contract 1 Inflow/Infiltration Reduction final design, hereinafter called the PROJECT, and

WHEREAS, professional sanitary engineering services will be required for the preparation of plans and specifications and contract documents, and

WHEREAS, such services are of a distinct professional nature and hence not subject to the bidding process,

NOW THEREFORE, in consideration of these premises and of the mutual covenants herein set forth, the OWNER hereby employs the ENGINEER to furnish the following engineering services in connection with the proposed PROJECT; and it is agreed by and between the OWNER and the ENGINEER as follows:

**I. Services to be Performed by the ENGINEER**

A. Upon execution of this AGREEMENT, the ENGINEER agrees to proceed with all engineering, ~~surveying~~, drafting, calculations, borings, and other work as required and necessary to develop and produce final plans, specifications, and associated contract documents involved in the construction of ~~treatment works~~ for the Phase 2, Contract 1 Inflow/Infiltration Reduction Project as recommended in an Engineering Report entitled Wastewater Transport System Evaluation Phase 2 Infiltration and Inflow Reduction Projects dated July 2011 and/or modified by a Report entitled Phase 2, Contract 1 I/I Reduction Projects Preliminary Design Memorandum dated May 2019 and outlined in Exhibit A – Scope of Services. The ENGINEER further agrees that said services shall include, but shall not necessarily be limited to:

1. Plans, Specifications, and Contract Documents

a. The preparation of detailed plans, specifications, and contract documents in accordance with the rules and regulations of the New Hampshire Department of Environmental Services, Water Division, hereinafter called the DIVISION, ready for the receipt of bids and the award of construction contracts for said construction; the work shall also include the preparation of estimates of the cost of construction based on the contract documents. Prepare applications with supporting and associated documents for ~~Federal, State and other grant~~ or loan programs. Assists the OWNER in securing ~~grants or loans~~ by State, ~~Federal and other~~ agency.

b. The furnishing of all the necessary subsurface investigations and field surveys required for the preparation and completion of approved plans, specifications, and contract documents.

c. The furnishing of ~~ten (10)~~ *three (3)* copies of the final plans, specifications, and contract documents to the OWNER; ~~three (3) copies~~ *one (1) copy* of which are to be submitted to the DIVISION. Additional copies to be available at cost to the OWNER.

~~2. Site Acquisitions~~

~~a. Assistance to the OWNER including preparation of documents for the acquisition of lands, easements, and rights of way essential to the construction of the PROJECT.~~

**II. The OWNER'S Responsibilities**

A. Assist the ENGINEER by placing at his disposal all available information pertinent to the PROJECT, including previous reports and other data relative to the reports.

B. Make provisions for the ENGINEER to enter upon public and private lands, municipal facilities and industrial establishments as required to perform work under this AGREEMENT.

C. The OWNER also agrees to comply with DIVISION and Federal requirements (where applicable) and further agrees to acquire with the assistance of the ENGINEER all the necessary easements, options or outright purchases of land for the locations of said treatment works as shown on the contract plans. The provisions of this section shall be satisfied prior to submission of documents referred to in III (A) below. It is also understood that no approvals of reports or plans and specifications or other associated documents will be made by the DIVISION without fulfillment of this requirement.

**III. Time Of Completion**

A. The ENGINEER agrees that he will submit to the DIVISION for approval after modification or revision as recommended by the DIVISION and agreed to by the ENGINEER, the completed final plans, specifications, contract, and associated documents in compliance with the current issue of the DIVISION's standards of design within 150 consecutive calendar days following the execution of this AGREEMENT, and deliver same to the OWNER within 21 calendar days following the date of final approval by the DIVISION.

B. It is agreed by the parties to this contract that failure by the ENGINEER to complete the work within the time stipulated under III, A, above may be considered sufficient basis for the debarment of the ENGINEER from the DIVISION'S Roster of Prequalified Engineers as provided for under New Hampshire Code of Administrative Rules Env-Wq 603.08, or the Assessment of liquidated damages as provided for under RSA 485-A: 4, XII.

**IV. Compensation to be Paid the ENGINEER**

**A. Method of Payments - Amounts of Fees**

1. Payment to the ENGINEER, for services rendered, shall be according to the following schedule:

Monthly billing based on hours and rates by labor category with mark-up and incidental expenses in accordance with the attached fee schedule.

2. The OWNER agrees to pay and the ENGINEER agrees to accept for all services under this AGREEMENT, a fee not to exceed

Forty-Nine Thousand One Hundred Ten Dollars  
(\$49,110.00).

3. If separate documents are required for additional construction contracts on this PROJECT, an additional fee as approved by the DIVISION shall be paid to the ENGINEER.

4. Prior to formal approval of contract documents by the DIVISION, the ENGINEER shall make such revisions in them as recommended by the DIVISION and agreed to by the ENGINEER without additional compensation. After formal approval, if it becomes necessary to revise the contract documents for reasons beyond the control of the ENGINEER, payment for such revision or revisions shall be made to the ENGINEER subject to approval by the DIVISION.

**B. Limits of All Payments**

1. The ENGINEER hereby assures the OWNER and agrees that the following fee for his services (exclusive of surveys, borings, geotechnical probings, and certain special services which follow) in connection with the preparation of final plans, specifications, and contract documents and other work as generally described under I(A) is adequate to complete the assignment and shall not exceed

Forty Four Thousand Seven Hundred Ten Dollars  
(\$44,710.00).

2. It is also agreed that payment to the ENGINEER for services in relation to engineering surveys, including layout and logging of borings, geotechnical probings or seismic surveys, to-

gether with plats and project related special services shall be at actual cost. Actual cost shall include compensation to the ENGINEER for his work performed on these services. The ENGINEER further agrees that the work proposed under this item is enough to satisfactorily complete the contract documents and that the moneys to be paid under this item are adequate for the work proposed and shall not exceed

Four Thousand Four Hundred \_\_\_\_\_ Dollars  
(\$4,400.00 \_\_\_\_\_).

~~3. It is again agreed that payment to the ENGINEER for services in relation to subsurface exploration, including borings, probings or seismic surveys, shall be at actual cost as defined in IV (B) 2. The ENGINEER further agrees that the work proposed under this item is enough to satisfactorily complete the contract documents and that the moneys to be paid under this item are adequate for the work proposed and shall not exceed~~

~~\_\_\_\_\_ Dollars~~  
(\$ \_\_\_\_\_).

~~4. It is also agreed that payment to the ENGINEER for services in relation to cadastral surveys and other work associated with the acquisition of lands, easements, and rights of way essential to the construction of the PROJECT shall be at actual cost as defined in IV (B) 2. The ENGINEER further agrees that the work proposed under this item is enough to provide adequate sites, easements, and rights of way to permit the unencumbered construction, operation, and maintenance of the completed project without interference in any way. The ENGINEER also assures the OWNER that the moneys to be paid under this item are adequate for the work proposed and shall not exceed~~

~~\_\_\_\_\_ Dollars~~  
(\$ \_\_\_\_\_).

**V. Additional Covenants**

A. The ENGINEER agrees to provide in active charge of this PROJECT for the life of the contract a Project Engineer who is a permanent employee of the ENGINEER and who is a “qualified sanitary engineer” as defined under the DIVISION'S “Rules and Regulations for the Prequalification of Consulting Engineers.” The Project Engineer shall be\*

Matthew Burns, PE

(name and address)

75 Washington Ave, Suite 202, Portland, ME 04101

\* *Resume clearly describing the candidate's qualifications for the assignment is appended for convenience of reference.*

Any proposed change in identity of the Project Engineer on the PROJECT shall first be approved by the DIVISION before transfer of responsibility is made. Failure of the ENGINEER to abide by the above covenant may be considered basis for debarment of the ENGINEER from the DIVISION'S Roster of Prequalified Consulting Engineers as provided for under New Hampshire Code of Administrative Rules Env-Wq 603.08.

B. The ENGINEER agrees to be solely responsible for all bills or claims for payment for services rendered by others and for all services and materials employed in his work, and to indemnify and save harmless the OWNER, and all of the OWNER'S officers, agents and employees against all suits, claims or liability of every name and nature arising out of or in consequence of the negligent acts or failures to act of the ENGINEER or others employed by him in the performance of the work covered by this AGREEMENT.

C. The ENGINEER further agrees to procure and maintain at his expense such workmen's compensation insurance as is required by the statutes and public liability insurance in amounts adequate to provide reasonable protection from claims for bodily injury, death or property damage which may result from his performance and the performance of his employees under this AGREEMENT.

D. All documents, including original drawings, design calculations, work sheets, field notes, estimates, and other data shall remain the property of the OWNER, and shall be transmitted to the OWNER in clean and orderly condition on demand; however, these may be left in the possession of the ENGINEER at the OWNER'S discretion.

E. The ENGINEER shall not sublet, assign or transfer any part of the ENGINEER'S services or obligations (except surveys and borings and other special services) under this AGREEMENT without the prior approval and written consent of the OWNER.

F. It is further agreed that the ENGINEER will assist the OWNER or his authorized agent in providing the DIVISION with clear documentation certifying that the necessary easements, options or outright purchases of land have been secured to provide for location of treatment works and other associated structures and equipment as shown on the contract plans or described in the specifications. Similar documentation will be submitted on approvals from the State Department of Transportation and/or other state agencies regarding location of treatment works within rights-of-way and other lands under their jurisdiction.

**VI. Termination**

A. The OWNER shall have the right at any time for any reason whatsoever to interrupt or terminate any part of or all of the work required of the ENGINEER under this AGREEMENT, with a seven (7) day written notice of such interruption or termination transmitted to the ENGINEER by the OWNER. In the event of termination of any part of or all of this AGREEMENT, without fault on the part of the ENGINEER, the ENGINEER shall be entitled to compensation for all work performed to the satisfaction of the DIVISION and the OWNER, and pursuant to this AGREEMENT. In order that the ENGINEER shall receive payment under termination notice of any part of the work, all plans, drawings, tracings, field notes, estimates, specifications, proposals, sketches, diagrams, and calculations, together with all other materials and data collected or prepared in connection with the PROJECT shall be transmitted to the OWNER in a form acceptable to the OWNER and DIVISION.

IN WITNESS WHEREOF, the parties hereto have affixed their hand and seals at \_\_\_\_\_ Coos County, New Hampshire, the day, month, and year first above written.

**ENGINEER:**

\_\_\_\_\_  
By: Paul F. Birkel, PE, Senior Vice President  
(Authorized Representative\*)

Date: \_\_\_\_\_

**OWNER:**

\_\_\_\_\_  
By: James A. Wheeler, PE, City Manager  
(Authorized Representative\*)

Date: \_\_\_\_\_

**APPROVED: \*\***

DEPARTMENT OF ENVIRONMENTAL SERVICES  
Water Division

By: Dennis Greene, PE, Sanitary Engineer  
(Authorized Representative)

Date: \_\_\_\_\_

\* Signatures should be supported by appropriate document.  
\*\* It is agreed that as an act in furtherance of its statutory authority to approve engineering agreements for treatment works, the DIVISION's approval does not impose any contractual obligation or liability on the State of New Hampshire, the Department of Environmental Services or the Division.

**WRIGHT-PIERCE**

**CERTIFICATE OF VOTE**

I, Ryan T. Wingard, hereby certify that I am the duly elected Clerk of Wright-Pierce.

I certify that the following is a true copy of a vote taken at a meeting of the board of directors of the corporation, duly called and held on April 3, 2019, at which a quorum of the board was present and voting.

VOTED:

That any one or all of the following officers of Wright-Pierce, on behalf of the corporation, are authorized to execute all Wright-Pierce contracts, both service agreements and general contractual obligations:

John W. Braccio, President/CEO  
Paul F. Birkel, Vice President  
Richard N. Davee, Vice President  
Walter J. Flanagan III, Vice President  
Michael D. Giggey, Vice President  
Steven C. Hallowell, Vice President  
John R. Nelson, Vice President/Treasurer/CFO  
Christopher N. Pierce, Vice President  
Richard G. Protasowicki, Vice President  
Timothy R. Vadney, Vice President  
Ryan T. Wingard, Vice President/Clerk

I hereby certify that said vote has not been amended or repealed and remains in full force and effect.

Attest:

  
Ryan T. Wingard, Clerk

Seal

Date: 5/6/19

COST OR PRICE SUMMARY FORMAT FOR SUBAGREEMENTS UNDER NH SAG & SRF				Form Approved DES 3/96	
PART I - GENERAL					
1. GRANTEE / LOANEE - <b>City of Berlin, New Hampshire</b>			2. GRANT/LOAN NO. <b>D2017-0409</b>		
3. NAME OF CONTRACTOR OR SUBCONTRACTOR - <b>Wright-Pierce</b>			4. DATE OF PROPOSAL <b>17-May-19</b>		
5. ADDRESS OF CONTRACTOR OR SUBCONTRACTOR ( Include ZIP )			6. TYPE OF SERVICE TO BE FURNISHED Professional Engineering Services		
PART II - COST SUMMARY					
7. DIRECT LABOR (Specify labor categories)		HOURS	HOURLY RATE	ESTIMATED COST	TOTAL
Principal in Charge		8	\$ 60.00	\$480.00	
Project Manager		76	\$ 35.63	\$2,707.88	
Lead Project Engineer		208	\$ 28.75	\$5,980.00	
Project Engineer		4	\$ 29.40	\$117.60	
CADD Technician		106	\$ 33.50	\$3,551.00	
GIS Analyst		4	\$ 26.29	\$105.16	
QA/QC Manager		18	\$ 56.02	\$1,008.36	
Clerical		8	\$ 17.25	\$138.00	
DIRECT LABOR TOTAL:					\$14,088.00
8. INDIRECT COSTS (Specify indirect cost pools)		RATE	x BASE =	ESTIMATED COST	
		1.68	14,088.00	\$23,667.84	
INDIRECT COSTS TOTAL:					\$23,667.84
9. OTHER DIRECT COSTS					
a. TRAVEL				ESTIMATED COST	
(1) TRANSPORTATION				\$345.00	
(2) PER DIEM				\$145.00	
TRAVEL COSTS TOTAL:				\$490.00	
b. EQUIPMENT, MATERIALS, SUPPLIES (Specify categories)		QTY	COST	ESTIMATED COST	
Phone, fax, printing, copies, postage, CADD				\$800.00	
EQUIPMENT SUBTOTAL :				\$800.00	
c. SUBCONTRACTS				ESTIMATED COST	
Geotechnical Investigations Subcontractor				\$4,400.00	
SUBCONTRACTS SUBTOTAL :				\$4,400.00	
d. OTHER (Specify categories)				ESTIMATED COST	
OTHER SUBTOTAL :				\$0.00	
e. OTHER DIRECT COSTS TOTAL :					\$5,690.00
10. TOTAL ESTIMATED COST					\$43,445.84
11. PROFIT					\$5,664.16
12. TOTAL PRICE					\$49,110.00



## **EXHIBIT A - SCOPE OF SERVICES**

### **FOR FINAL DESIGN FOR THE PHASE 2, CONTRACT 1 INFILTRATION/INFLOW REDUCTION PROJECT FOR THE CITY OF BERLIN, NH**

In 2007, Wright-Pierce completed an infiltration and inflow (I/I) reduction study focused in five distinct sanitary sewer drainage areas in the City of Berlin, New Hampshire (City). The study recommended improvements to the collection system in 4 of the 5 drainage areas studied as well as additional, future investigations. The City has since completed three construction projects aimed at reducing extraneous sources of I/I into the sanitary sewer system, including the following:

- Phase I, Contract 1: Pipe lining in Submeter Area (SMA) 3B/3D, at a total project cost of approximately \$477,900 (W-P Project No. 10973C)
- Phase I, Contract 2: Manhole rehabilitation, removal of private connections, sewer replacement and stormwater separation in SMA 1G/1I, 3B and 3D, at a total project cost of \$766,900 (W-P Project No. 10973G)
- Phase I, Contract 3: Removal of private connections, sewer replacement and stormwater separation in SMA 1I/1J, 3D and 2A, at a total project cost of \$777,400 (W-P Project No. 10973N)

In December 2013, Wright-Pierce issued a memorandum entitled Recommendations on Supplemental Field Investigations (included as Appendix C in Volume II of the 2014 Draft Long Term Control Plan). A task list of 16 priority field investigations in areas of elevated I/I were identified in that memorandum. In 2016/2017, Wright-Pierce completed an additional study focused on seven of the sixteen tasks of the 2013 memorandum (Tasks 1 through 6 and Task 10). Table 1 is a summary of the seven task areas included in the 2016/2017 study. The purpose of the 2016/2017 study was to identify project(s) for detailed design and construction that fit within the City's available budget and to identify potential future, phased projects and costs. The study included TV inspection of select sewers, manhole inspection, and house to house inspections. Based on the results of the 2016/2017 study, Wright-Pierce issued a report entitled, *Wastewater Transport System Evaluation, Phase 2 Infiltration and Inflow Reduction Project* (July 2017).

In June 2016, the City applied for a New Hampshire Department of Environmental Services (NHDES) 2016 Clean Water State Revolving Fund (CWSRF) loan for an I/I Reduction, Phase 2, Contract 1 project in the amount of \$848,250. The City was notified that the project was included on the 2016 CWSRF NHDES Priority List, which included \$103,400 in principal forgiveness. The City also has \$362,400 set aside from a payment made by the Burgess Biomass facility specifically for I/I removal projects. Therefore, the City has elected to pursue an approximately \$1.2 M Phase 2, Contract 1 I/I removal project, using the results of the 2016/2017 study to focus the effort. However, the initial project cost estimates exceeded the City's currently available funding.

A preliminary design was conducted in 2018/2019. The purpose of the preliminary design was to update the recommendations made in the July 2017 report titled *Wastewater Transport System Evaluation Phase 2 Infiltration and Inflow Reductions Projects* and to refine the scope of a Phase 2,

Contract 1 Inflow and Infiltration Reduction Project. In addition, because Wright-Pierce was unable to obtain access to all (or a majority) of the homes within Sub-Area 1 during the 2016/2017 study to identify illicit private connections, the preliminary design phase included additional house to house inspections to further define the complete scope of work within Sub-Area 1 to remain within the \$1.2 M budget. Wright-Pierce was able to access 85% of all homes with Sub-Area 1. While not all 100% of the homes in Sub-Area 1 were inspected, reducing the unknowns allows for a greater understanding of the scope and costs of the future construction project(s). Wright-Pierce issued a memorandum titled *Phase 2, Contract 1 I/I Reduction Projects Preliminary Design Memorandum – FINAL*, along with preliminary design drawings dated May 2019 which provides updated recommendations for a Phase 2, Contract 1 I/I Reduction Project.

During the Fall of 2017, the City discovered a storm drain connected to the sanitary sewer system on Western Avenue (Sub-Area 12). This connection was identified as a significant source of inflow and will be separated as part of this Phase 2, Contract 1 project.

During the Spring of 2019, the City discovered a cross-country lateral serving multiple homes on High Street between School Street and Pleasant Street. This cross-lot lateral connection for multiple homes has caused issues for homeowners, and is in poor condition with joint and pipe failures leading to inflow/infiltration. Furthermore, this type of cross-country lateral connecting multiple homes was identified as non-compliant with the City's ordinance and needs to be replaced.

Wright-Pierce recommends proceeding with all recommended work in Sub-Areas 1B, 1G, 1K, and 12 as the Phase 2, Contract 1 project as identified in *Phase 2, Contract 1 I/I Reduction Projects Preliminary Design Memorandum – FINAL*. The final design will also include design of a new sewer main located on High Street between School Street and Pleasant Street and abandonment of the cross-lot lateral. The following is a detailed summary of the Final Design Scope of Services for the recommended projects to be completed under this Scope of Services:

### **Scope of Services**

#### 1) Final Design Phase

- a) Kick-Off Meeting and Inspection Coordination: Wright-Pierce will conduct a kick-off meeting with the City to reconfirm the scope of work, project schedule, and coordination items. The Wright-Pierce Project Manager and Project Engineer will attend the meeting.
- b) Additional Investigative Work 1 (Sub-Area 1 and Sub-Area 12): For Sub-Areas 1 and 12 where the preliminary design drawings do not show all of the existing stormwater and sanitary sewers because the manholes are paved over, additional investigation is required to locate infrastructure for final design. Wright-Pierce Project Engineer will conduct an additional site visit of up to 3 days to perform additional investigation. Wright-Pierce will provide the City with a map and list of structures to be located and uncovered prior to site visit. With the City's assistance in locating and uncovering these structures, Wright-Pierce will perform manhole inspections and obtain stormwater and sewer invert elevation for final design in the following locations:

- i) Sub-Area 1B – Burgess Street
  - ii) Sub-Area 1G – Lancaster Street, Derrah Street, Kent Street, Gendron Street
  - iii) Sub-Area 1K – Dutil Street and Napert Street
  - iv) Sub-Area 12 – Western Avenue
- c) Additional Investigative Work (High Street): Wright-Pierce Project Engineer will conduct an additional site visit of up to 1 day to perform additional investigation to identify potential sewer main routing locations along High Street between School Street and Pleasant Street. Wright-Pierce will identify the approximate routing of new services for five affected homes, with input from City based on their previous inspection findings. Survey of the High Street area has not been included; Wright-Pierce will utilize Berlin Water Works survey information (to be provided by the City) that was recently completed to develop drawings in this project area.
- d) Ledge Probes: Based on the final scope determination, Wright-Pierce will subcontract with a geotechnical consultant to complete ledge probes of the project areas (Sub-Area 1 and High Street). It is expected that ledge probes will include two 8-hour days of probes, which will include up to 20 ledge probes advanced to maximum depths of 20' each, or until bedrock is identified. Traffic control in the form of flaggers will be provided by the geotechnical subconsultant if street closure by the City is not feasible. Wright-Pierce will provide the City with approximate soil boring locations, which will be marked in the field for the geotechnical subconsultant by the City prior to soil explorations.
- e) Final Design 90% Contract Documents: Based on the final scope determination, Wright-Pierce will develop 90% plans and specifications for review by Owner and New Hampshire Department of Environmental Services (NHDES). Wright-Pierce will provide one electronic copy (in PDF). Final design shall include the recommendations listed in the *Phase 2, Contract 1 I/I Reduction Projects Preliminary Design Memorandum – FINAL*, new sewer along High Street, and shall include the following recommended projects by Sub-Area:
- Sub-Area 1B, Project 1
  - Sub-Area 1G, Project 1, Project 2, Project 3
  - Sub-Area 1K, Project 1
  - Sub-Area 12, Project 1
  - High Street between School Street and Pleasant Street

This task includes a meeting with the City to discuss the 90% contract documents. Meeting minutes will be developed and distributed to all attendees electronically via e-mail.

- f) Final Design 100% Contract Documents: Based on comments received from the City and NHDES, Wright-Pierce will prepare 100% stamped plans and specifications ready for bidding, including final quantities and estimate of construction cost. Plans and specifications will be in compliance with SRF requirements. Electronic copies (in PDF) and three paper copies shall be submitted to the City, and one copy shall be submitted to NHDES.

- g) Wright-Pierce will assist the City with submitting State Revolving Loan Fund (SRF) applications, including the funding application and environmental review requirements.

2) SCHEDULE

- a) Wright-Pierce shall endeavor to complete the tasks as outlined above within five months of a signed agreement. The tasks will generally be completed by the following milestone goals:

<b>Milestone</b>	<b>Dates</b>
Begin Final Design	June 2019
95% Submittal	September 2019
100% Bidding Set	October 2019



# Matthew D. Burns, PE

## LEAD PROJECT ENGINEER

Project Assignment: Project Manager

### Education

M.S., Civil Engineering,  
University of Maine

B.S., Civil Engineering,  
University of Maine

B.A., German, University of  
Maine

### Professional Registration

Maine

### Experience

5 Years

### Joined Firm

2013

### Publications

Burns, M., Maynard, M.,  
Davids, W, Chung, J, and  
Gaudin, C., "Centrifuge  
Modelling of Suction  
Caissons under Orthogonal  
Double-Line Loading",  
Physical Modelling in  
Geotechnics: Proceedings of  
the 8th International  
Conference on Physical  
Modelling in Geotechnics  
2014

### Presentations

Burns, M., and Taylor, J.,  
"Phase 2 Upgrade to the  
Merrimack, NH WWTF:  
Advancing Nutrient  
Removal", NEWEA  
Conference, January 2016

## Experience Summary

Mr. Burns is a lead project engineer in the Wastewater Practice Group at Wright-Pierce. His responsibilities include evaluation and analysis of existing infrastructure, design of wastewater collection systems, design of wastewater treatment facilities, cost estimating, and construction administration services. As a lead project engineer, he supports project managers on various projects involving wastewater treatment and collection systems.

## Relevant Project Experience

### Wastewater Treatment

#### Wastewater Treatment Plant Phase 1 Upgrade, Bath, ME

Lead project engineer for an ongoing project involving the design, bidding, and construction administration services of a plant-wide \$5.6 million facility upgrade. Work includes design of multiple unit processes, including dewatering equipment, solids handling system, and the disinfection system. Developed USDA RD funding application, including Preliminary Engineering Report and Environmental Report resulting in \$2.3 million in grant money for the City of Bath.

#### Facilities Evaluation, Fort Fairfield, ME

Lead project engineer for an ongoing project involving the study of wastewater treatment facility upgrade options. Evaluated wastewater flows and loads and conducted a feasibility study of four different treatment technologies (rotating biological contactors, aerated lagoons, activated sludge, or pump to nearby facility for treatment). Developed USDA RD funding application, including Preliminary Engineering Report and Environmental Assessment. Developed conceptual-level design for a new activated sludge treatment facility.

#### Wastewater Treatment Plant Phase 3 Upgrade, Merrimack, NH

Lead project engineer for an ongoing project involving the preliminary design of a plant-wide \$22 million facility upgrade. Work includes preliminary design and alternatives analysis of multiple unit processes, including clarifier mechanisms, sludge holding tank mixing systems, return activated sludge pumping systems, plant water systems equipment, solids handling system, and the disinfection system.

#### Wastewater Treatment Plant Phase 1 Upgrade, Brunswick, ME

Project engineer for a project that involved the design, bidding, and construction services of a plant-wide \$22 million facility upgrade. Work included design of multiple unit processes, including dewatering feed pumps, plant water system, primary and secondary clarifier drives, and septage mixing systems, and day-to-day construction administration.

**Sludge Dewatering and Siloxane Removal Upgrade, Lewiston, ME**

Project engineer for a project that involved the design and bidding services of a sludge dewatering upgrade and siloxane removal system. Work included development of technical and front-end specifications, design of the polymer and sludge conveyance system, and sizing of the screw-press dewatering equipment.

**Wastewater Treatment Facility Design, Exeter, NH**

Project engineer for a project that involved the design services of a plant-wide facility upgrade. Work included design of the headworks screen, grit washer, grit feed pumps, vortex grit removal system, and layout of site piping at the proposed facility.

**Merrimack Wastewater Treatment Facility Phase II Upgrade, Merrimack, NH**

Project engineer for a project that involved the design, bidding and construction administration services of a plant-wide facility upgrade. Work included development of front-end specifications, utility connection coordination, assisting in the design of sludge pumps, and construction administration phase services.

**Berlin Wastewater Treatment Facility Phase II Upgrade, Berlin, NH**

Project engineer for a project that involved the design and construction of a Phase 2 treatment plant upgrade. Work included shop drawing reviews for various systems, construction phase services, and preparation of the operations and maintenance manual.

**Sunapee Wastewater Treatment Facility Upgrade, Sunapee, NH**

Project engineer for a project that involved the design and construction of a treatment plant upgrade. Work included construction phase services, including equipment start-up and certification, and preparation of the operations and maintenance manual.

**Haverhill Dewatering Upgrade, Haverhill, MA**

Project engineer for a project that involved the design of a centrifuge dewatering upgrade. Work includes determining the most cost-effective polymer system to replace the existing system, design of the conveyor systems, and sizing of the centrate pumps.

**Wastewater Treatment Facility Capital Improvement Plan, New London, CT**

Project engineer for a project that involved data collection and analysis of wastewater infrastructure. Developed technical memoranda that assessed the current condition of wastewater equipment. Assisted in developing equipment life cycles and replacement/upgrade costs for wastewater equipment as part of the CIP.

## **Collection System**

### **Sewer System I/I Investigation, Berlin, NH**

Lead project engineer for project that involved investigating and locating inflow and infiltration in the sewer collection system through use of continuous and instantaneous flow metering, and by performing home and manhole inspections.

### **Bridge Street Pump Station and Riverview Road Pump Station Upgrades, Bath, ME**

Project Engineer for the design, bidding, and construction services for replacement of two suction-lift pump stations. Work included development of specifications and drawings and Construction Administration, as well as coordination of pre-purchasing equipment to expedite schedule.

### **Harward Street Pump Station Drainage Area Sewer Rehabilitation, Bath, ME**

Lead project engineer for an ongoing project that involves investigating and locating inflow and infiltration in the sewer collection system through use of continuous and instantaneous flow metering, and by performing home and manhole inspections. Developed plans and specifications for rehabilitation of approximately 3,500 feet of gravity sewer mains to mitigate I/I entering the system. Developed USDA RD Funding Application, including Preliminary Engineering Report and Environmental Report.

### **Harward Street Pump Station Drainage Area Capacity Analysis, Bath, ME**

Lead project engineer for an ongoing project that involves development of an InfoSWMM model to estimate sewer main capacity in a critical area subject to CSOs and SSOs. Work included collecting field data to supplement capacity analysis model and verifying model with collected flow meter data.

### **Sewer System I/I Investigation, Bath, ME**

Lead project engineer for an ongoing project that involves investigating and locating inflow and infiltration in the sewer collection system through use of continuous and instantaneous flow metering, and by performing home and manhole inspections. Developed USDA RD Funding Application, including Preliminary Engineering Report and Environmental Report.

### **Sewer System Relining, Bath, ME**

Lead Project Engineer for a project that involved relining of approximately 1,300 feet of gravity sewer mains and repair of multiple manholes to mitigate I/I entering the system.

### **Biddeford Pump Station Design, Biddeford, ME**

Coordinated the design of a new pump station as part of a design-build team, and designed the process and civil related components of the pump station.

### **Sewer System I/I Investigation, Augusta, ME**

Developed and maintained flow meter data software for efficient collection of continuous flow meter data as part of an ongoing investigation to reduce inflow and infiltration into the sewer collection system.

**Sewer System I/I Investigation, Camden, ME**

Developed and maintained flow meter data software for efficient collection of continuous flow meter data as part of an ongoing investigation to reduce inflow and infiltration into the sewer collection system.

**Little Neck Wastewater Facilities Evaluation, Ipswich, MA**

Project engineer for study of wastewater collection system, pump stations, and storage tanks. Evaluated wastewater pumping data, water use data, rainfall data, and construction records to estimate potential inflow and infiltration.

**GIS Data Collection, Augusta, ME\***

Collected and mapped GIS data for citywide wastewater and water infrastructure.

**Industrial**

**Secondary Treatment System MBBR Evaluation Planning, Twin Rivers Paper Company, Madawaska, ME**

Developed feasibility report of isolating and inspecting two moving bed bioreactors in series while ensuring that the paper-making process would not be adversely impacted.

**Wastewater Sampling Evaluation, Oakhurst Dairy, Portland, ME**

Analyzed existing sampling techniques and data to develop recommendations for potential sewer piping modifications and flow metering options to allow for accurate sampling of industrial wastewater flows at the facility.

**Effluent Solids Monitoring, FMC Biopolymer, Rockland, ME**

Performed data analysis on industrial wastewater flows and loads as compared with municipal flows and loads.

**Stormwater Pollution Prevention Plans, ME\***

Developed stormwater pollution prevention plans for multiple commercial and industrial facilities throughout Maine.

\*Experience from previous employer