



**Request for Proposals  
Survey Services  
Town of Salem, NH  
April 2017  
RFQ (2017-009)**

Purchasing Agent  
**CHRISTINE WHOLLEY**  
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**Leon I. Goodwin III, Town Manager**

Prepared for and in coordination with the  
**Salem NH Municipal Services Department**  
Frank Giordano, Director of Utilities  
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**REQUEST FOR QUALIFICATIONS (RFQ)**  
**MAINTENANCE AND REPAIR OF SEWER LIFT STATIONS**  
**APRIL 2017**

The Town of Salem, New Hampshire is requesting qualifications from a company (CONTRACTOR) for professional services to provide maintenance and repair of sewer lift stations. There are currently ten sewer lift stations located throughout the town.

The CONTRACTOR must be a qualified company, with certified technicians and licensed if applicable with the ability to provide sufficient documentation and references as to their abilities to execute the desired work including installation, service, maintenance, repair, and retrofitting in as indicated.

Contract duration shall be thirty six (36) months. The Town may, at its sole option and discretion, extend the contract with the CONTRACTOR on an annual basis for up to two (2) additional years. The Town reserves the right to pursue services with other companies at any time, should it determine it to be in its best interest.

Any change to the provisions or specifications of this RFQ shall be made by written addendum issued no later than five (5) working days prior to the RFQ acceptance date. Prospective vendors shall have complete responsibility for being aware of any and all addenda. One (1) original and three (3) copies must be clearly labeled as '**RFQ – MAINTENANCE AND REPAIR OF SEWER LIFT STATIONS**' and must be received at the office of the Purchasing Agent, at the address below, no later than **11:00 AM on Friday April 21, 2017**. Late proposals will not be considered. A pre-proposal meeting will not be conducted. Qualifications received after the aforementioned date and time shall not be considered.

Copies of the RFQ may be obtained from the Town's purchasing website  
(<http://www.townofsalemnh.org/purchasing/pages/current-bids-proposals-and-awards>)

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Consultants requiring additional information or clarification relative to the contents of the RFQ may direct inquiries to Frank Giordano, Deputy Director – Utilities Division at 603-890-2179 or [fgiordano@ci.salem.nh.us](mailto:fgiordano@ci.salem.nh.us).

Following review of all proposals by a review committee, a recommendation will be made to the Town Manager, and that official will award the contract to the best responsible CONTRACTOR. The Town Manager's judgment shall be final and the right is reserved by the Town, through its Town Manager, to reject any or all proposals as he may determine and to waive defects in form or minor irregularities where the best interest of the Town would be served.

## **Section 1: Background**

The Town of Salem NH, through the Municipal Services Department, is soliciting proposals for qualifications to provide scheduled preventative mechanical maintenance and emergency repairs to the Town's wastewater pump stations and related facilities. The CONTRACTOR must be able to respond to emergency repairs within 24 hours and within 48 hours for non-emergency repairs. The work includes, but is not limited to, all labor and equipment to repair, replace, retrofit, adjust, and maintain pumps, motors, and related mechanical systems; inspection; testing; and emergency response. Primary work will be at the ten (10) wastewater pump stations.

## **Section 2: Scope of Services**

The intent of this Contract is to rehabilitate, restore, and/or maintain production to the Town of Salem NH municipal wastewater pump stations and related facilities utilizing materials and methods as herein specified.

The work includes the furnishing of all materials, labor, equipment, fuel, tools, transportation, and services for the successful redevelopment, rehabilitation, and repair of a wastewater pump station; and includes scheduled rehabilitation and maintenance as well as emergency repair services.

The CONTRACTOR is free to propose modifications to the scope that may result in cost savings and/or a better product. Any modifications shall be clearly spelled out in the Proposal and approved by the Town.

The general work and requirements for this Contract include, but not limited to, the following:

### **A. Pump Station Maintenance and Repair**

Comprehensive pump station, pump, and motor repair and maintenance at the Town's ten (10) wastewater pump stations and related facilities as needed.

Work may include the following but not limited to:

1. Mobilize equipment and materials and prepare job site
2. Remove existing pump, motor, and related equipment, and transport and store at the Contractor's Yard and/or Town Yard
3. Disassemble the surface plumbing
4. Pump repair and reassembly, or full replacement, as needed
5. Motor repair and reassembly, or full replacement, as needed
6. Reinstall the existing pump assembly and reconnect motor
7. Pipe, valve, control repair and reassembly, or full replacement, as needed
8. Furnish logs, daily records, and other items requested by the Town

### **B. Equipment Types**

Troubleshoot and work on multiple types of pumps and motors, to include, but not limited to:

1. Pumps: Fairbanks Morse, Gormann Rupp, Smith and Loveless, Yeoman
2. Motors: Fairbanks Morse, Gormann Rupp, Smith and Loveless, Yeoman  
Marathon Electric

**REFERENCE: Appendix A for specifications and details**

**C. Facility Types**

Primary work for this contract is at the Town's ten (10) wastewater pump stations, with possible secondary work at other facilities with similar equipment as needed.

**D. Response Time**

Able to respond to emergency repairs within 24 hours and within 48 hours for non-emergency repairs.

**E. Contractor Service Responsibilities**

The CONTRACTOR shall provide all labor, tools, equipment and all incidentals required and/or implied for the complete and satisfactory performance of the maintenance, and repair of Town pumps.

**F. Personnel Requirement**

Personnel used for the performance of this work shall be properly trained and qualified to perform pump or motor work on the variety and complexity of the systems in the Town facilities. The Town reserves the right to refuse to accept and authorize payment for services from any personnel deemed by the Town to be unqualified, disorderly, or otherwise unable to perform assigned work. The CONTRACTOR shall provide and keep up to date a list of all personnel performing work under this contract with classifications denoted, as well as written evidence of the personnel's qualifications for those classifications.

**G. Project Cost Estimates**

Estimates of individual project work requests shall be provided in writing to the Town via email, fax, or mail with adequate plans and specifications or written directions. The estimate should include all labor, equipment, parts and/or materials required to perform the work specified under this contract. This, or any work under this contract, shall only be performed with the Town's consent. Upon authorization, actual work shall not exceed the CONTRACTOR'S estimate without the Town's approval.

**H. Quality of Work**

1. All work shall be quality work, performed according to the standards of the industry and to the complete satisfaction of the Town. All parts used for repair and in reassembly of equipment (example: pumps) shall be the

manufacturer's authorized parts or specifically approved by the Town prior to installation.

2. Unsatisfactory work shall be immediately corrected by the CONTRACTOR at no additional cost to the Town.
3. All work shall be performed in accordance with the plans, drawings or instructions provided by the Town for each project or work assignment. Any discrepancies or previously unknown field conditions shall be brought to the attention of the Town and resolved before continuing the work.
4. All work shall be performed in accordance to Town code.

#### **I. Provide All Work Tools & Equipment**

The CONTRACTOR shall provide each crew and personnel ALL of the hand tools, power tools, truck, and equipment necessary for the performance of the work.

#### **J. Removing and Returning Completed Repaired Equipment**

Contractor shall provide service to load and pick-up pumps, motors, and related equipment for repairs within three (3) business days of being contacted by the City and return and unload repaired pumps and motors to the Town within three (3) business days after completion of repairs. Pickups and returns may be at the Town Water Treatment Plant Yard, well, or pump station location as identified by the Town.

### **Section 3: Submission Format & Content of Proposal**

To enable the Town to perform a fair comparative analysis and evaluation of proposals, CONTRACTORS shall structure and compose their proposals in the format outlined below. *Promotional materials shall not be included in the body of the proposal, but if deemed necessary and appropriate by the CONTRACTOR, shall be included as an Appendix (references to appendix information will not be considered satisfactory response to the items identified below).*

The proposal shall be brief, precise, and not include unnecessary promotional material. The proposal shall include the following items and organized as follows:

#### **A. Cover Letter**

Describe your company's interest and commitment in providing repair and maintenance services for the Town of Salem NH. An officer of the company who is authorized to contractually bind the firm and to negotiate a contract with the Town shall sign the letter. Provide name, title, address, email, and telephone number of this officer.

**B. Knowledge and Experience**

Includes a summary of experience that pertains to the disciplines described in the Scope of Services (**Section 2**). Provide summaries of the location and scope of similar recent projects that show experience in any of the tasks.

**C. Work Plan and Approach**

Discuss your company's understanding of the Scope of Services (**Section 2**) to be performed. Describe the method for management of overall project costs, schedule, quality assurance/quality control, and other issues critical to this project.

**D. Key Personnel Background**

Name, position, summary of qualifications, resumes, training, certifications, and related experience and responsibilities of key personnel assigned to this work.

Include appropriate contact addresses, telephone, radio, pager, cell phone, fax, email, etc.

**E. Facilities Description**

Provide a detailed summary describing your repair shop and storage facilities, facility location, facility size, a list of activities that will take place at the facilities, etc.

**F. References**

Provide at least three (3) references including: Project Name/Description, Company/Agency Name, Key Contact Name, Address, Email, and Telephone Number). **Note:** References from public agencies preferred.

**G. Statement of Subcontractors**

Provide a list of Subcontractors, including Company Name and Address, you may use.

**H. Proposal Rate Sheet**

1. Provide a comprehensive **Rate Sheet** with Unit Rates which shall include: labor, equipment, and any related costs to complete work in strict compliance with the specifications, terms, and conditions set forth in the Scope of Services (**Section 2**). Attach a Rate Sheet.
2. Include both **Straight Time** and **Overtime** rates per hour.
3. **Emergency Rates and Minimums** if applicable
4. Include a **Materials Markup Percentage** (Actual Cost Plus).

**I. Financial and Insurance Resources:**

The CONTRACTOR shall submit information that would clearly document the financial ability to execute this contract and/or indicate that they have the ability to obtain such resources. Proper insurance for employees, sub consultants, and subcontractors shall be required of the selected CONTRACTOR, as will the ability to provide Professional Liability Insurance to the Town in the amount of two times the CONSULTANT'S fee or \$250,000 (whichever is greater).

**J. Conflict of Interest:**

The CONTRACTOR shall describe any and all current or potential conflicts of interest related to performance on this project. Relationships with property owners, developers, and other consultants, whether in recent past (past three years), present, or potentially in the future by interest in a pending project, which may serve to provide financial benefit to the CONTRACTOR, must be identified. If there is potential or present conflict of interest, the CONTRACTOR must identify methods they will employ to address said conflicts.

## **Section 4: Evaluation Process**

Proposals will be evaluated based on the following criteria:

**A. Qualifications and Experience 50%**

1. Appropriateness and qualifications of the personnel, experience, training, and certifications.
2. Equipment and facilities for the specified services.
3. Ability to perform services described in the required manner and time frame.

**B. Costs 30%**

Based on the costs indicated in the submitted Proposal Rate Sheet described in Section 3-H.

**C. References 20%**

Comments from references regarding proposer's responsiveness to customer requirements, compliance with the contract terms, conditions, and work quality.

## **Section 5: Selection Process**

The RFQ process will establish a ranking based on how each proposal meets the qualifications of the Scope of Services and the requirements of the RFQ. The proposal shall conform to the Proposal Requirements (**Section 3**). It is important that ALL listed items be included in the proposal. Proposals, which do not comply with all the requirements per or the proposal deadline, will not be

considered. The Town reserves the right to reject any or all proposals without qualifications, and to negotiate specific requirements and costs using the selected proposal as a basis.

## **Section 6: Responsibilities of the CONTRACTOR**

- A.** Prior to final selection, the CONTRACTOR may be asked to attend an interview, or to submit any additional information, which the Town may deem necessary to determine the CONTRACTOR'S qualifications.
- B.** The successful CONTRACTOR will be considered to be the prime contractor for those services indicated in their proposal and will be required to assume total responsibility for the services offered in this proposal whether or not the firm is the firm delivering all of the services. The Town will consider the successful CONTRACTOR to be the sole point of contact with regard to all contractual matters, including performance or service unless otherwise stated.
- C.** The CONTRACTOR shall provide the staff and resources as outlined in the RFQ and shall not assign to other staff or sub consultants without the written approval of the Town.
- D.** The CONTRACTOR shall complete the scope of work and shall commit staff and resources to professionally and expeditiously complete such scope. The CONTRACTOR by virtue of their prior professional experience shall understand and endeavor to determine the possible obstacles that could interfere with the completion of the scope. The CONTRACTOR shall make such obstacles known to the Town and provide the Town with solutions to overcome such obstacles.
- E.** No costs or expenses incurred by the CONTRACTOR in responding to this RFQ will be borne by the Town.
- F.** Non-Discrimination in Employment and Affirmative Action. The CONTRACTOR shall not discriminate against any qualified employee or applicant for employment because of race, color, national origin, ancestry, age, sex, religion, or physical/mental handicap. The CONTRACTOR agrees to comply with all applicable Federal and State statutes, rules, and regulations prohibiting discrimination in employment.
- G.** Upon evaluation of the RFQ responses received, the Town will seek to enter into a contract with the selected CONTRACTOR. In the event that the CONTRACTOR fails, neglects or refuses to execute the contract within fourteen (14) days after notification that they have been selected by the Town, the Town may at its option terminate and cancel its action and commence contractual discussions with another Contractor.
- H.** Incorporated by reference into the contract will be all of the information presented in or with this RFQ and the CONTRACTOR'S response thereto.

## **Section 7: Negotiation & Informalities**

The Town reserves the right to negotiate with the selected CONTRACTOR regarding variation to the original RFQ, Contract, and Cost, if deemed to be in the best interest of the Town to do so. The Town reserves the right to waive any item, which in the opinion of the Town is an informality. The Town has the right to accept or reject any or all proposals in whole or in part if it is deemed to be in the Town's interest to do so.

## **Section 8: RFP Questions & Revisions**

Any questions or inquiries regarding this RFQ must be submitted in writing. In order to be considered, they must be received by the Purchasing Agent no later than seven (7) calendar days prior to the RFQ submission deadline. Any revisions to the RFQ will be provided in the form of an Addendum, posted on the Town's purchasing website at: <http://www.townofsalemnh.org/purchasing/pages/current-bids-proposals-and-awards>.

## **Section 9: General Conditions**

### **A. Irregular Proposals:**

Proposal will be considered irregular and may be rejected for any of the following reasons; however the Town retains the right to waive informalities and irregularities at its sole discretion:

1. If the proposal does not include all information listed in this RFQ.
2. If there are unauthorized additions, conditional or alternate proposals, or irregularities of any kind which may tend to make the proposal incomplete, indefinite or ambiguous as to its meaning.
3. If the proposer adds any provisions reserving the right to accept or reject an award.

### **B. Delivery of Proposals, Withdrawal, Opening, and Disqualification:**

All proposals shall be filed prior to the time and at the place specified in this RFQ. Proposals received after the time for opening of the proposals may be returned to the proposer, unopened, at the Town's discretion. Faxed or emailed proposals are not acceptable, although an electronic copy can be submitted in addition to the printed one. The Town is not responsible for delayed mail that misses the deadline.

A proposer will be permitted to withdraw his proposal unopened after it has been deposited if such request is received in writing prior to the time specified for opening the proposals. Either of the following reasons may be considered as being sufficient for the disqualification of a proposer and the rejection of his proposal:

1. Evidence of collusion among proposers.

2. Failure to supply complete information as requested by the proposal specifications.

The right is reserved to reject any or all proposals, to waive technicalities or to advertise for new proposals, if in its sole judgment it is in the best interest of the Town of Salem.

- C. **Award:** If a contract is to be awarded, the award will be made to the proposer that displays the best mix of qualifications, experience, and availability as it pertains to the type of services in Section 2 above, as soon as practical after the review process.
- D. **Cancelation:** The Town reserves the right to cancel the award of any contract at any time before the execution of such contract by all parties without any liability to the Town.
- E. **Laws:** The CONTRACTOR shall comply with all State and Local laws, ordinances, regulations and requirements applicable to work hereunder.
- F. **Contractor and Subcontractor Insurance:** The CONTRACTOR shall deliver at the time of execution of a contract; certificates of all insurance required hereunder and shall be reviewed prior to approval by the Town of Salem. The certificates of insurance shall state that the companies issuing insurance will endeavor to mail to the Town of Salem ten (10) days-notice of cancellation, alteration or material change of any listed policies. The CONTRACTOR shall keep in force the insurance required herein for the period of the Contract. At the request of the Town of Salem, the CONTRACTOR shall promptly make available a copy of any and all listed insurance policies. The requested insurance must be written by a Company licensed to do business in New Hampshire at the time the policy is issued.

The Town of Salem, NH shall be listed as an additional insured on a primary and non-contributory basis in General Liability, Auto Liability and Umbrella Liability policies required for the contract. The CONTRACTOR shall require each Subcontractor employed on the Project to maintain the coverage listed below unless the CONTRACTOR'S insurance covers activities of the Subcontractor on the Project.

No operations under this Contract shall commence until certificates of insurance attesting to the below listed requirements have been filed with and approved by the Town, required accounting information (W9, etc.) and the Contract approved by the Town.

- G. **Indemnification:** The Town and CONTRACTOR shall at all times indemnify and save harmless each other and their officers, and employees on account of any claims, damages, losses, litigation, expenses, counsel fees, and compensation arising out of any claims, damages, personal injuries and/or property losses sustained by any person

or entity, to the extent caused by the negligent acts, errors or omissions of the indemnifying party, its employees, or subcontractors in connection with work completed under the contract.

**H. Insurance Coverage:** The CONTRACTOR shall demonstrate that its staff is protected by Workers Compensation and Employers' Liability insurance in compliance with statutory limits and that the CONTRACTOR has coverage under professional liability, public liability and property damage insurance policies. Certificates for such policies will be provided to Client upon request. Minimum coverages shall be as follows:

1. Comprehensive General Liability (including Products Completed, Contractual Property, and Personal Injury coverage): \$1,000,000 per occurrence / \$2,000,000 aggregate
2. Automobile Liability (Property Damage): \$1,000,000 per occurrence
3. Professional Liability: \$1,000,000 per claim and in the aggregate

**I. Accident Protections:** It is a condition of this Contract, and shall be made a condition of each subcontract entered into pursuant to the Contract, that a Contractor and any Subcontractors shall not require any laborer or mechanic employed in the performance of the Contract to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to health or safety, as determined by construction safety and health standards of the Occupational Safety and Health Administration, United States Department of Labor, which standards include, by reference, the established Federal Safety and Health regulations for Construction. These standards and regulations comprise Part 1910 and Part 1926 respectively of Title 29 of the Code of Federal Regulations and are set forth in the Federal Register. In the event any revisions in the Code of Federal Regulations are published, such revisions will be deemed to supersede the appropriate Part 1910 and Part 1926, and be effective as of the date set forth in the revised regulation.

**J. Subcontracts:** The CONTRACTOR shall be as fully responsible to the Town of Salem for the acts and omissions of Subcontractors and of persons employed by him, as he is responsible for the acts and omissions of persons directly employed by him.

**K. Extras:** Except as otherwise herein provided, no charge for any extra work or material will be allowed unless the Town has ordered the same, in writing.

**L. Default and Termination of Contract:** If the CONTRACTOR does not proceed in accordance with the Contract, then the Town of Salem will have full power and authority without violating the Contract to take the prosecution of the work out of the

hands of the CONTRACTOR. The Town of Salem may enter into an agreement for the completion of said Contract according to the terms and conditions thereof, or use such other methods as in his opinion will be required for the completion of said Contract in an acceptable manner.

All extra costs and charges incurred by the Town of Salem as a result of such delay, neglect or default, together with the cost of completing the work under the Contract will be deducted from any monies due or which may become due to said CONTRACTOR. If such expenses exceed the sum which would have been payable under the contract, then the CONTRACTOR shall be liable and shall pay to the Town of Salem the amount of such excess.

Reasons for termination include, but are not limited to:

1. CONTRACTOR fails to begin work under Contract within the time specified in the notice to proceed;
2. Fails to perform the work with sufficient workmen and equipment, or with sufficient materials to assume prompt completion of said work;
3. Performs the work unsuitably or neglects or refuses to remove materials or to perform a new such work as may be rejected as unacceptable and unsuitable;
4. Discontinues the prosecution of the work;
5. Fails to resume work, which has been discontinued, within a reasonable time after notice to do so;
6. Becomes insolvent or has declared bankruptcy, or commits any act of bankruptcy or insolvency;
7. Makes an assignment for the benefit of creditors;

The Town of Salem will give notice, in writing, to the CONTRACTOR for such delays, neglect, and default. CONTRACTOR shall respond within 14 days to such notice with corrective action, to the Town's satisfaction, or be subject to Contract termination.

## **APPENDIX A**

**Wastewater Pumping Station Inspection**

**Town of Salem, New Hampshire**

**Station Name: Brookdale Road**

Date:	Inspected by: JMC/CSM, Ron Benjamin (Town)
photos/sketch:	

**General**

Location	Brookdale Road
Type (circle one)	duplex flooded suction, can type
Installation date	1998
Design Capacity (gpm)	120
Collects flow from	Brookdale Road
Transfers flow to	North Policy Street
General condition	good
O&M, record drawings?	O&M and manufacturer design dwg

**Site**

Owner	Town of Salem / Canoble Lake Realty Corp
Map/Lot number	Part of 80/3771
Easement?	Yes
Lot size, acres	30' x 60' Permanent Easement
Fence	Yes, wooden stockade, decent condition
Driveway	paved drive
Landscaping	no
Access to wetwell by truck?	yes, 10 ft. gate entrance
Neighborhood description	residential

**Structural**

Structure description	underground, can style, wet well/dry pit
Dimensions	8' dia x 9' high inside, floor about 19' below EG per design dwg
Accessibility	ladder
Confined space Issues?	yes
Condition	overall good, light deterioration of paint on floor

**Wastewater Pumping Station Inspection**
**Town of Salem, New Hampshire**
**Station Name: Brookdale Road**

<b>Wetwell</b>	
Dimensions	6 ft. dia.
Material	precast concrete, 3 sections; bituminous coating
Condition	good
Access and size	manhole; 3' x3' hatch
Steps	yes
Pump slide rails	N/A
Influent tee	no
Vent	yes, charcoal odor control, original media
Condition	good
Foam, odor, grease, grit?	grease observed on sides
Date/frequency cleaned	annually
Emergency storage?	no
<b>Pumps</b>	
Design flow, gpm	120 gpm each
Design TDH, ft	70
Observed pump rate, gpm	P1: 97 GPM, P2: 88 GPM
Observed TDH ft or discharge psl	no gauge
Number of pumps	2
Pump model	Fairbanks Morse 5432C
Pump type	Dry pit submersible
Pump serial numbers	P1: 1193799, P2: 1193802
Motor HP, voltage, # phases	Marathon Electric, 10 HP, 208-230/460V, 3 ph, Model CVD215TTDW7043
Motor speed, rpm	1750
Date last overhauled	10 YR Ago replaced by United Pump Compressor
Does capacity meet peak flow?	
100% redundancy?	Pump seal system with domestic water supply with backflow preventer
<b>Controls</b>	
Control panel description	
Condition/age	1998
Location (indoor/outdoor etc)	outdoor enclosure
Lead/lag controls?	yes
Auto alternation?	yes
Soft starters?	Yes
Variable frequency drives?	no

**Wastewater Pumping Station Inspection**
**Town of Salem, New Hampshire**
**Station Name: Brookdale Road**
**Instrumentation**

Level control type	pressure transducer
Level indicator	pressure transducer
Flowmeter type/size	no
Flow totalizer or recorder	pump runtime meter
Last calibration date	
Chart Recorder	no
SCADA RTU	no
Security system	no, lock on door
Runtime meter	yes

**Alarms**

Alarm panel/display	
Alarm telemetry	cell phone based mission dialer
Local alarm light, horn?	no
Alarms tested?	annually, weekly generator excersize
Independent high level alarm?	yes, Independent float for high level

**Piping and valves**

Air release valves	no
Discharge check valves	yes, 4"
Isolation valves	yes, 4" GVs suction and discharge
Valve pit	no
Force main size, length, material	4" steel discharge
Pump station bypass?	no
Force main drain?	no
Condition	minor cracking of paint on piping, valves
Electrical	see site review by Lee Carroll, P.E.
Service rating, voltage	100 amp breaker
Main disconnect	yes
Surge protection?	
Intrinsically safe barriers?	no
Code Issues? (e.g. panel clearance?)	

**Backup power**

Generator make/model	Generac CD015, Model 98A059645
Generator fuel	Diesel
Generator KW, voltage	15kw, 120/208V
Transfer switch	ATS Asco series 300
Condition/age	12/4/1998
Exercise schedule?	weekly
Capacity to run both pump?	yes
Portable generator connection?	no, permanent
Generator Serial Number	2044585

**Wastewater Pumping Station Inspection**

**Town of Salem, New Hampshire**

**Station Name: Brookdale Road**

**Mechanical**

Heating	Dayton unit heater (1500 Watts)
Ventilation	Dayton Blower (387 cfm)
Plumbing	ABS sump pump (25 gpm), 115V, 1/2 Hp
Dehumidifier	Dayton 1DGX4
	space heater in control panel

**Key Elevations**

Invert In elevation, ft MSL	197.3 (centerline of 4" suction)
Wetwell operating band, ft	1.3' noted, set at level 3 ft.

**Force main discharge elevation, ft MSL**

Pump run time per cycle	
Pump station logs, maintenance rec	O&M's in control panel

**Operating Concerns; Deficiencies; Improvements and Further Investigation**

high levels of grease in wetwell, unusual for residential neighborhood  
 No groundwater in dry pit, stays dry  
 No pressure gauge on discharge in dry pit

Additional photos/sketches

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name: Butler Street (formerly Tyler St)</b>	
Date:	Inspected by: JMC/CSM, Ron Benjamin (Town)
photos/sketch:	
<b>General</b>	
Location	Butler Street
Type (circle one)	wet pit/dry pit; submersible; suction lift; ejector
Installation date	station moved from another location
Design Capacity (gpm)	
Collects flow from	Butler/Wheeler intersection
Transfers flow to	Butler Street
General condition	
O&M, record drawings?	
<b>Site</b>	
Owner	Town of Salem
Map/Lot number	
Easement?	Assumed
Lot size, acres	
Fence	Behind guardrail to NE Rehab at intersection of Butler St./Wheeler Ave.
Driveway	No
Landscaping	Grass, Trees around for buffer by NE Rehab
Access to wetwell by truck?	Yes
Neighborhood description	Residential and rehab facility
<b>Structural</b>	
Structure description	Gormann Rupp package station
Dimensions	6' x 6'
Accessibility	N/A
Confined space issues?	No
Condition	Fair

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name: Butler Street (formerly Tyler St)</b>	
Wetwell	
Dimensions	6' ID
Material	Precast concrete
Condition	Good condition, no aggregate exposed
Access and size	Manhole, 32"
Steps	No
Pump slide rails	No
Influent tee	No
Vent	No
Condition	Overall okay
Foam, odor, grease, grit?	Floatables, grease minor
Date/frequency cleaned	Annually
Emergency storage?	No
Leaky gusher 5gpm at FM exit to structure - GW	
Pumps	
Design flow, gpm	400 gpm
Design TDH, ft	71'
Observed pump rate, gpm	P1: 115 gpm, P2: 118 gpm
Observed TDH ft or discharge psi	no gauge
Number of pumps	2
Pump model	Germann Rupp T4A3-B
Pump type	
Pump serial numbers	814644, 814645 - not visible to field verify
Motor HP, voltage, # phases	200V, 600Hz, 3 PH, 20 HP
Motor speed, rpm	1750 RPM on tag
Date last overhauled	Annually
Does capacity meet peak flow?	Assumed
100% redundancy?	Assumed
4" pump inlet/outlet	
Controls	
Control panel description	Bulldog 100 pump controller, Germann Rupp control panel 208V, 3PH, 60M, 160Amp
Condition/age	
Location (Indoor/outdoor etc)	Enclosure
Lead/lag controls?	Yes
Auto alternation?	Yes
Soft starters?	No
Variable frequency drives?	No

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name: Butler Street (formerly Tyler St)</b>	
Instrumentation	
Level control type	Pressure transducer
Level Indicator	Pressure transducer
Flowmeter type/size	No
Flow totalizer or recorder	No
Last calibration date	No
Chart Recorder	No
SCADA RTU	No
Security system	No
Runtime meter	yes
Alarms	
Alarm panel/display	Bulldog 100 pump controller
Alarm telemetry	cell based Mission dialer
Local alarm light, horn?	no
Alarms tested?	no
Independent high level alarm?	yes
Piping and valves	
Air release valves	no, ball valves only
Discharge check valves	yes
Isolation valves	3 way plug valve like Stiles Road
Valve pit	no, ball valves only
Force main size, length, material	4" estimated per Town
Pump station bypass?	no
Force main drain?	no
Electrical	
Service rating, voltage	see site review by Lee Carroll, P.E. 3 PH, 208 V, 60 Hz
Main disconnect	
Surge protection?	
Intrinsically safe barriers?	no
Code issues? (e.g. panel clearance?)	
Backup power	
Generator make/model	Kohler Model 60REOZJB SN: 2122476
Generator fuel	diesel
Generator KW, voltage	60 Hz, 1800 RPM, 62 KW, 78 KVA
Transfer switch	auto
Condition/age	estimate circa 2006
Exercise schedule?	weekly if possible
Capacity to run both pump?	yes
Portable generator connection?	no
	leaves, bees nest inside generator enclosure, rust on top of diesel tank

**Wastewater Pumping Station Inspection**

Town of Salem, New Hampshire

**Station Name: Butler Street (formerly Tyler St)****Mechanical**

Heating	portable space heater
Ventilation	blower inside enclosure
Plumbing	no

**Key Elevations**

Invert in elevation, ft MSL

Wetwell operating band, ft

2.5' ???

Force main discharge elevation, ft MSL

Pump run time per cycle

Pump station logs, maintenance records

**Operating Concerns, Deficiencies, Improvements and Further Investigation**

Pump design flow 400 gpm from record info does not appear to be accurate  
based on pump rates observed during draw down test.

Additional photos/sketches

**Wastewater Pumping Station Inspection**

Town of Salem, New Hampshire

**Station Name: Commercial Drive**

Date:	Inspected by: JMC/CSM, Ron Benjamin (Town)
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photos/sketch:

**General**

Location	Commercial Drive
Type (circle one)	wet pit/dry pit; submersible; suction lift; ejector
Installation date	1987 vintage
Design Capacity (gpm)	
Collects flow from	Commercial Drive area
Transfers flow to	Pelham Road
General condition	
O&M, record drawings?	

**Site**

Owner	Town of Salem
Map/Lot number	
Easement?	yes, from 4 Commercial Drive
Lot size, acres	
Fence	no
Driveway	paved, poor condition, steep
Landscaping	no, only grass
Access to wetwell by truck?	yes
Neighborhood description	Industrial Park

**Structural**

Structure description	dry pit, precast building on slab, wood panels Inside
Dimensions	building: 10' x 12' x 7.2' H
Accessibility	6' door on building, no WW access
Confined space issues?	
Condition	entry door in poor condition

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name: Commercial Drive</b>	
Wetwell	
Dimensions	6' diameter round, may be 7' (difficult to measure)
Material	precast concrete
Condition	fair, light hyd. Sulfide deterioration, no aggregates present
Access and size	manhole, hatch, 32" sewer cover
Steps	no
Pump slide rails	no
Influent tee	no
Vent	no
Condition	
Foam, odor, grease, grit?	clean, some floatables
Date/frequency cleaned	annually (typical for all stations)
Emergency storage?	no cracked mortar on frame concrete
Pumps	
Design flow, gpm	250 gpm
Design TDH, ft	51'
Observed pump rate, gpm	P1: 195 GPM, P2: 176 GPM
Observed TDH ft or discharge psi	
Number of pumps	2
Pump model	Gorman Rupp T6A3-B
Pump type	self priming
Pump serial numbers	P1 (1st from door): 835815, P2: not legible
Motor HP, voltage, # phases	Type T1KK SN 6400657 MI, 20 HP, 208V, 3 PH, 60 Hz, 230/460 V, 208 V
Motor speed, rpm	1050 (1750 at full load)
Date last overhauled	annually
Does capacity meet peak flow?	
100% redundancy?	P1 motor SN: 6400657
Controls	
Control panel description	Bulldog 100 pump controller (same as Brookdale)
Condition/age	estimate 1998
Location (indoor/outdoor etc)	Indoor
Lead/lag controls?	yes
Auto alternation?	yes
Soft starters?	no
Variable frequency drives?	no

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name: Commercial Drive</b>	
Instrumentation	
Level control type	pressure transducer
Level Indicator	pressure transducer
Flowmeter type/size	no, run hours
Flow totalizer or recorder	run hours
Last calibration date	estimate annually
Chart Recorder	no
SCADA RTU	no
Security system	no
Runtime meter	yes
Alarms	
Alarm panel/display	yes, alarms on panel, display defunct
Alarm telemetry	cell based Mission control dialer
Local alarm light, horn?	no, no
Alarms tested?	
Independent high level alarm?	yes, float
Alarms on panel	engine overcrank, overspeed, low oil, high temp. P1/P1 high temp high water alarm, silence alarm
Piping and valves	
Air release valves	1 1/4" ball valves in lieu of air release
Discharge check valves	yes
Isolation valves	6" tee valve in common header Dezurik 6"
Valve pit	no
Force main size, length, material	6" out of station
Pump station bypass?	no, pump from WW
Force main drain?	no
Electrical	
Service rating, voltage	see site review by Lee Carroll, P.E. 150 amp, 3 PH, 60 Hz, 208 V
Main disconnect	200 amp
Surge protection?	estimate yes
Intrinsically safe barriers?	estimate no
Code Issues? (e.g. panel clearance?)	4 - 20 amp breakers
Backup power	
Generator make/model	backup motor: WIconsin Propane Powers P2 operated by bubbler
Generator fuel	propane
Generator KW, voltage	auxillary motor
Transfer switch	backup bubbler
Condition/age	estimated 80's
Exercise schedule?	weekly
Capacity to run both pump?	no
Portable generator connection?	no
Auxillary motor	Gormann Rupp Watchdog 20 Hp, 3 PH, 20 V, SN: 86249-AX
	WIconsin Model VG4DG SN: 6127710 run hours 23,6
	DC bubbler system turns on backup motor

**Wastewater Pumping Station Inspection**

Town of Salem, New Hampshire

**Station Name: Commercial Drive****Mechanical**

Heating propane heater Dayton 3E238, not used - defunct, 1500 W Intertec Portable

Ventilation louvers, temperature operated solenoids

Plumbing

**Key Elevations**

Invert in elevation, ft MSL

Wetwell operating band, ft

Force main discharge elevation, ft MSL

Pump run time per cycle

Pump station logs, maintenance records

**Operating Concerns, Deficiencies, Improvements and Further Investigation**

would like backup generator

concern bubbler system will not work to operate backup motor when needed

plugged air release valves

Additional photos/sketches

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name: Copper Beech</b>	
Date:	Inspected by: JMC/CSM, Ron Benjamin (Town)
photos/sketch:	
Note: See report by Underwood Engineers dated February 2014	
<b>General</b>	
Location	Copper Beech Road
Type (circle one)	wet pit/dry pit; submersible; suction lift; ejector
Installation date	
Design Capacity (gpm)	120 gpm (currently at 250 gpm)
Collects flow from	Copper Beech Road
Transfers flow to	Pond Street
General condition	Poor, not up to code
O&M, record drawings?	Available
<b>Site</b>	
Owner	Town of Salem
Map/Lot number	
Easement?	assumed
Lot size, acres	
Fence	no
Driveway	paved, poor condition, rutting
Landscaping	no
Access to wetwell by truck?	yes
Neighborhood description	residential, large homes
<b>Structural</b>	
Structure description	building; wet well
Dimensions	12' x 15.5' vinyl siding, asphalt shingles
Accessibility	
Confined space issues?	yes
Condition	building in poor condition, gable roof, asphalt shingles. Wood insect damage, trim rotted, drainage issues at face of building, 5' door for pump room, 3' door wet well. Building built on top of Smith & Loveless wet well, door to enter wet well infested with mice. Building built on top of existing pumps skid S&L
	sheet rock in wet well, wood panel in pump room

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name: Copper Beech</b>	
Wetwell	
Dimensions	5' diameter
Material	precast concrete, bitumin seal at joints
Condition	exposed sealant at joints, light spalling, good condition
Access and size	hatch 2' x 2.3'
Steps	yes, not usable
Pump slide rails	no
Influent tee	no
Vent	no
Condition	
Foam, odor, grease, grit?	not observed
Date/frequency cleaned	annually
Emergency storage?	low flow at this station
Pumps	
Design flow, gpm	120 GPM
Design TDH, ft	35 TDH
Observed pump rate, gpm	P1: 108 GPM, P2: 86 GPM
Observed TDH ft or discharge psi	
Number of pumps	2
Pump model	Smith & Loveless
Pump type	centrifugal, vacuum assist to prime pumps
Pump serial numbers	P2: 8908105, P1: 8908106
Motor HP, voltage, # phases	5 HP, 230/460 V, 3 PH
Motor speed, rpm	1165 RPM
Date last overhauled	annually
Does capacity meet peak flow?	
100% redundancy?	
Controls	
Control panel description	Bulldog 100 pump controller, SN: 16-4008, 240V, 3PH, 60 Hz
Condition/age	fair, servicable
Location (indoor/outdoor etc)	Indoor
Lead/lag controls?	yes
Auto alternation?	yes
Soft starters?	no
Variable frequency drives?	yes, Yaskawa V1000 VFDS, 2 years old

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name: Copper Beech</b>	
<b>Instrumentation</b>	
Level control type	pressure transducer
Level Indicator	pressure transducer
Flowmeter type/size	no
Flow totalizer or recorder	no
Last calibration date	
Chart Recorder	no
SCADA RTU	no
Security system	no
Runtime meter	yes
<b>Alarms</b>	
Alarm panel/display	on Bulldog 100
Alarm telemetry	cell based Mission dialer
Local alarm light, horn?	yes, alarm and horn, both defunct
Alarms tested?	no
Independent high level alarm?	yes
<b>Piping and valves</b>	
Air release valves	no
Discharge check valves	yes
Isolation valves	plug valves on discharge, check valves on discharge
Valve pit	no
Force main size, length, material	4"
Pump station bypass?	no
Force main drain?	no
	pvc piping for pump intake 4"
<b>Electrical</b>	
Service rating, voltage	see site review by Lee Carroll, P.E.
Main disconnect	
Surge protection?	
Intrinsically safe barriers?	no
Code Issues? (e.g. panel clearance?)	clearance issues XFMR for VFDS
<b>Backup power</b>	
Generator make/model	Onan
Generator fuel	natural gas
Generator KW, voltage	20 Kw, 20 KVA, 60 Hz, 1800 RPM
Transfer switch	auto
Condition/age	
Exercise schedule?	weekly if possible
Capacity to run both pump?	yes
Portable generator connection?	no

### Additional photos/sketches

**Wastewater Pumping Station Inspection**
**Town of Salem, New Hampshire**
**Station Name: Freedom Drive**

Date:	Inspected by: JMC/CSM, Ron Benjamin (Town)
photos/sketch:	

**General**

Location	Freedom Drive
Type (circle one)	ejector station
Installation date	This station (can) relocated from another location in Town
Design Capacity (gpm)	
Collects flow from	Freedom Drive neighborhood
Transfers flow to	Veteran's Memorial Parkway
General condition	servicable
O&M, record drawings?	no

**Site**

Owner	Town of Salem
Map/Lot number	
Easement?	
Lot size, acres	
Fence	6.5' chain link fence w/barbed wire, 8' gate
Driveway	yes, paved, fair condition
Landscaping	no
Access to wetwell by truck?	
Neighborhood description	residential elderly housing

**Structural**

Structure description	4" slab top building, 12'x15', exposed aggregate finish. Precast concrete walls, flat roof
Dimensions	12 x 15 x 7
Accessibility	ladder; stairs
Confined space issues?	
Condition	building fair, entry door corroded, floor coating deteriorating this station moved from another location, 5' diameter steel can

**Wastewater Pumping Station Inspection**

**Town of Salem, New Hampshire**

**Station Name: Freedom Drive**

Wetwell - N/A

Dimensions	
Material	
Condition	
Access and size	
Steps	
Pump slide rails	
Influent tee	
Vent	
Condition	
Foam, odor, grease, grit?	
Date/frequency cleaned	
Emergency storage?	
<b>Ejector Compressors</b>	
Design flow, gpm	100
Design TDH, ft	15
Observed pump rate, gpm	
Observed TDH ft or discharge psi	
Number of compressors	2 by Quincy Compressor
Model	#2 230-56, #1 230-36
Type	size 3.5 x 3
Serial numbers	#2 303384, #1 589298L
Motor HP, voltage, # phases	#1: leeson - Info not legible
Motor speed, rpm	
Date last overhauled	annually
Does capacity meet peak flow?	
100% redundancy?	
	Motor model #21, C182C170BBA, 60 Hz, 1740 RPM, 2 Hp, 1 PH
<b>Controls</b>	
Control panel description	Smith and Loveless control panel
Condition/age	
Location (indoor/outdoor etc)	Indoor pods alternate
Auto alternation?	yes
Soft starters?	n/a
Variable frequency drives?	n/a
	ejector count: Pot 1: 2315, Pot 2: 158

**Wastewater Pumping Station Inspection**
**Town of Salem, New Hampshire**
**Station Name: Freedom Drive**
**Instrumentation**

Level control type	n/a
Level Indicator	
Flowmeter type/size	
Flow totalizer or recorder	
Last calibration date	
Chart Recorder	
SCADA RTU	
Security system	
Runtime meter	compressor hours, ejector pot count (resetable)

**Alarms**

Alarm panel/display	
Alarm telemetry	cell based mission control
Local alarm light, horn?	
Alarms tested?	
Alarm	power fall only alarm, no compressor fall

**Piping and valves**

Air release valves	
Discharge check valves	
Isolation valves	
Valve plt	
Force main size, length, material	
Pump station bypass?	compressors and motors removed from can and installed in building
Force main drain?	5' diameter steel can transferred from other location
Electrical	see site review by Lee Carroll, P.E.
Service rating, voltage	

Main disconnect 100 Amp, 240 V

Surge protection?

Intrinsically safe barriers?

Code Issues? (e.g. panel clearance?)

**Backup power**

Generator make/model	Kohler w/GM vortec, Kohler 15RYG
Generator fuel	LPG
Generator KW, voltage	15 kW, 15 KVA
Transfer switch	ATS, Kohler RDT-CFNA-0100-A
Condition/age	2005
Exercise schedule?	weekly
Capacity to run both pump?	yes
Portable generator connection?	SN: 2060327 manufactured 9/05

**Additional photos/sketches**

Wastewater Pumping Station Inspection

Town of Salem, New Hampshire

Station Name: Haigh Avenue

Date: Inspected by: JMC/CSM, Ron Benjamin (Town)

photos/sketch:

General	
Location	Haigh Ave
Type (circle one)	wet pit/dry pit
Installation date	1972 vintage
Design Capacity (gpm)	
Collects flow from	Haigh Ave.
Transfers flow to	So. Broadway
General condition	aged
D&M, record drawings?	
Site	
Owner	Town of Salem
Map/Lot number	
Easement?	
Lot size, acres	
Fence	concrete flood wall CIP concrete - 4' high, 5' chain link fence w/barbed wire, 3.5' entryway gate
Driveway	paved drive, good condition
Landscaping	no, grass only
Access to wetwell by truck?	through 3.5' gate
Neighborhood description	residential, also serves mall?
Structural	
Structure description	building; dry pit, well well
Dimensions	8', 3' manway
Accessibility	dry pit - elevator with stairs, 8'
Confined space issues?	yes
Condition	dry pit - fair, limited leakage/deterioration, floor beneath P-2 epoxy coating peeling, metal rusting
	building - ceiling leaking by vent, brick façade, asphalt shingle - good shape, wood gable ends and trim, louvers

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
Station Name: Haigh Avenue	
Wetwell	
Dimensions	6' estimate
Material	precast concrete
Condition	good
Access and size	manhole
Steps	yes
Pump slide rails	no
Influent tee	yes
Vent	no, flood protection cover on MH
Condition	
Foam, odor, grease, grit?	high grease levels, pumped monthly
Date/frequency cleaned	monthly grease, washed annually by Roto Rooter
Emergency storage?	no
Pumps	
Design flow, gpm	240 gpm at 38' TDH
Design TDH, ft	38'
Observed pump rate, gpm	
Observed TDH ft or discharge psi	
Number of pumps	2
Pump model	Smith & Loveless 4B3
Pump type	
Pump serial numbers	P1: 040623, P2: 040624
Motor HP, voltage, # phases	7.5 HP, 230 V, 3PH
Motor speed, rpm	1200
Date last overhauled	
Does capacity meet peak flow?	
100% redundancy?	
Motor serial number	M2: 04-0391 B-1, M1: can't read, seal water system with non domestic
Controls	
Control panel description	Bulldog 100
Condition/age	estlimate 1998
Location (indoor/outdoor etc)	indoor in building
Lead/lag controls?	yes
Auto alternation?	yes
Soft starters?	not observed
Variable frequency drives?	no

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
Station Name: Haigh Avenue	
Instrumentation	
Level control type	pressure transducer, high level float
Level indicator	pressure transducer
Flowmeter type/size	no
Flow totalizer or recorder	no, run hours
Last calibration date	annual
Chart Recorder	no
SCADA RTU	no
Security system	no
Runtime meter	Yes
Alarms	
Alarm panel/display	no
Alarm telemetry	cell based mission alarm
Local alarm light, horn?	no
Alarms tested?	no
Independent high level alarm?	yes, assumed
Piping and valves	
Air release valves	no
Discharge check valves	4", yes on each SL
Isolation valves	yes, plug valves either side, both pumps
Valve pit	no
Force main size, length, material	estimate 6"
Pump station bypass?	no
Force main drain?	no
Electrical	
Service rating, voltage	see electrical review by Lee Carroll, P.E.
Main disconnect	
Surge protection?	
Intrinsically safe barriers?	
Code Issues? (e.g. panel clearance?)	
Backup power	
Generator make/model	Onan 45EM, Ford Motor Model 300GF-6005-A-50-31
Generator fuel	propane
Generator KW, voltage	45 Kw, 56 KVA for 3 PH/ 30Kw, 37.5 KVA for 1 PH
Transfer switch	auto
Condition/age	1998 vintage
Exercise schedule?	weekly assumed
Capacity to run both pump?	yes, assumed
Portable generator connection?	no

**Additional photos/sketches**

### Wastewater Pumping Station Inspection

Town of Salem, New Hampshire

**Station Name:** Keewaydin

Date:	Inspected by: JMC/CSM, Ron Benjamin (Town)
photos/sketch:	

#### General

Location	Keewaydin Drive
Type (circle one)	wet pit/dry pit; submersible; suction lift; ejector
Installation date	
Design Capacity (gpm)	
Collects flow from	Commercial and Stiles Road pump stations
Transfers flow to	Main Street
General condition	
O&M, record drawings?	

#### Site

Owner	Town of Salem
Map/Lot number	
Easement?	
Lot size, acres	
Fence	6' high chain link and barbed wire, 12' gate
Driveway	paved, good condition
Landscaping	no
Access to wetwell by truck?	yes
Neighborhood description	industrial park

#### Structural

Structure description	wood siding, cedar clapboards
Dimensions	16' x 14' x 10'+ high
Accessibility	7' door
Confined space issues?	
Condition	trim needs replacing, rot, insect damage on fascia, asphalt shingle roof, good condition, gable vents, exterior alarm lights active by door two windows both 2.2' x 1.1'

**Wastewater Pumping Station Inspection**
**Town of Salem, New Hampshire**
**Station Name: Keewaydin**
**Wetwell**

Dimensions	Est. 10' ID
Material	precast concrete
Condition	good; no signs of hyd sulfide corrosion
Access and size	hatch, 2.5' x 2.5'
Steps	no
Pump slide rails	no
Influent tee	no
Vent	no
Condition	
Foam, odor, grease, grit?	minor grease
Date/frequency cleaned	annually
Emergency storage?	no

**Pumps**

Design flow, gpm	650 gpm
Design TDH, ft	82'
Observed pump rate, gpm	
Observed TDH ft or discharge psi	
Number of pumps	2
Pump model	Gorman Rupp T8A3-B
Pump type	self priming centrifugal
Pump serial numbers	P1: 937960 (2nd from door), P2: 987961
Motor HP, voltage, # phases	50 HP, 230/460 V, 3 PH, 126/63 Amp, Type TIKK, 4 poles, 60 Hz
Motor speed, rpm	1765
Date last overhauled	annually
Does capacity meet peak flow?	
100% redundancy?	
Motor model #	M1: B0504VLF1UK, M2: B0504VLF10K

**Controls**

Control panel description	Bulldog 100 pump controller, SN 90-827-LE
Condition/age	estimate 1990
Location (indoor/outdoor etc)	Indoor 480 V, 3 PH, 60 Hz, 155 Amp
Lead/lag controls?	no
Auto alternation?	yes
Soft starters?	yes
Variable frequency drives?	no
Motor	M1 SN: 90602531, M2 SN: 90602534

**Wastewater Pumping Station Inspection**
**Town of Salem, New Hampshire**
**Station Name: Keewaydin**
**Instrumentation**

Level control type	float switches, pressure transducer
Level indicator	pressure transducer
Flowmeter type/size	no
Flow totalizer or recorder	no
Last calibration date	annually
Chart Recorder	no
SCADA RTU	no
Security system	no
Runtime meter	yes

**Alarms**

Alarm panel/display	GR panel with lights
Alarm telemetry	cell based mission dialer
Local alarm light, horn?	yes light, no horn
Alarms tested?	
Independent high level alarm?	yes

**Piping and valves**

Air release valves	yes
Discharge check valves	yes, swing check valves with arms
Isolation valves	tee valve
Valve pit	no
Force main size, length, material	8" pump suction and discharge
Pump station bypass?	no
Force main drain?	no
	flapper on inlet of GR pump

Electrical see site review by Lee Carroll, P.E.

**Service rating, voltage**

Main disconnect 200 Amp, 600 VAC

**Surge protection?**
**Intrinsically safe barriers?**
**Code Issues? (e.g. panel clearance?)**
**Backup power**

Generator make/model	outdoor generator Kohler 125ROZP71 SN: 366957
Generator fuel	diesel, tank below
Generator KW, voltage	3 PH, 125 Kw, 156 KVA
Transfer switch	Kohler ATS
Condition/age	estimate 1990
Exercise schedule?	weekly
Capacity to run both pump?	yes
Portable generator connection?	no

**Additional photos/sketches**

Wastewater Pumping Station Inspection

Town of Salem, New Hampshire

**Station Name: South Policy Street**

Date:	Inspected by: JMC/CSM, Ron Benjamin (Town)
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photos/sketch:

**General**

Location	South Policy Street
Type (circle one)	flooded suction
Installation date	built 1991
Design Capacity (gpm)	
Collects flow from	mall only
Transfers flow to	So. Policy gravity
General condition	good
O&M, record drawings?	

**Site**

Owner	Town of Salem
Map/Lot number	
Easement?	
Lot size, acres	
Fence	6' high chain link with barbed wire
Driveway	paved drive, good condition, not enough room to open gate with vehicle outside
Landscaping	arbovitae buffer outside fence, some small (2) plants, (2) trees
Access to wetwell by truck?	yes, through 15' gate
Neighborhood description	at rear of mall parking lot

**Structural**

Structure description	building, 3 stories, wet well
Dimensions	12' x 18' building
Accessibility	wet well hatch 3.3' x 2.8'
Confined space issues?	
Condition	building good condition, split face CMU veneer, flat roof, precast panels
	leaking bitumastic sealant at precast section joints in lowest level of pump room likely from installation, coating on floor showing signs of wear, exterior scuppers for roof

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name:</b> South Policy Street	
Wetwell	
Dimensions	estimate 8' x 10' ID
Material	precast square shape, 1 wet well divided
Condition	decent, no exposed aggregate observed
Access and size	hatch, ladder
Steps	yes
Pump slide rails	no
Influent	pipe enters to channel, can split between wet wells
Vent	yes, fan with controls
Condition	
Foam, odor, grease, grit?	odor, grease, muffin monster has worn teeth and needs replacement
Date/frequency cleaned	monthly grease by mail, annual by Town
Emergency storage?	
	mechanical equipment inside showing corrosion, bubbler lines not used, WW cleaned once per month by mail, lights, electrical, water pipe in WW, run one side at a time, switch annually, ISO valve in middle
Pumps	
Design flow, gpm	400 gpm
Design TDH, ft	37.5 TDH
Observed pump rate, gpm	
Observed TDH ft or discharge psi	
Number of pumps	2
Pump model	Yeoman dated May 2007 on tag
Pump type	P1: Model 4310LC-3C, P2: Model 4310LC-3C
Pump serial numbers	P1: 9811253, P2: 9811253
Motor HP, voltage, # phases	10 HP, 230/460 V, 3 PH, 60 Hz
Motor speed, rpm	1145
Date last overhauled	annually
Does capacity meet peak flow?	
100% redundancy?	domestic seal water system, pressure gauges in/out
Controls	
Control panel description	annunciator panel upper level, Bulldog 100 pump controller
Condition/age	1991
Location (Indoor/outdoor etc)	Indoor
Lead/lag controls?	yes
Auto alternation?	yes
Soft starters?	no
Variable frequency drives?	no

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name: South Policy Street</b>	
Instrumentation	
Level control type	pressure transducer, air bubbler disconnected
Level indicator	pressure transducer
Flowmeter type/size	4" flow meter doesn't work, Foxboro flowtube 8000 series, magnetic
Flow totalizer or recorder	chart recorder
Last calibration date	
Chart Recorder	yes, but likely defunct, not used
SCADA RTU	no
Security system	no
Runtime meter	Yes, P1 9721.5 hours, P2: 9773.6 hours, these hours were not reset when pumps replaced 2007
Alarms	
Alarm panel/display	annunciator panel upper level
Alarm telemetry	cell based mission dialer, annunciator panel
Local alarm light, horn?	no
Alarms tested?	no
Independent high level alarm?	yes, high float low/high WW P1/P2 fall, compressor fall, flood sta alarm, seal water fall, gen fall, grinder fall, power fall
Piping and valves	
Air release valves	yes mid level at FM exit
Discharge check valves	yes 6", 4" pump inlet/outlet
Isolation valves	yes, all valves and piping 6"
Valve pit	no, reduces down to 4" FM at exit of building
Force main size, length, material	4"
Pump station bypass?	Isolation of valves, 7 plug valves, 2 check valves, all 6"
Force main drain?	no
Electrical	
Service rating, voltage	225 Amp main breaker, 20BY/120, 240/120 V
Main disconnect	400 Amp, 3 PH, 240 VAC
Surge protection?	
Intrinsically safe barriers?	
Code Issues? (e.g. panel clearance?)	explosion proof lighting
Backup power	
Generator make/model	Generac 90A04066-S
Generator fuel	diesel
Generator KW, voltage	50 Kw, 120/208 V, 62.5 KVA, 60 Hz, 173.4 Amps
Transfer switch	auto, general ATS
Condition/age	good condition, fairly new?
Exercise schedule?	weekly if possible
Capacity to run both pump?	yes, will run everything in station
Portable generator connection?	
Generator SN	994439

#### Additional photos/sketches

**Wastewater Pumping Station Inspection**

Town of Salem, New Hampshire

**Station Name: Stiles Road**

Date:	Inspected by: JMC/CSM, Ron Benjamin (Town)
photos/sketch:	

**General**

Location	Stiles Road
Type (circle one)	wet pit/dry pit; submersible; suction lift; ejector
Installation date	1987 vintage
Design Capacity (gpm)	
Collects flow from	Stiles Road area
Transfers flow to	Pelham Road
General condition	
O&M, record drawings?	

**Site**

Owner	Town of Salem
Map/Lot number	
Easement?	
Lot size, acres	
Fence	5' chain link, poor condition, bent, weak, 12' gate
Driveway	yes, paved, fair condition
Landscaping	no
Access to wetwell by truck?	yes, through gates
Neighborhood description	professional offices, Industrial

**Structural**

Structure description	fiberglass enclosure, wet well
Dimensions	6' x 6' Gorman Rupp fiberglass enclosure
Accessibility	above ground, 2 doors either side
Confined space issues?	no
Condition	acceptable

Wastewater Pumping Station Inspection

Town of Salem, New Hampshire

Station Name: Stiles Road

Wetwell

Dimensions	8'
Material	precast concrete
Condition	fair, mineral deposits at joints, no obvious signs of hyd. Sulfide corrosion
Access and size	manhole
Steps	no
Pump slide rails	no
Influent tee	no
Vent	passive (candy cane)
Condition	
Foam, odor, grease, grit?	no grease, no acid
Date/frequency cleaned	cleaned annually
Emergency storage?	no

Pumps

Design flow, gpm	260 gpm
Design TDH, ft	50'
Observed pump rate, gpm	P1: 92 gpm, P2: 76 gpm
Observed TDH ft or discharge psi	
Number of pumps	2
Pump model	Germann Rupp T4A3-B
Pump type	name plate info not visible
Pump serial numbers	861542, 861543 (from O&M)
Motor HP, voltage, # phases	20 HP, 200 V, 3 PH
Motor speed, rpm	1350 (1750 at full load)
Date last overhauled	original, 1987
Does capacity meet peak flow?	
100% redundancy?	

P1 hours: 8302.4, P2 hours: 7605.5

Controls

Control panel description	GR control panel
Condition/age	estimate 1987
Location (Indoor/outdoor etc)	in fiberglass enclosure
Lead/lag controls?	yes
Auto alternation?	yes
Soft starters?	no
Variable frequency drives?	no
	208 V, 3 PH, 60 Hz
Station SN	87-2581-AM

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name: Stiles Road</b>	
Instrumentation	
Level control type	pressure transducer
Level Indicator	pressure transducer
Flowmeter type/size	no
Flow totalizer or recorder	run hour meter
Last calibration date	annual
Chart Recorder	no
SCADA RTU	no
Security system	no
Runtime meter	yes
Alarms	
Alarm panel/display	GR lights
Alarm telemetry	cell based mission dialer
Local alarm light, horn?	alarm light but not active
Alarms tested?	
Independent high level alarm?	yes
Piping and valves	
Air release valves	yes, factory GR spring activated 3 way plug
Discharge check valves	yes, wafer check valves plus flapper on pump
Isolation valves	3 way plug on common header
Valve pit	no
Force main size, length, material	6" suction reduced to 4" pump Intake, 4" discharge on pumps to tee valve expanded to 6" discharge
Pump station bypass?	no
Force main drain?	no
Electrical	
Service rating, voltage	3 PH, 60 HZ, 208 A
Main disconnect	200 Amp
Surge protection?	
Intrinsically safe barriers?	no
Code issues? (e.g. panel clearance?)	
Backup power	
Generator make/model	International Diesel Electric Co model 60 H339LPG
Generator fuel	diesel
Generator KW, voltage	60 KW, 75 KVA, 3 PH, 60 Hz, 120/208 V
Transfer switch	auto
Condition/age	estimate 1987
Exercise schedule?	weekly
Capacity to run both pump?	yes
Portable generator connection?	no
Breaker	225 Amp
Serial number	87221
	run hours 387.1, enclosure in poor condition, generator leaking oil

**Additional photos/sketches**

**Wastewater Pumping Station Inspection**

**Town of Salem, New Hampshire**

**Station Name: Twinbrook Ave (formerly Carol St.)**

**Date:** | Inspected by: JMC/CSM, Ron Benjamin (Town)

**photos/sketch:**

**General**

<b>Location</b>	Twinbrook Ave
<b>Type (circle one)</b>	wet pit/dry pit; submersible; suction lift; ejector
<b>Installation date</b>	1972 vintage
<b>Design Capacity (gpm)</b>	
<b>Collects flow from</b>	residential neighborhood, high I/I
<b>Transfers flow to</b>	
<b>General condition</b>	
<b>O&amp;M, record drawings?</b>	

**Site**

<b>Owner</b>	Town of Salem
<b>Map/Lot number</b>	
<b>Easement?</b>	
<b>Lot size, acres</b>	
<b>Fence</b>	13.5' gate, 5' gate, 7' chain link with barbed wire
<b>Driveway</b>	paved, minor cracking, good condition
<b>Landscaping</b>	no, grass only
<b>Access to wetwell by truck?</b>	yes, through 13.5' gate
<b>Neighborhood description</b>	residential

**Structural**

<b>Structure description</b>	14' x 16' building, brick veneer, gable roof, wooden trim, asphalt shingles
<b>Dimensions</b>	8' dia. dry pit
<b>Accessibility</b>	ladder in dry pit
<b>Confined space issues?</b>	yes
<b>Condition</b>	wet well dry pit 8' can

Wastewater Pumping Station Inspection	
Town of Salem, New Hampshire	
<b>Station Name:</b> Twinbrook Ave (formerly Carol St.)	
Wetwell	
Dimensions	6' ID
Material	precast concrete
Condition	good, no aggregates
Access and size	manhole
Steps	1 step
Pump slide rails	no
Influent tee	no
Vent	no
Condition	
Foam, odor, grease, grit?	grease debris present in wet well
Date/frequency cleaned	annually
Emergency storage?	no
Pumps	
Design flow, gpm	250
Design TDH, ft	42
Observed pump rate, gpm	P1: 257 gpm, P2: 288 gpm
Observed TDH ft or discharge psi	
Number of pumps	2
Pump model	Smith & Loveless 4B2
Pump type	Dry pit vertical close coupled
Pump serial numbers	P1: 750158216, motor sn: 741884A-15
Motor HP, voltage, # phases	5 HP, 230 V, 3 PH
Motor speed, rpm	1200 RPM
Date last overhauled	annual
Does capacity meet peak flow?	
100% redundancy?	assumed
	P2 motor model #2: FL8264-XX2574 (same as M1)
	recycle system for seal water
Controls	
Control panel description	Smith & Loveless CP, bubbler defunct
Condition/age	fair, serviceable, old
Location (indoor/outdoor etc)	dry pit
Lead/lag controls?	yes
Auto alternation?	yes
Soft starters?	no
Variable frequency drives?	no

Wastewater Pumping Station Inspection

Town of Salem, New Hampshire

**Station Name: Twinbrook Ave (formerly Carol St.)**

Instrumentation

Level control type	pressure transducer
Level Indicator	pressure transducer
Flowmeter type/size	no
Flow totalizer or recorder	no, run hours
Last calibration date	annual
Chart Recorder	no
SCADA RTU	no
Security system	no
Runtimte meter	yes

Alarms

Alarm panel/display	cell based mission dialer
Alarm telemetry	dialer
Local alarm light, horn?	no
Alarms tested?	no
Independent high level alarm?	yes

Piping and valves

Air release valves	no
Discharge check valves	yes
Isolation valves	yes, 4"
Valve plt	no
Force main size, length, material	6"
Pump station bypass?	no
Force main drain?	no

lifting crane hoist in dry pit

Electrical	see electrical review by Lee Carroll, P.E.
Service rating, voltage	
Main disconnect	
Surge protection?	
Intrinsically safe barriers?	
Code Issues? (e.g. panel clearance?)	

Backup Power

Generator make/model	Onan (Ford) engine, similar to Haigh Ave., model 30.0 EK-15R/1786C
Generator fuel	propane
Generator KW, voltage	3 PH, 30 KW, 37.5 KVA, 254/440 & 277/480 V/1 PH, 20 KW, 25 KVA, 139/240 V & 120/240 & 240/416
Transfer switch	auto
Condition/age	
Exercise schedule?	weekly
Capacity to run both pump?	yes
Portable generator connection?	no

**Additional photos/sketches**