

**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 \_\_\_\_\_ 2019 , by and between City/Town of BERLIN, NEW HAMPSHIRE hereinafter called the OWNER, and WRIGHT-PIERCE hereinafter called the ENGINEER.

WITNESSETH:

WHEREAS, the OWNER intends to construct Treatment Works including upgrades to the Wastewater Treatment Facility (WWTF) Ejector Station, WWTF Site Fencing, Dairy Bar Pump Station and Armory Pump Station Controls, and Napert Village Pump Station Flow Meter

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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 WWTF Ejector Station, WWTF Site Fencing, Dairy Bar Pump Station and Armory Pump Station Controls Upgrade, and Napert Village Pump Station Flow Meter as detailed in attached Exhibit A – Scope of Services.

~~as recommended in an Engineering Report dated \_\_\_\_\_ and/or modified by a Report dated \_\_\_\_\_.~~ 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~~ three (3) copies of the final plans, specifications, and contract documents to the OWNER; ~~three~~ (3) one (1) copies 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 82 consecutive calendar days following the execution of this AGREEMENT, and deliver same to the OWNER within 107 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

Eighty-Six Thousand Nine Hundred Dollars (\$86,900.00).

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, 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

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

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

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

~~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 – Wright-Pierce  
(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: Ryan Wingard, PE, Vice President  
(Authorized Representative\*)

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

**OWNER:**

\_\_\_\_\_  
By: James 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	
<b>PART I - GENERAL</b>				
1. GRANTEE / LOANEE - City of Berlin, New Hampshire			2. GRANT/LOAN NO. N/A	
3. NAME OF CONTRACTOR OR SUBCONTRACTOR - Wright-Pierce			4. DATE OF PROPOSAL 5-Nov-19	
5. ADDRESS OF CONTRACTOR OR SUBCONTRACTOR ( Include ZIP ) 75 Washington Ave, Suite 202 Portland, Maine 04101			6. TYPE OF SERVICE TO BE FURNISHED Professional Engineering Services	
<b>PART II - COST SUMMARY</b>				
7. DIRECT LABOR (Specify labor categories)	HOURS	HOURLY RATE	ESTIMATED COST	TOTAL
Principal in Charge	14	\$ 60.00	\$840.00	
Project Manager	127	\$ 38.50	\$4,889.50	
Lead Project Engineer	154	\$ 29.90	\$4,604.60	
Project Engineer	36	\$ 27.56	\$992.16	
Process CAD	78	\$ 32.00	\$2,496.00	
Structural Engineer	10	\$ 45.00	\$450.00	
Structural CAD	12	\$ 29.00	\$348.00	
Instrumentation Engineer	60	\$ 60.00	\$3,600.00	
Instrumentation CAD	28	\$ 29.26	\$819.28	
Electrical Engineer	82	\$ 60.00	\$4,920.00	
Electrical CAD	64	\$ 37.25	\$2,384.00	
Clerical	16	\$ 24.00	\$384.00	
QA/QC Manager	14	\$ 56.02	\$784.28	
<b>DIRECT LABOR TOTAL:</b>				<b>\$27,511.82</b>
8. INDIRECT COSTS (Specify indirect cost pools)	RATE	x BASE =	ESTIMATED COST	
	1.68	27,511.82	\$46,219.86	
<b>INDIRECT COSTS TOTAL:</b>				<b>\$46,219.86</b>
9. OTHER DIRECT COSTS				
A. TRAVEL			ESTIMATED COST	
(1) Transportation			\$1,000.00	
(2) Per Diem			\$0.00	
<b>TRAVEL COSTS TOTAL:</b>			\$1,000.00	
B. EQUIPMENT, MATERIALS, SUPPLIES			ESTIMATED COST	
			QTY	COST
Phone, fax, printing, copies, postage, etc.			1	\$1,100.00
<b>EQUIPMENT SUBTOTAL :</b>			\$1,100.00	
C. SUBCONTRACTS			ESTIMATED COST	
NONE				
<b>SUBCONTRACTS SUBTOTAL :</b>			\$0.00	
D. OTHER (Specify categories)			ESTIMATED COST	
NONE				
<b>OTHER SUBTOTAL :</b>			\$0.00	
<b>e. OTHER DIRECT COSTS TOTAL :</b>				<b>\$2,100.00</b>
<b>10. TOTAL ESTIMATED COST</b>				<b>\$75,831.68</b>
<b>11. PROFIT</b>				<b>\$11,068.32</b>
<b>12. TOTAL PRICE</b>				<b>\$86,900.00</b>

**PART III - PRICE SUMMARY**

13.	COMPETITOR'S CATALOG LISTINGS, IN-HOUSE ESTIMATES, PRIOR QUOTES (Indicate basis for price comparison)	MARKET PRICE (\$)	PROPOSED PRICE

**PART IV - DIRECT LABOR BY CATEGORY**

14. INSERT THE APPROPRIATE WORK CATEGORY IN THE TABLE BELOW. WORK CATEGORIES WOULD INCLUDE BUT NOT BE LIMITED TO THOSE CATEGORIES SHOWN IN THE CONTRACT DOCUMENTS SUCH AS DESIGN, SURVEY, SUBSURFACE, CADASTRAL, O&M MANUAL, ADMINISTRATION, INSPECTION, RECORD DWGS., START-UP, SPECIAL SERVICES, ETC.

Work Category	Preliminary Design	Final Design	Bidding	Average Rate	Estimated Cost
Principal in Charge	8	6	0	\$ 60.00	\$ 840.00
Project Manager	62	46	19	\$ 38.50	\$ 4,889.50
Lead Project Engineer	68	56	30	\$ 29.90	\$ 4,604.60
Project Engineer	12	24	0	\$ 27.56	\$ 992.16
Process CAD	36	40	2	\$ 32.00	\$ 2,496.00
Structural Engineer	2	8	0	\$ 45.00	\$ 450.00
Structural CAD	4	8	0	\$ 29.00	\$ 348.00
Instrumentation Engineer	22	34	4	\$ 60.00	\$ 3,600.00
Instrumentation CAD	6	22	0	\$ 29.26	\$ 819.28
Electrical Engineer	32	46	4	\$ 60.00	\$ 4,920.00
Electrical CAD	16	48	0	\$ 37.25	\$ 2,384.00
Clerical	2	10	4	\$ 24.00	\$ 384.00
QA/QC Manager	2	12	0	\$ 56.02	\$ 784.28
<b>Total - Direct Labor Cost</b>					<b>\$ 27,511.82</b>



## **EXHIBIT A – SCOPE OF SERVICES**

### **FOR DESIGN AND BIDDING PHASES FOR THE WWTF EJECTOR STATION, DAIRY BAR PUMP STATION AND ARMORY PUMP STATION VFDs AND CONTROLS, AND WWTF FENCE UPGRADES FOR THE CITY OF BERLIN, NH**

#### **Statement of Purpose**

To provide professional engineering services for the preliminary design, final design and bidding phases for the upgrades to the City of Berlin WWTF ejector station, Dairy Bar and Armory Pump Stations, and WWTF site fencing.

#### **Background**

- WWTF Ejector Station
  - Two ejector pumps are installed in the Administration and Control Building Process Pump Room. The two existing pumps are 10 HP vertical Weil Sewage Ejector Pumps. Sanitary and seal water flow from the Administration and Control Building is collected in a wetwell and the ejector pumps discharge the collected flow to a force main discharge header above the wetwell and to the existing Headworks Building influent channel. Both ejector pumps have failed and the City is currently using temporary submersible pumps installed in the wetwell to pump flows. Piping installed above the wetwell as part of the Phase 2 Upgrade prevents replacement in kind due to height restrictions.
- WWTF Site Fencing
  - There is approximately 1,900 ft of 6' tall galvanized fence surrounding the WWTF. Numerous sections of fencing are damaged or missing and require replacement.
- Dairy Bar and Armory Pump Stations Controls
  - The Dairy Bar and Armory Pump Stations have nearly identical VFDs and control systems. Each pump station contains two pumps with Cutler Hammer VFDs. Dairy Bar Pump Station has two 30 HP pumps and Armory Pump Station has two 20 HP pumps. The HMIs on the VFDs are not legible and the VFDs themselves are obsolete. The City has difficulty troubleshooting the VFDs and adjusting parameters.
  - Wright-Pierce performed an evaluation of both pump stations' control systems, which are summarized in the "Berlin, NH – Armory and Dairy Bar Control Panel Upgrades Memorandum" dated October 23, 2017. The memorandum recommends replacement of the Controls Systems at both pump stations to address aging infrastructure.
- Napert Village Flow Meter
  - The City does not currently have a flow meter installed on the discharge side of this pump station but would like to have some means of flow measurement available. Currently, a flow meter downstream of the pump station allows the City

to know that there has been an increase in flow, but the City does not have enough granular information to know which upstream pump station the flow should be attributed to.

The City is requesting that Wright-Pierce complete the design of a design-bid-build contract to allow a Contractor to:

- WWTF Ejector Station
  - Convert the existing ejector pump station into a submersible pump station.
  - Install pump removal mechanism to allow submersible pumps to be mechanically removed from the wetwell. An I-beam and chainfall approach is envisioned.
  - Connect new submersible pump controls to existing Control Panel CP-8 installed under the Phase 2 Upgrade. Run status, motor overload, and high temperature alarms will be connected to SCADA to match existing.
- WWTF Site Fencing
  - Install approximately 1,900 linear feet of 6-foot tall galvanized chain-link fencing to replace existing around the WWTF.
- Dairy Bar and Armory Pump Stations
  - Upgrade the pump control systems at both pump stations as outlined in the Berlin, NH – Armory and Dairy Bar Control Panel Upgrades Memorandum, dated October 23, 2017.
  - Provide new VFDs for each pump at both stations (four VFDs total).
- Napert Village Pump Station
  - Install a magnetic flow meter on the discharge piping to allow the City to qualitatively assess pumped flows from the pump station to the collection system.
  - Design a force main bypass assembly.

## **Scope of Services**

The following tasks comprise the Scope of Services that Wright-Pierce will perform for this design and bidding phase services contract:

### **Task 1 – Design Phase**

1. Task 1a – Preliminary Design Phase
  - a. Conduct project kick-off meeting and site visit with City staff to the WWTF, Dairy Bar Pump Station, Armory Pump Station and Napert Village Pump Station to discuss existing conditions, issues, and proposed solutions. Discuss recommendations summarized in the October 2017 “Berlin, NH – Armory and Dairy Bar Control Panel Upgrades Memorandum” with City staff. It is anticipated that the Wright-Pierce Project Manager and Project Engineer would attend the kick-off meeting, and a separate site visit by discipline engineers would be conducted.

- b. Develop draft Preliminary Design memoranda summarizing the design basis for the WWTF Ejector Station, Dairy Bar and Armory Pump Stations Controls Upgrade, Site Fencing, and Napert Village Flow Meter. Preliminary Design memoranda shall include the following:
    - i. Summary of ejector station design basis, including electrical and instrumentation/control systems, and structural improvements needed for future pump removal;
    - ii. Summary of Napert Village Pump Station design basis, including electrical and instrumentation/control systems. Based on our understanding of the pump station, there is not sufficient upstream straight pipe run to ensure accurate flow measurement (5x pipe diameter). It is understood by Wright-Pierce that the City wishes to understand qualitative flow coming from this station. Wright-Pierce will assess the accuracy of different flow meters in this application and summarize our findings in the design basis.
    - iii. Incorporate necessary updates to the “Berlin, NH – Armory and Dairy Bar Control Panel Upgrades Memorandum” based on City feedback from site visit in Scope Item 1a. Revised Preliminary Design memorandum shall include the following:
      - 1. Summary of pump station controls upgrades design basis, including electrical and instrumentation/control systems and VFDs;
    - iv. 30% Design Drawings showing:
      - 1. Civil drawings showing fence layout
      - 2. Mechanical and structural layouts of the ejector pumping system and wetwell.
      - 3. Mechanical layouts of the proposed Napert Village flow meter
      - 4. Single line diagram of proposed electrical distribution equipment for Dairy Bar and Armory Pump Stations; and
      - 5. Instrumentation and control loop diagram for Dairy Bar and Armory Pump Stations.
    - v. Preliminary project/construction schedule; and
    - vi. Preliminary opinion of probable construction cost.
  - c. Submit draft Preliminary Design memoranda to City for review (three paper copies with 11x17 drawings and one electronic file in .pdf format).
  - d. Meet with City staff to receive and review comments on the draft Preliminary Design memoranda. Comments on the draft Preliminary Design memoranda will be incorporated into the Final Design.
2. Task 1b – Final Design
- a. On the basis of the comments received on the Preliminary Design memoranda and the preliminary opinion of probable construction cost, Wright-Pierce will prepare for incorporation in the Bidding Documents final Drawings and Specifications. Specifications will conform to the 16-Division format of the Construction

Specifications Institute (CSI) and conform to the Engineers Joint Contract Documents Committee (EJCDC) specification requirements.

- b. Develop 90% Drawings and Specifications
- c. Submit 90% Drawings and Specifications to the City and New Hampshire DES for review along with an updated opinion of probable construction cost (three paper sets of full-sized plans, three paper sets of 11x17 plans and three paper sets of Specifications).
- d. Meet with the City to review comments on the 90% deliverable. Final comments will be incorporated into the 100% bidding documents.
- e. Incorporate final comments and submit Bidding Documents to the City and New Hampshire DES as well as final opinion of probable construction costs (three paper sets of full-sized plans, three paper sets of 11x17 plans and three paper sets of Specifications, along with one electronic version in .pdf format).

#### Task 2 – Bidding Phase

1. After acceptance by the City of the Bidding Documents and the most recent opinion of probable construction cost as determined in the Final Design Phase, and upon written authorization by the City to proceed, Wright-Pierce shall:
  - a. Assist the City in advertising and obtaining bids for the project. The cost for advertisement in papers selected by the City has not been included.
  - b. Receive and process Contractor fees for Bidding Documents and maintain a record of prospective bidders to whom Bidding Documents have been issued.
  - c. Prepare for and attend one pre-bid conference.
  - d. Prepare required addenda to the bid documents as appropriate to clarify, correct or change the Bidding Documents based on questions received at the pre-bid conference or by written requests for information during the bid period. Issue addenda to the registered plan holders based on list maintained by Wright-Pierce. This Scope of Services assumes that up to two addenda will be issued.
  - e. Review all bids and prepare bid tabulation. City will conduct bid opening and send results to Wright-Pierce for review.
  - f. Review the qualifications of the apparent low bidder(s) and compliance with other contract requirements. Report on the results of the reviews and issue a bid evaluation letter for the City's review and consideration.

#### Assumptions

1. This Scope of Services assumes that the individual components to be completed (WWTF ejector station pumps, WWTF site fencing, Dairy Bar and Armory Pump Stations VFDs and Controls, and Napert Village Flow Meter) will be completed as one design package (i.e. one set of Drawings and Specifications). If separate design packages are desired by the City, additional design fee would be required.
2. This Scope of Services assumes that the project will not be included in the New Hampshire State Aid Grant (SAG) or State Revolving Fund (SRF) programs. This Scope of Services precludes the preparation of SAG/SRF applications and SAG/SRF contract

requirements such as Davis-Bacon wage rates, American Iron and Steel, New Hampshire DES supplementary conditions, etc.

3. The Preliminary Design Memoranda and Final Design 90% submittal will be submitted to NH DES for review by their Design Review Section. Two weeks of review time by DES for each submittal has been assumed in the project schedule.
4. The Scope of Services does not include any environmental permitting. If environmental permitting is required, additional design fee would be required.
5. This Scope of Services assumes that the ejector pumps provide adequate capacity and that replacement submersible pumps will be of a similar capacity. If the City desires larger pumps that require reconfiguration of the wetwell and overhead piping, additional design fee would be required.
6. The Scope of Services does not include surveying of the existing WWTF fence line. Existing survey (where available) will be used, along with 2-foot elevation contours obtained from Geographic Information System LiDAR data.
7. This Scope of Services does not include any reconfiguration of piping at the Napert Village Pump Station (beyond that necessary to install a magnetic flow meter in the available discharge piping spool piece) to address flow meter accuracy issues.

### Schedule

Wright-Pierce will commence work on this project immediately upon receipt of an executed Agreement and Notice to Proceed (NTP) from the City. Once underway, we propose the following schedule that would allow the City to be prepared for construction work to begin in 2020 and complete the project as part of the FY 2020 budget. The proposed schedule is as follows:

<b>Milestone</b>	<b>Number of Days from NTP</b>
• Signed Agreement / Notice to Proceed (NTP)	0
• Conduct Project Kick-Off Meeting	7
• Submit Draft Preliminary Design Memorandum	38
• Meet with City Staff to Receive Comments on Draft Preliminary Design Memorandum	52
• Start Final Design Phase	52
• Submit 95% Drawings and Specifications	82
• Meet with City to Receive Comments on 95% Design	96
• Submit Signed and Stamped 100% Bidding Documents to City	107



# 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