

Town Of



# AMHERST *Massachusetts*

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OFFICE OF THE SUPERINTENDENT OF PUBLIC WORKS  
586 SOUTH PLEASANT STREET  
AMHERST, MA 01002  
TEL. 413-259-3050 FAX 413-259-2455

April 26, 2017

US EPA, Region 1  
Office of Ecosystem Protection  
PWTF Coordinator (OEP06-1)  
5 Post Office Square, Suite 100  
Boston, MA 02109-3912

Attention: Olga Vergara

**Re: Final 2017 PWTF GP Notice of Intent  
Centennial Water Treatment Plant, Pelham, MA  
NPDES Permit #MAG640046**

Dear Ms. Vergara:

The Town of Amherst Department of Public Works operates the Centennial Water Treatment Plant in Pelham, Massachusetts for municipal drinking water supply purposes. This plant discharges filter backwash and clarifier blowdown waste water into Amethyst Brook via settling lagoons and an outfall channel.

Enclosed you will find our Notice of Intent for coverage under the Massachusetts Final 2017 NPDES General Permit for Discharges from Potable Water Treatment Facilities, MAG640000. Our facility was previously authorized under the PWTF General Permit that expired on October 2, 2014.

If you have any questions about this application, please contact me at [strolel@amherstma.gov](mailto:strolel@amherstma.gov) or 413-259-3104.

Sincerely,

Lindsay Strole  
Environmental Scientist

Enclosures

## A. Facility Information

1. Indicate applicable General Permit for discharge: **MAG640000**

### 2. Facility Data

Facility Name **Centennial Water Treatment Plant**

Street/PO Box **Amherst Road** City **Pelham**

State **Massachusetts** Zip Code **01002**

Latitude **42 degrees 22' 39"** Longitude **72 degrees 27' 33"**

SIC Code(s) **4941**

Type of Business **Surface water treatment plant for domestic, commercial, and industrial use**

### 3. Facility Mailing Address (if different from Location Address, above)

Facility Name **Town of Amherst Department of Public Works**

Street/PO Box **586 South Pleasant St.** City **Amherst**

State **Massachusetts** Zip Code **01002**

### 4. Facility Owner:

Legal Name **Town of Amherst Department of Public Works**

Email **strolel@amherstma.gov**

Street/PO Box **586 South Pleasant St.** City **Amherst**

State **Massachusetts** Zip Code **01002**

Contact Person **Lindsay Strole** Tel # **413-259-3104**

Owner is (check one): Federal \_\_\_\_\_ State \_\_\_\_\_ Tribal  Private \_\_\_\_\_

Other (describe) \_\_\_\_\_

5. Facility Operator (if different from above):

Legal Name \_\_\_\_\_ **N/A** \_\_\_\_\_

Email \_\_\_\_\_

Street/PO Box \_\_\_\_\_ City \_\_\_\_\_

State \_\_\_\_\_ Zip Code \_\_\_\_\_

Contact Person \_\_\_\_\_ Tel # \_\_\_\_\_

6. Currently (Administratively) Covered Under the Expired PWTF General Permit? (Please check yes or no):

\_\_\_\_\_ **Yes** \_\_\_\_\_

a) Has a prior NPDES permit (either individual or general permit coverage) been granted for the discharge that is listed on the NOI? \_\_\_\_\_ **Yes** \_\_\_\_\_

If Yes, Permit Number \_\_\_\_\_ **MAG640046** \_\_\_\_\_

b) Is the discharge a "new discharger" as defined by 40 CFR Section 122.22? \_\_\_\_\_ **No** \_\_\_\_\_

c) Is the facility covered by an individual NPDES permit for *other* discharges? \_\_\_\_\_ **No** \_\_\_\_\_

If yes, Permit Number: \_\_\_\_\_

d) Is there a pending NPDES application (either individual or general permit) on file with EPA for this discharge? \_\_\_\_\_ **No** \_\_\_\_\_

If yes, date of submittal: \_\_\_\_\_ and Permit Number, if available \_\_\_\_\_

7. Attach a topographic map indicating the location of the facility and the outfall(s) to the receiving water. Map attached? **Yes**

**B. Discharge Information (Attach additional sheets as needed):**

1. Name of receiving water into which discharge will occur: \_\_\_\_\_ **Amethyst Brook** \_\_\_\_\_

Check Appropriate Box:             **Freshwater**             Marine Water

State Water Quality Classification Class \_\_\_\_\_ **B** \_\_\_\_\_

Type of Receiving Water Body (e.g., stream, river, lake, reservoir, estuary, etc.) \_\_\_\_\_ **Stream** \_\_\_\_\_

2. Indicate the frequency of the discharge:

Emergency Only   Infrequent (Once/Twice a Year)   Intermittent\*\*\*    **Continuous**

Other\*\*\*

\*\*\*If Intermittent (i.e., occurs sometimes but not regularly as in batch discharge), provide # of days per year the discharge occurs \_\_\_\_\_

\*\*\*If Other, explain \_\_\_\_\_

3. Describe the discharge activities for which the owner/applicant is seeking coverage, including process discharges not specifically authorized in the PWTF GP which need to be authorized for discharge (and which attain the effluent limits and other conditions of the general permit.)

*(This description should include all treatment methods used on the wastewater prior to discharge including lagoons, baffles, filter presses, etc. If lagoons are used at the facility, please include the number and size of lagoons; the size and elevation of the entry pipe; the time of travel from the entry point of the discharge into the lagoon to the entry point to the receiving waters; and the length of backwash cycle for any combination of filters.)*

**See attached sheet**

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4. Attach a line drawing or flow schematic showing water flow through the facility including sources of intake water, operations contributing to flow, treatment units, outfalls, and receiving water(s).

Line drawing or flow diagram attached? **Yes**

5. Identify the source of the water being discharged:

**Surface water**                      Groundwater                      Other (describe)

6. Number of Outfalls   **1**  

Latitude:   **42 degrees 22' 52"**                        Longitude:   **72 degrees 27' 35"**  

7. For each outfall, indicate the proposed sampling location(s) for both effluent and ambient water (when applicable) and proposed consistent times of the month for collecting samples:

**See attached sheet**

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### C. Effluent Characteristics

1. List here and attach additional information (on separate sheet) on any water additives used at the facility. This includes chemicals (including aluminum, iron, or phosphorus-containing chemicals) for pH adjustment, dechlorination, control of biological growth, and control of corrosion and scale in water pipes.

**Sodium hydroxide for corrosion control, fluoride, cationic polymer for coagulation, chlorine, ammonia**

2. Report any known remediation activities or water quality issues in the vicinity of the discharge

**None**

3. Are aluminum compounds or polymers used as coagulants at this facility?\*

**No**

4. Does the facility use any alum-based products for algae control?\*

**No**

5. Are iron-containing coagulants used at this facility?

**No**

6. Does the facility's discharge contain residual chlorine?

**Yes**

[If Yes, EPA will calculate a Total Residual Chlorine effluent limit for your facility]

7. Does the facility provide treatment to remove arsenic from the raw water source?

**No**

8. a. Are phosphorus-containing chemicals added to the treated water at this facility?

**No**

b. If answer to 8.a. is Yes, does the facility discharge to Phosphorus-Impaired waters?

**N/A**

c. If answer to 8.b. is Yes, provide name of P-Impaired waterbody: **N/A**

9. Does the facility remove radium or other radioactive substances from raw water sources to comply with drinking water standards?

    **No**    

10. Provide the reported or calculated seven day- ten year low flow (7Q10) of the receiving water 7Q10:     **0.8**     cfs

\*\*\*NOTE: For facilities that discharge in Massachusetts, it is highly recommended to contact the relevant state authority (MassDEP) to determine and/or confirm the 7Q10 and/or dilution factor. \*\*\* Attach any calculation sheets used to support the stream flow and dilution factors. See Appendix VII for equations and additional information.

    **See attached sheet**    

11. For each outfall, provide the following discharge information:

    **See attached sheet and data table**    

Outfall #     **1**    

a) Design Flow of Facility (in million gallons per day, MGD):     **1.5 MGD**    

**This value will determine the facility's daily maximum flow limit, up to a maximum of 1.0 MGD.**

b) Discharge Flow (in gallons per day, GPD):

Maximum Daily Flow     **138,000**     GPD      Average Monthly Flow     **71,736**     GPD

c) TSS (mg/l): Number of samples:     **43**     (Minimum of 10 samples)

Maximum Daily     **37**     mg/l      Average Monthly     **9.4**     mg/l

d) pH (s.u.) : Number of samples:     **43**     (Minimum of 10 samples)

Minimum     **5.8**     s.u.      Maximum     **7.4**     s.u.

e) Total Residual Chlorine (ug/l): Number of samples:     **43**     (Minimum of 10 samples)

Maximum Daily     **40**     ug/l

NOTE: TRC is only required for discharges which have been previously chlorinated or contain residual chlorine

12. The following section must be completed for any facility that answered "Yes" to Question III.C.3 or III.C.4 (e.g. adds an aluminum-containing chemical to the water being treated and/or discharged) **AND** was not covered under the previous PWTF GP (which expired on 10/2/14).

a) Collect, analyze and submit **12 effluent samples and 10 ambient surface water samples** from a location upstream of and not affected by the discharge. For facilities in New Hampshire and Massachusetts, each sample should be analyzed for total recoverable Al in micrograms per liter. All laboratory results shall be submitted on a separate sheet.

**a.** The samples shall be composite samples consisting of four grab samples taken at approximately equal intervals on a flow weighted basis during the time at which the discharge is entering the receiving water after the start of the backwash cycle.

**b.** For each sampling event, the effluent and surface water samples shall be collected on the same day and during a representative discharge event. The samples shall be no more frequent than weekly and, if time allows in completing the NOI, at monthly intervals and at different flow conditions. If taking the ambient water quality sample from lakes/reservoirs, the 10 samples should be composited vertically.

**c.** Discharge flow at the time of effluent sampling should be recorded. Flow conditions at the time of ambient water sampling should be recorded (or estimated from nearest gaging station).

**d. Do not include dilution when recording the results.**

**e.** See Section 2.1.2.3 and Footnote 12 of Section 2.1.1 for MA facilities (or Section 3.1.2.3 and Footnote 10 of 3.1.1 for NH facilities) for key information on minimum level for analysis and sufficiently sensitive test procedures.

**f.** Sampling data that was collected within one year of the effective date of this general permit **AND** that adheres to all of the requirements above may be submitted in lieu of new samples. This must be denoted with the submitted data.

b) Provide a description of control measures, chemical substitutions, waste handling methods, and operational changes evaluated and/or used by the facility to minimize the discharge of aluminum to surface waters. (Include additional sheet(s), if necessary)

N/A

## D. Endangered Species Act Eligibility Information

Using the instructions in Appendix III of the PWTF GP, which of the following criteria apply to your facility?

U.S. Fish and Wildlife Service (USFWS) Criteria:                    A                    ✓ B                    C

1. *If you selected USFWS criteria B, has consultation with the U.S. Fish and Wildlife Service been completed?*

          **Yes**          

2. *If consultation with US Fish & Wildlife Service was completed, was a written concurrence finding that the discharge is “not likely to adversely affect” listed species or critical habitat received?*

          **Yes**          

3. *Attach documentation of ESA eligibility for USFWS as required at Part 1.4 and Appendix III of the General Permit. **Documentation attached?***           **Yes**          

4. *For facilities seeking coverage under the Potable Water Treatment Facility General Permit for the first time, respond to the following questions to assist in ESA eligibility for NMFS:*           **N/A**          

*a) Indicate if the facility discharges into any of the stretches of the following rivers which can support or provide habitat to either Shortnose or Atlantic Sturgeon:*

Merrimack River (from Essex Dam in Lawrence, Downstream (including Haverhill) to mouth of River)

Connecticut River (from Turner’s Falls, downstream through Holyoke (including Holyoke Dam region)

Taunton River

Piscataqua River (in NH)

*b) Has the facility had any previous formal or informal consultation with NMFS?*           **N/A**          

*If yes, attach the results of the consultation(s). **Documentation attached?***           **N/A**

## E. National Historic Properties Act Eligibility

1. Are any historic properties listed or eligible for listing on the National Register of Historic Places located on the facility site or in proximity to the discharge?

      No      

2. Have any State or Tribal Historic Preservation Officers been consulted in this determination?

      No      

If yes, attach the results of the consultation(s). **Documentation attached?**       N/A      

3. Which of the three National Historic Preservation Act scenarios listed in Appendix II, Section III have you met?

✓ 1                    2                    3

## F. Supplemental Information

Please provide any supplemental information, including antidegradation review information applicable to new or increased discharges. Attach any analytical data used to support the application. Attach any certification(s) required by the General Permit.

## G. Signature Requirements

The NOI must be signed by the operator in accordance with the signatory requirements of 40 CFR § 122.22 (see below) including the following certification:

**I certify under penalty of law that (1) the discharge for which I am seeking coverage under the general permit consists solely of a surface water discharge from a potable water treatment facility; (2) any chemicals used to treat the discharge have been identified in this NOI; and (3) where applicable, the facility has complied with the requirements of this permit specific to the Endangered Species Act and National Historic Preservation Act.**

**I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I have no personal knowledge that the information submitted is other than true, accurate, and complete. I am aware that there are significant**

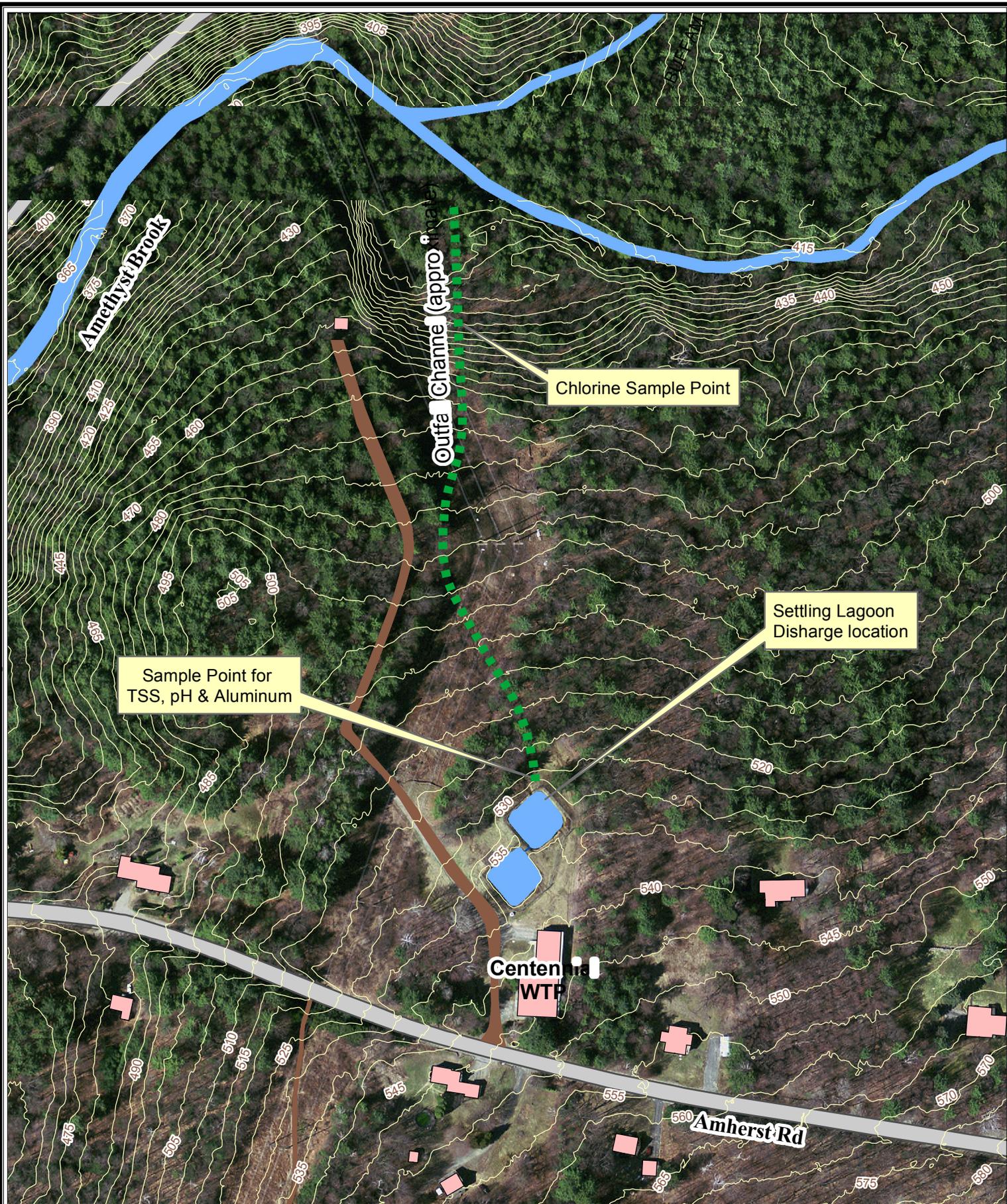
penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature Paul Bucceroni Date 4/21/17

Printed Name and Title  
Paul Bucceroni

Federal regulations require this application to be signed as follows:

1. For a corporation, by a responsible corporate party;
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively, or,
3. For a municipality, State, Federal or other public facility, by either a principal executive officer or ranking elected official.



Flow measurements are estimated based upon the amount of water discharged into the lagoons.

## Centennial Water Treatment Plant Pelham, MA

Amherst DPW (LS), April 2017

1 inch = 200 feet



**ATTACHMENT TO APPENDIX IV  
NOTICE OF INTENT  
CENTENNIAL WATER TREATMENT PLANT  
NPDES PERMIT # MAG640046**

**B. Discharge Information**

3. The discharge to Amethyst Brook is treated filter backwash and clarifier blowdown water from a conventional water treatment plant. A schematic of the plant processes and a map of the plant vicinity are included with this permit application. As indicated, a cationic polymer is used in the coagulation process. No aluminum or aluminum-containing compounds are used in the coagulation process.

The backwash and blowdown water flows through a twelve-inch pipe from the plant into two lagoons, which are shown on the attached site plan. The lagoons are piped in series and connected by a six-inch pipe. Each lagoon is about 60 feet long by 60 feet wide and approximately four to five feet deep; therefore the capacity of each lagoon is approximately 100,000 gallons. Solids are settled out of the wastewater in the lagoons, and discharge from the lagoons flows in an outfall channel approximately 1,000 feet to the Amethyst Brook. Water enters the first lagoon at an elevation of approximately 536 feet above mean sea level (msl) and exits at about the same level. Effluent exits the second lagoon at an elevation of approximately 534.5 feet above msl.

The daily backwash schedules of the three sand filters are staggered to improve the efficiency of solids removal in the lagoons. They are generally performed at 8:00 am, 6:00 pm, and midnight, but up to three additional backwashes per day may be required to improve finished water quality. Each filter backwash uses approximately 17,300 gallons of water and lasts about 15 minutes. In addition, up to two clarifier blowdowns per day may be performed if necessary, but blowdowns typically occur approximately one to four times per week. Each blowdown uses about 25,000 gallons and lasts about 15 minutes. Based on this information, the flow rate into the lagoons is approximately 1,150 gallons/minute during a backwash, and about 1,700 gallons/minute during a blowdown. We estimate the total detention time in the lagoons to be approximately 2 to 3 days, depending on whether a clarifier blowdown is needed. This is based on the equation  $detention\ time = \frac{volume}{feed\ rate}$ . We estimate that about 90 to 100% of the discharge from the plant does not reach the Amethyst Brook due to infiltration into the lagoons and into soil during overland flow.

7. Sampling locations are shown on the attached site plan. As indicated, the sampling location for total suspended solids (TSS) and pH is at the point of discharge from the second lagoon into the outfall channel. This location is easily accessible, and data for these parameters are generally representative of discharge to Amethyst Brook.

Total residual chlorine (TRC) samples are collected at a location approximately 750 feet downstream of the lagoons. Amethyst Brook is about 250 feet further downstream of this location, but collecting a sample at the brook itself would require crossing rough, steep terrain. This location was selected because it better characterizes the actual levels of residual chlorine that discharge into Amethyst Brook. Residual chlorine levels are expected to decrease with distance along the outfall channel due to a longer detention

time and interactions between chlorine and organic matter. A path provides access to collect the TRC samples at this location. Residual chlorine samples are, therefore, collected at this location because it is accessible and provides data that are more representative of residual chlorine levels at the discharge point to Amethyst Brook.

Samples are collected on Wednesdays, and composite samples are collected by combining four grab samples of equivalent volumes between 8:00 am and noon.

### C. Effluent Characteristics

10. 7Q10 and dilution factor calculations:

#### Drainage Area Ratio Approach

**7Q10:** The 7Q10 value for Amethyst Brook was calculated using information from StreamStats, a web-based Geographic Information System (GIS) available from the USGS. StreamStats allows a user to estimate stream flows based on flows measured at nearby gauging stations. StreamStats provided gauging data for the Fort River in Amherst, MA (Gauging Station 01171300). Information provided by StreamStats for the Fort River station is attached. According to StreamStats, the 7Q10 of the Fort River is 5.3 cubic feet per second (cfs). This value was then adjusted to account for the difference in watershed areas between the Fort River gauging station and the discharge point at Amethyst Brook as follows:

Drainage area at Fort River gauging station = 41.5 square miles (from StreamStats report)

Drainage area of Amethyst Brook at outfall channel discharge location = 6.4 square miles (calculated on the Town of Amherst GIS)

7Q10 of Fort River = 5.3 cfs (from StreamStats report)

7Q10 of Amethyst Brook = (7Q10 Fort River/Fort River Drainage Area) \* Amethyst Brook Drainage Area

$$= (5.3 \text{ cfs}/41.5 \text{ square miles}) * 6.4 \text{ square miles} = \mathbf{0.8 \text{ cfs} = 0.5 \text{ MGD}}$$

11. As described in Section B, Number 7, samples for TSS and pH are collected where the second lagoon discharges into the outfall channel, and samples for chlorine residual are collected at a location approximately 250 feet prior to discharge of the outfall channel to Amethyst Brook. Effluent data from December, 2014 through February, 2017 are summarized on the attached table. Maximum and daily flows have generally remained stable since the June, 2013 amended NOI submittal.

We note that approximately 90 to 100% of the discharge from the plant likely does not reach Amethyst Brook due to infiltration into the lagoons and into soil during overland flow. The terrain slopes steeply downward towards Amethyst Brook north of the chlorine sampling location. Visual observations indicate most of the flow infiltrates into the ground beyond the residual chlorine sample location.

#### **D. Endangered Species Act Eligibility**

Criterion B - *Formal or informal consultation with USFWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by USFWS on a finding that the discharges and related activities are “not likely to adversely affect” listed species or critical habitat (informal consultation).*

Consultation with USFWS actually resulted in a “no effect” determination from both the Town of Amherst Department of Public Works and David Simmons, Assistant Director at the USFWS New England Field Office. In 2015, the Northern Long-eared Bat was listed as “threatened” state-wide due to a fungal disease called white-nose syndrome. The discharge could therefore also satisfy USFWS criterion C, “no effect” on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the USFWS.



## StreamStats Data-Collection Station Report

USGS Station Number 01171300  
 Station Name FORT RIVER NEAR AMHERST, MA

[Click here to link to available data on NWIS-Web for this site.](#)

### Descriptive Information

Station Type Streamgage, continuous record  
 Location  
 Gage  
 Regulation and Diversions  
 Regulated? False  
 Period of Record 1967-81  
 Remarks Diversions for municipal supply of Amherst. Water-quality records 1971,1973.  
 Latitude (degrees NAD83) 42.3584236  
 Longitude (degrees NAD83) -72.50592028  
 Hydrologic unit code 01080201  
 County 015-Hampshire  
 HCDN2009 No

### Physical Characteristics

| Characteristic Name                      | Value     | Units         | Citation Number    |
|--|-----------|---------------|--------------------|
| <b>Descriptive Information</b>           |           |               |                    |
| State_Code                               | 25        | dimensionless | <a href="#">30</a> |
| Datum_of_Latitude_Longitude              | NAD83     | dimensionless | <a href="#">30</a> |
| District_Code                            | 25        | dimensionless | <a href="#">30</a> |
| Begin_date_of_record                     | 6/13/1966 | days          | <a href="#">41</a> |
| End_date_of_record                       | 9/30/1996 | days          | <a href="#">41</a> |
| Number_of_days_of_record                 | 11068     | days          | <a href="#">41</a> |
| Number_of_days_GT_0                      | 11068     | days          | <a href="#">41</a> |
| <b>Basin Dimensional Characteristics</b> |           |               |                    |
| Drainage_Area                            | 41.5      | square miles  | <a href="#">30</a> |

### Streamflow Statistics

| Statistic Name                  | Value  | Units                 | Citation Number    | Years of Record | Standard Error, percent | Lower 95% Confidence Interval | Upper 95% Confidence Interval | Start Date | End Date | Remarks |
|---------------------------------|--------|-----------------------|--------------------|-----------------|-------------------------|-------------------------------|-------------------------------|------------|----------|---------|
| <b>Low-Flow Statistics</b>      |        |                       |                    |                 |                         |                               |                               |            |          |         |
| 7_Day_2_Year_Low_Flow           | 8.9    | cubic feet per second | <a href="#">20</a> | Y               |                         |                               |                               |            |          |         |
| 7_Day_10_Year_Low_Flow          | 5.3    | cubic feet per second | <a href="#">20</a> | Y               |                         |                               |                               |            |          |         |
| <b>Flow-Duration Statistics</b> |        |                       |                    |                 |                         |                               |                               |            |          |         |
| 1_Percent_Duration              | 403.82 | cubic feet per second | <a href="#">41</a> | Y               | 30                      |                               |                               |            |          |         |
| 5_Percent_Duration              | 199    | cubic feet per second | <a href="#">41</a> | Y               | 30                      |                               |                               |            |          |         |

|                                |        |                       |                    |   |    |
|--------------------------------|--------|-----------------------|--------------------|---|----|
| 10_Percent_Duration            | 138    | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 20_Percent_Duration            | 89     | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 25_Percent_Duration            | 75     | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 30_Percent_Duration            | 65     | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 40_Percent_Duration            | 49     | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 50_Percent_Duration            | 38     | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 60_Percent_Duration            | 28     | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 70_Percent_Duration            | 21     | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 75_Percent_Duration            | 18     | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 80_Percent_Duration            | 15     | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 90_Percent_Duration            | 10     | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 95_Percent_Duration            | 7.5    | cubic feet per second | <a href="#">41</a> | Y | 30 |
| 99_Percent_Duration            | 4.6    | cubic feet per second | <a href="#">41</a> | Y | 30 |
| <b>General Flow Statistics</b> |        |                       |                    |   |    |
| Minimum_daily_flow             | 2.1    | cubic feet per second | <a href="#">41</a> | Y | 30 |
| Maximum_daily_flow             | 1580   | cubic feet per second | <a href="#">41</a> | Y | 30 |
| Std_Dev_of_daily_flows         | 86.748 | cubic feet per second | <a href="#">41</a> | Y | 30 |
| Average_daily_streamflow       | 63.201 | cubic feet per second | <a href="#">41</a> | Y | 30 |
| <b>Base Flow Statistics</b>    |        |                       |                    |   |    |
| Number_of_years_to_compute_BFI | 30     | years                 | <a href="#">42</a> | Y | 30 |
| Average_BFI_value              | 0.491  | dimensionless         | <a href="#">42</a> | Y | 30 |
| Std_dev_of_annual_BFI_values   | 0.063  | dimensionless         | <a href="#">42</a> | Y | 30 |

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**Citations**

| <b>Citation Number</b> | <b>Citation Name and URL</b>   |
|------------------------|--|
| 20                     | <a href="#">Wandle, S.W., Jr., 1984, Gazetteer of Hydrologic Characteristics of Streams in Massachusetts--Connecticut River Basin: U.S. Geological Survey Water-Resources Investigations Report 84-4282.</a> |
| 30                     | <a href="#">Imported from NWIS file</a>  |
| 41                     | <a href="#">Wolock, D.M., 2003, Flow characteristics at U.S. Geological Survey streamgages in the conterminous United States: U.S. Geological Survey Open-File Report 03-146, digital data set</a>           |
| 42                     | <a href="#">Wolock, D.M., 2003, Base-flow index grid for the conterminous United States: U.S. Geological Survey Open-File Report 03-263, digital data set</a>  |

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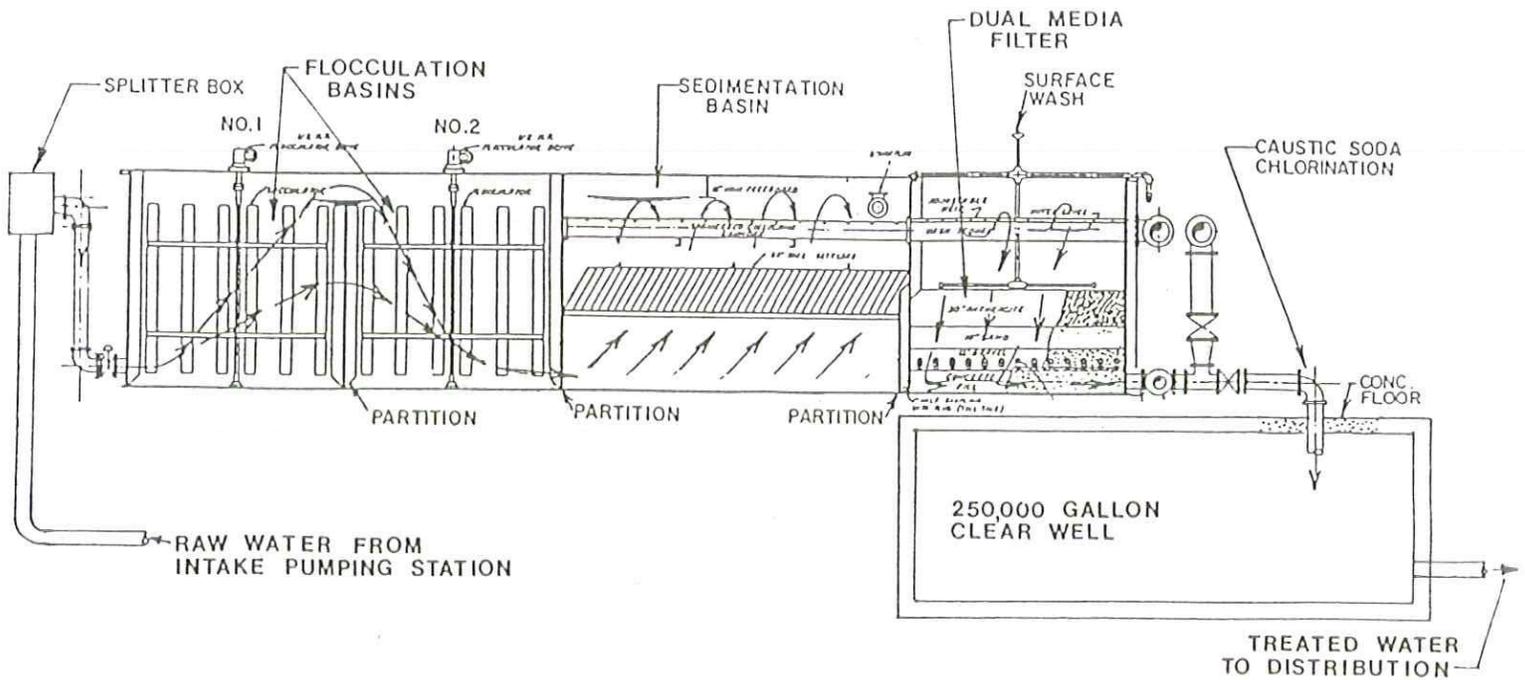
**EFFLUENT CHARACTERISTICS- CENTENNIAL WATER TREATMENT PLANT, PELHAM, MASSACHUSETTS**

| 2014                           | December 2014 |               |
|--------------------------------|---------------|---------------|
|                                | Average       | Maximum Daily |
| Discharge Flow (gpd)           | 91,774        | 138,400       |
| Total Suspended Solids (mg/l)  | 16            | 27            |
| Total Residual Chlorine (µg/l) | 20            | 40            |
| pH (s.u.)                      | Min           | Max           |
|                                | 6.5           | 6.9           |

| 2015                           | January 2015 |               | February 2015 |               | March 2015 |               | April 2015 |               | May 2015 |               | June 2015 |               | July 2015 |               | August 2015 |               | September 2015 |               | October 2015 |               | November 2015 |               | December 2015 |               |
|--------------------------------|--------------|---------------|---------------|---------------|------------|---------------|------------|---------------|----------|---------------|-----------|---------------|-----------|---------------|-------------|---------------|----------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|
|                                | Average      | Maximum Daily | Average       | Maximum Daily | Average    | Maximum Daily | Average    | Maximum Daily | Average  | Maximum Daily | Average   | Maximum Daily | Average   | Maximum Daily | Average     | Maximum Daily | Average        | Maximum Daily | Average      | Maximum Daily | Average       | Maximum Daily | Average       | Maximum Daily |
| Discharge Flow (gpd)           | 62,000       | 111,000       | 55,814        | 94,200        | 64,861     | 111,500       | 84,837     | 111,500       | 69,084   | 103,800       | 90,353    | 128,800       | 95,687    | 119,000       | 69,208      | 94,200        | Plant off      | Plant off     | Plant off    | Plant off     | Plant off     | Plant off     | Plant off     | Plant off     |
| Total Suspended Solids (mg/l)  | 16           | 28            | 20            | 37            | 12         | 18            | 9          | 19            | 9        | 25            | 7         | 9             | 9         | 19            | 5           | 5             |                |               |              |               |               |               |               |               |
| Total Residual Chlorine (µg/l) | 8            | 20            | 0             | 0             | 4          | 20            | 20         | 40            | 5        | 20            | 6         | 20            | 5         | 20            | 30          | 30            |                |               |              |               |               |               |               |               |
| pH (s.u.)                      | Min          | Max           | Min           | Max           | Min        | Max           | Min        | Max           | Min      | Max           | Min       | Max           | Min       | Max           | Min         | Max           |                |               |              |               |               |               |               |               |
|                                | 6.6          | 6.7           | 6.5           | 6.9           | 6.6        | 7.0           | 6.6        | 6.9           | 6.8      | 7.0           | 6.3       | 6.9           | 6.3       | 7.0           | 7.0         | 7.0           |                |               |              |               |               |               |               |               |

| 2016                           | January 2016 |               | February 2016 |               | March 2016 |               | April 2016 |               | May 2016  |               | June 2016 |               | July 2016 |               | August 2016 |               | September 2016 |               | October 2016 |               | November 2016 |               | December 2016 |               |
|--------------------------------|--------------|---------------|---------------|---------------|------------|---------------|------------|---------------|-----------|---------------|-----------|---------------|-----------|---------------|-------------|---------------|----------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|
|                                | Average      | Maximum Daily | Average       | Maximum Daily | Average    | Maximum Daily | Average    | Maximum Daily | Average   | Maximum Daily | Average   | Maximum Daily | Average   | Maximum Daily | Average     | Maximum Daily | Average        | Maximum Daily | Average      | Maximum Daily | Average       | Maximum Daily | Average       | Maximum Daily |
| Discharge Flow (gpd)           | Plant off    | Plant off     | Plant off     | Plant off     | Plant off  | Plant off     | Plant off  | Plant off     | Plant off | Plant off     | 58,031    | 76,900        | 55,746    | 76,900        | Plant off   | Plant off     | Plant off      | Plant off     | Plant off    | Plant off     | Plant off     | Plant off     | Plant off     | Plant off     |
| Total Suspended Solids (mg/l)  |              |               |               |               |            |               |            |               |           |               | 3         | 5             | 3         | 4             |             |               |                |               |              |               |               |               |               |               |
| Total Residual Chlorine (µg/l) |              |               |               |               |            |               |            |               |           |               | 0         | 0             | 15        | 20            |             |               |                |               |              |               |               |               |               |               |
| pH (s.u.)                      |              |               |               |               |            |               |            |               |           |               | Min       | Max           | Min       | Max           |             |               |                |               |              |               |               |               |               |               |
|                                | 6.9          | 7.4           | 7.0           | 7.2           |            |               |            |               |           |               |           |               |           |               |             |               |                |               |              |               |               |               |               |               |

| 2017                           | January 2017 |               | February 2017 |               | DECEMBER 2014 - FEBRUARY 2017 |               |                  |
|--------------------------------|--------------|---------------|---------------|---------------|-------------------------------|---------------|------------------|
|                                | Average      | Maximum Daily | Average       | Maximum Daily | Average                       | Maximum Daily | Date of Max      |
| Discharge Flow (gpd)           | Plant off    | Plant off     | 63,435        | 86,000        | 71,736                        | 138,400       | 12/2014          |
| Total Suspended Solids (mg/l)  |              |               | 4             | 5             | 9.4                           | 37            | 2/2015           |
| Total Residual Chlorine (µg/l) |              |               | 20            | 30            | 11                            | 40            | 12/2014, 04/2015 |
| pH (s.u.)                      |              |               | Min           | Max           | Min                           | Max           | --               |
|                                |              |               | 5.8           | 7.2           | 5.8                           | 7.4           | --               |



WATER TREATMENT MODULE PROFILE

## WATER SOURCE, TREATMENT AND DISTRIBUTION

The Pelham Supply includes three impoundment reservoirs intercepting a total of 6.2 square miles. The impoundments involve a 2 million gallon Intake Reservoir located on Amethyst Brook, the 14 million gallon Hawley Reservoir and 30 million gallon Hills Reservoir.

From the Intake Reservoir, the water is conveyed through a transmission main to the intake pumping station, consisting of three pumps each rated at 550 GPM. The raw water is pumped up to the plant for treatment.

The Centennial Water Treatment Plant is equipped to introduce a variety of process chemicals; these involve coagulants to induce agglomeration of finely dispersed colloidal particles, a disinfectant to render the product water bacteriologically safe and alkaline materials to adjust pH for optimum treatment efficiency and for corrosion control.

The plant is equipped with three, packaged filtration modules each rated for 350 GPM (0.5 MGD). The modules were furnished by Roberts Filter Manufacturing Company of Darby, Pennsylvania and contain two, separate, flocculator compartments providing 30 minutes detention time at design flow, one sedimentation basin equipped with 60° tube settlers allowing a 2 GPM/sq. ft. hydraulic loading rate and a 100 square foot dual media filter with a loading of 3.5 GPM/sq. ft.

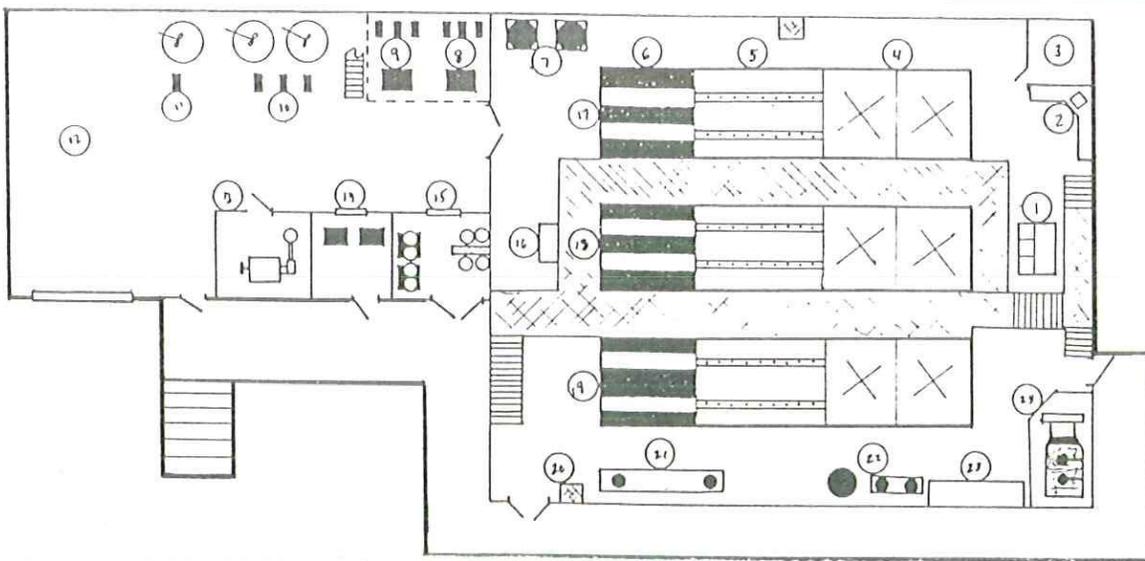
*SODIUM HYDROXIDE*

*Polymer*

As the raw water enters the plant, *alum* is added for coagulation of the finely dispersed colloidal material (turbidity), *lime* for pH adjustment and *polymer* for improved floc formation, coagulation and color removal. The water is agitated slowly in two flocculators operated in series for floc formation; thence, the water flows into the sedimentation basin which is equipped with 60° inclined plate settlers to facilitate better solids removal. The clarified water then flows into the gravity, dual media filters. The filters are comprised of a 20" anthracite top layer, a 10" sand layer and a variety of support gravel layers around and above the collection laterals.

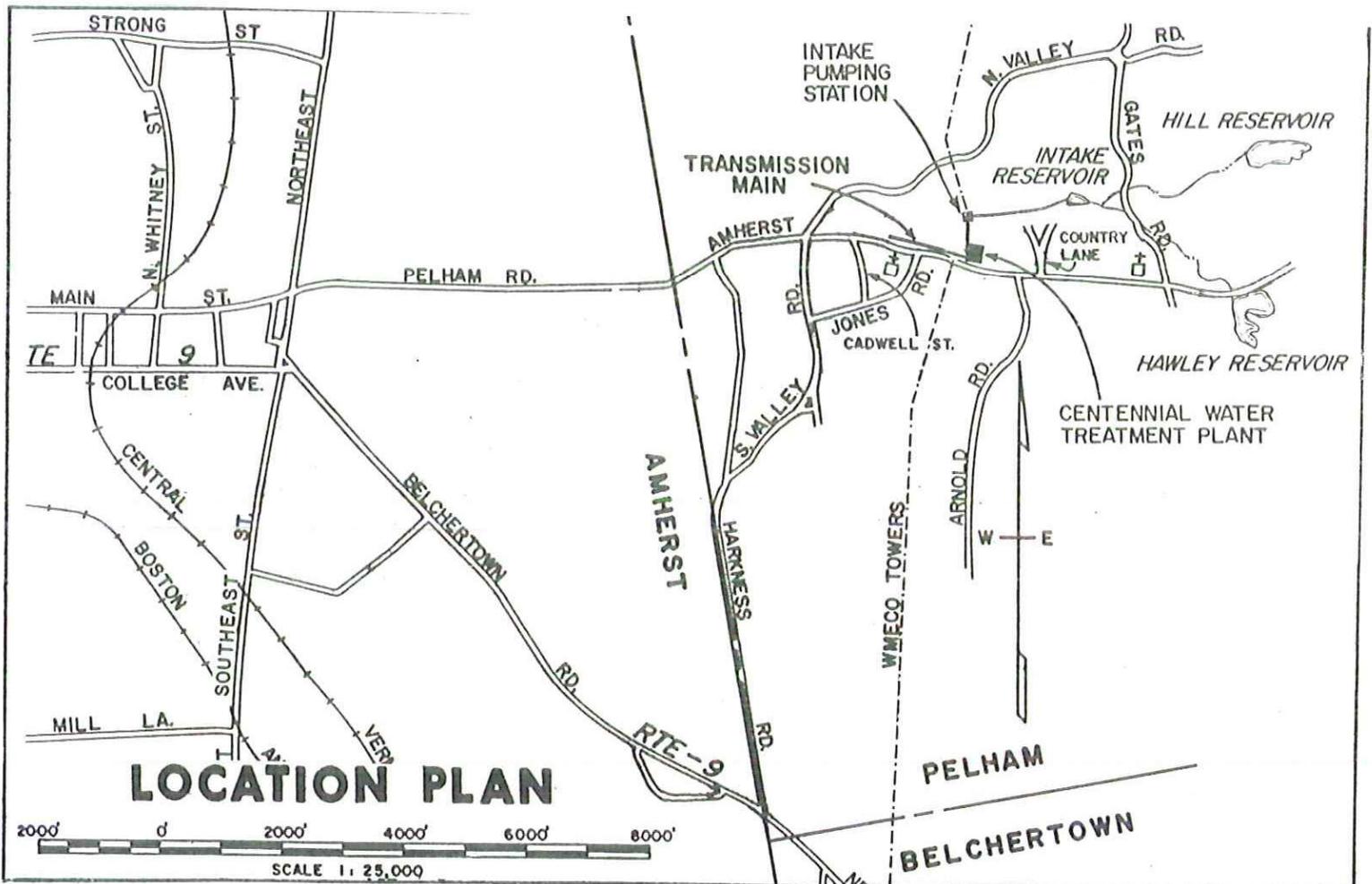
The filtered water enters a 250,000 gallon clear well where chlorine is added for disinfection purposes and sodium hydroxide is introduced to raise the pH of the product water to non-corrosive levels.

The treated water leaves the clear well through a 12" transmission main which runs down Amherst Road in Pelham towards Amherst. A number of high level services are supplied off this main before the water pressure is reduced by a flow control station at South Valley Road. The water enters the distribution system and generally serves the eastern and north central portion of the Town.



## EQUIPMENT LOCATION PLAN

- |   |   |
|---|---|
| 1. SPLITTER BOX                             | 13. BOILER ROOM                             |
| 2. LABORATORY AREA                          | 14. CHLORINE FEED AND INJECTION ROOM        |
| 3. LAVATORY AND LOCKERS                     | 15. CHLORINE STORAGE AND WEIGHING ROOM      |
| 4. FLOCCULATOR SECTIONS (2) ON FILTER TRAIN | 16. FILTER PROCESS LOGIC AND CONTROL PANEL  |
| 5. CLARIFIER SECTION ON FILTER TRAIN        | 17. FILTER TRAIN NO. 1                      |
| 6. FILTER SECTION OF FILTER TRAIN           | 18. FILTER TRAIN NO. 2                      |
| 7. BACKWASH PUMPS (2)                       | 19. FILTER TRAIN NO. 3                      |
| 8. LIME FEEDER, MIXER, AND PUMPS            | 20. HATCH TO RESERVOIR BELOW (TYPICAL OF 2) |
| 9. ALUM FEEDER, MIXER, AND PUMPS            | 21. SURFACE WASH PUMPS                      |
| 10. POLYMER TANKS, MIXERS, AND PUMPS        | 22. PLANT AND POTABLE WATER PUMPING SYSTEMS |
| 11. CAUSTIC TANKS, MIXERS, AND PUMPS        | 23. MAIN PLANT MOTOR CONTROL CENTER         |
| 12. CHEMICAL STORAGE AREA                   | 24. EMERGENCY GENERATOR FOR PLANT POWER     |



## LOCATION PLAN

2000' 0' 2000' 4000' 6000' 8000'  
SCALE 1:25,000



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5094  
Phone: (603) 223-2541 Fax: (603) 223-0104  
<http://www.fws.gov/newengland>

In Reply Refer To:

April 06, 2017

Consultation Code: 05E1NE00-2017-SLI-1264

Event Code: 05E1NE00-2017-E-02407

Project Name: Centennial WTP Backwash Discharge

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the

human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**New England Ecological Services Field Office**

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

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## Project Summary

Consultation Code: 05E1NE00-2017-SLI-1264

Event Code: 05E1NE00-2017-E-02407

Project Name: Centennial WTP Backwash Discharge

Project Type: WATER SUPPLY / DELIVERY

Project Description: The Centennial Water Treatment Plant in Pelham discharges to the Amethyst Brook from an outfall at latitude 42 degrees 22' 52" and longitude 72 degrees 27' 35". The discharge includes treated filter backwash and clarifier blowdown water. Source water is from upstream in the brook. There is slight residual chlorine, typically along the lines of 0.02 mg/L. Total suspended solids in the discharge are on average 9.4 mg/L. This request is for the renewal of a PWTF discharge permit from the Environmental Protection Agency.

Project Location:

Approximate location of the project can be viewed in Google Maps:

<https://www.google.com/maps/place/42.38053767598631N72.46221521697217W>



Counties: Hampshire, MA

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## Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

### Mammals

| NAME   | STATUS     |
|--|------------|
| Northern Long-eared Bat ( <i>Myotis septentrionalis</i> )  | Threatened |
| No critical habitat has been designated for this species.  |            |
| Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a> |            |

### Critical habitats

There are no critical habitats within your project area.

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## Strole, Lindsay

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**From:** David Simmons [David\_Simmons@fws.gov]  
**Sent:** Tuesday, April 18, 2017 4:35 PM  
**To:** Strole, Lindsay  
**Subject:** RE: EPA PWTF General Permit Renewal--Amherst, MA

Hi Lindsay,

Given your description of the project, your “no effect” determination sounds reasonable to me. If you need documentation for your permit application to EPA, you can use the letter at this link [https://www.fws.gov/newengland/pdfs/2017\\_no\\_species\\_present\\_ltr.PDF](https://www.fws.gov/newengland/pdfs/2017_no_species_present_ltr.PDF). Please let me know if you have any questions, concerns, etc. Regards,

David

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David Simmons  
Endangered Species Program Supervisor  
New England Fish and Wildlife Office  
U.S. Fish and Wildlife Service  
70 Commercial Street, Suite 300  
Concord, New Hampshire 03301  
603.227.6425

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**From:** Strole, Lindsay [mailto:[Strolel@amherstma.gov](mailto:Strolel@amherstma.gov)]  
**Sent:** Friday, April 14, 2017 12:07 PM  
**To:** [David\\_Simmons@fws.gov](mailto:David_Simmons@fws.gov)  
**Subject:** EPA PWTF General Permit Renewal--Amherst, MA

Hi David,

The Town of Amherst, MA operates a potable water treatment facility in Pelham that discharges water to Amethyst Brook. The discharge consists of clarifier blowdown water and filter backwash from the plant. We are seeking renewal under the EPA PWTF general permit MAG640000. We have been operating under this permit for years.

We no longer fall under USFWS Criteria A, since the Northern long-eared Bat is now listed as a threatened species statewide in Massachusetts. Our determination is that the discharge is “*not likely to adversely affect*” or will have no effect on the listed species.

The daily discharge from the plant is approximately 72,000 gallons, on average. This water flows into two settling lagoons that have a total capacity of 200,000 gallons. Solids are settled out and the water flows through a 1,000 foot channel down to the Amethyst Brook. We estimate that 90% up to 100% of the water does not reach the brook due to infiltration into the lagoons and soil during overland flow. Our average chlorine residual is 0.01 mg/L, so the discharge does not create a toxicity issue for the listed species. The average pH of the discharge is 6.8, and the average total suspended solids in the discharge is 9.4 mg/L. The pH of the discharge is not likely to induce a pH change in the receiving waters. The low solids number will likely not impact the listed species. No aluminum coagulants are used at our plant.

If there is any other information I can provide you with to assist in your determination, please let me know!

Thank you very much,

Lindsay



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

New England Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5087  
<http://www.fws.gov/newengland>

January 20, 2017

To Whom It May Concern:

This project was reviewed for the presence of federally listed or proposed, threatened or endangered species or critical habitat per instructions provided on the U.S. Fish and Wildlife Service's New England Field Office website:

<http://www.fws.gov/newengland/EndangeredSpec-Consultation.htm> (accessed January 2017)

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area(s). Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

Thank you for your cooperation. Please contact Maria Tur of this office at 603-223-2541 if we can be of further assistance.

Sincerely yours,

Thomas R. Chapman  
Supervisor  
New England Field Office