



Consultants | Engineers | Scientists

May 3, 2017

Via Electronic Mail: [NPDES.Generalpermits@epa.gov](mailto:NPDES.Generalpermits@epa.gov)

U.S. Environmental Protection Agency  
Remediation General Permit NOI Processing  
5 Post Office Square, Suite 100  
Mail Code OEP06-4  
Boston, Massachusetts 02109-3912

**RE: EPA Remediation General Permit Notice of Intent**  
**Sargent Residence**  
**2 Woodland Road**  
**Northborough, Massachusetts**  
**MassDEP RTN 2-20070**  
**CEA File No. 0070-17**

To Whom It May Concern:

On behalf of the homeowner, Mrs. Maureen Sargent (Ms. Sargent), Corporate Environmental Advisors (CEA) respectfully submits this EPA Remediation General Permit (RGP) Notice of Intent (NOI) submittal for the above-referenced location (the "Site" or "subject property"). The RGP NOI submittal is provided as **Attachment A**. The Site consists of 0.293 acres of land improved with a 1,125 square foot single family home, asphalt driveway, and landscaped areas. The subject 2 Woodland Road property is located at the intersection of Woodland Road and Birch Hill Road in a residential area of Northborough, Massachusetts. Groundwater beneath the subject property has been impacted by a recent release of virgin #2 fuel oil (heating oil) from an above ground storage tank (AST) formerly located outside the residence.

Excavation of fuel oil impacted soil is proposed outside and beneath a portion of the onsite residence. It is anticipated that proposed excavation and temporary dewatering and groundwater treatment activities will be initiated at the Site in late May 2017. Proposed remediation activities are being performed at the Site assigned Massachusetts Department of Environmental Protection (MassDEP) Release Tracking Number (RTN) 2-20070 under an Immediate Response Action (IRA), in accordance with the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000.

ADDRESS	Hartwell Business Park
	127 Hartwell Street, Suite 2, West Boylston, MA 01583
TEL	508.835.8822
FAX	508.835.8812
WEB	<a href="http://www.cea-inc.com">www.cea-inc.com</a>

This Notice of Intent is being submitted in order to obtain a permit for the short term (temporary) discharge of treated groundwater to surface water. Based on available information groundwater has been measured at the Site at depths ranging from approximately 5.62 feet to 11 feet below grade. Therefore, it is anticipated that dewatering activities and corresponding treatment of such using a temporary groundwater treatment system will be necessary to depress the groundwater table at the Site during subsurface excavation activities. A Site Locus is provided as **Figure 1** and a Site Layout is provided as **Figure 2**. The attached Site Locus (**Figure 1**) depicts the subject property with respect to surrounding topography and the Site Layout (**Figure 2**) depicts pertinent Site features. The attached MassDEP Bureau of Waste Site Cleanup (BWSC) Phase 1 Site Assessment Map provided as **Figure 3** depicts surface water features and sensitive receptors located within an approximate 500 foot radius and half-mile radius of the site.

### **GROUNDWATER TREATMENT SYSTEM DESIGN**

The proposed groundwater treatment system to be located on-site shall consist of an electric submersible pump which will pump groundwater from a temporary dewatering sump or well set within the excavation area to a 21,000-gallon fractation (frac) tank for settling and temporary storage. Recovered groundwater shall be pumped from the frac tank using a submersible pump through bag filters to remove particulates and then through two (2) 2,000-pound capacity liquid phase granular activated carbon adsorption (LGACA) vessels plumbed in series. The treated groundwater will pass through a flow meter and flow totalizer prior to being discharged to a storm drain catch basin located along the southwest side of the subject property within the Birch Hill Road roadway layout. Information provided by the Town of Northborough Department of Public Works (DPW) indicates that this storm drain is connected to the underground drainage system within the Birch Hill Road layout and discharges to the ground surface and unnamed freshwater wetland area, located approximately 150 feet southwest of the Site. A process and instrumentation diagram (P&ID) of the proposed groundwater treatment system is provided as **Figure 4**. The proposed treated water discharge location is shown on **Figure 2**.

The average flow rate of the treated water discharge from the system to the storm drain system is expected to be less than 50 gallons per minute (gpm). The pumping capacity of the groundwater treatment system is 75 gpm based upon the capacity of the submersible pumps. The groundwater treatment system shall be inspected, monitored and sampled by a Grade II Wastewater Treatment Plant Operator as required in accordance with the RGP. Groundwater samples shall be collected from the influent and effluent (treated water) prior to discharge for analysis by a Massachusetts-certified laboratory for contaminants of concern and any additional monitoring parameters required by the RGP. In addition, groundwater samples shall also be collected from the midpoint (between LGAC units) for analysis by a Massachusetts-certified laboratory to further monitor the groundwater treatment system for potential break through of the liquid phase carbon.

### **GROUNDWATER PRE-CHARACTERIZATION ANALYSIS**

Groundwater samples were collected on January 17, 2017 from recently installed on-site monitoring wells MW-2 and MW-3 to evaluate concentrations of fuel oil related petroleum compounds in groundwater. On March 22, 2017 supplemental groundwater samples were collected from select groundwater monitoring well MW-1 to further evaluate groundwater quality. The January 17, 2017 samples were submitted to New England Testing Laboratory, Inc. (NETLab) under chain-of-custody protocol and analyzed for extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH) via the MassDEP methods. The March 22, 2017 groundwater samples were submitted under chain-of-custody protocol to NETLab for analysis of select RGP parameters including ammonia, chloride, total suspended solids (TSS), total metals, cyanide, volatile organic compounds (VOCs), semi-VOCs (SVOCs)/ polycyclic aromatic hydrocarbons (PAHs), and total petroleum hydrocarbons (TPH) via the corresponding EPA methodologies. Refer to the laboratory analytical reports included in **Attachment B** for details of the RGP parameters, EPA methodologies and groundwater analytical results.

The attached **Table 1** summarizes monitoring well gauging and light non-aqueous phase liquid (LNAPL) thickness data, and attached **Tables 2A and 2B** summarize the January 2017 EPH and VPH analytical results for untreated monitoring well groundwater samples. The groundwater analytical results for untreated/ unfiltered groundwater samples collected from monitoring well MW-1 on March 22, 2017 for RGP parameters are summarized in the enclosed RGP NOI data summary section (Pages 18 to 20 in the NOI, **Attachment A**). The March 2017 laboratory analytical results for the untreated groundwater sample (MW-1) are compared to the corresponding RGP effluent limitations summarized in the enclosed NOI data summary. The RGP effluent limitations were obtained from the RGP Table 2 Chemical-Specific Effluent Limitations for Category I – Petroleum Related Site Remediation, found at (<https://www3.epa.gov/region1/npdes/rgp.html>).

Referring to the NOI data summary included in **Attachment A**, the analytical results for the untreated/ unfiltered groundwater sample (MW-1) detected TSS, trivalent chromium, total iron, total benzene, toluene, ethylbenzene and xylenes (BTEX), benzene, total group II PAHs, and naphthalene concentrations above the corresponding EPA RGP technology-based effluent limitation (TBEL) and/or water quality-based effluent limitation (WQBEL) available for this report. These exceedances of RGP effluent limitations in the untreated groundwater sample (MW-1) are most likely attributable to silt in the unfiltered groundwater sample and not representative of actual groundwater (soluble) concentrations. However, it is anticipated that the proposed groundwater treatment system will reduce concentrations of TSS, benzene, total BTEX, total iron, trivalent chromium, PAHs and naphthalene below available RGP effluent limitations in treated groundwater prior to discharge. Based on available information, TSS, benzene, total BTEX, total iron, total group II PAHs, naphthalene and/or trivalent chromium should be subject to monitoring requirements.

### **RECEIVING WATERS INFORMATION**

The receiving water for the treated groundwater discharge is an unnamed freshwater wetland and perennial stream, located approximately 150 feet southwest of the Site. CEA consulted the online United States Geological Survey (USGS) StreamStats program ([http://streamstatsags.cr.usgs.gov/v3\\_beta/BCreport.htm](http://streamstatsags.cr.usgs.gov/v3_beta/BCreport.htm)) and USGS personnel to determine the 7Q10 flow rate at the discharge location. No stream gage information was identified in the vicinity of the proposed discharge point. In the absence of stream gage information a StreamStats Flow Statistics Ungaged Report was prepared for the proposed discharge point (located at 42.3089N, -71.6518W) at the drainage system outfall and wetland area located to the southwest of the site in Northborough, MA. Data obtained from the StreamStats Flow Statistics Ungaged Report indicates that the calculated 7Q10 flow rate for this wetland area basin is 0.00309 cubic feet per second (cfs). A copy of the StreamStats Flow Statistics Ungaged Report is provided in **Attachment C**.

### **RECEIVING WATER CLASSIFICATION**

According to 314 CMR 4.06, the freshwater wetland where the proposed drainage system outfall is located is designated as Class B High Quality Waters for inland waters, since the wetland does not border a Class A, B, SB or SA Outstanding Resource Waters. The freshwater wetland drains into a perennial stream that flows into the Hop Brook. The Hop Brook is a tributary to the Assabet River. The Assabet River is classified as a Class B surface water.

### **THREATENED OR ENDANGERED SPECIES OR CRITICAL HABITAT**

According to the Massachusetts Geographic Information Systems (MassGIS) and online MassDEP Phase 1 Site Assessment Map (<http://maps.massgis.state.ma.us/images/dep/mcp/mcp.htm>) and Natural Heritage Endangered Species Program (NHESP) online maps, no Priority Habitat of Rare Species or Estimated Habitats of Rare Wildlife are located within the work area or at the proposed groundwater discharge location. Also, the MassGIS maps do not depict any Areas of Critical Environmental Concern on the Site or within one-half mile of the Site. Copies of the MassDEP Phase I Site Assessment Map (**Figure 3**) is attached and the NHESP maps are provided as **Attachment D**.

As part of the Endangered Species Act eligibility determination CEA contacted the United States Department of the Interior, Fish and Wildlife Services (FWS) and requested a list of threatened and endangered species that may occur in the proposed project location and/or that may be affected by the proposed project. The FWS provided the requested list which indicates that one (1) threatened or endangered species, the northern long-eared bat (*myotis septentrionalis*), was identified and should be considered in an effects analysis for the project. On May 2, 2017 Mr. Adam Last of CEA contacted the New England Field Office of the FWS and spoke with Ms. Maria Tur in the Endangered Species group of FWS. The proposed remediation project does not

involve the removal of any trees. According to Ms. Tur, because no trees will be cut there will be no effect to the northern long eared bat, which roosts in trees during non-winter months. Therefore, the proposed project discharge meets FWS Criterion B. A copy of the FWS letter is included in **Attachment E**.

**REVIEW OF NATIONAL REGISTER OF HISTORIC PLACES**

A listing of all Historic Places within the Town of Northborough was obtained from the Massachusetts Cultural Resources Information System (MACRIS) online database at <http://mhc-macris.net/> on March 24, 2017. A copy of the MACRIS historic places report is provided as **Attachment F**. The database indicates that numerous historic places are located in the Town of Northborough, however no historic places are located in the immediate vicinity of the Site. The project does not involve the demolition or rehabilitation of any of the historic places identified in the database. Also, historic properties are not affected by the discharge or identified in the path of the discharges regulated by this permit, and are not identified where installation or construction of treatment systems or best management practices to control such discharges are planned.

If you have any questions or require additional information, please do not hesitate to contact either of the undersigned via telephone at (508) 835-8822.

Sincerely,



Phil Olson  
Senior Environmental Geologist



Adam Last, P.E., LSP  
Principal Engineer

cc:      Ms. Shelley Puleo (via email: [puleo.shelley@epa.gov](mailto:puleo.shelley@epa.gov))  
          Ms. Cathy Vakalopoulos (via email: [Catherine.Vakalopoulos@state.ma.us](mailto:Catherine.Vakalopoulos@state.ma.us))  
          Ms. Shauna Little (via email: [little.shauna@epa.gov](mailto:little.shauna@epa.gov))  
          Mr. Scott Charpentier (via email: [mailto:scharpentier@town.northborough.ma.us](mailto:mailto:scharpentier@town.northborough.ma.us))  
          Ms. Maureen Sargent, 2 Woodland Road, Northborough, MA

Attachments: RGP NOI Submittal, Figures, Laboratory Analytical Reports, Tables, StreamStats Flow Statistics Report, NHESP Maps, FWS Endangered Species Determination, MACRIS Historic Places Report

**ATTACHMENT A**

**EPA Remediation General Permit (RGP)**  
**Notice of Intent (NOI) Submittal**

## II. Suggested Format for the Remediation General Permit Notice of Intent (NOI)

### A. General site information:

1. Name of site:	Site address:		
	Street:		
	City:	State:	Zip:
2. Site owner  Owner is (check one): <input type="checkbox"/> Federal <input type="checkbox"/> State/Tribal <input type="checkbox"/> Private <input type="checkbox"/> Other; if so, specify: _____	Contact Person:		
	Telephone:	Email:	
	Mailing address:		
	Street:	City:	State:
3. Site operator, if different than owner	Contact Person:		
	Telephone:	Email:	
	Mailing address:		
	Street:	City:	State:
4. NPDES permit number assigned by EPA:  NPDES permit is (check all that apply): <input type="checkbox"/> RGP <input type="checkbox"/> DGP <input type="checkbox"/> CGP <input type="checkbox"/> MSGP <input type="checkbox"/> Individual NPDES permit <input type="checkbox"/> Other; if so, specify: _____	5. Other regulatory program(s) that apply to the site (check all that apply):  <input type="checkbox"/> MA Chapter 21e; list RTN(s): <b>MassDEP RTN: 2-20070</b> <input type="checkbox"/> CERCLA <input type="checkbox"/> NH Groundwater Management Permit or Groundwater Release Detection Permit: <input type="checkbox"/> UIC Program <input type="checkbox"/> POTW Pretreatment <input type="checkbox"/> CWA Section 404		

**B. Receiving water information:** The freshwater wetland (receiving water) is designated as Class B High Quality Waters for inland waters, according to 314 CMR 4.06.

1. Name of receiving water(s):	Waterbody identification of receiving water(s):	Classification of receiving water(s):
Receiving water is (check any that apply): <input type="checkbox"/> Outstanding Resource Water <input type="checkbox"/> Ocean Sanctuary <input type="checkbox"/> territorial sea <input type="checkbox"/> Wild and Scenic River <span style="border: 1px solid red; padding: 2px;">Assabet River</span>		
2. Has the operator attached a location map in accordance with the instructions in B, above? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No Are sensitive receptors present near the site? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, specify:		
3. Indicate if the receiving water(s) is listed in the State's Integrated List of Waters (i.e., CWA Section 303(d)). Include which designated uses are impaired, and any pollutants indicated. Also, indicate if a final TMDL is available for any of the indicated pollutants. For more information, contact the appropriate State as noted in Part 4.6 of the RGP. <span style="border: 1px solid red; padding: 2px;">The Assabet River is in the Massachusetts 2002 Integrated List of Waters primarily for nutrients &amp; organic enrichment/low dissolved oxygen. Phosphorus limit is 0.1 mg/l.</span>		
4. Indicate the seven day-ten-year low flow (7Q10) of the receiving water determined in accordance with the instructions in Appendix V for sites located in Massachusetts and Appendix VI for sites located in New Hampshire.		
5. Indicate the requested dilution factor for the calculation of water quality-based effluent limitations (WQBELs) determined in accordance with the instructions in Appendix V for sites in Massachusetts and Appendix VI for sites in New Hampshire.		
6. Has the operator received confirmation from the appropriate State for the 7Q10 and dilution factor indicated? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate date confirmation received:		
7. Has the operator attached a summary of receiving water sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No <span style="border: 1px solid red; padding: 2px;">See attached laboratory analytical report and receiving water summary table for surface water sample SW-1 collected on 3-22-2017.</span>		

**C. Source water information:**

1. Source water(s) is (check any that apply):			
<input type="checkbox"/> Contaminated groundwater  Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Contaminated surface water  Has the operator attached a summary of influent sampling results as required in Part 4.2 of the RGP in accordance with the instruction in Appendix VIII? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> The receiving water  <input type="checkbox"/> A surface water other than the receiving water; if so, indicate waterbody:	<input type="checkbox"/> Potable water; if so, indicate municipality or origin:  <input type="checkbox"/> Other; if so, specify:

2. Source water contaminants:	
a. For source waters that are contaminated groundwater or contaminated surface water, indicate are any contaminants present that are not included in the RGP? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate the contaminant(s) and the maximum concentration present in accordance with the instructions in Appendix VIII.	b. For a source water that is a surface water other than the receiving water, potable water or other, indicate any contaminants present at the maximum concentration in accordance with the instructions in Appendix VIII? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No
3. Has the source water been previously chlorinated or otherwise contains residual chlorine? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No	

#### D. Discharge information

1. The discharge(s) is a(n) (check any that apply): <input type="checkbox"/> Existing discharge <input type="checkbox"/> New discharge <input type="checkbox"/> New source	
Outfall(s):	Outfall location(s): (Latitude, Longitude)
Discharges enter the receiving water(s) via (check any that apply): <input type="checkbox"/> Direct discharge to the receiving water <input type="checkbox"/> Indirect discharge, if so, specify:  <input type="checkbox"/> A private storm sewer system <input type="checkbox"/> A municipal storm sewer system If the discharge enters the receiving water via a private or municipal storm sewer system: Has notification been provided to the owner of this system? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No Has the operator received permission from the owner to use such system for discharges? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No, if so, explain, with an estimated timeframe for obtaining permission: Has the operator attached a summary of any additional requirements the owner of this system has specified? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No Provide the expected start and end dates of discharge(s) (month/year): Indicate if the discharge is expected to occur over a duration of: <input type="checkbox"/> less than 12 months <input type="checkbox"/> 12 months or more <input type="checkbox"/> is an emergency discharge Has the operator attached a site plan in accordance with the instructions in D, above? (check one): <input type="checkbox"/> Yes <input type="checkbox"/> No	

2. Activity Category: (check all that apply)	3. Contamination Type Category: (check all that apply)				
<p><b>Contaminant is virgin #2 fuel oil (heating oil)</b></p> <p><input type="checkbox"/> I – Petroleum-Related Site Remediation  <input type="checkbox"/> II – Non-Petroleum-Related Site Remediation  <input type="checkbox"/> III – Contaminated Site Dewatering  <input type="checkbox"/> IV – Dewatering of Pipelines and Tanks  <input type="checkbox"/> V – Aquifer Pump Testing  <input type="checkbox"/> VI – Well Development/Rehabilitation  <input type="checkbox"/> VII – Collection Structure Dewatering/Remediation  <input type="checkbox"/> VIII – Dredge-Related Dewatering</p> <p>a. If Activity Category I or II: (check all that apply)</p> <p><input type="checkbox"/> A. Inorganics  <input type="checkbox"/> B. Non-Halogenated Volatile Organic Compounds  <input type="checkbox"/> C. Halogenated Volatile Organic Compounds  <input type="checkbox"/> D. Non-Halogenated Semi-Volatile Organic Compounds  <input type="checkbox"/> E. Halogenated Semi-Volatile Organic Compounds  <input type="checkbox"/> F. Fuels Parameters <span style="border: 1px solid red; padding: 2px;">See influent groundwater analytical results for MW-1 on page 18 and attached laboratory report</span></p>					
<p>b. If Activity Category III, IV, V, VI, VII or VIII: (check either G or H)</p> <table border="1" data-bbox="967 812 2014 866"> <tr> <td data-bbox="967 812 1431 866"><input type="checkbox"/> G. Sites with Known Contamination</td> <td data-bbox="1431 812 2014 866"><input type="checkbox"/> H. Sites with Unknown Contamination</td> </tr> </table>				<input type="checkbox"/> G. Sites with Known Contamination	<input type="checkbox"/> H. Sites with Unknown Contamination
<input type="checkbox"/> G. Sites with Known Contamination	<input type="checkbox"/> H. Sites with Unknown Contamination				
<p>c. If Category III-G, IV-G, V-G, VI-G, VII-G or VIII-G: (check all that apply)</p> <p><input type="checkbox"/> A. Inorganics  <input type="checkbox"/> B. Non-Halogenated Volatile Organic Compounds  <input type="checkbox"/> C. Halogenated Volatile Organic Compounds  <input type="checkbox"/> D. Non-Halogenated Semi-Volatile Organic Compounds  <input type="checkbox"/> E. Halogenated Semi-Volatile Organic Compounds  <input type="checkbox"/> F. Fuels Parameters</p> <p>d. If Category III-H, IV-H, V-H, VI-H, VII-H or VIII-H Contamination Type Categories A through F apply</p>					

4. Influent and Effluent Characteristics

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
<b>A. Inorganics</b>									
Ammonia								Report mg/L	---
Chloride								Report µg/l	---
Total Residual Chlorine								0.2 mg/L	
Total Suspended Solids								30 mg/L	
Antimony								206 µg/L	
Arsenic								104 µg/L	
Cadmium								10.2 µg/L	
Chromium III								323 µg/L	
Chromium VI								323 µg/L	
Copper								242 µg/L	
Iron								5,000 µg/L	
Lead								160 µg/L	
Mercury								0.739 µg/L	
Nickel								1,450 µg/L	
Selenium								235.8 µg/L	
Silver								35.1 µg/L	
Zinc								420 µg/L	
Cyanide								178 mg/L	
<b>B. Non-Halogenated VOCs</b>									
Total BTEX								100 µg/L	---
Benzene								5.0 µg/L	---
1,4 Dioxane								200 µg/L	---
Acetone								7.97 mg/L	---
Phenol								1,080 µg/L	

Parameter	Known or believed absent	Known or believed present	# of samples	Test method (#)	Detection limit (µg/l)	Influent		Effluent Limitations	
						Daily maximum (µg/l)	Daily average (µg/l)	TBEL	WQBEL
<b>C. Halogenated VOCs</b>									
Carbon Tetrachloride								4.4 µg/L	
1,2 Dichlorobenzene								600 µg/L	---
1,3 Dichlorobenzene								320 µg/L	---
1,4 Dichlorobenzene								5.0 µg/L	---
Total dichlorobenzene								763 µg/L in NH	---
1,1 Dichloroethane								70 µg/L	---
1,2 Dichloroethane								5.0 µg/L	---
1,1 Dichloroethylene								3.2 µg/L	---
Ethylene Dibromide								0.05 µg/L	---
Methylene Chloride								4.6 µg/L	---
1,1,1 Trichloroethane								200 µg/L	---
1,1,2 Trichloroethane								5.0 µg/L	---
Trichloroethylene								5.0 µg/L	---
Tetrachloroethylene								5.0 µg/L	
cis-1,2 Dichloroethylene								70 µg/L	---
Vinyl Chloride								2.0 µg/L	---
<b>D. Non-Halogenated SVOCs</b>									
Total Phthalates								190 µg/L	
Diethylhexyl phthalate								101 µg/L	
Total Group I PAHs								1.0 µg/L	---
Benzo(a)anthracene									As Total PAHs
Benzo(a)pyrene									
Benzo(b)fluoranthene									
Benzo(k)fluoranthene									
Chrysene									
Dibenzo(a,h)anthracene									
Indeno(1,2,3-cd)pyrene									



## E. Treatment system information

1. Indicate the type(s) of treatment that will be applied to effluent prior to discharge: (check all that apply)

Adsorption/Absorption  Advanced Oxidation Processes  Air Stripping  Granulated Activated Carbon (“GAC”)/Liquid Phase Carbon Adsorption  
 Ion Exchange  Precipitation/Coagulation/Flocculation  Separation/Filtration  Other; if so, specify:

2. Provide a written description of all treatment system(s) or processes that will be applied to the effluent prior to discharge.

Identify each major treatment component (check any that apply):

Fractionation tanks  Equalization tank  Oil/water separator  Mechanical filter  Media filter  
 Chemical feed tank  Air stripping unit  Bag filter  Other; if so, specify:

Indicate if either of the following will occur (check any that apply):

Chlorination  De-chlorination

3. Provide the **design flow capacity** in gallons per minute (gpm) of the most limiting component.

Indicate the most limiting component:

Is use of a flow meter feasible? (check one):  Yes  No, if so, provide justification:

Provide the proposed maximum effluent flow in gpm.

Provide the average effluent flow in gpm.

If Activity Category IV applies, indicate the estimated total volume of water that will be discharged:

4. Has the operator attached a schematic of flow in accordance with the instructions in E, above? (check one):  Yes  No

#### **F. Chemical and additive information**

1. Indicate the type(s) of chemical or additive that will be applied to effluent prior to discharge or that may otherwise be present in the discharge(s): (check all that apply)

Algaecides/biocides  Antifoams  Coagulants  Corrosion/scale inhibitors  Disinfectants  Flocculants  Neutralizing agents  Oxidants  Oxygen  scavengers  pH conditioners  Bioremedial agents, including microbes  Chlorine or chemicals containing chlorine  Other; if so, specify:

2. Provide the following information for each chemical/additive, using attachments, if necessary:

- a. Product name, chemical formula, and manufacturer of the chemical/additive;
- b. Purpose or use of the chemical/additive or remedial agent;
- c. Material Safety Data Sheet (MSDS) and Chemical Abstracts Service (CAS) Registry number for each chemical/additive;
- d. The frequency (hourly, daily, etc.), duration (hours, days), quantity (maximum and average), and method of application for the chemical/additive;
- e. Any material compatibility risks for storage and/or use including the control measures used to minimize such risks; and
- f. If available, the vendor's reported aquatic toxicity (NOAEL and/or LC50 in percent for aquatic organism(s)).

3. Has the operator attached an explanation which demonstrates that the addition of such chemicals/additives may be authorized under this general permit in accordance with the instructions in F, above? (check one):  Yes  No; if no, has the operator attached data that demonstrates each of the 126 priority pollutants in CWA Section 307(a) and 40 CFR Part 423.15(j)(1) are non-detect in discharges with the addition of the proposed chemical/additive?

(check one):  Yes  No

#### **G. Endangered Species Act eligibility determination**

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

**FWS Criterion A:** No endangered or threatened species or critical habitat are in proximity to the discharges or related activities or come in contact with the “action area”.

**FWS Criterion B:** Formal or informal consultation with the FWS under section 7 of the ESA resulted in either a no jeopardy opinion (formal consultation) or a written concurrence by FWS on a finding that the discharges and related activities are “not likely to adversely affect” listed species or critical habitat (informal consultation). Has the operator completed consultation with FWS? (check one):  Yes  No; if no, is consultation underway? (check one):  Yes  No

**FWS Criterion C:** Using the best scientific and commercial data available, the effect of the discharges and related activities on listed species and critical habitat have been evaluated. Based on those evaluations, a determination is made by EPA, or by the operator and affirmed by EPA, that the discharges and related activities will have “no effect” on any federally threatened or endangered listed species or designated critical habitat under the jurisdiction of the FWS. This determination was made by: (check one)  the operator  EPA  Other; if so, specify:

**NMFS Criterion:** A determination made by EPA is affirmed by the operator that the discharges and related activities will have “no effect” or are “not likely to adversely affect” any federally threatened or endangered listed species or critical habitat under the jurisdiction of NMFS and will not result in any take of listed species. Has the operator previously completed consultation with NMFS? (check one):  Yes  No

2. Has the operator attached supporting documentation of ESA eligibility in accordance with the instructions in Appendix I, and G, above? (check one):  Yes  No

Does the supporting documentation include any written concurrence or finding provided by the Services? (check one):  Yes  No; if yes, attach.

## **H. National Historic Preservation Act eligibility determination**

1. Indicate under which criterion the discharge(s) is eligible for coverage under this general permit:

- Criterion A:** No historic properties are present. The discharges and discharge-related activities (e.g., BMPs) do not have the potential to cause effects on historic properties.
- Criterion B:** Historic properties are present. Discharges and discharge related activities do not have the potential to cause effects on historic properties.
- Criterion C:** Historic properties are present. The discharges and discharge-related activities have the potential to have an effect or will have an adverse effect on historic properties.

2. Has the operator attached supporting documentation of NHPA eligibility in accordance with the instructions in H, above? (check one):  Yes  No

Does the supporting documentation include any written agreement with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officer (TPHO), or other tribal representative that outlines measures the operator will carry out to mitigate or prevent any adverse effects on historic properties? (check one):  Yes  No

## **I. Supplemental information**

Describe any supplemental information being provided with the NOI. Include attachments if required or otherwise necessary.

Has the operator attached data, including any laboratory case narrative and chain of custody used to support the application? (check one):  Yes  No

Has the operator attached the certification requirement for the Best Management Practices Plan (BMPP)? (check one):  Yes  No

According to EPA a copy of a Best Management Practices Plan (BMPP) only needs to be onsite and not included in the NOI submittal to EPA.

### J. Certification requirement

*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.*

A Best Management Practices Plan (BMPP) has been prepared and a copy will be maintained on-site.

BMPP certification statement:

Notification provided to the appropriate State, including a copy of this NOI, if required.

Check one: Yes  No

The Northborough DPW Director was informed of proposed discharge to storm drain system on 3-20-2017.

Notification provided to the municipality in which the discharge is located, including a copy of this NOI, if requested.

Check one: Yes  No

Authorization to be obtained from the Town DPW pending client and insurance company authorization anticipated for May 2017.

Notification provided to the owner of a private or municipal storm sewer system, if such system is used for site discharges, including a copy of this NOI, if requested.

Check one: Yes  No  NA

Permission obtained from the owner of a private or municipal storm sewer system, if such system is used for site discharges. If yes, attach additional conditions. If no, attach explanation and timeframe for obtaining permission.

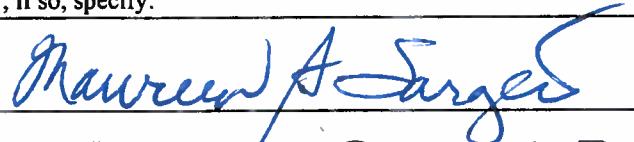
Check one: Yes  No  NA

Notification provided to the owner/operator of the area associated with activities covered by an additional discharge permit(s). Additional discharge permit is (check one):  RGP  DGP  CGP  MSGP  Individual NPDES permit

Check one: Yes  No  NA

Other; if so, specify:

Signature:



Date:

5/3/17

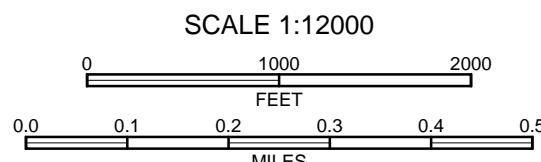
Print Name and Title: Maureen Sargent, Property Owner

## FIGURES





Declination  
MN  
0.59° W

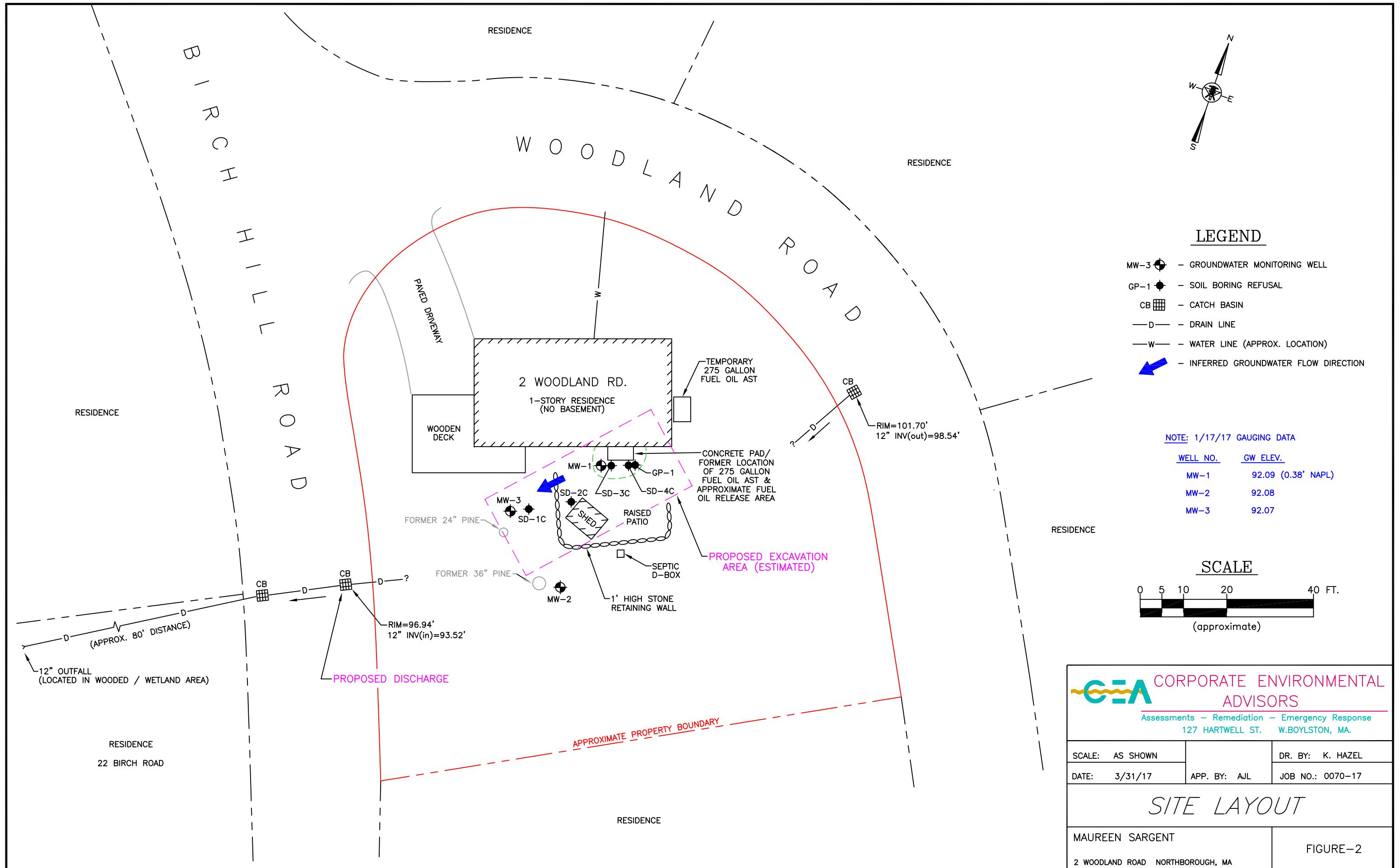


Corporate Environmental Advisors  
127 Hartwell Street West Boylston, MA  
1-800-358-7960

Site Coordinates:  
042° 18' 44.99" N, 071°  
37' 30.00" W

Site Location:  
2 Woodland Road  
Northborough, MA

**Figure-1**  
**Site Locus Map**



# MassDEP - Bureau of Waste Site Cleanup

## Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

## Site Information:

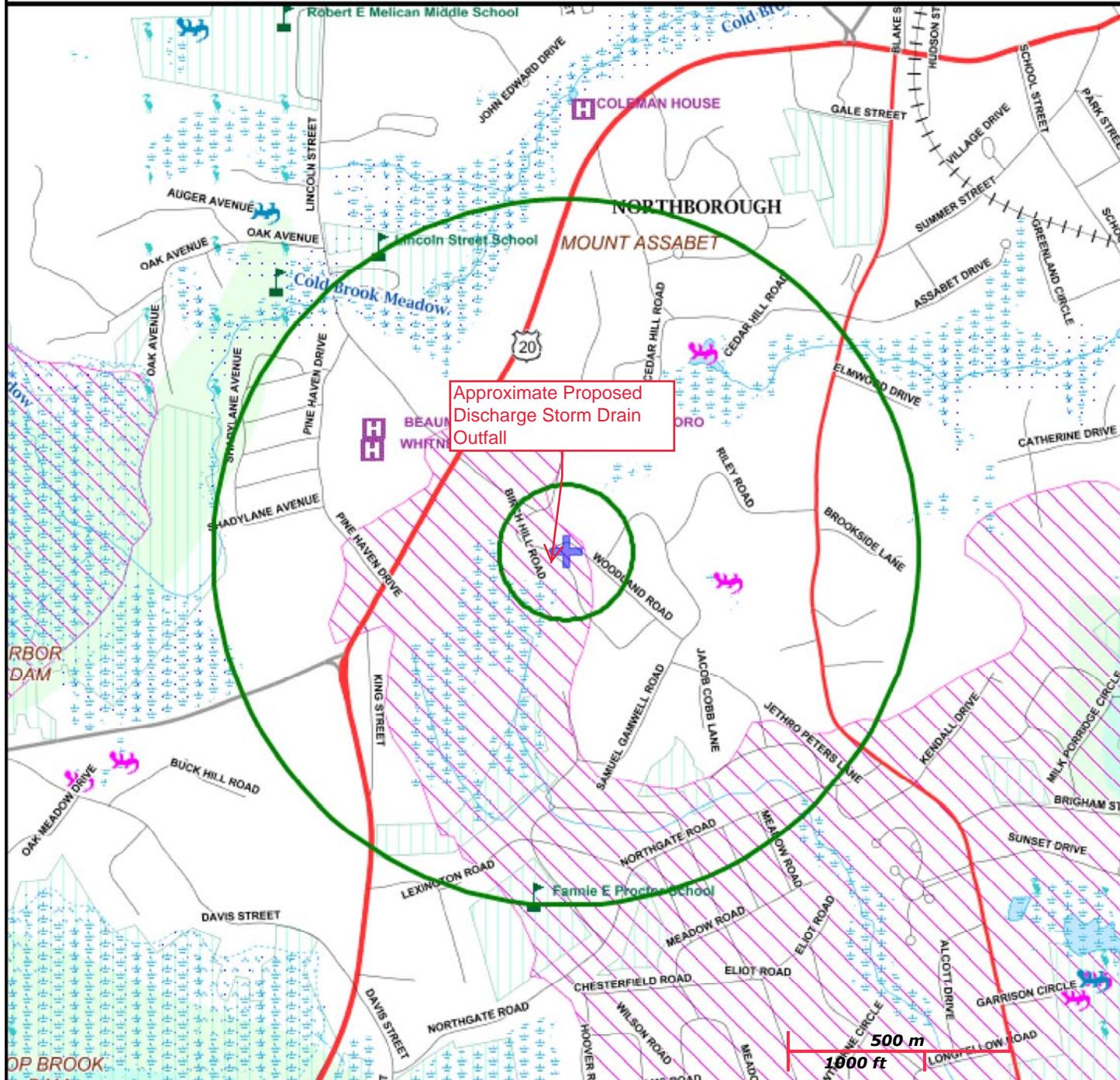
SARGENT RESIDENCE  
2 WOODLAND ROAD NORTHBOROUGH, MA  
2-000020070

NAD83 UTM Meters:  
4687546mN, 281477mE (Zone: 19)  
January 12, 2017

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: <http://www.mass.gov/mgis/>.



**MassDEP**  
Commonwealth of Massachusetts  
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail

PWS Protection Areas: Zone II, IWPA, Zone A

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Hydrography: Open Water, PWS Reservoir, Tidal Flat

Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam

Wetlands: Freshwater, Saltwater, Cranberry Bog

Aquifers: Medium Yield, High Yield, EPA Sole Source

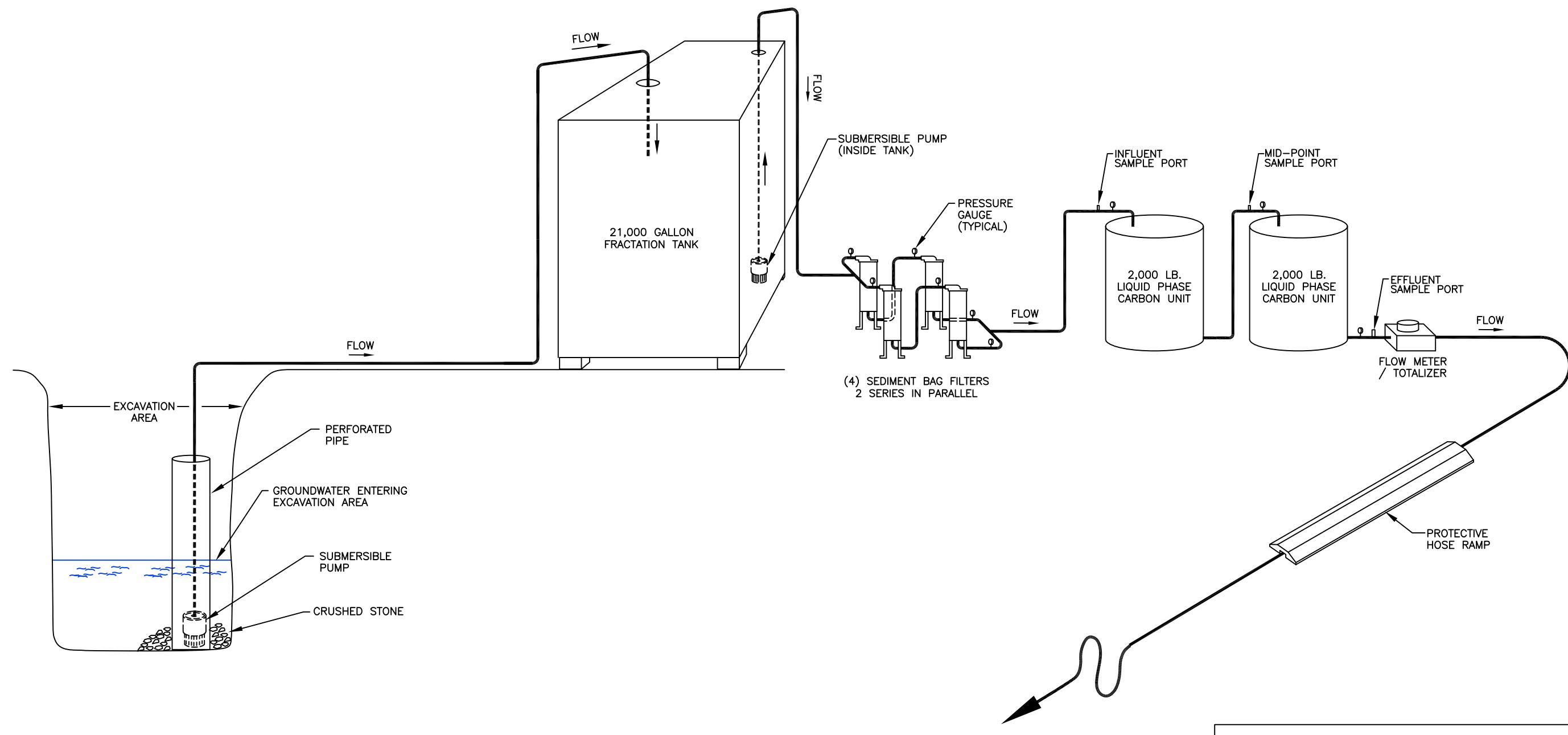
FEMA 100yr Floodplain; Protected Open Space; ACEC

Non Potential Drinking Water Source Area: Medium, High (Yield)

Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert, Potential

Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.

Solid Waste Landfill; PWS: Com.GW,SW, Emerg., Non-Com.



## **ATTACHMENT B**

### **Laboratory Analytical Reports**



**REPORT OF ANALYTICAL RESULTS****NETLAB Case Number D0322-11 Revised**

Prepared for:

Attn: Adam Last  
Corporate Environmental Advisors, Inc.  
127 Hartwell Street  
West Boylston, MA 01583

Report Date: May 8, 2017

---

Director  
New England Testing Laboratory, Inc.  
Lab # RI010

NEW ENGLAND TESTING LABORATORY, INC.

59 Greenhill Street, West Warwick, RI 02893

(401) 353-3420

## **SAMPLES SUBMITTED and REQUEST FOR ANALYSIS:**

The samples listed in Table I were submitted to New England Testing Laboratory on March 22, 2017. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is D0322-11.

Custody records are included in this report.

**Site: 0070-17 – Maureen Sargent, 2 Woodland Road, Northboro, MA**

**TABLE I, Samples Submitted**

Sample ID	Date Sampled	Matrix	Analysis Requested
MW-1	3/22/2017	Water	Table II
SW-1	3/22/2017	Water	Table III

**TABLE II, Analysis and Methods**

ANALYSIS	DETERMINATIVE METHOD
Ammonia	SM4500-NH <sub>3</sub> D1997
Chloride	SM4500-Cl B-1997
Cyanide	SM4500-CN E-1999
Hexavalent Chromium	SM3500-Cr B-2009
Trivalent Chromium	200.7-1994
Total Suspended Solids	2540D-1997
Hardness	200.7-1994
Total Metals	
Antimony	200.7-1994
Arsenic	200.7-1994
Cadmium	200.7-1994
Copper	200.7-1994
Iron	200.7-1994
Lead	200.7-1994
Mercury	245.1-1994
Nickel	200.7-1994
Selenium	200.7-1994
Silver	200.7-1994
Zinc	200.7-1994
Ethylene Dibromide	504.1
Ethanol	8100M
Total Petroleum Hydrocarbons	1664
Semi-Volatile Organic Compounds	625
Volatile Organic Compounds	624



**New England Testing Laboratory, Inc.**

**TABLE III, Analysis and Methods**

<b>ANALYSIS</b>	<b>DETERMINATIVE METHOD</b>
Ammonia	SM4500-NH <sub>3</sub> D1997
pH	SM4500-H <sup>+</sup> B-2000
Hardness	200.7-1994

These methods are documented in:

*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, USEPA/OSW.*

## **CASE NARRATIVE:**

### Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

### Metals

All analyses were performed according to NETLAB's documented Standard Operating Procedures, within all required holding times, and with appropriate quality control measures. All QC was within laboratory established acceptance criteria. The samples were received, processed, and reported with no anomalies.

### Ethylene Dibromide

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

### Semi-volatile Compounds

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

### Volatile Organic Compounds

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

Due to matrix interference, client-specified reporting limits for "Methylene Chloride", "1,1,1-Trichloroethane", and "1,4-Dioxane" could not be met.

### Wet Chemistry

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures.

**MW-1**

Parameter	Result, mg/L	Reporting Limit	Date Analyzed
Ammonia	ND	0.1	3/23/2017
Chloride	376.2	0.1	3/23/2017
Cyanide	ND	0.005	3/23/2017
Ethanol	ND	10	3/31/2017
Hexavalent Chromium	ND	0.001	3/22/2017 @ 16:00
Trivalent Chromium	0.328	0.001	4/4/2017
Total Suspended Solids	3616	5	3/23/2017
Antimony	ND	0.001	4/4/2017
Arsenic	0.043	0.001	4/4/2017
Cadmium	0.0010	0.0002	4/3/2017
Copper	0.1113	0.0002	4/4/2017
Iron	146	0.055	4/4/2017
Lead	0.0306	0.0002	4/4/2017
Mercury	ND	0.0002	3/24/2017
Nickel	0.086	0.001	4/4/2017
Selenium	ND	0.001	4/4/2017
Silver	0.0005	0.0002	4/4/2017
Zinc	0.177	0.002	4/4/2017
Total Petroleum Hydrocarbons	794	2	3/29/2017
Hardness	195.4	0.33	3/24/2017

**SW-1**

Parameter	Result, mg/L	Reporting Limit	Date Analyzed
Ammonia	ND	0.1	3/23/2017
pH	5.89	NA	3/22/2017 @ 15:30
Hardness	80.0	0.33	3/24/2017

ND = Not Detected

NA = Not Applicable

<b>Sample: MW-1</b>		Analyst's Initials: BJ
<b>Case No. D0322-11</b>		
<b>Date Collected: 3/22/2017</b>		
<b>Sample Matrix: Water</b>		
<b>Subject: Ethylene Dibromide</b>		
<b>Prep Method: NA</b>	Date Extracted	Date Analyzed
<b>Analytical Method: EPA 504.1</b>	3/27/2017	3/27/2017
Compound	Concentration, ug/l (ppb)	Reporting Limit
Ethylene Dibromide	ND	0.01

ND = Not Detected

Sample: MW4  
Date Sampled: 3/22/2017

Case No. D0322-11  
Date Extracted: 3/20/2017  
Date Analyzed: 3/30/2017

Subject: Acid and Base/Neutral Extractable Compounds  
Method: EPA 625

<u>Base/Neutral Compounds</u>	Concentration <u>ug/l (ppb)</u>	Reporting <u>Limit</u>
Benzo(a)anthracene	N.D.	2.0
Benzo(b)fluoranthene	N.D.	2.0
Benzo(k)fluoranthene	N.D.	2.0
Benzo(a)pyrene	N.D.	2.0
Bis(2-ethylhexyl)phthalate	N.D.	25.0
Chrysene	N.D.	2.0
Dibenzo(a,h)anthracene	N.D.	2.0
Indeno(1,2,3-cd)pyrene	N.D.	2.0
Naphthalene	103	2.0
Total Phthalates	N.D.	25.0
Total Group I PAH's	N.D.	2.0
Total Group II PAH's	269	25.0
 Acid Compounds		
<u>Acid Compounds</u>	Concentration	Reporting
Pentachlorophenol	N.D.	50.0
Phenol	N.D.	25.0

Surrogates:

<u>Compound</u>	<u>% Recovery</u>	<u>Limits</u>
Nitrobenzene d5	114	33-130
2-Fluorobiphenyl	79	35-130
p-Terphenyl d14	89	50-130
Phenol d6	27	10-83
2,4,6-Tribromophenol	75	44-120
2-Fluorophenol	30	10-81

Sample: MW-1

Case No. D0322-11  
Date Analyzed: 3/24/2017

Subject: Volatile Organic Compounds  
Method: EPA 624

<u>Compound</u>	<u>Concentration</u> <u>ug/L (ppb)</u>	<u>Reporting</u> <u>Limit</u>
Benzene	5.7	2.0
Carbon tetrachloride	N.D.	1.0J
1,1-Dichloroethane	N.D.	1.0J
1,2-Dichloroethane	N.D.	1.0J
1,1-Dichloroethene	N.D.	1.0J
cis-1,2-Dichloroethene	N.D.	1.0J
Methylene chloride	N.D.	2.0
Tetrachloroethene	2.2	2.0
1,1,1-Trichloroethane	N.D.	2.0
1,1,2-Trichloroethane	N.D.	1.0J
Trichloroethene	N.D.	1.0J
Vinyl chloride	N.D.	1.0J
Total BTEX	710	2.0
1,4-Dioxane	N.D.	500
Acetone	N.D.	50
1,2-Dichlorobenzene	N.D.	2.5
1,3-Dichlorobenzene	N.D.	2.5
1,4-Dichlorobenzene	N.D.	2.5
Total Dichlorobenzene	N.D.	2.5
Methyl-tert-Butyl Ether	N.D.	10
Tert-Butyl Alcohol	N.D.	10
Tert-Amyl Methyl Ether	N.D.	10

Surrogates:

<u>Compound</u>	<u>% Recovery</u>	<u>Limits</u>
Toluene d8	115	70-130
1,2-Dichloroethane d4	103	70-130
4 BFB	120	70-130

All compounds reported with a reporting limit of "1.0" are estimated to meet client-specified reporting limits as noted with a "J" on the report.

**New England Testing Laboratory**  
59 Greenhill Street  
West Warwick, RI 02893  
1-888-863-8522

59 Greenhill Street  
West Warwick, RI 028893

1-888-863-8522

## Chain of Custody Record

DO382-41

Page 9 of 9

**REPORT OF ANALYTICAL RESULTS****NETLAB Case Number D0118-32**

Prepared for:

Attn: Adam Last  
Corporate Environmental Advisors, Inc.  
127 Hartwell Street  
West Boylston, MA 01583

Report Date: January 26, 2017

---

Director  
New England Testing Laboratory, Inc.  
Lab # RI010

NEW ENGLAND TESTING LABORATORY, INC.  
59 Greenhill Street, West Warwick, RI 02893  
(401) 353-3420

## MassDEP Analytical Protocol Certification Form

Laboratory Name: New England Testing Laboratory, Inc.

Project #: 0070-17

Project Location: Maureen Sargent, 2 Woodland Road, Northboro,  
MA

RTN:

**This Form provides certifications for the following data set: list Laboratory Sample ID Number(s):  
D0118-32**

Matrices:  Groundwater/Surface Water  Soil/Sediment  Drinking Water  Air  Other: \_\_\_\_\_

**CAM Protocol** (check all that apply below):

8260 VOC CAM II A	7470/7471 Hg CAM III B	MassDEP VPH CAM IV A x	8081 Pesticides CAM V B	7196 Hex Cr CAM VI B	MassDEP APH CAM IX A
8270 SVOC CAM II B	7010 Metals CAM III C	MassDEP EPH CAM IV B x	8151 Herbicides CAM V C	8330 Explosives CAM VIII A	TO-15 VOC CAM IX B
6010 Metals CAM III A	6020 Metals CAM III D	8082 PCB CAM V A	9014 Total Cyanide/PAC CAM VI A	6860 Perchlorate CAM VIII B	

**Affirmative Responses to Questions A through F are required for "Presumptive Certainty" status**

A	Were all samples received in a condition consistent with those described on the Chain-of-Custody, properly preserved (including temperature) in the field or laboratory, and prepared/analyzed within method holding times?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B	Were the analytical method(s) and all associated QC requirements specified in the selected CAM protocol(s) followed?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
C	Were all required corrective actions and analytical response actions specified in the selected CAM protocol(s) implemented for all identified performance standard non-conformances?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
D	Does the laboratory report comply with all the reporting requirements specified in CAM VII A, "Quality Assurance and Quality Control Guidelines for the Acquisition and Reporting of Analytical Data"?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
E	VPH, EPH, APH, and TO-15 only: a. VPH, EPH, and APH Methods only: Was each method conducted without significant modification(s)? (Refer to the individual method(s) for a list of significant modifications). b. APH and TO-15 Methods only: Was the complete analyte list reported for each method?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Yes <input type="checkbox"/> No
F	Were all applicable CAM protocol QC and performance standard non-conformances identified and evaluated in a laboratory narrative (including all "No" responses to Questions A through E)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

**Responses to Questions G, H and I below are required for "Presumptive Certainty" status**

G	Were the reporting limits at or below all CAM reporting limits specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>
<b><i>Data User Note: Data that achieve "Presumptive Certainty" status may not necessarily meet the data usability and representativeness requirements described in 310 CMR 40. 1056 (2)(k) and WSC-07-350.</i></b>		
H	Were all QC performance standards specified in the CAM protocol(s) achieved?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>
I	Were results reported for the complete analyte list specified in the selected CAM protocol(s)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <sup>1</sup>

<sup>1</sup>All negative responses must be addressed in an attached laboratory narrative.

I, the undersigned, attest under the pains and penalties of perjury that, based upon my personal inquiry of those responsible for obtaining the information, the material contained in this analytical report is, to the best of my knowledge and belief, accurate and complete.

Signature: Richard Warila

Position: Laboratory Director

Printed Name: Richard Warila

Date: 1/26/2017

## **SAMPLES SUBMITTED and REQUEST FOR ANALYSIS:**

The samples listed in Table I were submitted to New England Testing Laboratory on January 18, 2017. The group of samples appearing in this report was assigned an internal identification number (case number) for laboratory information management purposes. The client's designations for the individual samples, along with our case numbers, are used to identify the samples in this report. This report of analytical results pertains only to the sample(s) provided to us by the client which are indicated on the custody record. The case number for this sample submission is D0118-32.

Custody records are included in this report.

**Site: 0070-17 – Maureen Sargent, 2 Woodland Rd, Northboro, MA**

**TABLE I, Samples Submitted**

Sample ID	Date Sampled	Matrix	Analysis Requested
MW-2	1/17/2017	Water	Table II
MW-3	1/17/2017	Water	Table II

**TABLE II, Analysis and Methods**

ANALYSIS	DETERMINATIVE METHOD
EPH	*
VPH	**

These methods are documented in:

*Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, USEPA/OSW.*

\*Method for the Determination of Extractable Petroleum Hydrocarbons (EPH), MADEP.

\*\*Method for the Determination of Volatile Petroleum Hydrocarbons (VPH), MADEP.

**CASE NARRATIVE:**Sample Receipt

The samples were all appropriately cooled and preserved upon receipt. The samples were received in the appropriate containers. The chain of custody was adequately completed and corresponded to the samples submitted.

EPH

All samples were extracted and analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

VPH

All samples were analyzed within method specified holding times and according to NETLAB's documented standard operating procedures. The results for the associated calibration, method blank and laboratory control sample (LCS) were within method specified quality control criteria.

## **RESULTS: EXTRACTABLE PETROLEUM HYDROCARBONS**

**Results for EPH analysis are presented in the following section. Each page is electronically signed.**

### APPENDIX 3: REQUIRED EPH DATA REPORTING FORMAT/INFORMATION

#### SAMPLE INFORMATION

Matrix	X Aqueous	Soil	Sediment	Other:
Containers	X Satisfactory	Broken	Leaking:	
Aqueous Preservatives	N/A	X pH<2	pH>2	Comment:
Temperature	X Received on Ice	X Received at 4°C ± 2°C		Other: ° C
Extraction Method	Water: Separatory Funnel - 3510C			Soil: N/A

#### EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 04-1.1	Client ID	MW-2		
Method for Target Analytes:	Lab ID	D0118-32		
EPH Surrogate Standards	Date Collected	1/17/2017		
Aliphatic: Chlorooctadecane	Date Received	1/18/2017		
Aromatic: o-Terphenyl	Date Extracted	1/24/17		
EPH Fractionation Surrogates	Date Analyzed	1/26/17		
2-Fluorobiphenyl	Dilution Factor	1X		
2-Bromonaphthalene	% Moisture (soil)	N/A		
<b>RANGE/TARGET ANALYTE</b>	<b>RL</b>	<b>Units</b>		
Unadjusted C11-C22 Aromatics <sup>1</sup>	150	ug/L	<150	
Diesel PAH	Naphthalene	1.0	ug/L	<1.0
	2-Methylnaphthalene	1.0	ug/L	<1.0
Analytes	Phenanthrene	1.0	ug/L	<1.0
	Acenaphthene	5.0	ug/L	<5.0
	Acenaphthylene	1.0	ug/L	<1.0
	Fluorene	5.0	ug/L	<5.0
	Anthracene	5.0	ug/L	<5.0
	Fluoranthene	5.0	ug/L	<5.0
Other	Pyrene	5.0	ug/L	<5.0
Target PAH	Benzo(a)anthracene	1.0	ug/L	<1.0
	Chrysene	2.0	ug/L	<2.0
Analytes	Benzo(b)fluoranthene	1.0	ug/L	<1.0
	Benzo(k)fluoranthene	1.0	ug/L	<1.0
	Benzo(a)pyrene	0.2	ug/L	<0.2
	Indeno(1,2,3-cd)pyrene	0.5	ug/L	<0.5
	Dibenzo(a,h)anthracene	0.5	ug/L	<0.5
	Benzo(g,h,i)perylene	5.0	ug/L	<5.0
C9-C18 Aliphatic Hydrocarbons <sup>1</sup>	200	ug/L	<200	
C19-C36 Aliphatic Hydrocarbons <sup>1</sup>	200	ug/L	<200	
C11-C22 Aromatic Hydrocarbons <sup>1,2</sup>	150	ug/L	<150	
Aliphatic Surrogate % Recovery			62	
Aromatic Surrogate % Recovery			62	
Sample Surrogate Acceptance Range			40-140%	
Fractionation Surrogate % Recovery			96	
Fractionation Surrogate % Recovery			59	
Fractionation Surrogate Acceptance Range			40-140%	

<sup>1</sup>Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range

<sup>2</sup>C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH Analytes

#### CERTIFICATION

Were all QA/QC procedures REQUIRED by the EPH Method followed?	<input checked="" type="checkbox"/> Yes	—	No-Details Attached
Were all performance/acceptance standards for the required QA/QC procedures achieved?	<input checked="" type="checkbox"/> Yes	—	No-Details Attached
Were any significant modifications made to the EPH method, as specified in Section 11.3?	<input checked="" type="checkbox"/> No	—	Yes-Details Attached

*I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.*

SIGNATURE: Richard Warila POSITION: Laboratory Director

PRINTED NAME: Richard Warila DATE: 1/26/2017

### APPENDIX 3: REQUIRED EPH DATA REPORTING FORMAT/INFORMATION

#### SAMPLE INFORMATION

Matrix	X Aqueous	Soil	Sediment	Other:
Containers	X Satisfactory	Broken	Leaking:	
Aqueous Preservatives	N/A	X pH<2	pH>2	Comment:
Temperature	X Received on Ice	X Received at 4°C ± 2°C		Other: ° C
Extraction Method	Water: Separatory Funnel - 3510C			Soil: N/A

#### EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 04-1.1	Client ID	MW-3		
Method for Target Analytes:	Lab ID	D0118-32		
EPH Surrogate Standards	Date Collected	1/17/2017		
Aliphatic: Chlorooctadecane	Date Received	1/18/2017		
Aromatic: o-Terphenyl	Date Extracted	1/24/17		
EPH Fractionation Surrogates	Date Analyzed	1/26/17		
2-Fluorobiphenyl	Dilution Factor	1X		
2-Bromonaphthalene	% Moisture (soil)	N/A		
<b>RANGE/TARGET ANALYTE</b>	<b>RL</b>	<b>Units</b>		
Unadjusted C11-C22 Aromatics <sup>1</sup>	150	ug/L	<150	
Diesel PAH	Naphthalene	1.0	ug/L	3.4
	2-Methylnaphthalene	1.0	ug/L	4.1
Analytes	Phenanthrene	1.0	ug/L	<1.0
	Acenaphthene	5.0	ug/L	<5.0
	Acenaphthylene	1.0	ug/L	<1.0
	Fluorene	5.0	ug/L	<5.0
	Anthracene	5.0	ug/L	<5.0
	Fluoranthene	5.0	ug/L	<5.0
Other	Pyrene	5.0	ug/L	<5.0
Target PAH	Benzo(a)anthracene	1.0	ug/L	<1.0
	Chrysene	2.0	ug/L	<2.0
Analytes	Benzo(b)fluoranthene	1.0	ug/L	<1.0
	Benzo(k)fluoranthene	1.0	ug/L	<1.0
	Benzo(a)pyrene	0.2	ug/L	<0.2
	Indeno(1,2,3-cd)pyrene	0.5	ug/L	<0.5
	Dibenzo(a,h)anthracene	0.5	ug/L	<0.5
	Benzo(g,h,i)perylene	5.0	ug/L	<5.0
C9-C18 Aliphatic Hydrocarbons <sup>1</sup>	200	ug/L	<200	
C19-C36 Aliphatic Hydrocarbons <sup>1</sup>	200	ug/L	<200	
C11-C22 Aromatic Hydrocarbons <sup>1,2</sup>	150	ug/L	<150	
Aliphatic Surrogate % Recovery			64	
Aromatic Surrogate % Recovery			76	
Sample Surrogate Acceptance Range			40-140%	
Fractionation Surrogate % Recovery			113	
Fractionation Surrogate % Recovery			64	
Fractionation Surrogate Acceptance Range			40-140%	

<sup>1</sup>Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range

<sup>2</sup>C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH Analytes

#### CERTIFICATION

Were all QA/QC procedures REQUIRED by the EPH Method followed?	<input checked="" type="checkbox"/> Yes	—	No-Details Attached
Were all performance/acceptance standards for the required QA/QC procedures achieved?	<input checked="" type="checkbox"/> Yes	—	No-Details Attached
Were any significant modifications made to the EPH method, as specified in Section 11.3?	<input checked="" type="checkbox"/> No	—	Yes-Details Attached

*I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.*

SIGNATURE: Richard Warila POSITION: Laboratory Director

PRINTED NAME: Richard Warila DATE: 1/26/2017

### APPENDIX 3: REQUIRED EPH DATA REPORTING FORMAT/INFORMATION

#### SAMPLE INFORMATION

Matrix	X Aqueous	Soil	Sediment	Other:
Containers	<u>Satisfactory</u>	<u>Broken</u>	<u>Leaking:</u>	
Aqueous Preservatives	<u>N/A</u>	<u>pH&lt;2</u>	<u>pH&gt;2</u>	Comment:
Temperature	Received on Ice	Received at 4 °C	Other:	
Extraction Method	Water: Separatory Funnel			Soil: N/A

#### EPH ANALYTICAL RESULTS

Method for Ranges: MADEP EPH 04-1.1	Client ID	Method Blank		
Method for Target Analytes:	Lab ID	D0118-32		
EPH Surrogate Standards	Date Collected	NA		
Aliphatic: Chlorooctadecane	Date Received	NA		
Aromatic: o-Terphenyl	Date Extracted	1/24/17		
EPH Fractionation Surrogates	Date Analyzed	1/26/17		
2-Fluorobiphenyl	Dilution Factor	1X		
2-Bromonaphthalene	% Moisture (soil)	N/A		
<b>RANGE/TARGET ANALYTE</b>	<b>RL</b>	<b>Units</b>		
Unadjusted C11-C22 Aromatics <sup>1</sup>	150	ug/L	<150	
Diesel PAH Analytes	Naphthalene	1.0	ug/L	<1.0
	2-Methylnaphthalene	1.0	ug/L	<1.0
	Phenanthrene	1.0	ug/L	<1.0
	Acenaphthene	5.0	ug/L	<5.0
Other Target PAH Analytes	Acenaphthylene	1.0	ug/L	<1.0
	Fluorene	5.0	ug/L	<5.0
	Anthracene	5.0	ug/L	<5.0
	Fluoranthene	5.0	ug/L	<5.0
	Pyrene	5.0	ug/L	<5.0
	Benzo(a)anthracene	1.0	ug/L	<1.0
	Chrysene	2.0	ug/L	<2.0
	Benzo(b)fluoranthene	1.0	ug/L	<1.0
	Benzo(k)fluoranthene	1.0	ug/L	<1.0
	Benzo(a)pyrene	0.2	ug/L	<0.2
	Indeno(1,2,3-cd)pyrene	0.5	ug/L	<0.5
	Dibenzo(a,h)anthracene	0.5	ug/L	<0.5
	Benzo(g,h,i)perylene	5.0	ug/L	<5.0
C9-C18 Aliphatic Hydrocarbons <sup>1</sup>	200	ug/L	<200	
C19-C36 Aliphatic Hydrocarbons <sup>1</sup>	200	ug/L	<200	
C11-C22 Aromatic Hydrocarbons <sup>1,2</sup>	150	ug/L	<150	
Aliphatic Surrogate % Recovery			53	
Aromatic Surrogate % Recovery			50	
Sample Surrogate Acceptance Range			40-140%	
Fractionation Surrogate % Recovery			106	
Fractionation Surrogate % Recovery			83	
Fractionation Surrogate Acceptance Range			40-140%	

<sup>1</sup>Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range

<sup>2</sup>C11-C22 Aromatic Hydrocarbons exclude the concentration of Target PAH Analytes

#### CERTIFICATION

Were all QA/QC procedures REQUIRED by the EPH Method followed?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Details Attached
Were all performance/acceptance standards for the required QA/QC procedures achieved?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Details Attached
Were any significant modifications made to the EPH method, as specified in Section 11.3?	<input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes	Details Attached

*I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.*

SIGNATURE: Richard Warila POSITION: Laboratory Director

PRINTED NAME: Richard Warila DATE: 1/26/2017

ALI LCS WATER 01-24-17.txt  
 Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\ALI-QNT.M (Chemstation Integrator)  
 Title :  
 Last Update : Thu Dec 15 11:14:19 2016  
 Response via : Initial Calibration

Non-Spiked Sample: M012616.D

	Spike Sample			Spike Duplicate Sample					
Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD RPD	QC RPD	Limits % Rec
Nonane	0.0	40	13	13	34	32	6	25	30-140
Decane	0.0	40	16	16	41	41	0	25	40-140
Dodecane	0.0	40	18	17	45	43	5	25	40-140
Tetradecane	0.0	40	19	19	47	46	1	25	40-140
Hexadecane	0.0	40	20	20	51	51	1	25	40-140
Octadecane	0.0	40	25	27	63	68	9	25	40-140
Nonadecane	0.0	40	28	30	69	74	8	25	40-140
Eicosane	0.0	40	31	34	78	85	9	25	40-140
Docosane	0.0	40	38	40	94	99	6	25	40-140
Tetracosane	0.0	40	35	38	89	94	6	25	40-140
Hexacosane	0.0	40	35	37	88	93	5	25	40-140
Octacosane	0.0	40	36	38	90	95	5	25	40-140
Triacontane	0.0	40	35	37	87	92	5	25	40-140
Hexatriacontane	0.0	40	35	36	88	89	1	25	40-140

# - Fails Limit Check

ALI-QNT.M Thu Jan 26 17:06:42 2017

ARO LCS WATER 01-24-17.txt  
 Spike Recovery and RPD Summary Report - WATER

Method : C:\HPCHEM\1\METHODS\AROQT.M (Chemstation Integrator)  
 Title :  
 Last Update : Wed Jan 11 10:38:30 2017  
 Response via : Initial Calibration

Non-Spiked Sample: K012615.D

	Spike Sample			Spike Duplicate Sample					
Compound	Sample Conc	Spike Added	Spike Res	Dup Res	Spike %Rec	Dup %Rec	RPD RPD	QC RPD	Limits % Rec
Naphthalene	0.0	40	18	22	46	55	17	25	40-140
2-Methyl Naphthalene	0.0	40	18	20	44	50	12	25	40-140
Acenaphthylene	0.0	40	20	23	50	57	13	25	40-140
Acenaphthene	0.0	40	20	23	50	57	13	25	40-140
Fluorene	0.0	40	22	24	55	59	8	25	40-140
Phenanthrene	0.0	40	30	30	76	76	0	25	40-140
Anthracene	0.0	40	31	32	78	80	3	25	40-140
Fluoranthene	0.0	40	37	36	92	91	1	25	40-140
Pyrene	0.0	40	38	38	95	95	0	25	40-140
Benzo (a) Anthracene	0.0	40	40	41	100	103	3	25	40-140
Chrysene	0.0	40	42	43	104	108	4	25	40-140
Benzo (b) Flouranthe	0.0	40	43	48	109	120	10	25	40-140
Benzo(k)Flouranthene	0.0	40	37	38	93	94	1	25	40-140
Benzo(a)Pyrene	0.0	40	36	38	89	94	6	25	40-140
Indeno(1,2,3)Pyrene	0.0	40	42	42	105	105	0	25	40-140
Dibenzo(ah)Anthracen	0.0	40	35	42	87	105	18	25	40-140
Benzo(g,h,i)Perylene	0.0	40	36	38	89	95	6	25	40-140

# - Fails Limit Check

AROQT.M

Thu Jan 26 17:09:54 2017

## **RESULTS: VOLATILE PETROLEUM HYDROCARBONS**

**Results for VPH analysis are presented in the following section. Each page is electronically signed.**

## SAMPLE INFORMATION

Matrix	<input checked="" type="checkbox"/> Aqueous <input type="checkbox"/> Soil <input type="checkbox"/> Sediment <input type="checkbox"/> Other:				
Containers	<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Broken <input type="checkbox"/> Leaking:				
Sample Preservatives	Aqueous	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> pH < 2	<input type="checkbox"/> pH > 2	Comment:
	Soil or	<input type="checkbox"/> N/A	Samples NOT preserved Methanol or air-tight container		
	Sediment	<input type="checkbox"/> Samples rec'd in Methanol: <input type="checkbox"/> covering soil <input type="checkbox"/> not covering soil			mL Methanol/g soil — 1:1 +/- 25% — Other:
	<input type="checkbox"/> Samples received in air-tight container:				
Temperature	<input checked="" type="checkbox"/> Received on Ice <input checked="" type="checkbox"/> Received at 4°C ± 2°C    Other: Received at °C				

## VPH ANALYTICAL RESULTS

Method for Ranges: MADEP VPH 04-1.1	Client ID	MW-2		
Method for Target Analytes:	Lab ID	D0118-32		
VPH Surrogate Standards	Date Collected	1/17/2017		
PID: 2,5- Dibromotoluene	Date Received	1/18/2017		
FID: 2,5- Dibromotoluene	Date Analyzed	1/19/2017		
	Dilution Factor	1		
	% Moisture (soil)	NA		
<b>Range/Target Analyte</b>	<b>Elution Range</b>	<b>RL</b>	<b>Units</b>	
Unadjusted C5-C8 Aliphatics <sup>1</sup>	N/A	50	ug/L	<50
Unadjusted C9-C12 Aliphatics <sup>1</sup>	N/A	50	ug/L	<50
Benzene	C5-C8	5.0	ug/L	<5.0
Ethylbenzene	C9-C12	5.0	ug/L	<5.0
Methyl-tert-butylether	C5-C8	10	ug/L	<10
Naphthalene	N/A	10	ug/L	<10
Toluene	C5-C8	5.0	ug/L	<5.0
m- & p- Xylenes	C9-C12	10	ug/L	<10
o-Xylene	C9-C12	10	ug/L	<10
C5-C8 Aliphatic Hydrocarbons <sup>1,2</sup>	N/A	50	ug/L	<50
C9-C12 Aliphatic Hydrocarbons <sup>1,3</sup>	N/A	50	ug/L	<50
C9-C10 Aromatic Hydrocarbons <sup>1</sup>	N/A	50	ug/L	<50
PID Surrogate % Recovery				87
FID Surrogate % Recovery				97
Surrogate Acceptance Range				70-130%

<sup>1</sup>Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range

<sup>2</sup>C<sub>5</sub>-C<sub>8</sub> Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range

<sup>3</sup>C<sub>9</sub>-C<sub>12</sub> Aliphatic Hydrocarbons exclude conc of Target Analytes eluting in that range AND concentration of C<sub>9</sub>-C<sub>10</sub> Aromatic Hydrocarbons

## CERTIFICATION

Were all QA/QC procedures REQUIRED by the VPH Method followed?     Yes     No-Details Attached

Were all performance/acceptance standards for the required QA/QC procedures achieved?     Yes     No-Details Attached

Were any significant modifications made to the VPH method, as specified in Section 11.3?     No     Yes-Details Attached

*I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.*

SIGNATURE: Richard Warila POSITION: Laboratory Director

PRINTED NAME: Richard Warila DATE: 1/26/2017

## SAMPLE INFORMATION

Matrix	<input checked="" type="checkbox"/> Aqueous <input type="checkbox"/> Soil <input type="checkbox"/> Sediment <input type="checkbox"/> Other:				
Containers	<input checked="" type="checkbox"/> Satisfactory <input type="checkbox"/> Broken <input type="checkbox"/> Leaking:				
Sample Preservatives	Aqueous	<input type="checkbox"/> N/A	<input checked="" type="checkbox"/> pH < 2	<input type="checkbox"/> pH > 2	Comment:
	Soil or	<input type="checkbox"/> N/A	Samples NOT preserved Methanol or air-tight container		
	Sediment	<input type="checkbox"/> Samples rec'd in Methanol: <input type="checkbox"/> covering soil <input type="checkbox"/> not covering soil			mL Methanol/g soil — 1:1 +/- 25% — Other:
	<input type="checkbox"/> Samples received in air-tight container:				
Temperature	<input checked="" type="checkbox"/> Received on Ice <input checked="" type="checkbox"/> Received at 4° C ± 2° C    Other: Received at ° C				

## VPH ANALYTICAL RESULTS

Method for Ranges: MADEP VPH 04-1.1	Client ID	MW-3		
Method for Target Analytes:	Lab ID	D0118-32		
VPH Surrogate Standards	Date Collected	1/17/2017		
PID: 2,5- Dibromotoluene	Date Received	1/18/2017		
FID: 2,5- Dibromotoluene	Date Analyzed	1/19/2017		
	Dilution Factor	1		
	% Moisture (soil)	NA		
<b>Range/Target Analyte</b>	<b>Elution Range</b>	<b>RL</b>	<b>Units</b>	
Unadjusted C5-C8 Aliphatics <sup>1</sup>	N/A	50	ug/L	<50
Unadjusted C9-C12 Aliphatics <sup>1</sup>	N/A	50	ug/L	692
Benzene	C5-C8	5.0	ug/L	<5.0
Ethylbenzene	C9-C12	5.0	ug/L	<5.0
Methyl-tert-butylether	C5-C8	10	ug/L	<10
Naphthalene	N/A	10	ug/L	<10
Toluene	C5-C8	5.0	ug/L	<5.0
m- & p- Xylenes	C9-C12	10	ug/L	<10
o-Xylene	C9-C12	10	ug/L	<10
C5-C8 Aliphatic Hydrocarbons <sup>1,2</sup>	N/A	50	ug/L	<50
C9-C12 Aliphatic Hydrocarbons <sup>1,3</sup>	N/A	50	ug/L	395
C9-C10 Aromatic Hydrocarbons <sup>1</sup>	N/A	50	ug/L	297
PID Surrogate % Recovery				81
FID Surrogate % Recovery				88
Surrogate Acceptance Range				70-130%

<sup>1</sup>Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range

<sup>2</sup>C<sub>5</sub>-C<sub>8</sub> Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range

<sup>3</sup>C<sub>9</sub>-C<sub>12</sub> Aliphatic Hydrocarbons exclude conc of Target Analytes eluting in that range AND concentration of C<sub>9</sub>-C<sub>10</sub> Aromatic Hydrocarbons

## CERTIFICATION

Were all QA/QC procedures REQUIRED by the VPH Method followed?     Yes     No-Details Attached

Were all performance/acceptance standards for the required QA/QC procedures achieved?     Yes     No-Details Attached

Were any significant modifications made to the VPH method, as specified in Section 11.3?     No     Yes-Details Attached

*I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.*

SIGNATURE: Richard Warila POSITION: Laboratory Director

PRINTED NAME: Richard Warila DATE: 1/26/2017

## SAMPLE INFORMATION

Matrix	<input checked="" type="checkbox"/> Aqueous	<input type="checkbox"/> Soil	<input type="checkbox"/> Sediment	<input type="checkbox"/> Other:
Containers	<input type="checkbox"/> Satisfactory	<input type="checkbox"/> Broken	<input type="checkbox"/> Leaking:	
Sample Preservatives	Aqueous	<input type="checkbox"/> N/A	<input type="checkbox"/> pH < 2	<input type="checkbox"/> pH > 2
	Soil or	<input type="checkbox"/> N/A	Samples NOT preserved Methanol or air-tight container	
	Sediment	<input type="checkbox"/>	<input type="checkbox"/> Samples rec'd in Methanol: covering soil	<input type="checkbox"/> not covering soil
		<input type="checkbox"/>	<input type="checkbox"/> Samples received in air-tight container:	
Temperature	<input type="checkbox"/> Received on Ice	<input type="checkbox"/> Received at 4°C	<input type="checkbox"/> Other:	

## VPH ANALYTICAL RESULTS

Method for Ranges: MADEP VPH 04-1.1	Client ID	Method Blank		
Method for Target Analytes:	Lab ID	D0118-32		
VPH Surrogate Standards PID: 2,5- Dibromotoluene FID: 2,5- Dibromotoluene	Date Collected	NA		
	Date Received	NA		
	Date Analyzed	1/19/2017		
	Dilution Factor	1		
	% Moisture (soil)	NA		
<b>Range/Target Analyte</b>	<b>Elution Range</b>	<b>RL</b>	<b>Units</b>	
Unadjusted C5-C8 Aliphatics <sup>1</sup>	N/A	50	ug/L	<50
Unadjusted C9-C12 Aliphatics <sup>1</sup>	N/A	50	ug/L	<50
Benzene	C5-C8	5.0	ug/L	<5.0
Ethylbenzene	C9-C12	5.0	ug/L	<5.0
Methyl-tert-butylether	C5-C8	10	ug/L	<10
Naphthalene	N/A	10	ug/L	<10
Toluene	C5-C8	5.0	ug/L	<5.0
m- & p- Xylenes	C9-C12	10	ug/L	<10
o-Xylene	C9-C12	10	ug/L	<10
C5-C8 Aliphatic Hydrocarbons <sup>1,2</sup>	N/A	50	ug/L	<50
C9-C12 Aliphatic Hydrocarbons <sup>1,3</sup>	N/A	50	ug/L	<50
C9-C10 Aromatic Hydrocarbons <sup>1</sup>	N/A	50	ug/L	<50
PID Surrogate % Recovery				89
FID Surrogate % Recovery				99
Surrogate Acceptance Range				70-130%

<sup>1</sup>Hydrocarbon Range data exclude concentrations of any surrogate(s) and/or internal standards eluting in that range

<sup>2</sup>C<sub>5</sub>-C<sub>8</sub> Aliphatic Hydrocarbons exclude the concentration of Target Analytes eluting in that range

<sup>3</sup>C<sub>9</sub>-C<sub>12</sub> Aliphatic Hydrocarbons exclude conc of Target Analytes eluting in that range AND concentration of C<sub>9</sub>-C<sub>10</sub> Aromatic Hydrocarbons

## CERTIFICATION

Were all QA/QC procedures REQUIRED by the VPH Method followed?  Yes  No-Details Attached

Were all performance/acceptance standards for the required QA/QC procedures achieved?  Yes  No-Details Attached

Were any significant modifications made to the VPH method, as specified in Section 11.3?  No  Yes-Details Attached

*I attest under the pains and penalties of perjury that, based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.*

SIGNATURE: Richard Warila POSITION: Laboratory Director

PRINTED NAME: Richard Warila DATE: 1/26/2017

VLCS0119. TXT  
Spi ke Recovery and RPD Summary Report -

Method : C:\HPCHEM\1\METHODS\VPH1214.M (Chemstation Integrator)  
 Title :  
 Last Update : Thu Dec 15 08:25:14 2016  
 Response via : Initial Calibration

Non-Spiked Sample: D011906.D

Compound	Spi ke Sample			Spi ke Duplicate Sample					
	Sample Conc	Spi ke Added	Spi ke Res	Dup Res	Spi ke %Rec	Dup %Rec	RPD	QC RPD	Limits % Rec
Pentane	0.0	50	54	51	108	103	5	25	70-130
2-Methyl Pentane	0.0	50	53	51	105	102	4	25	70-130
2, 2, 4-trimethyl pentane	0.0	50	50	47	99	95	5	25	70-130
Nonane	0.0	50	43	40	86	80	7	25	70-130
n-decane	0.0	50	38	37	76	75	2	25	70-130
n-butyl cyclohexane	0.0	50	44	40	89	80	10	25	70-130
MTBE #2	0.0	50	45	42	90	84	7	25	70-130
Benzene #2	0.0	50	57	55	113	110	3	25	70-130
Toluene #2	0.0	50	56	54	112	109	3	25	70-130
Ethyl benzene #2	0.0	50	56	54	113	107	5	25	70-130
M&P Xylene #2	0.0	100	110	105	110	105	4	25	70-130
O Xylene #2	0.0	50	51	49	101	97	4	25	70-130
1, 2, 4-Tri methyl benzene	0.0	50	49	47	99	94	5	25	70-130
Naphthalene #2	0.0	50	47	45	93	90	4	25	70-130

# - Fails Limit Check

VPH1214.M

Thu Jan 19 11:54:52 2017

## Chain of Custody Record

DO 118-32

## TABLES



**Table 1**  
**Groundwater Gauging Data Summary**  
**2 Woodland Road**  
**Northborough, MA**

Sample ID	Monitoring Date	Casing Elevation (feet)	Depth to LNAPL (feet)	Depth to Water (feet)	Total Well Depth (feet)	NAPL Thickness (feet)	Groundwater Elevation (feet)	Comments
<b>MW-1</b>	01/17/17	102.76	10.62	11.00		0.38	92.04	~300 ml of LNAPL bailed (non weathered fuel oil)
	01/17/17	102.76	10.68	10.71		0.03	92.07	~1.5 hours after bailing LNAPL
	02/28/17	102.76	9.39	9.42		0.03	93.36	~50 ml of LNAPL bailed
	02/28/17	102.76		9.39			93.37	~20 minutes after bailing LNAPL
	03/08/17	102.76	9.98	10.00		0.02	92.77	~10 ml NAPL bailed
	03/08/17	102.76		10.00			92.76	No NAPL recharge
	03/15/17	102.76	10.39	10.40		0.01	92.37	~10 ml NAPL bailed
	03/22/17	102.76	10.42	10.43		0.01	92.34	~5 ml NAPL bailed
	03/22/17	102.76		10.65			92.11	No NAPL after sampling GW
	03/28/17	102.76	10.05	10.06		0.01	92.71	~5 ml NAPL bailed
	03/28/17	102.76		10.05			92.71	No NAPL recharge
	04/04/17	102.76		8.05			94.71	
	04/14/17	102.76		9.09			93.67	
	04/19/17	102.76		9.57			93.19	
<b>MW-2</b>	01/17/17	100.00		7.92	14.8		92.08	
	02/28/17	100.00		7.36			92.64	
	03/08/17	100.00		7.25			92.75	
	03/15/17	100.00		7.63			92.37	
	03/22/17	100.00		7.68			92.32	
	03/28/17	100.00		7.30			92.70	
	04/04/17	100.00		5.62			94.38	
	04/14/17	100.00		6.38			93.62	
	04/19/17	100.00		6.82			93.18	
<b>MW-3</b>	01/17/17	100.74		8.67	14.5		92.07	
	02/28/17	100.74		6.63			94.11	
	03/08/17	100.74		7.98			92.76	
	03/15/17	100.74		8.38			92.36	
	03/22/17	100.74		8.41			92.33	
	03/28/17	100.74		8.01			92.73	
	04/04/17	100.74		6.40			94.34	
	04/14/17	100.74		7.12			93.62	
	04/19/17	100.74		7.56			93.18	

Notes:

Depth to groundwater measured from top of PVC riser.

LNAPL - light non-aqueous phase liquid

MassDEP Notified of LNAPL in MW-1 on 1-17-17

**Table 2A**  
**Groundwater Analytical Results - EPH Data Summary**  
**2 Woodland Road**  
**Northborough, MA**

Well ID	Date	Diesel Range Organics - Petrogenic PAHs				Pyrogenic Polycyclic Aromatic Hydrocarbons (PAHs)															
		C9-C18 Aliphatics	C19-C36 Aliphatics	C11-C22 Aromatics	Naphthalene	2-Methylnaphthalene	Phenanthrene	Acenaphthene	Acenaphthylene	Fluorene	Anthracene	Fluoranthene	Pyrene	Benzo (a) anthracene	Chrysene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (a) pyrene	Indeno (1,2,3-c,d) pyrene	Dibenzo (a,h) anthracene	Benzo (g,h,i) perylene
Reportable Concentrations	RCGW-1	700	14,000	200	140	10	40	20	30	30	30	90	20	1	2	1	1	0.2	0.5	0.5	20
Method 1 Standards <sup>1</sup>	GW-1	700	14,000	200	140	10	40	20	30	30	60	90	60	1	2	1	1	0.2	0.5	0.5	50
	GW-2	5,000	NA	50,000	700	2,000	NA	NA	10,000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	GW-3	50,000	50,000	5,000	20,000	20,000	10,000	10,000	40	40	30	200	20	1,000	70	400	100	500	100	40	20
Method 3	UCL	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	400	600	2,000	600	10,000	700	4,000	1,000	5,000	1,000	400	500
MW-1	1/17/2017	<b>Not sampled due to LNAPL</b>																			
MW-2	1/17/2017	<200	<200	<150	<1	<1	<1	<5	<5	<5	<5	<5	<5	<1	<2	<1	<1	<0.2	<0.5	<0.5	<5
MW-3	1/17/2017	<200	<200	<150	3.4	4.1	<1	<5	<1	<5	<5	<5	<5	<1	<2	<1	<1	<0.2	<0.5	<0.5	<5

**Notes**

All concentrations are in micrograms per liter (ug/L)

< indicates compound was below the laboratory reporting limit

**Bold** indicates concentrations exceed the applicable Reportable Concentrations

Shaded indicates concentrations exceed the applicable Method 1 GW-1 Standards

Underlined indicates concentration exceeds MCP Upper Concentration Limit

EPH - Extractable Petroleum Hydrocarbons

MTBE - Methyl tert-butyl ether

Ref<sup>1</sup> 310 CMR 40 (2/14/2008) as amended on June 20, 2014.

LNAPL - light non-aqueous phase liquid

UCL - Upper Concentration Limit

**Table 2B**  
**Summary of Groundwater Analytical Results - VPH**  
**2 Woodland Road**  
**Northborough, MA**

Well ID	Date	C5-C8 Aliphatics	C9-C12 Aliphatics	C9-C10 Aromatics	Benzene	Ethylbenzene	MTBE	Naphthalene	Toluene	Total Xylenes
Reportable Concentrations	RCGW-1	300	700	200	5	700	70	140	1,000	3,000
Method 1 Standards <sup>1</sup>	GW-1	300	700	200	5	700	70	140	1,000	10,000
	GW-2	3,000	5,000	4,000	1,000	20,000	50,000	700	50,000	3,000
	GW-3	50,000	50,000	50,000	10,000	5,000	50,000	20,000	40,000	5,000
Method 3	UCL	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
<b>MW-1</b>	1/17/2017	<b>Not sampled due to LNAPL</b>								
<b>MW-2</b>	1/17/2017	<50	<50	<50	<5	<5	<10	<10	<5	<10
<b>MW-3</b>	1/17/2017	<50	395	<b>297</b>	<5	<5	<10	<10	<5	<10

Notes

All concentrations are in micrograms per liter (ug/L)

< indicates compound was below the laboratory reporting limit

**Bold** indicates concentrations exceed the RCGW-1 Reportable Concentrations

Shaded indicates concentrations exceed the Method 1 GW-1 Standards

Underlined indicates concentrations exceed MCP Upper Concentration Limits

VPH - Volatile Petroleum Hydrocarbons

MTBE - Methyl tert-butyl ether

LNAPL - light non-aqueous phase liquid

Ref<sup>1</sup> 310 CMR 40 (2/14/2008) as amended on April 25, 2014.

UCL - Upper Concentration Limit

Operator Name and Email or Telephone #: **Corporate Environmental Advisors (CEA), Adam Last, alast@cea-inc.com, 508-835-8822 ext. 260**

RGP Site Name: **Sargent Residence, 2 Woodland Road, Northborough, MA**

RGP Permit #: **To Be Determined**

Receiving Water Name: **Unnamed Freshwater Wetland**

Receiving Water Sampling Location: Nearest surface water feature down stream of the discharge outfall location sample identified as "SW-1" collected on 3-22-2017.

Enter Activity Category

1

## I Petroleum-Related Site Remediation

Enter results; parameters that are not applicable can be left blank

Enter sample date      Enter results, parameters that are not applicable can be left blank

3/22/2017 "SW-1"

5/22/2017 SW 1 Surface Water

SW-1 Field Measured 6.55 SU 1.87 °C -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- --

\*SW-1 Field Measured 0.55 SU 1.5 °C 80 mg/l

SW-1 Analytical Results 3.89 SU 2 °C <0.1 mg/l -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- -- 80 mg/l --

\* Note that the surface water sample "SW-1" was tested for ammonia, hardness, pH and temperature as directed by EPA personnel.

The pH and temperature of the nearest surface water down stream of the discharge outfall location sample "SW-1" was field measured in an effort to obtain the accurate data prior to sample refrigeration.

-- indicates parameter was not tested, analyzed or applicable

## **ATTACHMENT C**

### **StreamStats Flow Statics Report**



# StreamStats Version 3.0

## Flow Statistics Ungaged Site Report

Date: Wed Mar 22, 2017 9:48:23 AM GMT-4

Study Area: Massachusetts

NAD 1983 Latitude: 42.3095 (42 18 34)

NAD 1983 Longitude: -71.6516 (-71 39 06)

Drainage Area: 0.000309 mi<sup>2</sup>

Low Flows Basin Characteristics			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area	0.000309		
Mean Basin Slope from 250K DEM			
Stratified Drift per Stream Length	-100000		
Massachusetts Region	0		

### Probability of Perennial Flow Basin Characteristics

100% Perennial Flow Probability (0.000309 mi<sup>2</sup>)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area	0.000309		
Percent Underlain By Sand And Gravel			
Percent Forest			
Massachusetts Region	0		

### Bankfull Flows Basin Characteristics

100% Bankfull Statewide SIR2013 5155 (0.000309 mi<sup>2</sup>)

Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.000309 (below min value 0.6)	0.6	329
Mean Basin Slope from 10m DEM (percent)	6.984	2.2	23.9

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

### Bankfull Flows Statistics

Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval
-----------	-------	------	----------------------------	----------------------------	--------------------------------

					Min	Max
BFWDTH	0.62	ft				
BFDPTH	0.0924	ft				
BFAREA	0.0556	ft <sup>2</sup>				
BFFLOW	0.0821	ft <sup>3</sup> /s				

<http://pubs.usgs.gov/sir/2013/5155/> (<http://pubs.usgs.gov/sir/2013/5155/>)

Bent\_ G.C.\_ and Waite\_ A.M.\_ 2013\_ Equations for estimating bankfull channel geometry and discharge for streams in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2013-5155\_ 62 p.\_

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URL: [http://streamstatsags.cr.usgs.gov/v3\\_beta/FTreport.htm](http://streamstatsags.cr.usgs.gov/v3_beta/FTreport.htm)

Page Contact Information: StreamStats Help

Page Last Modified: 08/09/2016 14:34:10 (Web2)

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# StreamStats Version 3.0

## Flow Statistics Ungaged Site Report

Date: Wed Mar 22, 2017 3:55:47 PM GMT-4

Study Area: Massachusetts

NAD 1983 Latitude: 42.3047 (42 18 17)

NAD 1983 Longitude: -71.6519 (-71 39 07)

Drainage Area: 0.22 mi<sup>2</sup>

Low Flows Basin Characteristics			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.22 (below min value 1.61)	1.61	149
Mean Basin Slope from 250K DEM (percent)	1.042	0.32	24.6
Stratified Drift per Stream Length (square mile per mile)	0.18	0	1.29
Massachusetts Region (dimensionless)	0	0	1

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Probability of Perennial Flow Basin Characteristics			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.22	0.01	1.99
Percent Underlain By Sand And Gravel (percent)	49.82	0	100
Percent Forest (percent)	31.87	0	100
Massachusetts Region (dimensionless)	0	0	1

Bankfull Flows Basin Characteristics			
100% Bankfull Statewide SIR2013 5155 (0.22 mi <sup>2</sup> )			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	0.22 (below min value 0.6)	0.6	329
Mean Basin Slope from 10m DEM (percent)	5.403	2.2	23.9

Warning: Some parameters are outside the suggested range. Estimates will be extrapolations with unknown errors.

Low Flows Statistics					
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval

					Min	Max
D50	0.2	ft <sup>3</sup> /s				
D60	0.13	ft <sup>3</sup> /s				
D70	0.0762	ft <sup>3</sup> /s				
D75	0.0572	ft <sup>3</sup> /s				
D80	0.0425	ft <sup>3</sup> /s				
D85	0.0278	ft <sup>3</sup> /s				
D90	0.0186	ft <sup>3</sup> /s				
D95	0.00896	ft <sup>3</sup> /s				
D98	0.00575	ft <sup>3</sup> /s				
D99	0.00379	ft <sup>3</sup> /s				
M7D2Y	0.0106	ft <sup>3</sup> /s				
AUGD50	0.0318	ft <sup>3</sup> /s				
M7D10Y	0.00309	ft <sup>3</sup> /s		This is the 7Q10 value= 0.00309 cfs or rounded to zero (0) cfs		

<http://pubs.usgs.gov/wri/wri004135/> (<http://pubs.usgs.gov/wri/wri004135/>)

Ries\_ K.G.\_ III\_ 2000\_ Methods for estimating low-flow statistics for Massachusetts streams: U.S. Geological Survey Water Resources Investigations Report 00-4135\_ 81 p.

Probability of Perennial Flow Statistics						
Statistic	Value	Unit	Standard Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
PROBPEREN	0.75	dim	0.3		0.54	0.79

[http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR\\_2006-5031rev.pdf](http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR_2006-5031rev.pdf) ([http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR\\_2006-5031rev.pdf](http://pubs.usgs.gov/sir/2006/5031/pdfs/SIR_2006-5031rev.pdf))

Bent\_ G.C.\_ and Steeves\_ P.A.\_ 2006\_ A revised logistic regression equation and an automated procedure for mapping the probability of a stream flowing perennially in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2006-5031\_ 107 p.

Bankfull Flows Statistics						
Statistic	Value	Unit	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
					Min	Max
BFWDTH	7.9	ft				
BFDPTH	0.59	ft				
BFAREA	4.6	ft <sup>2</sup>				
BFFLOW	9.58	ft <sup>3</sup> /s				

<http://pubs.usgs.gov/sir/2013/5155/> (<http://pubs.usgs.gov/sir/2013/5155/>)

Bent\_ G.C.\_ and Waite\_ A.M.\_ 2013\_ Equations for estimating bankfull channel geometry and discharge for streams in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2013-5155\_ 62 p.\_

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# StreamStats Version 3.0

## Basin Characteristics Ungaged Site Report

Date: Wed Mar 22, 2017 9:46:21 AM GMT-4

Study Area: Massachusetts

NAD 1983 Latitude: 42.3095 (42 18 34)

NAD 1983 Longitude: -71.6516 (-71 39 06)

Label	Value	Units	Definition
DRNAREA	0.000309	square miles	Area that drains to a point on a stream
STRMTOT	0	miles	Total length of mapped streams in basin
DRFTPERSTR	-100000	square mile per mile	Area of stratified drift per unit of stream length
MAREGION	0	dimensionless	Region of Massachusetts 0 for Eastern 1 for Western
FOREST	undefined	percent	Percentage of area covered by forest
CRSDFT	undefined	percent	Percentage of area of coarse-grained stratified drift
BSLDEM10M	6.984	percent	Mean basin slope computed from 10 m DEM
BSLDEM250	undefined	percent	Mean basin slope computed from 1:250K DEM
ACRSDFT	0.000309	square miles	Area underlain by stratified drift
LC11IMP	undefined	percent	Average percentage of impervious area determined from NLCD 2011 impervious dataset
LC11DEV	undefined	percent	Percentage of developed (urban) land from NLCD 2011 classes 21-24
ELEV	325	feet	Mean Basin Elevation
PRECPRIS00	undefined	inches	Basin average mean annual precipitation for 1971 to 2000 from PRISM
LAKEAREA	0	percent	Percentage of Lakes and Ponds
OUTLETX	187495	State plane coordinates	Basin outlet horizontal (x) location in state plane coordinates
OUTLETY	895455	State plane coordinates	Basin outlet vertical (y) location in state plane coordinates
MAXTEMPC	undefined	degrees	Mean annual maximum air temperature over basin area, in degrees Centigrade
WETLAND	0	percent	Percentage of Wetlands
CENTROIDX	187495	State plane coordinates	Basin centroid horizontal (x) location in state plane coordinates
CENTROIDY	895490	State plane coordinates	Basin centroid vertical (y) location in state plane units
PCTSNDGRV	undefined	percent	Percentage of land surface underlain by sand and gravel deposits

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## **ATTACHMENT D**

**MassDEP Phase 1 Site Assessment Map and NHESP Map**



# MassDEP - Bureau of Waste Site Cleanup

## Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

## Site Information:

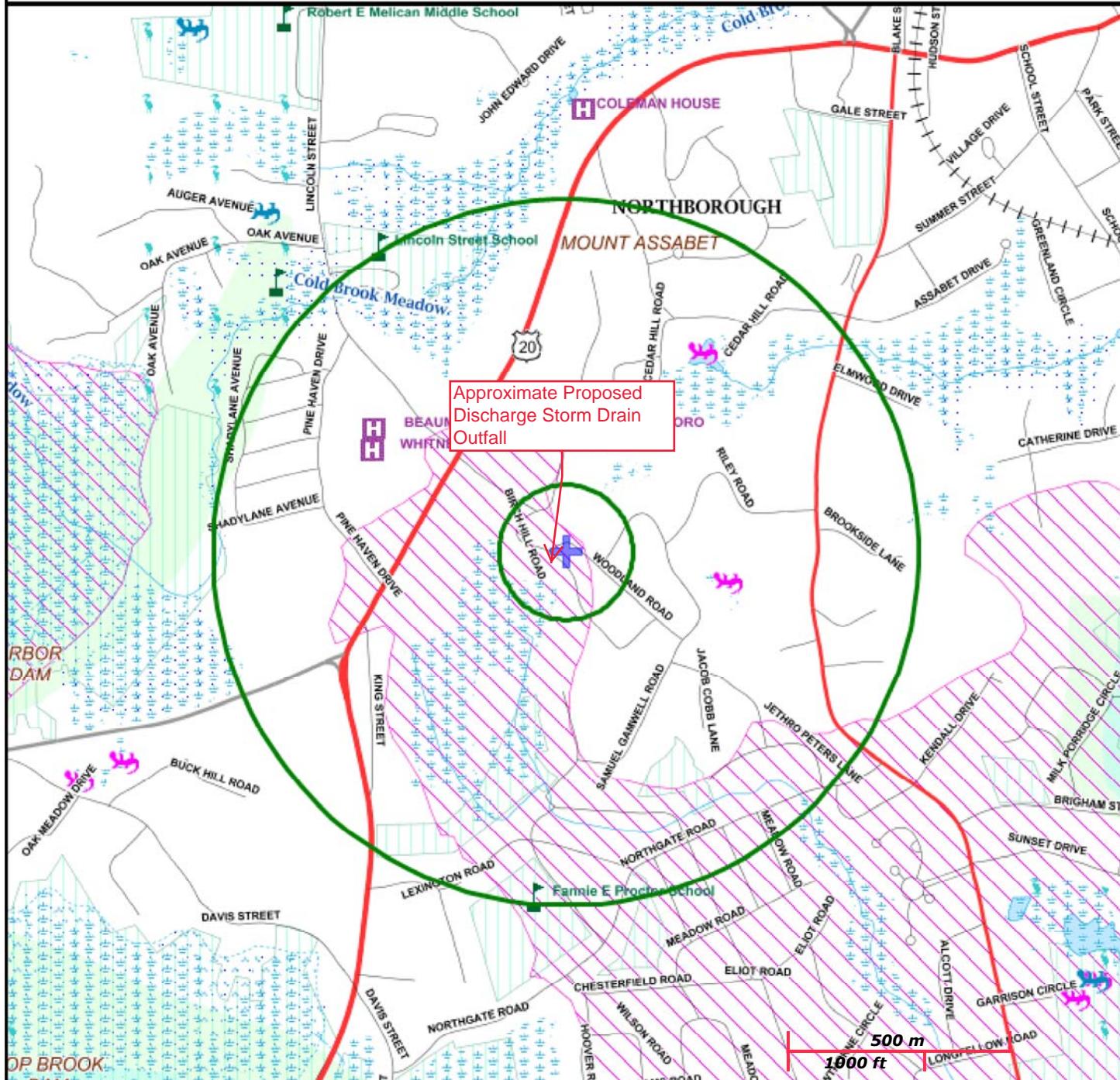
SARGENT RESIDENCE  
2 WOODLAND ROAD NORTHBOROUGH, MA  
2-000020070

NAD83 UTM Meters:  
4687546mN, 281477mE (Zone: 19)  
January 12, 2017

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: <http://www.mass.gov/mgis/>.



**MassDEP**  
Commonwealth of Massachusetts  
Department of Environmental Protection



Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail

PWS Protection Areas: Zone II, IWPA, Zone A

Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct

Hydrography: Open Water, PWS Reservoir, Tidal Flat

Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam

Wetlands: Freshwater, Saltwater, Cranberry Bog

Aquifers: Medium Yield, High Yield, EPA Sole Source

FEMA 100yr Floodplain; Protected Open Space; ACEC

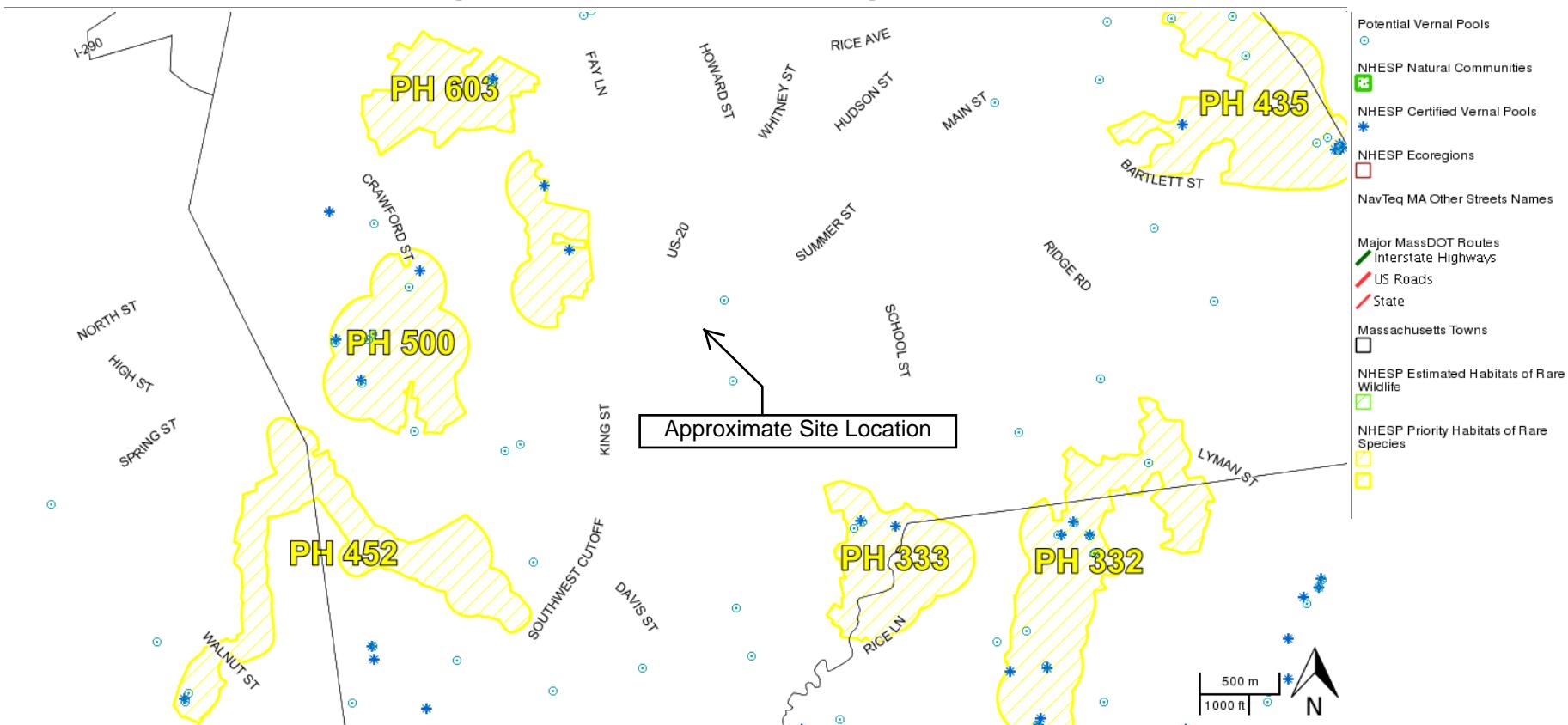
Non Potential Drinking Water Source Area: Medium, High (Yield)

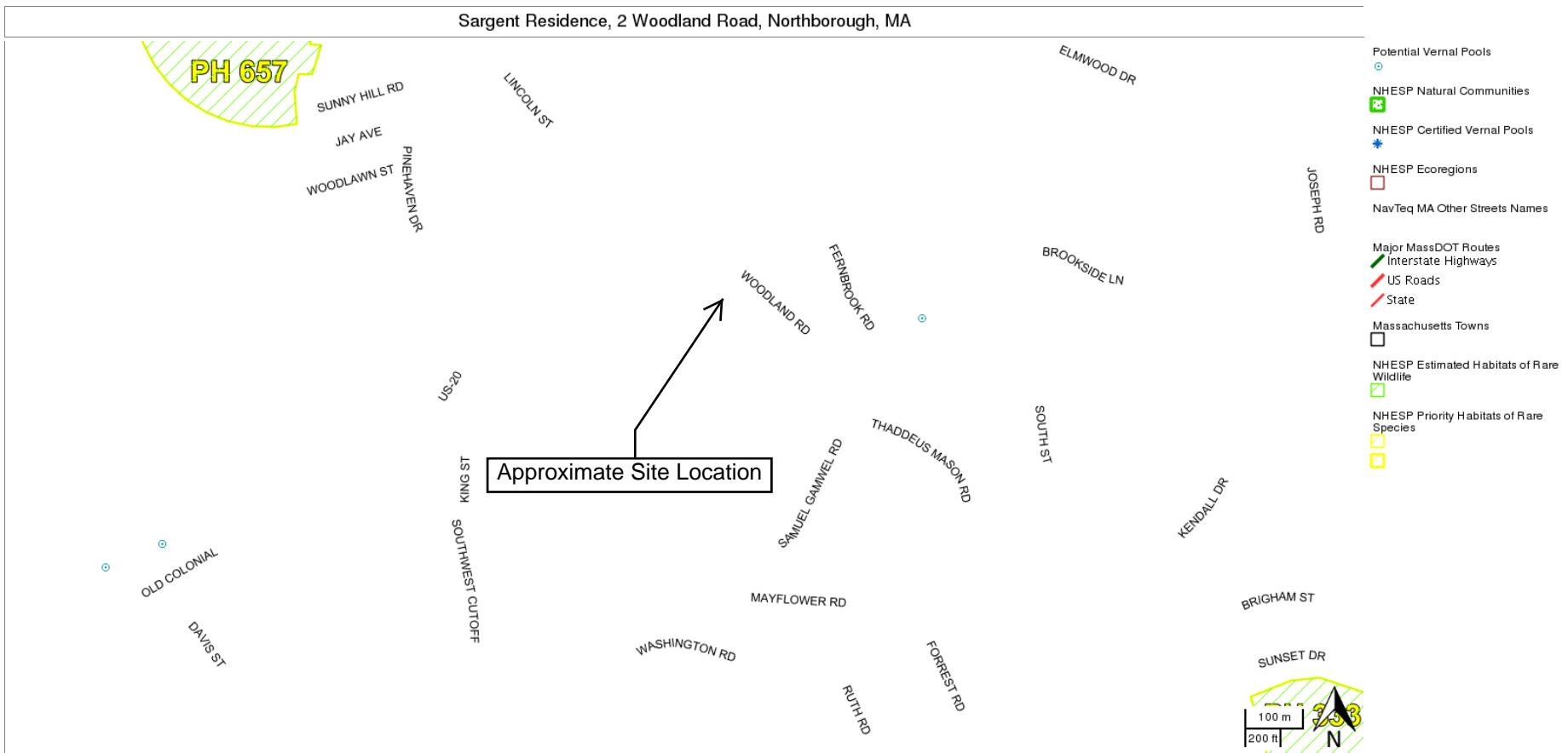
Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert, Potential

Solid Waste Landfill; PWS: Com.GW, SW, Emerg., Non-Com.

Solid Waste Landfill; PWS: Com.GW, SW, Emerg., Non-Com.

## Sargent Residence, 2 Woodland Road, Northborough, MA





## **ATTACHMENT E**

**United States Department of the Interior, Fish and Wildlife Services (FWS)**  
**Threatened or Endangered Species or Critical Habitat Letter**





# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New England Ecological Services Field Office  
70 COMMERCIAL STREET, SUITE 300  
CONCORD, NH 03301  
PHONE: (603)223-2541 FAX: (603)223-0104  
URL: [www.fws.gov/newengland](http://www.fws.gov/newengland)

Consultation Code: 05E1NE00-2017-SLI-1142

March 21, 2017

Event Code: 05E1NE00-2017-E-02135

Project Name: Sargent Residence, 2 Woodland Road, Northborough, MA

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



United States Department of Interior  
Fish and Wildlife Service

Project name: Sargent Residence, 2 Woodland Road, Northborough, MA

## Official Species List

### Provided by:

New England Ecological Services Field Office

70 COMMERCIAL STREET, SUITE 300

CONCORD, NH 03301

(603) 223-2541

<http://www.fws.gov/newengland>

**Consultation Code:** 05E1NE00-2017-SLI-1142

**Event Code:** 05E1NE00-2017-E-02135

**Project Type:** SPILL / RELEASE

**Project Name:** Sargent Residence, 2 Woodland Road, Northborough, MA

**Project Description:** Short term (less than 30 days) remediation of #2 fuel oil impacted soil at 2 Woodland Road, in Northborough, MA, where excavation, dewatering, groundwater treatment and discharge is proposed to a storm drain that discharges to the ground surface and wetland area under an EPA RGP. Proposed remediation and discharge under an RGP is anticipated to be completed in less than 3 weeks.

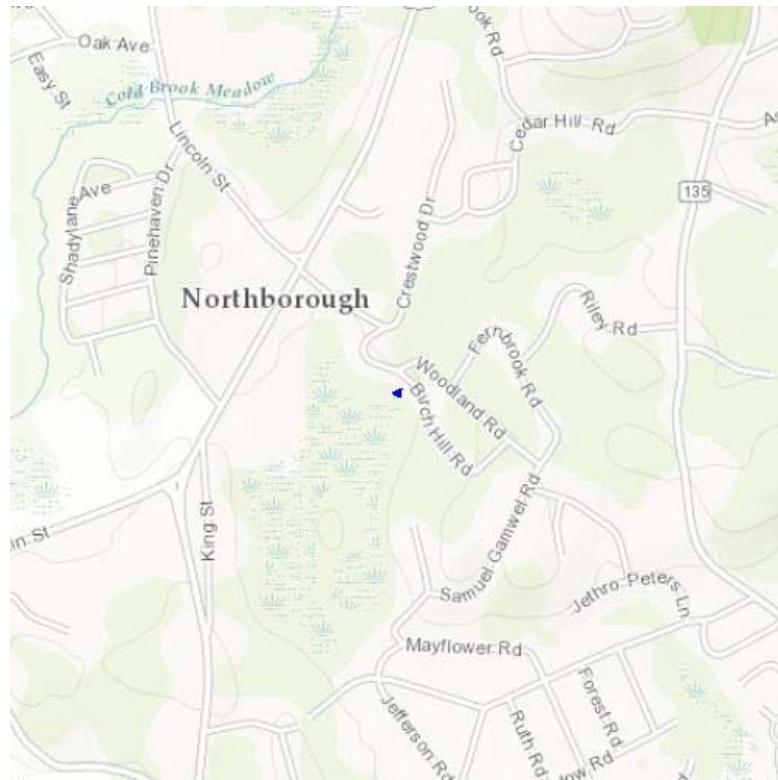
**Please Note:** The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior  
Fish and Wildlife Service

Project name: Sargent Residence, 2 Woodland Road, Northborough, MA

### Project Location Map:



**Project Coordinates:** MULTIPOLYGON (((-71.65177524089815 42.30913307563285, -71.6518020629883 42.30903191412322, -71.65177792310716 42.308996210022165, -71.65199518203737 42.309049766166154, -71.65175914764406 42.30914696053326, -71.65177524089815 42.30913307563285)))

**Project Counties:** Worcester, MA



United States Department of Interior  
Fish and Wildlife Service

Project name: Sargent Residence, 2 Woodland Road, Northborough, MA

## Endangered Species Act Species List

There are a total of 1 threatened or endangered 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. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Mammals	Status	Has Critical Habitat	Condition(s)
Northern long-eared Bat ( <i>Myotis septentrionalis</i> )  Population: Wherever found	Threatened		



United States Department of Interior  
Fish and Wildlife Service

Project name: Sargent Residence, 2 Woodland Road, Northborough, MA

## Critical habitats that lie within your project area

There are no critical habitats within your project area.

## Adam Last

---

**From:** Tur, Maria <[maria\\_tur@fws.gov](mailto:maria_tur@fws.gov)>  
**Sent:** Tuesday, May 02, 2017 2:17 PM  
**To:** Adam Last  
**Subject:** Re: 2 Woodland Rd, Northborough

Hello Mr. Last,

As you stated, there will be no effect to the northern long-eared bat as a result of the project activities. Thank you for coordinating.

Maria E. Tur  
U.S. Fish and Wildlife Service  
New England Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301  
Phone (603) 223-2541 x6419  
FAX (603) 223-0104

<http://www.fws.gov/newengland/>

On Tue, May 2, 2017 at 1:27 PM, Adam Last <[alast@cea-inc.com](mailto:alast@cea-inc.com)> wrote:

Good Afternoon Ms. Tur,

It was nice to talk with you earlier today and thank you for taking the time to answer my question regarding the northern long-eared bat. As discussed, we are preparing for remedial activities in response to a fuel oil release at the 2 Woodland Road property in Northborough, Massachusetts and during that process have learned that there is one (1) threatened or endangered species, the northern long-eared bat, that should be considered in the effects analysis for the remediation project (see attached letter).

The proposed remediation project does not involve the cutting down or removal of any trees. Because no trees will be cut there will be no effect to the northern long-eared bat, which roosts in trees during non-winter months. Therefore, the remediation project and associated treated water discharge are “not likely to adversely affect” the northern long-eared bat.

Could you confirm in a reply email or letter that this understanding is accurate?

Thank you,

Adam

**Adam J. Last, P.E., LSP, TPI**

**Principal Engineer**



Corporate Environmental Advisors

127 Hartwell Street, Suite 2

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[alast@cea-inc.com](mailto:alast@cea-inc.com)

**ATTACHMENT F**

**MACRIS Historic Places Report**



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Inv. No.	Property Name	Street	Town	Year	SR
<a href="#">NBO.224</a>	Wood, David F. Woolen Mill Worker Housing	2-4 Allen Ct	Northborough	c 1866	
<a href="#">NBO.225</a>	Wood, David F. Woolen Mill Worker Housing	6-8 Allen Ct	Northborough	c 1866	
<a href="#">NBO.226</a>	Wood, David F. Woolen Mill Worker Housing	10-12 Allen Ct	Northborough	c 1866	
<a href="#">NBO.227</a>	Wood, David F. Woolen Mill Worker Housing	14-16 Allen Ct	Northborough	c 1866	
<a href="#">NBO.228</a>	Wood, David F. Woolen Mill Worker Housing	18 Allen Ct	Northborough	c 1866	
<a href="#">NBO.900</a>	Allen Street Bridge	Allen St	Northborough		
<a href="#">NBO.142</a>	Allen, Samuel House	16 Allen St	Northborough	c 1830	
<a href="#">NBO.339</a>		16 Allen St	Northborough	c 1920	
<a href="#">NBO.229</a>	Wood, David F. Woolen Mill Worker Housing	20 Allen St	Northborough	c 1860	
<a href="#">NBO.230</a>	Wood, David F. Woolen Mill Worker Housing	21 Allen St	Northborough	c 1860	
<a href="#">NBO.231</a>	Wood, David F. Woolen Mill Worker Housing	22 Allen St	Northborough	c 1860	
<a href="#">NBO.232</a>	Wood, David F. Woolen Mill Worker Housing	23 Allen St	Northborough	c 1860	
<a href="#">NBO.233</a>	Wood, David F. Woolen Mill Worker Housing	24 Allen St	Northborough	c 1860	
<a href="#">NBO.234</a>	Wood, David F. Woolen Mill Worker Housing	27 Allen St	Northborough	c 1860	
<a href="#">NBO.905</a>	Assabet River Bridge	Assabet River	Northborough	1897	<b>SR</b> 

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Inv. No.	Property Name	Street	Town	Year	SR	
<a href="#">NBO.924</a>	Assabet River Railroad Bridge	Assabet River	Northborough	c 1855		
<a href="#">NBO.143</a>	Coolidge, Abigail - Goodnow, Henry House	88 Ball St	Northborough	c 1800		
<a href="#">NBO.15</a>	Bartlett, Capt. Joel House	85 Bartlett St	Northborough	c 1820		
<a href="#">NBO.17</a>	Bartlett, W. A. House	96 Bartlett St	Northborough	c 1855		
<a href="#">NBO.18</a>	Chesbro, George L. House	103 Bartlett St	Northborough	c 1863	<b>SR</b>	
<a href="#">NBO.16</a>	Rice, Dea. Matthias House	189 Bartlett St	Northborough	c 1746		
<a href="#">NBO.32</a>	Bartlett, Jotham House	7 Belmont St	Northborough	c 1830		
<a href="#">NBO.235</a>	Deerfoot Farms Dairy Creamery	10 Blake St	Northborough	c 1900		
<a href="#">NBO.236</a>	Munroe Tavern Stables	11 Blake St	Northborough	c 1860		
<a href="#">NBO.237</a>	Brigham, Cyrus T. and Company Store	19 Blake St	Northborough	c 1880		
<a href="#">NBO.25</a>	Munroe Tavern	20-22 Blake St	Northborough	r 1750		
<a href="#">NBO.24</a>	Gallagher, Edwin House	27 Blake St	Northborough	c 1870		
<a href="#">NBO.145</a>	Howe, B. - Whitcomb, A. House	131 Brigham St	Northborough	1792		
<a href="#">NBO.238</a>	Brigham, Jesse House	202 Brigham St	Northborough	c 1735		
<a href="#">NBO.52</a>	Northborough Woolen Company Office	7 Chapin Ct	Northborough	1882		

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Inv. No.	Property Name	Street	Town	Year	SR
<a href="#">NBO.51</a>	Davis, Isaac Cotton Mill Worker Housing	10 Chapin Ct	Northborough	1832	
<a href="#">NBO.50</a>	Davis, Isaac Cotton Mill Worker Housing	12 Chapin Ct	Northborough	c 1832	
<a href="#">NBO.40</a>	Davis, Isaac Cotton Mill Worker Housing	16 Chapin Ct	Northborough	c 1832	
<a href="#">NBO.146</a>	Rice, S. - Valentine, Elmer House	50 Cherry St	Northborough	c 1716	
<a href="#">NBO.925</a>	Church Street Stone Bridge over Cold Harbor Brook	Church St	Northborough	c 1860	<b>SR</b> 
<a href="#">NBO.61</a>	Rice, John - Fay, Joseph T. House	6 Church St	Northborough	c 1850	
<a href="#">NBO.63</a>	Page, Margaret B. - Ellsworth, William F. House	9 Church St	Northborough	c 1880	
<a href="#">NBO.62</a>	Stone, John House	10 Church St	Northborough	c 1855	
<a href="#">NBO.64</a>	Northborough Fire and Police Station	11-13 Church St	Northborough	1926	
<a href="#">NBO.67</a>		25 Church St	Northborough	1929	
<a href="#">NBO.68</a>	Northborough Unitarian Church Parsonage	33 Church St	Northborough	1875	
<a href="#">NBO.69</a>	Paul, Walter House	39 Church St	Northborough	c 1880	
<a href="#">NBO.77</a>	First Church of Northborough - Unitarian Church	40 Church St	Northborough	1950	<b>SR</b> 
<a href="#">NBO.138</a>	First Church of Northborough - Unitarian Church Hall	40 Church St	Northborough	1948	<b>SR</b> 
<a href="#">NBO.1</a>	Allen, Dr. Joseph House and School	49 Church St	Northborough	1818	<b>SR</b> 

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<a href="#">NBO.70</a>	Bigelow, Walter J. House	64 Church St	Northborough	c 1900		
<a href="#">NBO.71</a>	Bigelow, Ezra Hastings House	70 Church St	Northborough	c 1900		
<a href="#">NBO.2</a>	First Evangelical Congregational Church	71 Church St	Northborough	c 1832	SR	
<a href="#">NBO.72</a>	Wood, Eliab House	76 Church St	Northborough	c 1877		
<a href="#">NBO.241</a>	Atwood, Francis H. House	86 Church St	Northborough	c 1897		
<a href="#">NBO.73</a>	Duplissee, Peter House	87 Church St	Northborough	c 1880		
<a href="#">NBO.74</a>	Purinton, G. House	91 Church St	Northborough	c 1855		
<a href="#">NBO.149</a>	Fay, Lewis House	92 Church St	Northborough	c 1855		
<a href="#">NBO.44</a>	West District Schoolhouse	264 Church St	Northborough	c 1846		
<a href="#">NBO.43</a>	Holloway, Lt. William House	302 Church St	Northborough	c 1711		
<a href="#">NBO.75</a>	Rice, Nathan House	334 Church St	Northborough	c 1855		
<a href="#">NBO.37</a>	Orne, Capt. Edward House	335 Church St	Northborough	1826		
<a href="#">NBO.33</a>	Warren, Eliphalet House	80 Colburn St	Northborough	r 1720		
<a href="#">NBO.45</a>	Fay Steam Saw Mill	3 Colby St	Northborough	c 1847		
<a href="#">NBO.926</a>	Cold Harbor Brook Railroad Bridge	Cold Harbor Brook	Northborough	c 1866		

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<a href="#">NBO.109</a>	Crawford Farm	Crawford St	Northborough	1734	
<a href="#">NBO.150</a>	Bruce, Silas House	239 Crawford St	Northborough	c 1800	
<a href="#">NBO.151</a>	Howe. C. House	279 Crawford St	Northborough	c 1790	
<a href="#">NBO.152</a>	Bartlett House	292 Crawford St	Northborough	r 1750	
<a href="#">NBO.153</a>	Johnson, Charles Saw Mill and House	342 Crawford St	Northborough	c 1850	
<a href="#">NBO.242</a>	Williams, Stephen House	363 Crawford St	Northborough	1799	
<a href="#">NBO.154</a>	Davis, George C. Tannery and House	6 Davis Ave	Northborough	c 1781	
<a href="#">NBO.155</a>		284 Davis St	Northborough	c 1900	
<a href="#">NBO.243</a>	Young, Richard Hopkins House	307 Davis St	Northborough	c 1890	
<a href="#">NBO.47</a>	Davis, George C. House	375 Davis St	Northborough	1851	
<a href="#">NBO.136</a>	Davis, George C. Barn Complex	375 Davis St	Northborough	c 1855	
<a href="#">NBO.137</a>	Davis, George C. Farm Worker Housing	375 Davis St	Northborough	c 1900	
<a href="#">NBO.19</a>	Davis, Gov. John - Davis, W. E. House	385 Davis St	Northborough	c 1830	
<a href="#">NBO.46</a>	Davis, Col. Joseph House	386 Davis St	Northborough	c 1779	
<a href="#">NBO.48</a>	Davis, Phineas House	405 Davis St	Northborough	c 1730	

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Inv. No.	Property Name	Street	Town	Year	SR
<a href="#">NBO.244</a>	Bartlett, U. - Merriam, Moses B. House	15 East Main St	Northborough	c 1830	
<a href="#">NBO.245</a>	Greene, Frank H. House	19 East Main St	Northborough	c 1890	
<a href="#">NBO.27</a>	Warren House	32 East Main St	Northborough	c 1795	
<a href="#">NBO.246</a>	Mitchell, Edward A. House	34 East Main St	Northborough	c 1890	
<a href="#">NBO.247</a>	Burbank, Peter - Desrosiers, Joseph H. House	76 East Main St	Northborough	c 1883	
<a href="#">NBO.248</a>	Cox, John House	90 East Main St	Northborough	c 1890	
<a href="#">NBO.249</a>	Lowe, John W. House	117-119 East Main St	Northborough	c 1890	
<a href="#">NBO.21</a>	Patterson, A. House	137 East Main St	Northborough	c 1760	
<a href="#">NBO.22</a>	Allen, L. - Rice, J. House	142 East Main St	Northborough	c 1795	
<a href="#">NBO.20</a>	Goodnow - Bartlett, Gill and E. B. House	181 East Main St	Northborough	c 1745	
<a href="#">NBO.130</a>	Goodnow - Bartlett, Gill and E. B. Barn	181 East Main St	Northborough	c 1850	
<a href="#">NBO.131</a>	Goodnow - Bartlett, Gill and E. B. Tri-Part Garage	181 East Main St	Northborough	c 1900	
<a href="#">NBO.132</a>	Goodnow - Bartlett, Gill and E. B. Kennel - Shed	181 East Main St	Northborough	c 1900	
<a href="#">NBO.133</a>	Goodnow - Bartlett, Gill and E. B. A-Frame Shed	181 East Main St	Northborough	c 1970	
<a href="#">NBO.134</a>	Goodnow - Bartlett, Gill and E. B. Barn	181 East Main St	Northborough	r 1850	

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<a href="#">NBO.49</a>	Fay, Asa House	50 Fay Ln	Northborough	c 1794	
<a href="#">NBO.36</a>	Fay, Nahum House	66 Green St	Northborough	c 1770	
<a href="#">NBO.28</a>	Livermore, Dea. Jonathan House	500 Green St	Northborough	1727	
<a href="#">NBO.157</a>	Brigham, John House	518 Green St	Northborough	r 1855	
<a href="#">NBO.250</a>	Murray, Charles C. House	110 Howard St	Northborough	c 1898	
<a href="#">NBO.108</a>	Townsend, Joshua - Holbrook, Lowell House	300 Howard St	Northborough	1744	
<a href="#">NBO.251</a>	Green, Vera House	333 Howard St	Northborough	1953	
<a href="#">NBO.158</a>	Rice, Benjamin House	386 Howard St	Northborough	1790	
<a href="#">NBO.29</a>	Keyes, Capt. Prentice House	660 Howard St	Northborough	c 1830	
<a href="#">NBO.927</a>	Hudson Street Bridge over Cold Harbor Brook	Hudson St	Northborough	c 1860	
<a href="#">NBO.114</a>	Rice, Anson House	9 Hudson St	Northborough	c 1850	
<a href="#">NBO.113</a>	Russell, S. House	14 Hudson St	Northborough	c 1842	
<a href="#">NBO.252</a>	Parmenter, Albert House	15 Hudson St	Northborough	c 1880	
<a href="#">NBO.112</a>	Fay, Herman House	16 Hudson St	Northborough	c 1766	
<a href="#">NBO.111</a>	Fairbanks, John - Montague, Richard House	17 Hudson St	Northborough	c 1855	

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Inv. No.	Property Name	Street	Town	Year	SR	
<a href="#">NBO.253</a>	Rice, Eveline M. House	24 Hudson St	Northborough	c 1887		
<a href="#">NBO.160</a>	Worcester & Marlborough Street Railway Powerhouse	43 Hudson St	Northborough	1897		
<a href="#">NBO.110</a>	Proctor, Harwood and Josiah House	47 Hudson St	Northborough	c 1860		
<a href="#">NBO.254</a>	Bush, Warren T. House	55 Hudson St	Northborough	c 1850		
<a href="#">NBO.255</a>	Farwell, Walter M. Comb Factory	56 Hudson St	Northborough	c 1900		
<a href="#">NBO.256</a>	Lilley, Charles E. House	75 Hudson St	Northborough	c 1900		
<a href="#">NBO.257</a>	Rice, Curtis House	87 Hudson St	Northborough	c 1850		
<a href="#">NBO.258</a>	Patterson, Henry House	93 Hudson St	Northborough	c 1880		
<a href="#">NBO.259</a>	Farwell, Alonzo C. House	110 Hudson St	Northborough	c 1860		
<a href="#">NBO.161</a>	Farwell, Walter M. House	114 Hudson St	Northborough	c 1880		
<a href="#">NBO.260</a>	Bruso, Isaac House	121 Hudson St	Northborough	c 1860		
<a href="#">NBO.261</a>	Chapdelaine, Joseph House	149 Hudson St	Northborough	c 1890		
<a href="#">NBO.262</a>	Mosso, Joseph House	153 Hudson St	Northborough	c 1860		
<a href="#">NBO.263</a>	Contois, Oliver House	161 Hudson St	Northborough	c 1860		
<a href="#">NBO.264</a>	Wood, David F. Woolen Mill Worker Housing	183 Hudson St	Northborough	c 1860		

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<a href="#">NBO.265</a>	Wood, David F. Woolen Mill Worker Housing	185 Hudson St	Northborough	c 1860		
<a href="#">NBO.266</a>	Woodside Mills	200 Hudson St	Northborough	1888		
<a href="#">NBO.267</a>	Wood, David F. Woolen Mill Worker Housing	215 Hudson St	Northborough	c 1860		
<a href="#">NBO.268</a>	Wood, David F. Woolen Mill Worker Housing	216 Hudson St	Northborough	c 1860		
<a href="#">NBO.269</a>	Wood, David F. Woolen Mill Worker Housing	219 Hudson St	Northborough	c 1860		
<a href="#">NBO.270</a>	Wood, David F. Woolen Mill Worker Housing	220 Hudson St	Northborough	c 1860		
<a href="#">NBO.162</a>	Goodrich Brickyard Model House	238 Hudson St	Northborough	c 1850		
<a href="#">NBO.271</a>	Chapin, Ezra Wood Estate Cottage	255 Hudson St	Northborough	c 1880		
<a href="#">NBO.272</a>	Illingworth, Robert House	261 Hudson St	Northborough	c 1890		
<a href="#">NBO.41</a>	Chapinville Post Office and General Store	317 Hudson St	Northborough	c 1880		
<a href="#">NBO.55</a>	Wheeler, Edmund W. House	342 Hudson St	Northborough	1889		
<a href="#">NBO.42</a>	Barnard, E. House	343 Hudson St	Northborough	c 1800		
<a href="#">NBO.54</a>		374 Hudson St	Northborough	r 1840		
<a href="#">NBO.53</a>	Barnard, Luther - Hinds, David House	400 Hudson St	Northborough	c 1850		
<a href="#">NBO.35</a>	Holbrook, T. House	6 Lancaster Dr	Northborough	c 1850		

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<a href="#">NBO.115</a>	Westborough State Hospital Piggery	Lyman St	Northborough	1890	<b>SR</b>
<a href="#">NBO.116</a>	Westborough State Hospital Barn	Lyman St	Northborough	c 1918	<b>SR</b>
<a href="#">NBO.117</a>	Westborough State Hospital Engineer's Home	Lyman St	Northborough	1906	<b>SR</b>
<a href="#">NBO.118</a>	Westborough State Hospital Engineer's Garage	Lyman St	Northborough	c 1900	<b>SR</b>
<a href="#">NBO.120</a>	Westborough State Hospital - Chauncy Hall	Lyman St	Northborough	1930	<b>SR</b>
<a href="#">NBO.121</a>	Westborough State Hospital Pole Barn	Lyman St	Northborough	1967	<b>SR</b>
<a href="#">NBO.122</a>	Westborough State Hospital Hay Barn	Lyman St	Northborough	1965	<b>SR</b>
<a href="#">NBO.123</a>	Westborough State Hospital Power Plant	Lyman St	Northborough	c 1930	<b>SR</b>
<a href="#">NBO.124</a>	Westborough State Hospital Auxiliary Garage	Lyman St	Northborough	1968	<b>SR</b>
<a href="#">NBO.125</a>	Westborough State Hospital Salvage Yard Buildings	Lyman St	Northborough	1929	<b>SR</b>
<a href="#">NBO.126</a>	Westborough State Hospital Shed	Lyman St	Northborough	r 1935	<b>SR</b>
<a href="#">NBO.127</a>	Westborough State Hospital Garage	Lyman St	Northborough	r 1935	<b>SR</b>
<a href="#">NBO.128</a>	Westborough State Hospital Pumping Station	Lyman St	Northborough	r 1945	<b>SR</b>
<a href="#">NBO.129</a>	Westborough State Hospital Pumping Station	Lyman St	Northborough	c 1966	<b>SR</b>
<a href="#">NBO.909</a>	Westborough State Hospital Power Plant	Lyman St	Northborough	1964	<b>SR</b>

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<a href="#">NBO.910</a>	Westborough State Hospital Water Tank	Lyman St	Northborough	c 1950	
<a href="#">NBO.911</a>	Westborough State Hospital Water Tank	Lyman St	Northborough	c 1950	
<a href="#">NBO.912</a>	Westborough State Hospital Sewage Treatment Tank	Lyman St	Northborough	c 1970	
<a href="#">NBO.913</a>	Westborough State Hospital Transformer	Lyman St	Northborough	r 1965	
<a href="#">NBO.914</a>	Westborough State Hospital Agricultural Land	Lyman St	Northborough		
<a href="#">NBO.14</a>	Newton, S. - Norcross, Stephen W. House	1 Lyman St	Northborough	c 1830	
<a href="#">NBO.13</a>	Norcross, Stephen House	41 Lyman St	Northborough	c 1870	
<a href="#">NBO.3</a>	Northborough Town Hall	Main St	Northborough	c 1985	
<a href="#">NBO.59</a>	Curve Inn	Main St	Northborough	r 1840	
<a href="#">NBO.104</a>	Exxon Service Station	Main St	Northborough	1969	
<a href="#">NBO.906</a>	Main Street - Assabet River Bridge	Main St	Northborough	c 1860	
<a href="#">NBO.907</a>	Assabet River Dam	Main St	Northborough	c 1860	
<a href="#">NBO.82</a>	Rice, Anson - Winn-Whittaker Building	10 Main St	Northborough	c 1830	
<a href="#">NBO.5</a>	Carruth, C. House	20 Main St	Northborough	c 1855	
<a href="#">NBO.103</a>	Northborough Evangelical Congregational Church	23 Main St	Northborough	1847	

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<a href="#">NBO.9</a>	Gale, Cyrus Jr. House	24 Main St	Northborough	c 1850		
<a href="#">NBO.11</a>	Northborough National Bank	28 Main St	Northborough	1854		
<a href="#">NBO.10</a>	Ball, Dr. Stephen III House	30 Main St	Northborough	c 1800		
<a href="#">NBO.102</a>	Gale, Cyrus House	33 Main St	Northborough	c 1855		
<a href="#">NBO.84</a>	Northborough Public Library - Gale Library	34 Main St	Northborough	1895		
<a href="#">NBO.8</a>	Gale, Cyrus General Store	37-39 Main St	Northborough	c 1855		
<a href="#">NBO.7</a>	Ball, Dr. Stephen Jr. House	38 Main St	Northborough	c 1730		
<a href="#">NBO.6</a>	Gale, Capt. Cyrus House	43 Main St	Northborough	c 1766		
<a href="#">NBO.85</a>	Leonard, J. T. House	44 Main St	Northborough	c 1868		
<a href="#">NBO.101</a>	Stratton, L. F. House	45-47 Main St	Northborough	c 1898		
<a href="#">NBO.86</a>	Ball, U. House	48 Main St	Northborough	r 1840		
<a href="#">NBO.100</a>	Seaver, Abraham Wood House	51 Main St	Northborough	c 1855		
<a href="#">NBO.12</a>	First Baptist Church of Northborough	52 Main St	Northborough	1860	SR	
<a href="#">NBO.99</a>	Davis, Isaac - Fay, Rev. Warren Fay House	55 Main St	Northborough	1841		
<a href="#">NBO.88</a>	Moore, Lorenzo L. House	56 Main St	Northborough	c 1870		

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<a href="#">NBO.98</a>	Wood, Samuel Jr. House	59 Main St	Northborough	c 1871		
<a href="#">NBO.89</a>	Jewett, Dr. Henry A. House	60 Main St	Northborough	c 1855		
<a href="#">NBO.97</a>	Northborough High School	63 Main St	Northborough	1938		
<a href="#">NBO.90</a>	Haynes, Silas - Hildreth, Milo House	64 Main St	Northborough	c 1855		
<a href="#">NBO.96</a>	Root, Jethro B. House	67 Main St	Northborough	c 1870		
<a href="#">NBO.91</a>	Smith, Edward H. House	70 Main St	Northborough	c 1898		
<a href="#">NBO.92</a>	Northborough Baptist Church Parsonage	74-76 Main St	Northborough	c 1870		
<a href="#">NBO.4</a>	Grout, Seth - Wood, Samuel III House	75 Main St	Northborough	r 1750		
<a href="#">NBO.338</a>	Mason, Thaddeus Barn	75 Main St	Northborough	r 1850		
<a href="#">NBO.93</a>	Wood, Samuel House	80 Main St	Northborough	c 1855		
<a href="#">NBO.94</a>	Yarn Mill Shop	84 Main St	Northborough			
<a href="#">NBO.95</a>	Smith, Edward Herbert Bone and Grist Mill	88 Main St	Northborough	c 1870		
<a href="#">NBO.165</a>	Gale, Capt. Cyrus House	96 Main St	Northborough	c 1855		
<a href="#">NBO.166</a>	Wood, Capt. Samuel - Seaver, Samuel House	97 Main St	Northborough	c 1750		
<a href="#">NBO.275</a>	Ashley, Rev. Samuel S. House	100 Main St	Northborough	c 1860		

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<a href="#">NBO.167</a>	Seaver, William House	104 Main St	Northborough	c 1855		
<a href="#">NBO.276</a>	Hunt, Stephen House	130 Main St	Northborough	c 1840		
<a href="#">NBO.277</a>	Hunt, Capt. Jeremiah House	140 Main St	Northborough	1817		
<a href="#">NBO.278</a>	Wesson, Daniel B. Estate Groundskeeper Cottage	154 Main St	Northborough	c 1886		
<a href="#">NBO.168</a>	Wesson, Daniel B. House	167 Main St	Northborough	c 1886		
<a href="#">NBO.169</a>	Chet's Diner	191 Main St	Northborough	c 1931		
<a href="#">NBO.58</a>		413 Main St	Northborough	r 1775		
<a href="#">NBO.57</a>	Bartlett, Dea. Jonas House	453 Main St	Northborough	c 1753		
<a href="#">NBO.279</a>	Wesson, Daniel B. Estate Superintendent House	13 Maple St	Northborough	c 1886		
<a href="#">NBO.280</a>	Wesson, Daniel B. Estate Employee Housing	25-27 Maple St	Northborough	c 1886		
<a href="#">NBO.170</a>	Carruth, S. House	101 Maple St	Northborough	c 1800		
<a href="#">NBO.171</a>	Bourne, Rev. G. W. House	129 Maple St	Northborough	c 1849		
<a href="#">NBO.38</a>	Fay, L. - Mentzer, Cyrus House	1 Mentzer Ave	Northborough	c 1760		
<a href="#">NBO.172</a>	Pierce Barn	2 Mill St	Northborough	c 1855		
<a href="#">NBO.281</a>	Johnson, Charles E. House	5 Mill St	Northborough	c 1890		

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<a href="#">NBO.173</a>	Stearns, J. House	7 Mill St	Northborough	c 1855		
<a href="#">NBO.174</a>	Maynard, L. House	12 Mill St	Northborough	c 1855		
<a href="#">NBO.175</a>	Newton, Richard W. House	9 Monroe St	Northborough	c 1870		
<a href="#">NBO.282</a>	Bachelder, Alice A. House	14 Monroe St	Northborough	c 1898		
<a href="#">NBO.176</a>	Maynard, T. House	216 Newton St	Northborough	r 1750		
<a href="#">NBO.177</a>	Fay, Nahum House	359 Newton St	Northborough	c 1720		
<a href="#">NBO.283</a>	Fisher, Hannah Alice House	68 Oak Ave	Northborough	c 1880		
<a href="#">NBO.83</a>	Chapin, Marvin - Maynard, Caleb House	4 Patty Ln	Northborough	r 1835		
<a href="#">NBO.26</a>	Saint Rose Rectory	11 Pierce St	Northborough			
<a href="#">NBO.23</a>	Saint Rose of Lima Church	16 Pierce St	Northborough	1883		
<a href="#">NBO.284</a>	Gerrity, Winifred House	23 Pierce St	Northborough	c 1890		
<a href="#">NBO.285</a>	Felt, George H. House	25 Pierce St	Northborough	1899		
<a href="#">NBO.178</a>	Fay, J. T. House	22 Pleasant St	Northborough	c 1816		
<a href="#">NBO.286</a>	Allen, John L. House	31 Pleasant St	Northborough	c 1875		
<a href="#">NBO.106</a>	Gale, Cyrus - Ellsworth, W. House	44 Pleasant St	Northborough	c 1855		

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<a href="#">NBO.287</a>	Gorman, Walter - Norton, Matthew House	50 Pleasant St	Northborough	c 1860	
<a href="#">NBO.288</a>	Wadsworth, Ralph House	67 Pleasant St	Northborough	c 1900	
<a href="#">NBO.289</a>	Burdett, Curtis Herbert House	87 Pleasant St	Northborough	1905	
<a href="#">NBO.290</a>	Sargent, Della M. House	99 Pleasant St	Northborough	1910	
<a href="#">NBO.179</a>	Hastings, H. House	156 Pleasant St	Northborough	r 1735	
<a href="#">NBO.76</a>	Howe, Monroe - Bucklin, Emerson House	6 Reservoir Rd	Northborough	c 1781	
<a href="#">NBO.31</a>	Rice, John Minot House	9 Rice Ave	Northborough	c 1890	
<a href="#">NBO.39</a>	Parmenter, Joel - Newton, Dea. Paul House	254 Rice Ave	Northborough	c 1800	
<a href="#">NBO.180</a>	Wood, Samuel II - Seaver, Samuel Fulling Mill	6 River St	Northborough	c 1751	
<a href="#">NBO.291</a>		10 River St	Northborough	c 1900	
<a href="#">NBO.181</a>	Seaver, W. House	13 River St	Northborough	c 1810	
<a href="#">NBO.292</a>		15 River St	Northborough	c 1900	
<a href="#">NBO.293</a>		19 River St	Northborough	c 1900	
<a href="#">NBO.294</a>		23 River St	Northborough	c 1900	
<a href="#">NBO.295</a>	Randlett, Nathaniel House	24-26 River St	Northborough	c 1900	

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<a href="#">NBO.182</a>	Sargent, S. E. House	25 River St	Northborough	c 1898		
<a href="#">NBO.296</a>	Randlett, Nathaniel House	28-30 River St	Northborough	c 1885		
<a href="#">NBO.297</a>	Randlett, Nathaniel House	32 River St	Northborough	c 1885		
<a href="#">NBO.298</a>	Randlett, Nathaniel House	34 River St	Northborough	c 1885		
<a href="#">NBO.299</a>	Tyler, Emily O. House	36 River St	Northborough	c 1890		
<a href="#">NBO.300</a>		37 River St	Northborough	c 1910		
<a href="#">NBO.301</a>	Mosso, J. House	38-40 River St	Northborough	c 1890		
<a href="#">NBO.302</a>		42 River St	Northborough	c 1885		
<a href="#">NBO.901</a>	Route 9 Bridge over Route 20	Rt 9	Northborough	1930		
<a href="#">NBO.87</a>	Northborough Second Center District School	10 School St	Northborough	1837		
<a href="#">NBO.303</a>	Sargent, George F. House	16 School St	Northborough	c 1880		
<a href="#">NBO.183</a>	Randlett, Nathaniel - Holden, L. C. House	31 School St	Northborough	1854		
<a href="#">NBO.331</a>		33 School St	Northborough	c 1900		
<a href="#">NBO.304</a>	Gay, Frank V. House	36 School St	Northborough	c 1895		
<a href="#">NBO.305</a>	Parmenter, Edwin Solon House	39 School St	Northborough	1886		

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<a href="#">NBO.306</a>	Mentzer, Cyrus Hartwell House	40 School St	Northborough	1900		
<a href="#">NBO.307</a>	Coburn, Alvah - England, Harry J. House	44 School St	Northborough	c 1898		
<a href="#">NBO.332</a>		47 School St	Northborough	c 1920		
<a href="#">NBO.308</a>	Brigham, Charles Montford House	48 School St	Northborough	c 1898		
<a href="#">NBO.309</a>	Blair, Edwin C. - Brennan, James D. House	50 School St	Northborough	1899		
<a href="#">NBO.184</a>	Gale, Cyrus Double House	51-53 School St	Northborough	c 1855		
<a href="#">NBO.310</a>	Crouse, William J. House	55 School St	Northborough	c 1885		
<a href="#">NBO.333</a>		56 School St	Northborough	c 1900		
<a href="#">NBO.311</a>	Gale, Cyrus House	71 School St	Northborough	c 1860		
<a href="#">NBO.185</a>	Howe, H. House	130 School St	Northborough	c 1830		
<a href="#">NBO.186</a>	Sherman, S. House	284 School St	Northborough	c 1830		
<a href="#">NBO.187</a>	Howe, Silas House	3 Silas Dr	Northborough	c 1844		
<a href="#">NBO.920</a>	Assabet Park	South St	Northborough	c 1916		
<a href="#">NBO.312</a>	Bigelow, Walter J. Hardware Store	17 South St	Northborough	1907		
<a href="#">NBO.188</a>	Jerauld, S. House	19 South St	Northborough	c 1855		

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<a href="#">NBO.189</a>	Rice, M. L. House	24 South St	Northborough	c 1855		
<a href="#">NBO.190</a>	Johnson, Dr. Joshua J. House	28 South St	Northborough	c 1855		
<a href="#">NBO.314</a>	Brigham, Nathaniel House	49 South St	Northborough	c 1853		
<a href="#">NBO.191</a>	Streeter, V. House	79 South St	Northborough	c 1855		
<a href="#">NBO.315</a>	Barnes, George House	120 South St	Northborough	c 1890		
<a href="#">NBO.316</a>	Phelps, Allyn D. House	129 South St	Northborough	c 1900		
<a href="#">NBO.192</a>	Mason, Thaddeus - Barnes, George House	130 South St	Northborough	c 1830		
<a href="#">NBO.317</a>	Burgoyne, George H. House	157 South St	Northborough	c 1890		
<a href="#">NBO.193</a>	Carruth, Horatio T. House	191 South St	Northborough	c 1839		
<a href="#">NBO.194</a>	Maynard, W. House	206 South St	Northborough	1755		
<a href="#">NBO.195</a>	Wise House	270 South St	Northborough	c 1800		
<a href="#">NBO.196</a>	Davis, George C. House	284 South St	Northborough	c 1855		
<a href="#">NBO.197</a>	Crosby, Isaac House	312 South St	Northborough	c 1830		
<a href="#">NBO.318</a>	Cook, Maria Elizabeth House	5 Summer St	Northborough	c 1890		
<a href="#">NBO.319</a>	Cook, Maria Elizabeth House	7-9 Summer St	Northborough	c 1890		

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<a href="#">NBO.334</a>		10 Summer St	Northborough	c 1900	
<a href="#">NBO.335</a>		14 Summer St	Northborough	c 1900	
<a href="#">NBO.198</a>	Newton, Richard W. House	15 Summer St	Northborough	c 1855	
<a href="#">NBO.199</a>	Gale, Cyrus House	20 Summer St	Northborough	c 1860	
<a href="#">NBO.320</a>	Hastings, Elijah S. House	23 Summer St	Northborough	c 1865	
<a href="#">NBO.107</a>	Crawford, J. B. House	25 Summer St	Northborough	c 1830	
<a href="#">NBO.321</a>	McCool, Samuel L. House	26 Summer St	Northborough	1898	
<a href="#">NBO.200</a>	Brewer, J. H. House	29 Summer St	Northborough	c 1855	
<a href="#">NBO.336</a>		37 Summer St	Northborough	c 1925	
<a href="#">NBO.322</a>	Potter, William J. House	45 Summer St	Northborough	1884	
<a href="#">NBO.323</a>	Potter, Cyrus House	53 Summer St	Northborough	c 1860	
<a href="#">NBO.337</a>		63 Summer St	Northborough	c 1880	
<a href="#">NBO.324</a>	Richardson, Samuel S. House	67 Summer St	Northborough	c 1890	
<a href="#">NBO.105</a>	Bemis, Elijah House	33 Talbot Rd	Northborough	c 1830	
<a href="#">NBO.201</a>	Lincoln, Jairus House	2 Tricorner Cir	Northborough	c 1870	

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<a href="#">NBO.904</a>	Wachusett Aqueduct	Wachusett Aqueduct	Northborough	1896	
<a href="#">NBO.202</a>	Babcock, William House	119 Washburn St	Northborough	c 1752	
<a href="#">NBO.203</a>		4 West Main St	Northborough	1985	
<a href="#">NBO.204</a>	Old Lowe's Market	25 West Main St	Northborough	1870	
<a href="#">NBO.205</a>	Guptil, Dr. Ira C. House	39 West Main St	Northborough	c 1898	
<a href="#">NBO.206</a>	Walker's Market	40 West Main St	Northborough	c 1920	
<a href="#">NBO.207</a>		44 West Main St	Northborough	c 1916	
<a href="#">NBO.60</a>	Bush, Warren T. - Marcou House	51 West Main St	Northborough	r 1865	
<a href="#">NBO.208</a>	Fiske, Horace S. House	65 West Main St	Northborough	c 1855	
<a href="#">NBO.209</a>		78 West Main St	Northborough	c 1900	
<a href="#">NBO.325</a>	Warren, Henry G. House	214 West Main St	Northborough	c 1905	
<a href="#">NBO.210</a>	Maynard House	222 West Main St	Northborough	c 1760	
<a href="#">NBO.211</a>	Brigham, J. House	422 West Main St	Northborough	c 1760	
<a href="#">NBO.212</a>	Eager, Col. W. House	455 West Main St	Northborough	c 1830	
<a href="#">NBO.326</a>	Maynard, William U. Barn	536 West Main St	Northborough	c 1870	

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<a href="#">NBO.902</a>	Whitney Street Bridge over Connal	Whitney St	Northborough	c 1905		
<a href="#">NBO.65</a>	Gibson, Samuel House	2 Whitney St	Northborough	c 1840		
<a href="#">NBO.66</a>	Carron House	12 Whitney St	Northborough	c 1887		
<a href="#">NBO.78</a>	Bush, W. House	23 Whitney St	Northborough	c 1840	<b>SR</b>	
<a href="#">NBO.79</a>	Bush, Wilder Barn	25 Whitney St	Northborough	c 1850	<b>SR</b>	
<a href="#">NBO.80</a>	Bush, Wilder House	27-29 Whitney St	Northborough	c 1850	<b>SR</b>	
<a href="#">NBO.81</a>	Bush, Wilder M. House	35 Whitney St	Northborough	c 1750	<b>SR</b>	
<a href="#">NBO.213</a>	Bush, Warren T. House	61-63 Whitney St	Northborough	c 1855		
<a href="#">NBO.30</a>	Whitney, Peter Parsonage	62 Whitney St	Northborough	c 1780	<b>SR</b>	
<a href="#">NBO.214</a>	Maynard, J. House	89 Whitney St	Northborough	c 1855		
<a href="#">NBO.215</a>	Fairbanks, Joseph House	96 Whitney St	Northborough	c 1831		
<a href="#">NBO.216</a>	Gallop, J. B. House	102 Whitney St	Northborough	c 1855		
<a href="#">NBO.217</a>	Sever, J. M. House	109 Whitney St	Northborough	c 1816		
<a href="#">NBO.218</a>	Sever, J. F. House	113 Whitney St	Northborough	c 1770		
<a href="#">NBO.219</a>	Carruth, Horatio T. House	154 Whitney St	Northborough	c 1837		

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<a href="#">NBO.220</a>	North District #2 Schoolhouse	192 Whitney St	Northborough	1792		
<a href="#">NBO.327</a>	Corey, Edwin S. House	220 Whitney St	Northborough	1884		
<a href="#">NBO.328</a>	Corey, Theodore F. House	234 Whitney St	Northborough	c 1875		
<a href="#">NBO.34</a>	North District #3 Schoolhouse	310 Whitney St	Northborough	c 1841		
<a href="#">NBO.329</a>	Goddard, Solomon House - Maplewood Farm	347 Whitney St	Northborough	c 1750		
<a href="#">NBO.56</a>	Goddard, William House	450 Whitney St	Northborough	1726		
<a href="#">NBO.330</a>	Cook, Elizabeth Maria House	10 Winn St	Northborough	c 1890		
<a href="#">NBO.221</a>	Potter, J. House	41 Winter St	Northborough	c 1816		
<a href="#">NBO.222</a>	Mahan House	46 Winter St	Northborough	c 1855		
<a href="#">NBO.223</a>	Cutter, Silas A. House	55 Winter St	Northborough	c 1760		

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