**TOWN OF GLASTONBURY**
**PROFESSIONAL SERVICES PROCUREMENT NOTICE**
**REQUEST FOR QUALIFICATIONS**
**NUTMEG LANE PUMP STATION ENGINEERING SERVICES**
**RPGL-2010-41**

The Town of Glastonbury will be accepting proposals from qualified individuals or firms to provide engineering services in conjunction the proposed replacement of the Nutmeg Lane 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 Thursday, March 25th, 2010 at 9:00 A.M. at the pump station, located adjacent to the Nutmeg Lane cul-de-sac.

Proposals must be submitted to the Purchasing Agent no later than **Thursday April 1st, 2010 at 11:00 A.M.**

**LATE PROPOSALS WILL NOT BE CONSIDERED.**

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 Nutmeg Lane Sewage Pump Station located at the western end of Nutmeg Lane. This pump station presently handles an average flow of 0.309 MGD, and was placed in service in 1968.

- 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 all downstream piping and provide recommendations for improvements, including design and construction costs as required.

- It is the Town's intention to replace the existing dry pit / wet well 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. The existing wet well shall be evaluated for structural integrity and capacity.

- The existing above grade cinder block building houses a 15 kw propane powered generator and control systems. It is the Town's intent to reuse this existing building as feasible for new generator equipment.

- 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 Nutmeg Pump Station shall be compatible with these systems.

### *SPECIAL CONSIDERATIONS*

- A study entitled "Town of Glastonbury, CT Report on Pump Station Evaluations July 1995" prepared by Weston & Sampson Engineers, Inc. All issues, considerations, and recommendations of this report relative to the Nutmeg Lane Sewage Pump Station shall be addressed by the Consultant. Relevant selections from this report are included as Attachment C to this Request for Qualifications, and the full report can be reviewed in the Town of Glastonbury Engineering Division office.

- An optional project meeting and site visit will be held on Thursday, March 25th, 2010 at 9:00 A.M. at the pump station, which is located adjacent to the Nutmeg Lane 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 0.3 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 an 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 as follows:

  **SEALED REQUEST FOR QUALIFICATIONS**
  **PROFESSIONAL SERVICES PROCUREMENT NOTICE**
  **NUTMEG LANE PUMP STATION ENGINEERING SERVICES**
  **RPGL- 2010-41**
  **April 1st, 2010**
  **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 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. 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 General Information, then Bids and Quotes which will bring you to the links for the Code of Ethics and the Consultant 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 proposal.

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

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 Mr. Michael Bisi, Superintendent of Sanitation, 2155 Main Street Glastonbury, CT 06033. For administrative questions concerning this proposal, please contact Mary F. Visone, Purchasing Agent, at (860) 652-7588. 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 & RFPs). **It is the respondent's responsibility to check the website for addenda prior to submission of any proposal.**

- 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 projects.

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

  - Work Schedule proposed to complete the project assignment.

- Following review and evaluation of proposals, the Town reserves the right to request certain additional information. Based on review and rating of proposals, a short list of respondents will be invited to interview with the Town Selection Committee.

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

## *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.

- An Evaluation 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 RFQ. The committee will then short list the specific firms whose proposals best meet all criteria required.

- Additional technical and/or cost information may be requested from any respondent by the evaluation committee prior, during or after the interview for clarification purposes, but in no way changes the original proposal submitted. Interviews are at the option of the evaluation committee and may or may not be conducted.

- The selected respondent will be issued a purchase order to perform the work.

## *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 | **March 17th, 2010** |
| Project Meeting and Site Visit | **March 25th, 2010 at 9 A.M.** |
| RFQ Due Date | **April 1st, 2010 by 11:00 A.M.** |
| Shortlist of Proposals Received | **Week of April 19th, 2010** |
| Interviews with Top Respondents | **Week of April 26th, 2010** |
| Fee Proposal and Scope of Services | **May, 2010** |
| Contract Effective Date | **Not later than June 1, 2010** |
| Completion of Evaluation / Study | **On or Before August 15th, 2010** |

***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
- $100,000 each accident/$500,000 disease-policy limit/$100,000 disease each employee

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

3) Automobile Insurance:

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

- Limit of Liability for Bodily Injury and Building Damage:
  Per Accident $1,000,000

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**

**TOWN OF GLASTONBURY**

| | | | |
|---|---|---|---|
| **PROPOSAL** | | **RPGL #** | **2010-41** |
| **DATE ADVERTISED** | **3/17/2010** | **DATE / TIME DUE** | **4/1/2010 @ 11:00 A.M.** |

**NAME OF PROPOSAL** **NUTMEG LANE PUMP STATION ENGINEERING SERVICES REQUEST FOR QUALIFICATIONS**

**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.**

**It is the respondent's responsibility to check the website for addenda prior to submission of any proposal. The Respondent acknowledges receipt of the following Addendums:**

Addendum #1_____ Date:_____
Addendum #2_____ Date:_____
Addendum #3_____ Date:_____

| | |
|---|---|
| **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
## NON-COLLUSION STATEMENT

The company submitting this proposal 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.

Date: _____

Name of Company: _____

Name and Title of Agent: _____

By (SIGNATURE): _____

Address: _____

_____

_____

Telephone Number: _____

# ATTACHMENT C
# EXCERPTS FROM "TOWN OF GLASTONBURY, CT REPORT ON PUMP STATION EVALUATIONS JULY 1995" 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".

# *NUTMEG PUMP STATION*

***Evaluation***

The Nutmeg pump station contains two (2) Weinman centrifugal wastewater pumps with 3 hp US Electric motors. Each pump is rated at 300 gpm. The station is equipped with 2 compressors for the control system, a dehumidifier, blower, sump pump, alarm system and Foxboro flow meter. The station was put into service in 1968. The station is a can type station with a separate wet well. Access is gained via a ladder. A small building houses the stand-by generator.

The station alarms include high water in wet well, loss of air, backup high level, power failure, and station flood. Individual alarms are transmitted to the wastewater treatment plant. The station is equipped with a 15 kw standby generator manufactured by Onan. The generator is fueled by propane. An ASCO 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 Nutmeg pump station evaluation provided the following observations:

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

2. Amperage readings were taken on each of the two pump 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 = 4 Amps | L1 = 4 Amps |
| | L2 = 4 Amps | L2 = 4 Amps |
| | L3 = 4 Amps | L3 = 4 Amps |

   The nameplate amperage of the motors is 4.8 amps.

3. The wet well has an accumulation of grease floating inside. The material should be "broken-up" and removed from the wet well.

4. The sight tubes on the air tank leak and should be replaced.

5. The two pumps have a high number of hours of run-time and are worn. The pumps should be rebuilt or replaced.

6. Vibration test on the motors showed vibration velocities of 0.11 inches per second (in/sec) for the upper bearings and 0.06 in/sec for the lower bearings on motors #1 and motor #2. The reading at the lower point of the motor can also be used as the upper reading for the pumps. These readings are interpreted as average to smooth conditions. See Appendix A for an interpretation of the vibration test results.

7. The contacts of the alternating relay inside the control panel are worn and the relay should be replaced.

8. The existing bubbler tubes in the wet well are copper and will eventually require replacement due to corrosion.

### *Flows*

The existing flow rate handled by the Nutmeg Station averages 38,000 gpd. At this rate, each pump will run for an average of 63 minutes per day. Based on the operating range in the wetwell, the average cycle time for each pump is only 3 minutes during each hour.

The peak flow rate on the maximum day is estimated to be 5.5 times the average flow (145 gpm). It is likely that this flow occurs over a one hour time period at least once each year. Under these conditions, the peak flow can still be handled by one pump but the cycle time will increase to 15 minutes during the peak hour. This is not an unacceptably high rate for peak flow conditions. Sustained flows in excess of the capacity of one pump are not anticipated

The population of the Nutmeg Station service area is not expected to increase significantly in the future. Consequently, the existing station capacity does not need to be increased. A summary of the existing and future flow conditions at the station is displayed in Table 5.

**TABLE 5**
**ESTIMATED FUTURE FLOW CONDITIONS**
**NUTMEG PUMP STATION**

| Existing Avg.Daily Flow (mgd)[1] | Future Avg. Daily Flow (mgd) | Peaking Factor[2] | **Future Peak Flow (mgd) Required** |
|---|---|---|---|
| 0.038 | 0.038 | 5.5 | **0.209** |

[1] Based on flow meter records for the period of Jan. 1993 to May 1994.
[2] Peaking factor for maximum day, from ASCE Manual of Engineering Practice No. 37.

### *Short Term Recommendations*

Table 6 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 6**
**SHORT TERM RECOMMENDATIONS**
**NUTMEG PUMP STATION**

| Inspection Observation | Recommendation | Cost[1] |
|---|---|---|
| The wet well has an accumulation of debris at the bottom. | Pump out the wet well to avoid false high water alarms. | $500 |
| Sight tubes on the air tank leak. | Repair sight tubes. | $400 |
| The contacts of the alternating relay inside the control panel are worn. | Replace the alternating relay. | $200 |
| The existing bubbler tubes are copper. | Replace the existing bubbler tube with polyvinyl chloride (pvc) to avoid corrosion. | $1,500 |
| OSHA compliance | Evaluate station for compliance with current OSHA statndards (i.e. ventilation, railings, etc.) | $500[2] |
| | **Subtotal** | **$3,100** |
| | **Contingency (15%)** | **$ 500** |
| | **Total** | **$3,600** |

[1] Costs include labor and materials.
[2] Cost to test and evaluate. Cost of improvements not included.

### *Long Term Recommendations*

Table 7 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 7.

**TABLE 7**
**LONG TERM RECOMMENDATIONS**
**NUTMEG PUMP STATION**

| Recommendation | Cost[1] |
|---|---|
| **Within 10 Years** | |
| Conduct infrared analysis of all electrical wiring to verify integrity. | $1,000 |
| 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 pump and level control panels with state-of-the-art, solid state, and energy efficient equipment. | $7,000 |
| Sand, prime, and re-paint interior of station and generator enclosure (including pump, mechanical, piping, etc.). | $1,200 |
| Replace anodes around the exterior steel can. | $2,000 |
| Rebuild **or Replace** the two pumps (i.e. new mechanical seals, lip seals, bearings, etc.). Include stainless steel stuffing boxes. | $5,000 |
| Replace level control air tanks and compressors. | $2,500 |
| Perform propane tank integrity test. | $500[2] |
| SUBTOTAL | $21,700 |
| **10 to 20 Years** | |
| Remove existing pump station and construct a new station in its place. | $250,000[3] |
| SUBTOTAL | $250,000 |
| **TOTAL** | **$271,700** |

[1] Costs includes labor and materials.

[2] Cost for testing only. Cost for improvements not included.

[3] Includes a 40% allowance for engineering and contingencies.

# *CONCLUSIONS AND RECOMMENDATIONS*

## *General*

Although the pump stations are presently operating satisfactorily, there are several recommendations relating to the existing equipment as presented in previous sections of this report. In addition, as equipment ages and requires extensive repairs, replacement with updated, improved performance models should be considered. It is recommended that the schematics for the Motor Control Center be attached to the control panel doors at all stations. The employees responsible for pump station operation and maintenance should be trained on confined space entry procedures as established by OSHA.

## *Costs for Recommended Short and Long Term Improvements*

Tables 14 and 15 summarize the costs associated with the short and long term improvements for each pump station as described earlier in this report.

**TABLE 14**
**RECOMMENDED SHORT TERM IMPROVEMENT COSTS**

| Pump Station | Costs[1] |
|---|---|
| Cider Mill | $5,700 |
| Nutmeg | $3,600 |
| Hubbard Brook | $4,100 |
| Parker Terrace | $2,000 |
| **TOTAL COST FOR IMPROVEMENTS** | **$15,400** |

[1] Costs include labor and materials.

**TABLE 15**
**RECOMMENDED LONG TERM IMPROVEMENT COSTS**

| Pump Station | Costs |
|---|---|
| Cider Mill | $277,500 |
| Nutmeg | $271,700 |
| Hubbard Brook | $350,000 |
| Parker Terrace | $157,300 |
| **TOTAL COST FOR IMPROVEMENTS** | **$1,056,500** |

### *Preventive Maintenance Program*

Each station is visited by town operation and maintenance personnel regularly, at least once a week, and reports indicate that the equipment is regularly serviced. This regular preventive maintenance was observed in the overall clean and orderly appearance of all the stations. All of the stations are fenced and well secured. Our review of the maintenance logs and reports shows that the town's existing PMP is thorough and comprehensive.

A recommended PMP schedule for all stations, including maintenance and frequency, is presented on the following pages.

All existing maintenance inspection forms currently used by the town were reviewed. We have reformatted these existing forms and added several recommended changes. A copy of these new forms may be found in Appendix B. The changes which have been made include:

1. **Emergency Generator - Monthly Check Sheet**

    a. Add Volt Meter Reading columns.

2. **Battery Change Dates**

    a. Remove Battery Manufacturer from form.

3. **Pump Station Checklist**

    Add the following items to the checklist:

| | | | |
|---|---|---|---|
| a. | Exercise Gate Valves | b. | Check Unit Heater |
| c. | Check Sump Pump | d. | Check Dehumidifier |
| e. | Check Ventilation System | f. | Check Wetwell |
| g. | Check Seal Water | h. | Check Emergency Lighting |
| i. | Check Alarm System | j. | Check Fire Extinguishers |

Preventive maintenance and daily operations should be documented at all of the stations. We have included forms (prepared and edited) to help town personnel document the operation and condition of the stations. The forms include: Preventive Maintenance Program Schedule, Emergency Generator Monthly Check Sheet, Generator Radiator Check Sheet, Pump Station Checklist, Battery Change Dates, Battery Specific Gravity, and Spare Parts Lists for each pump station.