TOWN OF GLASTONBURY
PROFESSIONAL SERVICES PROCUREMENT NOTICE
REQUEST FOR QUALIFICATIONS
CIDER MILL PUMP STATION ENGINEERING SERVICES
RPGL-2017-13

The Town of Glastonbury will be accepting proposals from qualified individuals or firms to provide engineering services in conjunction with the proposed replacement of the Cider Mill Sewage Pump Station. Interested individuals and firms can download the proposal instructions and details from the Town website at www.glastonbury-ct.gov or request them from the Purchasing Agent, 2155 Main Street, Glastonbury, CT 06033.

An optional project meeting and site visit will be held on September 14, 2016 at 9:30AM at the pump station, located at the terminus of Cider Mill Road cul-de-sac.

Proposals must be submitted to the Purchasing Agent no later than October 5, 2016 at 11:00AM **LATE PROPOSALS WILL NOT BE CONSIDERED.**

The Town reserves the right to waive informalities or reject any part of, or the entire proposal, when said action is deemed to be in the best interests of the Town. All Sealed proposals must be submitted to the Office of the Purchasing Agent no later than the time and date indicated.

An Affirmative Action/Equal Opportunity Employer. Minority/Women /Disadvantaged Business Enterprises are encouraged to bid.

Mary F. Visone
Purchasing Agent

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SECTION I – GENERAL INFORMATION

EXECUTIVE SUMMARY

- The Town of Glastonbury wishes to retain a Consultant to provide engineering design services related to the replacement of the existing Cider Mill Sewage Pump Station located on Cider Mill Road. This pump station presently handles an average daily flow of .008 million gallon per day (MGD), and was placed in service in 1979.

- The Consultant shall perform an evaluation of alternatives for the replacement of the pump station, including associated costs, permitting requirements, estimated design fees, and proposed schedule for design and construction. As part of the evaluation, the Consultant shall also review the adequacy and condition of downstream piping and provide recommendations for improvements, including design and construction costs as required.

- It is the Town's intention to replace the existing pneumatic ejector pump system with a submersible pumping system to eliminate confined space entry requirements. The Consultant shall provide an evaluation of alternative pump systems for review by the Town.

- As part of the Water Pollution Control Facility (WPCF) upgrade project new SCADA and alarm system have been installed at the WPCF and also incorporated into remote pump stations. Upgrade work at the Cider Mill Pump Station shall be compatible with these systems.

SPECIAL CONSIDERATIONS

- Studies entitled "***Town of Glastonbury, Connecticut Report on Pump Station Evaluations July 1995***" and "***Town of Glastonbury Connecticut Water Pollution Control Authority Sanitary Sewer Master Plan – DRAFT dated March 2015***" both prepared by Weston & Sampson Engineers. All issues, considerations, and recommendations of these reports relative to the Cider Mill Sewage Pump Station shall be addressed by the Consultant. Relevant sections from these reports are included as Attachment B to this Request for Qualifications, and the full reports can be reviewed in the Town of Glastonbury Engineering office.

SITE VISIT

- An optional project meeting and site visit will be held on September 14, 2016 at 9:30AM at the pump station, which is located on Cider Mill Road cul-de-sac.

GENERAL SCOPE

- Review all existing State and Town files, reports, and plans about the facility and applicable appurtenances.

- Provide an engineering report detailing the following:

    1. A review of the contributing sewer shed and consideration for both existing and future (fully developed) design flows.
    2. A review of pump station design alternatives and all associated costs, including estimated design fees, permitting requirements, and proposed schedules.
    3. An evaluation of downstream piping design alternatives and costs.
    4. Recommended design alternatives with rationale.

- Future engineering design and permitting phase services for the selected design alternative including the following:

    1. Perform field survey to include ground elevations, property line data, underground facilities and utilities, and any other features impacting the work.
    2. Prepare project design calculations and prepare construction plans. Plans shall be submitted to the Town at 30%, 70%, and 90% complete and at the final stage.
    3. Prepare permit applications, coordinate the application process, and attend all meetings required in the permit application process for all local, State, or Federal Permits. The Consultant shall identify all permit requirements to the Town.
    4. Prepare bid specifications, special conditions, incorporate Town “boiler plate”, and provide all other documents required to complete a total bid package suitable for advertising.
    5. Attend meetings and public hearing to obtain feedback from the public, interested parties, and policymakers, and to present findings of the report.

- Future construction phase services including the following:

    1. Assist the Town in review of all bid submissions and questions arising out of the bid process.
    2. Review shop drawings, test reports, and technical computations to assure conformance with design requirements
    3. Visit site to answer technical and construction questions, provide supplement and support to Town inspection staff.
    4. Perform construction inspection services, including change orders, design modifications, to assure compliance with plans and specifications.

SECTION II – CONSULTANT'S SERVICES

- The Consultant shall perform professional services as stated and according to instructions received from the Town. The Consultant's services shall include all incidental services.

- All drawings, reports, and other documents prepared by the Consultant according to this Agreement shall be submitted to the Town for its review and approval.

- No such approval shall in any way be construed to relieve the Consultant of responsibility for technical adequacy or operate as a waiver of any of the Town's rights under this Agreement. The Consultant shall remain liable to the Town according to applicable laws and practices for all damages to the Town caused by the Consultant's negligent performance of any of the services furnished under this Agreement.

- The Consultant shall conduct regular meetings with the Town, and other appropriate parties, at a location established by the Town to review progress. The Consultant will provide written notes of each meeting to all attending parties before the next meeting.

- The Consultant's services under agreements reached shall be as described above. The Town does not guarantee future design and construction phase work. However, any executed Consultant agreement shall contain provisions for future phases of work. The scope and fee for future phases will be negotiated at a later date pending full project funding and satisfactory Consultant performance during the study phase.

SECTION III - SUBMISSION OF PROPOSAL

MINIMUM REQUIREMENTS

- Firm/Individual shall have a Professional Engineer licensed in the State of Connecticut assigned to the project.

- Firm/Individual shall have demonstrated experience with similar sewage pump station replacement or rehabilitation projects within the past five (5) years, including representative projects with flow capacity of 0.008 MGD or greater.

PROPOSAL INSTRUCTIONS

- By submitting a proposal, you represent that you have thoroughly examined and become familiar with the Scope of Services outlined in this RFQ and you are capable of performing the work to achieve the Town's objectives.

- All firms are required to submit one (1) original and seven (7) copies of their proposal to Mary F. Visone, Purchasing Agent, 2155 Main Street, Glastonbury, CT by the date and time listed in the proposal response page. All proposals will be opened publicly and recorded as received. Respondents may be present at the opening; however, there will be no public reading of Proposals. Proposals received later than the time and date specified will not be considered. The proposal must be submitted in a sealed envelope or package and the outside shall be clearly marked with the firm's name and address as well as the following:

  SEALED REQUEST FOR QUALIFICATIONS
  PROFESSIONAL SERVICES PROCUREMENT NOTICE
  CIDER MILL PUMP STATION ENGINEERING SERVICES
  RPGL-2017-13
  October 5, 2016
  TIME – 11:00 A.M.

- All respondents are required to submit the information detailed below. **Responses shall be organized and presented in the order listed below to assist the Town in reviewing and rating proposals.** Responses should be presented in appropriate detail to thoroughly respond to the requirements and expected services described herein.

  1. Table of Contents to include clear identification of the material provided by section and number.
  2. A letter of transmittal indicating the firm's interest in providing the service and any other information that would assist the Town in making a selection. This letter must be signed by a person legally authorized to bind the firm to a contract.
  3. Name and telephone number of person(s) to be contacted for further information or clarification.
  4. A background statement including a description of the firm/individual submitting the proposal.
  5. A list of staff members, including resumes, who would be involved with the project, including their assigned roles and a description of their background and experience.
  6. A description of relevant engineering experience including specific reference to similar services as required by the Town under this proposal.
  7. List of similar projects completed over the past five (5) years with the contact name, address and telephone number of the owners' representative in each project.
  8. Overall approach to the engineering needs of the Town for the pump station rehabilitation / replacement project.

9. Proposed schedule for completion of engineering services as required to meet the Town's intended schedule.

10. A concluding statement as to why the respondent is best qualified to meet the needs of the Town.

11. Proposal Response Form (**ATTACHMENT A**).

12. Respondent is required to review the Town of Glastonbury Code of Ethics adopted July 8, 2003 and effective August 1, 2003 and revised October 29, 2013 and effective November 28, 2013. Respondent shall acknowledge that they have reviewed the document in the area provided on the attached Ethics Acknowledgement form included on **ATTACHMENT A.** The selected respondent will also be required to complete and sign a Consultant Acknowledgement Form prior to award. The Code of Ethics and the Consultant Acknowledgment Form can be accessed at the Town of Glastonbury website at www.glastonbury-ct.gov. Upon entering the website click on the **Bids & Proposals Icon** which will bring you to the links for the **Code of Ethics** and the **Acknowledgement Form**. If the respondent does not have access to the internet, a copy of these documents can be obtained through the Purchasing Department at the address listed within this bid/proposal.

13. Statement of Non-Collusion (**ATTACHMENT A**).

14. The Town of Glastonbury is dedicated to waste reduction and the practice of using and promoting the use of recycled and environmentally preferable products. Respondents are encouraged to submit RFP responses that are printed double-sided (except for the signed proposal page) on recycled paper, and to use paper dividers to organize the RFP for review. All proposal pages should be secured with a binder clip, staple or elastic band, and shall not be submitted in plastic binders or covers, nor shall the proposal contain any plastic inserts or pages. We appreciate your efforts towards a greener environment.

- Any technical questions regarding this RFQ shall be made in writing and directed to Michael Bisi, Superintendent of Sanitation, via email mike.bisi@glastonbury-ct.gov. For administrative questions concerning this proposal, please contact Mary F. Visone, Purchasing Agent, at (860) 652-7588, or by email at purchasing@glastonbury-ct.gov. All questions, answers, and/or addenda, as applicable, will be posted on the Town's website at www.glastonbury-ct.gov (Upon entering the website click on Bids & Proposals Icon, click on the Bid Title to view all proposal details and document links). **It is the respondent's responsibility to check the website for addenda prior to submission of any proposal.** Note: Responses to requests for more specific contract information than is contained in the RFP shall be limited to information that is available to all respondents and that is necessary to complete this process. The request must be received at least five (5) business days prior to the advertised response deadline**.**

- **Failure to include any of the above-referenced items in the submitted proposal may be grounds for disqualifying said proposal**.

EVALUATION CRITERIA

- The following factors will be considered by the Town when evaluating proposals:

  - Accuracy, overall quality, thoroughness, and responsiveness to the Town's requirements as summarized herein.

  - Demonstrated understanding of the Scope of Services.

  - The qualifications and experience of the firm, the designated account representative, and other key personnel to be assigned to the project.

  - Demonstrated successful performance on other pump station rehabilitation / replacement projects.

  - Overall approach and schedule to meet the Town's requirements.

  - Work Schedule proposed to complete the project assignment.

SELECTION PROCESS

- This request for qualifications does not commit the Town of Glastonbury to award a contract or to pay any costs incurred in the preparation of a proposal to this request. All proposals submitted in response to this request for qualifications become the property of the Town of Glastonbury. The Town of Glastonbury reserves the right to accept or reject any or all proposals received as a result of this request, to negotiate with the selected respondents, the right to extend the contract for an additional period, or to cancel in part or in its entirety the request for qualifications, if it is in the best interests of the Town to do so.

- A Selection Committee, appointed by the Town Manager, will evaluate all proposals received for completeness and the respondent's ability to meet all requirements as outlined in this proposal. The Committee will then short list the specific firms whose proposals best meet all criteria required and may conduct interviews with these firms. Upon completion of interviews, the Selection Committee will forward to the Town Manager a list of firms recommended for further consideration.

- Based on the results of the interview process, the Town Manager will review the Scope of Services, fee proposals, and other factors with the top-rated firm(s) and negotiate a specific agreement based on these discussions.

- Additional technical information may be requested from any respondent for clarification purposes, but in no way changes the original proposal submitted.

TIMELINE

The Town intends to adhere to the schedule listed below as closely as possible, but reserves the right to modify the schedule in the best interest of the Town as required.

Publicize RFQ	**08-25-16**
Project Meeting and Site Visit	**09-14-16 @ 9:30AM**
RFQ Due Date	**10-05-16 @ 11:00AM**
Shortlist of Proposals Received	**10-21-16**
Interviews with Top Respondents	**10-27-16**
Fee Proposal and Scope of Services	**11-16-16**
Contract Effective Date	**12-07-16**
Completion of Evaluation / Study	**02-15-17**

INSURANCE

The Consultant shall, at its own expense and cost, obtain and keep in force during the entire duration of the Project or Work the following insurance coverage covering the Consultant and all of its agents, employees, sub-contractors and other providers of services and shall name the Town, its employees and agents as an Additional Insured on a primary and non-contributory basis to the Consultant's Commercial General Liability and Automobile Liability policies. **These requirements shall be clearly stated in the remarks section on the Consultant's Certificate of Insurance.** Insurance shall be written with insurance carriers approved in the State of Connecticut and with a minimum Best's Rating of A-. In addition, all carriers are subject to approval by the Town. Minimum limits and requirements are stated below:

1) Worker's Compensation Insurance:

- Statutory Coverage
- Employer's Liability
- $500,000 each accident/$500,000 disease-policy limit/$500,000 disease each employee
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and its employees and agents.

2) Commercial General Liability:

- Including Premises & Operations, Products and Completed Operations, Personal and Advertising Injury, Contractual Liability and Independent Contractors.
- Limits of Liability for Bodily Injury and Building Damage
  Each Occurrence $1,000,000
  Aggregate $2,000,000 (The Aggregate Limit shall apply separately to each job.)
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and its employees and agents

3) Automobile Insurance:

- Including all owned, hired, borrowed and non-owned vehicles

- Evidence a Combined Single Limit of Liability for Bodily Injury and Property Damage: Per Accident $1,000,000
- A Waiver of Subrogation shall be provided in favor of the Town of Glastonbury and its employees and agents

4) Errors and Omissions Liability or Professional Services Liability Policy

- Provide Errors and Omissions Liability or Professional Services Liability Policy for a minimum Limit of Liability $1,000,000 each occurrence or per claim. The Town, its employees and agents shall be named Additional Insured for this specific Project. The certificate shall specify that the Town and Board of Education shall receive 30 days advance written notice of cancellation or non-renewal specific to this Project.

- The Consultant agrees to maintain continuous professional liability coverage for the entire duration of this Project, and shall provide for an Extended Reporting Period in which to report claims for seven (7) years following the conclusion of the Project.

The Consultant shall provide a Certificate of Insurance as "evidence" of General Liability, Auto Liability including all owned, hired, borrowed and non-owned vehicles, statutory Worker's Compensation and Employer's Liability and Professional Services Liability coverage.

The Consultant shall direct its Insurer to provide a Certificate of Insurance to the Town before any work is performed. The Certificate shall specify that the Town shall receive 30 days advance written notice of cancellation or non-renewal. The Certificate shall evidence all required coverage including the Additional Insured and Waiver of Subrogation. The Consultant shall provide the Town copies of any such insurance policies upon request.

INDEMNIFICATION

To the fullest extent permitted by law, the Consultant shall indemnify and hold harmless the Town and the Board of Education and their respective consultants, agents, and employees from and against all claims, damages, losses and expenses, direct, indirect or consequential (including but not limited to fees and charges of engineers, attorneys and other professionals and court and arbitration costs) to the extent arising out of or resulting from the performance of the Consultant's work, provided that such claim, damage, loss or expense is caused in whole or in part by any negligent act or omission by the Consultant, or breach of its obligations herein or by any person or organization directly or indirectly employed or engaged by the Consultant to perform or furnish either of the services, or anyone for whose acts the Consultant may be liable.

As to any and all claims against the Town or any of its consultants, agents or employees by any employee of Consultant, by any person or organization directly or indirectly employed by Consultant to perform or furnish any of the work, or by anyone for whose acts Consultant may be liable, the indemnification obligation stated herein shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Consultant under worker's or workman's compensation acts, disability benefit acts or other employee benefit acts.

The above insurance requirements are the Town's general requirements. Insurance requirements with the awarded respondent are subject to final negotiations.

ATTACHMENT A
PROPOSAL RESPONSE PAGE

BID / PROPOSAL NO: **RPGL-2017-13** **DATE DUE:** **10-05-16**

DATE ADVERTISED: **08-25-16** **TIME DUE:** **11:00 AM**

NAME OF PROJECT: **CIDER MILL PUMP STATION ENGINEERING SERVICES**

The Respondent acknowledges receipt of the following Addenda:

Addendum #1 _____(Initial/Date) **Addendum #2** _____ (Initial/Date) **Addendum #3** _____(Initial/Date)

It is the responsibility of the respondent to check the Town's website for any Addenda before submitting the proposal.

NON-COLLUSION STATEMENT:
By submission of this proposal, the Respondent certifies that it is being submitted without any collusion, communication, or agreement as to any matter relating to it with any other respondent or competitor. We understand that this proposal must be signed by an authorized agent of our company to constitute a valid proposal

CODE OF ETHICS:
I / We have reviewed a copy of the Town of Glastonbury's Code of Ethics and agree to submit a Consultant Acknowledgement Form if I /We are selected. Yes _____ No _____ *

***Respondent is advised that effective August 1, 2003, the Town of Glastonbury cannot consider any proposal where the respondent has not agreed to the above statement.**

Type or Print Name of Individual	**Doing Business as (Trade Name)**
Signature of Individual	**Street Address**
Title	**City, State, Zip Code**
Date	**Telephone Number / Fax Number**
E-Mail Address	**SS # or TIN#**

(Seal – If proposal is by a Corporation)

Attest

ATTACHMENT B - UPDATE
EXCERPTS FROM "TOWN OF GLASTONBURY, CT REPORT ON PUMP STATION EVALUATIONS JULY 1995"
PREPARED BY WESTON & SAMPSON ENGINEERS, INC.
&
"TOWN OF GLASTONBURY, CT, WATER POLLUTION CONTROL AUTHORITY, SANITARY SEWER MASTER PLAN – DRAFT, DATED MARCH 2015"
PREPARED BY WESTON & SAMPSON ENGINEERS, INC.

Weston & Sampson
ENGINEERS, INC.

2928 Main Street
Glastonbury, Connecticut 06033-1093
Tel: (203) 659-8668 Fax: (203) 659-8875

Report

Town of

Glastonbury, CT

Report on

Pump Station Evaluations

July, 1995

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INTRODUCTION

Existing Pump Facilities

There are four (4) wastewater pump stations in the town that were included in the pump station evaluation phase of this project; Cider Mill Road, Nutmeg, Hubbard Brook and Parker Terrace.

- The ***Cider Mill*** pump station is located at the end of Cider Mill Road. This ejector type station was constructed in 1979. The pump station discharges through a 4-inch force main to an 8-inch gravity sewer line on Cider Mill Road. The Cider Mill pump station is tributary to the Wickham Brook Interceptor.

- The ***Nutmeg*** pump station is located at the end of Nutmeg Lane. This station was constructed in 1968 and was designed with a capacity of approximately 0.432 mgd. The pump station discharges to the Nutmeg Interceptor through a 6-inch force main.

- The ***Hubbard Brook*** pump station is located at the intersection of Hubbard and Main Streets. This station was originally constructed in 1969 and upgraded in 1983 with a design capacity of approximately 1.08 mgd. The pump station discharges to an 18-inch gravity sewer line on Main Street through an 8-inch force main.

- The ***Parker Terrace*** pump station is located at Parker Terrace. This station was originally constructed in 1967 and upgraded in 1985 with a design capacity of approximately 6.0 mgd. The pump station discharges to the Parker Terrace Interceptor through two force mains (12-inch and 16-inch).

A summary of the pump station capacity and the current average daily flow for Cider Mill, Nutmeg, Hubbard Brook and Parker Terrace wastewater pump stations is displayed in Table 1.

TABLE 1
PUMP STATION SUMMARY

Pump Station Location	Number Of Pumps	Largest Pump Capacity (mgd)	Pump Station Capacity (mgd)	Average Daily Flow [1] (mgd)	Year Constructed
Cider Mill	*	*	*	0.004	1978
Nutmeg	2	0.432	0.432	0.038	1968
Hubbard Brook	2	1.08	1.08	0.325	1969[2]
Parker Terrace	3	2.9	5.8	1.03	1967[3]

* Ejector station with two compressors and pots
[1] Based on flow meter records for the period of Jan. 1993 to May 1994
[2] Upgraded in 1983
[3] Upgraded in 1985

Pump Station Evaluations

The pump stations were visually inspected, video taped, and their operations observed by WSS personnel to determine if operation deficiencies were present. The major components, adequacy and general operating parameters of the four stations were evaluated. The preliminary findings and the videotape of the inspection work was reviewed with operating personnel as part of the preparation of this report.

The results of our evaluations for each of the pump stations is provided in Sections 2 through 5 of this report. Each section contains the following components:

- Evaluation
- Flows
- Short Term Recommendations and Associated Costs
- Long Term Recommendations and Associated Costs

The evaluation section includes the results of our visual inspection of each station and its associated equipment. A general description of most of the major equipment is included along with observations related to age, wear, unusual noise or vibration and other conditions.

Flow estimates are based on the existing flows recorded by the pump station flow meter or by the number of operating cycles. Projected flows are based on the results of our Sanitary Sewer System Audit and application of an appropriate peaking factor to account for peak flow conditions.

The short term recommendations are generally related to the condition of the equipment and should be addressed within one year's time. Most of the short term recommendations consist of minor repairs that can be completed by town personnel. The cost estimates include parts and labor. Labor rates are based on prevailing wage rates for mechanics and laborers. Where replacement motors are recommended, costs include new, premium efficiency models.

Long term recommendations are generally related to upgrading the pump station equipment or increasing the station capacity. Some of the long term recommendations may be performed by town personnel. Major upgrades will require outside contractors. The cost estimates include an allowance for engineering and contingencies, as appropriate. The cost for replacement pump stations includes replacement "in kind".

CIDER MILL PUMP STATION

Evaluation

The Cider Mill pump station is an ejector type station that contains two (2) 1725 revolutions per minute (rpm) compressors and pots. The structure consists of an 8-foot diameter steel can, approximately 20 feet deep. Access is gained via a ladder. Each pot has an estimated ejection rate of 33 gallons per ejection. Each compressor is powered by a 5 horsepower (hp) Dayton motor. The station is also equipped with a dehumidifier, blower, sump pump and alarm system. The station was placed into service in 1979; the steel can showed no visible structural problems during our inspection.

The station alarms include high water in wet well, generator on, loss of air, power failure and station flood. Alarms are transmitted to the wastewater treatment plant via dedicated phone lines. The station is equipped with a 14 kilowatt (kw) standby generator manufactured by Empire. The generator is fueled by propane. A Zenith automatic transfer switch monitors the incoming commercial power to the station and starts the generator engine automatically in the event of a power outage.

The Cider Mill pump station evaluation provided the following observations:

1. All equipment tested appears to be operating satisfactorly including motors, compressors, dehumidifier, blower, sump pump, standby generator and alarms.

2. Amperage readings were taken on each of the two single phase compressor motors and no unbalanced loads were found. All amperages were within 10 percent of each phase. The readings were:

Motor No. 1	Motor No. 2
L1= 24 Amps	L2 = 25 Amps.

   The nameplate amperage of the motors is 28 amps.

3. The contacts of the relays inside the ejector control panel are worn and should be replaced.

4. There is no heater located within the station. Town personnel advised that a heater is not needed.

5. The actuator to the "Johnson" valve has outdated braided wire to the contactor. This should be replaced with type THN wire.

6. The existing wood retaining wall in the vicinity of the pump station has deteriorated and should be replaced with a poured concrete wall.

7. There is water leaking inside the generator enclosure through the exhaust flange which should be repaired.

Flows

The existing flow rate handled by the Cider Mill Station averages 4,000 gallons per day (gpd). At this rate, the average number of times that each pot discharges is 2.5 per hour. The peak flow rate on the maximum day is estimated to be 5.5 times the average flow. It is likely that this flow occurs over a one hour time period at least once each year. At this flow rate, the number of pot ejections will increase to 14 per hour (once each 4.5 minutes).

The Cider Mill Station services a relatively restricted residential area. Future flows are not expected to increase. Consequently, the existing station capacity is adequate for future conditions. A summary of the existing and future flow conditions at the station is displayed in Table 2.

TABLE 2
ESTIMATED FUTURE FLOW CONDITIONS
CIDER MILL PUMP STATION

Existing Avg.Daily Flow (mgd)[1]	Future Avg. Daily Flow (mgd)	Peaking Factor[2]	Future Peak Flow (mgd) Required
0.004	0.004	5.5	0.022

[1] Calculated for the period of Jan. 1993 to May 1994 based on ejector readings assuming 33 gallons/ejection
[2] Peaking factor for maximum day, from ASCE Manual of Engineering Practice No. 37.

Short Term Recommendations

Table 3 displays the recommended improvements and their associated cost. Costs have not been determined for the recommended Preventive Maintenance Program (PMP) because it is assumed that the tasks listed in the PMP will be performed by town personnel. These short term improvements should be completed within the next year.

TABLE 3
SHORT TERM RECOMMENDATIONS
CIDER MILL PUMP STATION

Inspection Observations	Recommendation	Cost[1]
The contacts of the relays inside the ejector control panel are worn and should be replaced.	Replace control relays.	$400
The actuator to the "Johnson" valve has outdated braided wire to the contactor.	The old braided #6 wire AWG should be replaced from the control panel to the solenoids with type THN wire.	$200
There is water leaking inside the generator enclosure through the exhaust flange.	Repair the exhaust flange	$300
Compressors Nos. 1 and 2 are leaking air.	Rebuild compressors #1 and #2.	$4,000
	Subtotal Contingency (15%) Total	$4,900 $ 800 $5,700

[1] Costs includes labor and materials

Long Term Recommendations

Table 4 displays the recommended long term improvements and their associated costs. These improvements should be completed within the next few years, unless otherwise noted, to assure that the station will continue to operate properly for the next ten years. It is also estimated that this station will require replacement in ten years due to the deterioration of the steel can and equipment. An estimated cost for replacement of the station is included in Table 4.

TABLE 4
LONG TERM RECOMMENDATIONS
CIDER MILL PUMP STATION

Recommendation	Cost[1]
Within 10 Years	
Inspect the interior of each pot and system air tank. Prepare and apply protective coating to pots.	$500
Conduct infrared analysis of all electrical wiring to verify integrity.	$1,000
Rebuild actuator on each of the two pots and replace contactors.	$300
Test ventilation system and compare to current local and state air change standards and OSHA requirements.	$1,000[2]
Use specialist to test structural integrity of steel can to determine estimated life of the station (it is assumed that the steel can will require replacement).	$1,500
Replace existing control panel with state-of-the-art, solid state, and energy efficient equipment.	$7,000
Replace suction and discharge check and gate valves.	$1,000
Sand, prime, and re-paint interior of station and generator enclosure.	$1,200
Replace motors and belts.	$1,500
Replace anodes around the exterior steel can.	$2,000
Replace existing wood retaining wall with a poured concrete wall.	$10,000
Perform propane tank integrity test.	$500[2]
SUBTOTAL	$27,500
10 to 20 Years	
Remove existing pump station and construct a new station in its place.	$250,000[3]
SUBTOTAL	$250,000
TOTAL	**$277,500**

[1] Costs include labor and materials.

[2] Cost to test system. Cost of improvements not included.

[3] Includes 40% allowance for engineering and contingencies for a new ejector or duplex, submersible type station.

Town of Glastonbury, CONNECTICUT

Water Pollution Control Authority

SANITARY SEWER MASTER PLAN DRAFT

CONNECTICUT DEPARMENT OF ENERGY AND ENVIRONMENTAL PROTECTION

CLEAN WATER FUND (GRANT NO. XXXX)

March 2015

Weston & Sampson

Weston & Sampson Engineers, Inc.
273 Dividend Road
Rocky Hill, CT 06067
www.westonandsampson.com
Tel: 860-513-1473
Fax: 860-513-1483

engineering report, force main investigation, final design engineering, and construction administration. It is recommended that the Town have an additional $986,000 in reserve for the complete replacement of the force main should it be needed for structural reasons since the force main will be approaching 60 years of service at the end of the 20-year planning period. A breakdown of the engineer's opinion of the probable costs for the upgrades to the High Street Wastewater Pumping Station is provided in Appendix D.

6.6.7 Cider Mill Road Ejector Station

6.6.7.1 Existing Conditions

The Cider Mill Road Ejector Station is a wastewater pumping station located on Cider Mill Road which was originally constructed in 1979 to service a small subdivision in Central Glastonbury. No upgrades to the wastewater pumping station have been completed to date.

Raw wastewater is conveyed to the pumping station via one 8-inch gravity sewer where it enters one of the two steel ejector pots located within the pumping station drywell. As an ejector station the pumping station is not provided with a conventional wetwell, since the ejector pots are acting as the wastewater storage mechanism. Each ejector pot has a volume of 33 gallons which is typically ejected over a 10 second period. Based on the assumed ejection rate, the pumping station capacity is 200 gpm or 0.29 MGD. A review of the pumping data indicates that average daily flow to the pumping station is approximately 8,000 gallons per day (gpd) or 6 gpm.

The pumping station is configured as a conventional ejector station with an influent manhole connected to two 4-inch cast iron influent wastewater pipes. The wastewater flows down the influent pipes to one of two 33-gallon ejector pots. Once the ejector pots reach the high level a probe is triggers and activates the 5-horsepower air compressors. The air compressors fill the ejector pot with pressurized air thus ejecting the water out through the 4-inch cast iron force main. The ejector pots, air compressors and discharge piping are housed in a below grade 8-foot diameter steel can drypit which is approximately 20 feet deep. The wastewater flows from the ejector pots through 4-inch check and gate valves prior to exiting the drypit structure.

The Cider Mill Road Ejector Station pumping station pumps wastewater through an approximately 1,000 foot 4-inch cast iron force main to an 8-inch gravity sewer on Cider Mill Road. The force main was installed in 1979 when the pumping station was constructed. Based on the design pumping rate of 200 gpm the velocity in the 4-inch force main would be 5.1 feet per second (fps). The pumping station force main velocity range falls within the acceptable range of 2.5 to 8 fps.

The pumping station electrical and instrumentation systems are housed within an external electrical and control cabinet located adjacent to the pumping station. The electrical cabinet houses a 100-amp, 120/240-volt, single-phase electrical service, automatic transfer switch, and

instrumentation/control equipment. 14-kilowatt Empire LPG backup generator with 500 gallon underground fuel tank is provided for emergency power. An auto dialer is provided to send alarm conditions.

The wastewater pumping station site is paved and site fencing is provided. The site fencing appears to be good condition. Based on discussions with operations personal insufficient space is provided for the operational and maintenance requirements of the pumping station.

A summary of the station information is provided in Table 6-15.

Table 6-15
Cider Mill Road Ejector Station Summary

Pumping Station	
Date of Construction	1979
Date of Rehabilitation	--
Type of Pumping Station	Ejector
Type of Pumps	Ejector
Number of Pumps	N/A – Ejection Pots
Design Flow Rate (gpm)	200 (33 gallon pots)
Design Total Dynamic Head (ft)	Unknown
Force Main	
Diameter (inches)	4
Length (feet)	990
Volume (gallons)[1]	646
Velocity (ft/s)[1]	5.10 @ 200 gpm
Wastewater Flows	
Existing Average Daily Flow (gpd)[2]	7,995
Existing Peak Hourly Flow (gpm)[3]	15
Schedule for Improvements	
Next Upgrade	2015

1. Based on a standard nominal internal pipe diameter.
2. Based upon 2011-2013 flow data provided by Town.
3. Existing peak hourly flow is based on a 2.7 peaking factor provided by the Town.

The following deficiencies were noted with the Cider Mill Ejector Station:

- The entire pumping station equipment and structures are well beyond their intended useful and design life.

- Entry into the steel can requires a confined space entry.
- Operational space within the site area is insufficient for operational purposes.
- The steel can paint is peeling and the can is shows signs of corrosion. Based on the age of the pumping station the can is most likely painted with lead based paints.

Overall the Cider Mill Ejector Station wastewater pumping station is in poor condition and there have been numerous operational issues associated with equipment failures. The majority of the existing electrical and instrumentation equipment and components are approaching 40 years of service. The typical useful life of industrial electrical and instrumentation equipment and components (a municipal wastewater pumping station is an industrial classification with regards to electrical components) is nominally 20 years. As electrical and instrumentation equipment and components age it becomes increasingly difficult to maintain and repair and parts availability becomes a serious problem. The wastewater pumping station mechanical components are also approach 40 years of service and beginning to show significant signs of wear and it has become increasingly more difficult to keep the pumping station operational. Due to the condition of the wastewater pumping station the entire wastewater pumping station is in need of a complete replacement in order to improve operating conditions and to bring the station up to current standards.

6.6.7.2 Future Conditions

Based on growth analysis completed within this planning study, the Cider Mill Ejector Station wastewater pumping station has adequate capacity to convey the future flows and a capacity expansion is not required. The wastewater pumping station is in poor condition and the entire pumping station is well beyond its intended design and useful life as the majority of the pumping station components are approaching 40 years of service. The typical design life for mechanical, electrical and instrumentation equipment and components is nominally 20 years. It is recommended that a complete replacement of the pumping station be undertaken within the next year with the goal of having the new pumping station operational by the end of 2015. The following upgrades are recommended:

- The pumping station force main is approaching 40 years of service. The structural integrity of the force main needs to be evaluated. As part of the integrity analysis the force main should be completely flushed and clean/pigged and samples taken for analysis.

- Complete replacement of the wastewater pumping station with a new submersible style wastewater pumping station with a capacity of 200 gpm. Due to the site constraints it is recommend that a compact wetwell/valve vault structure be provided. A compact wetwell/valve vault structure houses an individual valve vault within the wetwell structure (see Oldcastle RC611 pumping station, United Concrete also has a similar product). This compact approach not only minimizes the pumping station foot print and excavation

but also reduces costs through common wall construction techniques. A review of the original construction plans indicates that high quantities of rock are located within the area and the pumping station itself was installed in ledge.

- Each of the submersible explosion proof wastewater pumps will be rated for 200 gpm and provided with vortex impellers to minimize clogging. Typically three phase power would be recommended, however a review of the electrical system indicates that a power extension of approximately 3,200 feet would be required to bring three phase power to the site from the New London Turnpike. Three phase pumps could still be utilized through a Variable Frequency Drive (VFD) power conversion. In a VFD power conversion system the VFD convers 120 V, single phase power to three phase power. Three phase power is recommended since it reduces the size of the pump motors and the associated electrical costs. Since submersible ABS pumps were recently installed in the Nutmeg Lane station and the operations staff appears to be happy with the ABS pumps it is recommended that submersible ABS pumps be provided. The submersible ABS pumps are further recommended so that the Town can begin standardizing all of the submersible pumps within the collection system around one manufacturer, thus standardizing the associated spare parts and service.

- A complete replacement of the electrical and instrumentation equipment and components. A generator should be provided along with a new above grade or subbase type fuel storage tank. The instrumentation system should be a PLC based system which is compatible with the WPCF SCADA system such that the pumping station information can be incorporated via a radio system.

The engineer's opinion of the planning/budgeting costs for the replacement of the Cider Mill Road Ejector Station wastewater pumping station is $940,000 This includes a 25% contingency, preliminary engineering report, force main investigation, final design engineering, and construction administration. It is recommended that the Town have an additional $334,000 in reserve for the complete replacement of the force main should it be needed for structural reasons since the force main will be approaching 60 years of service at the end of the 20-year planning period. A breakdown of the engineer's opinion of the probable costs for the upgrades to the Cider Mill Road Ejector Station wastewater pumping station is provided in Appendix D.

6.6.8 Eastbury Ejector Station

6.6.8.1 Existing Conditions

The Eastbury Ejector Station is a wastewater pumping station located within the Roaring Brook Plaza off of Fischer Hill Road. The pumping station was originally constructed in 1972 to service the Roaring Brook Plaza as well as several residential units on Fisher Hill Road. The pumping station was originally intended to be part of a sewer extension across Route 2 into South Glastonbury. To date the sewer extension has not been completed and as such the pumping