Onsite Engineering, Inc.

Water, Wastewater and Stormwater Specialists

New Source Approval <70 gpm

BRP WS 13 - Exploratory Phase, Site Examination, Land Use Survey and Approval to Conduct Pumping Test

for

off Pond Street
Shinglemill Development
Rockland, Massachusetts

Prepared by:

Onsite Engineering, Inc.
279 West Central Street
PMB 241
Franklin, MA 02038

August 2019

Project Number: 01507

Onsite Engineering, Inc.

Water, Wastewater and Stormwater Specialists

August 28, 2019

Mr. Richard Rondeau, DWP Chief
Massachusetts Department of Environmental Protection
Southeast Regional Office
20 Riverside Drive
Lakeville, MA 02347

Re: off Pond Street, Rockland – Shinglemill Development
BRP WS 13 – Approval to Site and Conduct a Pumping Test for a Source less than 70 Gallons per Minute
MassDEP Transmittal #: X283798

Dear Mr. Rondeau:

Please find enclosed the transmittal, permit application, and supporting documentation for BRP WS 13 – "Approval to Site and Conduct a Pumping Test for a Source less than 70 Gallons per Minute" for three (3) new bedrock wells at the proposed Pond Street Multifamily Residential Development located in Rockland, Massachusetts.

We trust that the enclosed information satisfies the submittal requirements for BRP WS 13. If you have any questions or require any additional information, please feel free to contact us.

Sincerely,

Onsite Engineering, Inc.

Susan Hunnewell

Susan Hunnewell, P.E.
Vice President – Director of Water Engineering

cc: Mr. Rick Lincoln – Coneco Realty, LLC

Enter your transmittal number → X283798 (Transmittal Number)

Your unique Transmittal Number can be accessed online: http://mass.gov/dep/service/online/trasmfrm.shtml

Massachusetts Department of Environmental Protection

Transmittal Form for Permit Application and Payment

1. Please type or print. A separate Transmittal Form must be completed for each permit application.

2. Make your check payable to the Commonwealth of Massachusetts and mail it with a copy of this form to: DEP, P.O. Box 4062, Boston, MA 02211.

3. Three copies of this form will be needed.

Copy 1 - the original must accompany your permit application. **Copy 2** must accompany your fee payment. **Copy 3** should be retained for your records

4. Both fee-paying and exempt applicants must mail a copy of this transmittal form to:

MassDEP
P.O. Box 4062
Boston, MA
02211

*** Note:**
For BWSC Permits, enter the LSP.

A. Permit Information

BRP WS 13 — 1. Permit Code: 4 to 7 character code from permit instructions
New Source Approvals < 70 gpm — 2. Name of Permit Category
Exploratory Phase, Site Examination, Land Use Survey and Approval to Conduct Pumping Test — 3. Type of Project or Activity

B. Applicant Information – Firm or Individual

Shinglemill LLC, c/o Coneco Building, LLC — 1. Name of Firm - Or, if party needing this approval is an individual enter name below:

2. Last Name of Individual | 3. First Name of Individual | 4. MI

4 First Street — 5. Street Address

6. City/Town	7. State	8. Zip Code	9. Telephone #	10. Ext. #
Bridgewater	MA	02324	508-279-0067	

Mr. Rick Lincoln — 11. Contact Person
rlincoln@coneco.com — 12. e-mail address

C. Facility, Site or Individual Requiring Approval

Shinglemill — 1. Name of Facility, Site Or Individual
off Pond Street — 2. Street Address

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #
Rockland	MA	02370		

8. DEP Facility Number (if Known)	9. Federal I.D. Number (if Known)	10. BWSC Tracking # (if Known)

D. Application Prepared by (if different from Section B)*

Onsite Engineering, Inc. — 1. Name of Firm Or Individual
279 East Central Street, PMB 241 — 2. Address

3. City/Town	4. State	5. Zip Code	6. Telephone #	7. Ext. #
Franklin	MA	02038	978-660-2752	

Susan Hunnewell, P.E. — 8. Contact Person
9. LSP Number (BWSC Permits only)

E. Permit - Project Coordination

1. Is this project subject to MEPA review? ☐ yes ☒ no
If yes, enter the project's EOEA file number - assigned when an Environmental Notification Form is submitted to the MEPA unit:

EOEA File Number

F. Amount Due

DEP Use Only

Permit No:

Rec'd Date:

Reviewer:

Special Provisions:

1. ☐ **Fee** Exempt (city, town or municipal housing authority)(state agency if fee is $100 or less).
There are no fee exemptions for BWSC permits, regardless of applicant status.
2. ☐ Hardship Request - payment extensions according to 310 CMR 4.04(3)(c).
3. ☐ Alternative Schedule Project (according to 310 CMR 4.05 and 4.10).
4. ☐ Homeowner (according to 310 CMR 4.02).

Check Number	Dollar Amount	Date
10018	$1,380	8/2/19

Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Drinking Water Program

BRP WS Application

For Drinking Water Program (Water Supply) Permits or Approvals

X283798
Transmittal Number

Facility ID# (if known)

A. Application

1. Is this application for ☒ an Original or ☐ a Resubmittal?

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.

2. Applicant:

Name			Address	
Shinglemill LLC, c/o Coneco Building, LLC			4 First Street	
City	**State**	**Zip**	**Contact**	**Telephone**
Bridgewater	MA	02324	Mr. Rick Lincoln	508-279-0067

3. Consultant:

Name			Address	
Onsite Engineering, Inc.			279 East Central Street, PMB 241	
City	**State**	**Zip**	**Contact**	**Telephone**
Franklin	MA	02038	Susan Hunnewell, P.E.	978-660-2752

B. Permit

Please check the permit or approval for which you are applying:

Zone II Determination for Existing Sources
- ☐ BRP WS 07 Approval to Conduct Pump Test for Zone II Delineation
- ☐ BRP WS 08 Approval of Zone II Delineation

New Technology
- ☐ BRP WS 11 Minor New Technology Approval; where no field test required
  - ☐ Drinking Water Additive
  - ☐ Cross Connection Device
  - ☐ Water Vending Machine
  - ☐ Other (specify):
- ☐ BRP WS 12 Major New Technology Approval: where field testing is required
- ☐ BRP WS 27 New Technology with Third-party Approval
- ☐ BRP WS 28 Vending Site/Source Prototype
- ☐ BRP WS 31 Vending and POU/POE Devices with Third-party Approval

New Source Approvals <70 gpm
- ☒ BRP WS 13 Exploratory Phase, Site Examination, Land Use Survey and Approval to Conduct Pumping Test
- ☐ BRP WS 15 Pumping Test Report Approval and Approval to Construct Source
- ☐ BRP WS 37 Approval of Transient Non-Community Source Less than 7 Gallons per Minute (combines BRP WS 13 and BRP WS 15 submittals)

New Source Approvals = or > 70 gpm
- ☐ BRP WS 17 Exploratory Phase, Site Examination, Land Use Survey, and Conduct Pumping Test
- ☐ BRP WS 19 Pumping Test Report Approval
- ☐ BRP WS 20 To Construct Source

Water Treatment Approvals
- ☐ BRP WS 21A To Conduct Pilot Study < 40,000 gpd
- ☐ BRP WS 21B To Conduct Pilot Study = or > 40,000 gpd and < 200,000 gpd
- ☐ BRP WS 21C To Conduct Pilot Study = or > 200,000 gpd and < 1 mgd
- ☐ BRP WS 21D To Conduct Pilot Study = or > 1 mgd
- ☐ BRP WS 22A Pilot Study Report < 40,000 gpd
- ☐ BRP WS 22B Pilot Study Report = or > 40,000 gpd and < 200,000 gpd
- ☐ BRP WS 22C Pilot Study Report = or > 200,000 gpd and < 1 mgd
- ☐ BRP WS 22D Pilot Study Report = or > 1 mgd
- ☐ BRP WS 23A To Construct Facility <40,000 gpd
- ☐ BRP WS 23B To Construct Facility = or > 40,000 gpd and < 200,000 gpd
- ☐ BRP WS 23C To Construct Facility = or > 200,000 gpd and < 1 mgd
- ☐ BRP WS 24 To Construct Facility = or > 1 mgd
- ☐ BRP WS 25 Treatment Facility Modification
- ☐ BRP WS 29 Water Treatment: Chemical Addition Retrofits of Water Systems > 3,300 people
- ☐ BRP WS 30A Vending Installation Approval
- ☐ BRP WS 30B POU/POE Installation Approval
- ☐ BRP WS 34 Water Treatment: Chemical Addition Retrofits of Water Systems = or < 3,300 people
- ☐ BRP WS 35A Multiple Vending Installation Approval
- ☐ BRP WS 35B Multiple POU/POE Installation Approval

Water Quality Assurance
- ☐ BRP WS 26 Sale or Acquisition of Land for Water Source
- ☐ BRP WS 36 Abandonment of Water Source

Distribution System Modifications
- ☐ BRP WS 32 Systems > 3,300 people
- ☐ BRP WS 33 Systems = or < 3,300 people

Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Drinking Water Program

BRP WS Application

For Drinking Water Program (Water Supply) Permits or Approvals

X283798
Transmittal Number

Facility ID# (if known)

C. Certification

"I certify, under penalty of law, that this application and all attachments were prepared under my supervision, in accordance with a system designed to ensure 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 submitted in this application, the information submitted is, to the best of my knowledge and belief, true, accurate and complete."

Authorized Signature

8/27/19
Date

ROBERT K. LINCOLN
Print Name

MEMBER
Position/Title

Narrative

PROJECT NARRATIVE

INTRODUCTION

Shinglemill, LLC (Owner) represented by Coneco Realty, LLC (Representative) is currently looking to develop a new public water supply, including three (3) new six-inch diameter bedrock wells as part of its multifamily residential development project known as "Shinglemill," located on parcel 09-13 off Pond Street in Rockland, Massachusetts. The project includes construction of 236 rental units located in two buildings, and one 2,400 square-foot Community Building. This lot is previously undeveloped and all utilities, parking areas, access drives, landscaping, and other development appurtenances are newly proposed.

This project will include 25 percent of the units having long-term affordability restrictions, which classifies this project as a Chapter 40B affordable housing development. Under state statute Chapter 40B, the local Zoning Board of Appeals is allowed to approve this development under flexible rules, in order to maintain high standards in site and building design while limiting the cost of 20-25% of the constructed units. These developments are designed to enhance the quality of life for residents and the communities in which they reside.

Development of the site will include installation of a stormwater management system, sewer collection system (connected to the public sewer system), a new water supply and treatment system, and other required utilities. Fire protection will be provided by the Town of Rockland's public water system, but preliminary discussions with the Water Department indicate that capacity is not available from the Town system to support the domestic water needs of this new development. As such, we are proposing to locate three (3) new domestic water bedrock wells, as shown on Figure No. 1 – Locus Map and the attached Site Plan. These wells have been designed to meet Zone I wellhead protection criteria and to supply the projected water demands of the new residential development.

PROJECT SITE DESCRIPTION

The proposed development project will be sited on the 28.64 acre parcel (parcel ID: 9-13-0), at 0 Pond Street. The proposed development will change the land use on approximately eight acres of this property from undeveloped forest and wetland to an apartment complex including 236 units, and 381 parking spaces, with approximately 20 acres continuing to be undisturbed and/or reserved for public water supply. The parcel is zoned as Industrial Park-Hotel District (H-1), according to the Town of Rockland Assessor's property record cards.

Land Use & Geology

The majority of the area surrounding the well site is forested wetlands with wooded deciduous and evergreen forest, located on floodplain alluvium and sand and gravel deposits, estimated to be between 0-50 feet deep. These wetlands appear to be part of a larger wetland and hydrologic system associated with the Hingham Street Reservoir. As shown on Figure No. 2 – Surficial Geology Map, the proposed wells are located outside the existing wetlands, but within the 100-foot wetland buffer zone. As shown on the Site Plan included herein, the development has been sited to avoid direct

impact of the wetlands, however much of the proposed project is within 100 feet of the wetlands. As such, approval to proceed with the proposed project will be sought from the Rockland Conservation Commission for proposed disturbances within their jurisdiction. Best management practices will be taken during the pump testing of the bedrock wells to minimize impacts to the resource areas, and monitoring of the surrounding wetlands will take place throughout the pumping test.

As shown on Figure No. 5: Land Use Map, in addition to wetlands and forested areas, which make up the majority of the area within ½ mile of the proposed wells, there are approximately 77 acres of residential land use; 74 acres of industrial land use; 41 acres of open water; 40 acres of land used for commercial development; and 16 acres of multifamily residential. Other land uses within ½ mile of the proposed well are, urban public/ institutional, participation/ recreation, non-forested wetland, open land, and highway infrastructure. The proposed development will be sited primarily on open land.

Conservation

According to a search of MassGIS data, there are no Natural Heritage and Endangered Species Program (NHESP) Priority Habitat of Rare Species, Estimated Habitats of Rare Wildlife, Natural Communities or Areas of Critical Environmental Concern within ½ mile of the proposed wells. There is one NHESP Certified Vernal Pool, identified as a habitat of an obligate species, established January 4, 2017. See Figure No. 3: NHESP & ACEC Map.

As shown in Figure No. 4: Wetlands & ORW Map, the proposed development, new bedrock wells, and much of the area ½ mile from the proposed wells will be located within an area of Outstanding Resource Waters (ORW), classified as a Public Water Supply Contribution area. This ORW area is associated with the Zone A, Zone B, and Zone C of the Hingham Street Reservoir, as shown on Figure No. 1, Locus Map. The Hingham Street Reservoir is one of the principal public water supply sources for the Towns of Abington and Rockland. According to the Rockland Board of Health's FY19 records, all parcels within the proposed IWPAs are connected to the public water system for drinking water. There are three known irrigation wells within the proposed IWPAs located at 55, 153 and 249 Turner Road.

Potential Sources of Contamination

As shown on Figure No. 6: Potential Sources of Contamination & Flood Zones, there are two Activity and Use Limitation (AUL) sites within ½ mile of the proposed wells. These sites are known locations where oil and/or hazardous waste materials have been deposited. Both sites are located north of the well site, one located at 1149 Hingham Street and one located at 1 Pond Street. There are four facilities regulated by MassDEP's Bureau of Air and Waste due to their containing facilities with air operating permits, hazardous waste recyclers, hazardous waste treatment, storage and/or disposal facilities, large quantity generators of MA-regulated hazardous waste, or large quantity generators of EPA/RCRA-regulated hazardous waste. Approximately 1/3 mile east of the well site Airxchange, a manufacturer of energy recovery ventilation products is located. Approximately ½ mile east of the well site, Avedis Zildjian Co., a manufacturer of cymbals for drum kits, is located. Approximately ½

mile northeast of the well site is Audi Porsche of Norwell, a dealer and service facility for motor vehicles, is located. Approximately ½ mile northwest of the well site, 3M, a manufacturer of commercial cleaning and office products, is located.

As shown on Figure No. 6: Potential Sources of Contamination & Flood Zones, there is one water body within ½ mile of the proposed wells on the Massachusetts Integrated List of Impaired Waters, as of MassDEP's 2012 publication. Acorn Pond, located approximately ½ mile from the proposed well site is classified as a Category 3 impaired waterway. As of the mapping, there was insufficient information to make assessments for any water uses.

Also shown on Figure No. 6: Potential Sources of Contamination & Flood Zones, the proposed well is not located within a FEMA flood zone, and therefore is not likely to experience contamination due to flooding.

According to the Rockland Board of Health's FY19 records, there are no private onsite sewage disposal systems located within the proposed IWPAs of the wells, as all homes and facilities in this area are connected to the public sewer.

See site features depicted on Figure Nos. 1 through 6 located in Attachment B.

PROPOSED WATER SUPPLY DESCRIPTION

The proposed water supply will be a community public water supply comprised of three (3) new bedrock wells working in tandem to meet the domestic water demands of the proposed residential housing development. Water demands for the development were estimated based on the expected occupancy of the studios, and one, two, and three bedroom housing units proposed. Preliminary calculations for projected domestic water demands in gallons per day (gpd) are as follows:

3BR - 24 units @ 2.58 persons/unit = 62 persons*
2BR - 83 units @ 2.58 persons/unit = 214 persons*
1BR - 81 units @ 2 persons/unit = 162 persons
Studio - 48 units @ 1 person/unit = 48 persons

Total anticipated occupancy = 486 persons

*Per capita projected water demand ≈ 65 gallons/person/day***

*Projected domestic water demand = 486 persons * 65 gpcd = 31,590 gpd ≈ 32,000 gpd*

* *2.58 person household size based on the most recent census data from the Town of Rockland*
** *65 gpcd based on per capita water demand projections from MassDEP*

The proposed development will connect to the public sewer system, requiring no onsite wastewater disposal system. The Town of Rockland will also supply public water for fire protection. No irrigation use is anticipated from the proposed public water supply wells. Discharges from any stormwater management system will be directed outside the wellhead protection areas. The Shinglemill development will be required to supply, treat, and maintain its own domestic water system.

As the new bedrock wells are proposed sources producing less than 70 gpm, test wells were not required to be drilled. Two of the three permanent bedrock wells have been constructed and developed as described herein, and as detailed in the Well Completion Reports included in Attachment C. Based on the rated withdrawal rates and locations of the proposed Zone I radii of the installed wells, it was determined that a third well will be required to adequately meet projected water demands of the residential development. Upon MassDEP's approval of this BRP WS 13 application, construction of Well No. 3 will commence, located as shown on the Site Plan included in Attachment A, and will be consistent with the construction of Well Nos. 1 and 2.

Following construction of Well Nos. 1 and 2, preliminary samples were taken from Well No. 1 and tested for water quality parameters in accordance with the Guidelines. These preliminary water quality test results have been included in Attachment D and discussed herein.

Well Construction

The two installed new bedrock wells were constructed on April 1-11, 2019 by Skillings & Sons, Inc. (Skillings) of Amherst, New Hampshire. The wells are both 6-inch diameter bedrock wells installed by air hammer drilling. Well No. 1 was located at 42.16115° N latitude 70.89523° W longitude with an approximate elevation of 137 feet, see Figure No. 1, Locus Map. Well No. 1 was constructed to a depth of 600 feet below ground surface (bgs). A total of 100 feet of six-inch diameter schedule 40 steel casing was installed from 1.5 feet above grade to a depth of 98.5 feet bgs. Overburden was encountered from 0 to 55 feet bgs. The well casing was extended 43.5 feet into the bedrock (from 55 to 98.5 feet bgs), and was grouted in place using Portland Cement grout and sealed with sodium bentonite (BENSEAL®). The grouting was extended in excess of the minimum of 15 feet into the bedrock, and meets the material and construction standards for grouting as required under Section 4.20.3 of the Guidelines.

One water bearing zone was encountered in Well No. 1 between 140 and 160 feet bgs with an approximated rate of 15 gpm. The yield of the well was estimated to be approximately 15 gpm and the static water level was measured at 40 feet bgs. The MassDEP Well Completion Report, documenting construction of the Well No. 1, is located in Attachment C.

Well No. 2 located at 42.16111° N latitude 70.89523° W longitude with an approximate elevation of 137 feet, see Figure No. 1, Locus Map. Well No. 2 was constructed to a depth of 800 feet bgs. A total of 120 feet of six-inch diameter schedule 40 steel casing was installed from 1.5 feet above grade to a depth of 118.5 feet bgs. A total of 70 feet of secondary 8-inch diameter schedule 40 steel casing was installed from 1.5 feet above grade to a depth of 68.5 feet bgs. Overburden was encountered from 0 to 47 feet bgs. The 8-inch and 6-inch well casings were extended 21.5 feet and 71.5 feet,

respectively, into the bedrock (from 47 to 68.5 feet bgs and 47 to 118.5 feet bgs). Both were grouted in place using Portland Cement grout and sealed with sodium bentonite (BENSEAL®). The grouting of both casings was extended in excess of the minimum of 15 feet into the bedrock, and meets the material and construction standards for grouting as required under Section 4.20.3 of the Guidelines.

Water bearing zones in the bedrock were encountered in Well No. 2 between 467 and 468 feet bgs with an approximated rate of 4 gpm; and between 582 and 584 feet bgs with approximated rate of 6 gpm. The yield of Well No. 2 was estimated to be approximately 10 gpm and the static water level was measured at 40 feet bgs. The MassDEP Well Completion Report, documenting construction of the Well No. 2, is located in Attachment C.

In order to maximize the approvable yield of the wells, we propose pumping Well No. 1 at a rate of 20 gpm, 133-1/3% of the rated pumping rate of 15 gpm, and Well No. 2 at a rate of 13 gpm, 133-1/3% of the target yield of 10 gpm. We additionally propose pumping future Well No. 3 at a rate of 20 gpm, 133-1/3% of the targeted pumping rate of 15 gpm, contingent upon the well rating, following construction. An approvable pumping rate of 15 gpm would require Zone I radii of 300 feet and IWPAs of 880 feet for Well Nos. 1 & 3. An approvable pumping rate of 10 gpm would require a Zone I radius of 274 feet and an IWPA of 720 feet for Well No. 2. Step-drawdown tests will be conducted on each well as required by MassDEP. The initial pumping rates of the proposed bedrock wells will be adjusted as needed during the pumping test, and in accordance with the Guidelines, to meet all stabilization criterion.

As shown on the Site Plan enclosed, the proposed wells have been located such that the Zone I radii will be located entirely on parcel 09-13. The Zone Is will almost exclusively be located within undisturbed areas of the parcel. Currently, the Site Plan enclosed shows the Zone Is extending into the parking area for the development. Should the approvable pumping rates establish Zone I protective radii that extend into the parking area, the parking lot plan will be modified to remove parking of vehicles from this area. Access to the wells will be restricted and the owner will be responsible for prohibiting any non-compliant land uses within the wellhead protection areas.

Preliminary Pumping

On April 2, 2019, Skillings furnished and installed a well pump in Well No. 1 which was set at 600 feet btoc. Well No. 1 was pumped for approximately 30 minutes at a rate of 15 gpm. Preliminary water quality samples were collected on April 4, 2019 at 10:00 am and delivered to Con-test Analytical Laboratory of East Longmeadow Massachusetts, a Massachusetts state-certified laboratory, for analysis. The preliminary pumping samples showed iron and manganese in excess of their respective SMCLs and hardness which would require treatment. Additionally, dissolved arsenic was detected at a level of 1.1 ppb, below the MCL of 10 ppb. The following VOCs were also detected in the water sample, acetone, bromodichloromethane, chlorodibromomethane, chloroform, and chloromethane. It is likely these VOCs were present as a result of chlorination of the well as they are trihalomethanes, known disinfection byproducts.

The full report from the preliminary water quality testing is included in Attachment D.

Table No. 1
Preliminary Pumping Test
Well No. 1, Pond Street
Rockland, Massachusetts

Date, Time		Manganese (mg/L)	Iron (mg/L)	Hardness (mg/L)	Arsenic (mg/L)
MCL/SMCL/ORSG		0.05	0.3	>180 = v. hard	0.010
4/4/19, 10:00 am	Total	0.16	17	220	<0.0004
4/4/19, 10:00 am	Dissolved	0.025	1.8		0.0011

Treatment for removal of manganese, iron, and hardness is anticipated for the new bedrock wells. The location of the treatment equipment is yet to be determined but will be located such that it will only be accessible by authorized personnel and secured at all times. The treatment system design will be determined following the prolonged pumping test, based on water quality test results.

On April 11, 2019, Skillings furnished and installed a well pump in Well No. 2 which was set at a depth not recorded on the Well Completion Report. Well No. 2 was pumped for approximately 30 minutes at a rate of 10 gpm. Preliminary water quality samples were not collected from Well No. 2. Preliminary water quality samples will be collected from Well No. 2 upon completion of the step-drawdown test, as identified in Pumping Test Design.

Following installation, development, and step testing of Well No. 3, preliminary water quality samples will be taken from Well No. 3 and tested for drinking water contaminants.

PUMPING TEST DESIGN

The following outlines the proposed pumping test design for the new bedrock wells. The pumping test will be conducted in accordance with MassDEP Guidelines and as detailed below.

Prolonged Pumping Test

1. Upon receipt of an Order of Conditions (OoC) from the local Conservation Commission, all necessary environmental controls will be installed, which may include erosion control measures (silt fence, hay bales, straw wattles, compost sock, silt sack, etc.). A sedimentation basin of approved design and in an approved location, will be constructed outside the wetlands and Zone I radii, for use during well development and during the prolonged pumping test.

2. Upon receipt of a Notice to Proceed from the Engineer, the well driller will disinfect the bedrock wells. Well disinfection will be in accordance with industry standard practices and will be in accordance with MassDEP's Guidelines for Public Water Systems, all permit conditions of BRP

WS 13 and all conditions in the OoC issued by the local Conservation Commission. Following disinfection, the well driller will pump the wells sufficiently to eliminate chlorine residual.

3. The well driller will conduct step-drawdown tests on each of the wells in accordance with Chapter 4, Section 4.3.1.2.3.a.3 of the Guidelines. Step-drawdown tests shall be conducted on each well at 50, 100, 150 and 200% of the proposed pumping test rate, with each step sustained for a minimum of one hour. The data and information generated from the pumping test will be used to refine the proposed pumping rates such that stabilization criteria can be met. Initial water quality testing for secondary contaminants and VOCs will be collected at the conclusion of the step tests for Well Nos. 2 and 3.

4. The well driller will install three (3) nested staff gauges and piezometers, as shown on the attached Site Plan, to be monitored once daily for the 5 day period immediately preceding the start of the pumping test. Piezometers and staff gauges shall be monitored immediately preceding startup of the pumping test and immediately following startup of each well. Subsequently staff gauges and piezometers shall be measured twice per day throughout the pumping test, minimally. Piezometers and staff gauges will be monitored immediately preceding and following shutdown of each well, and twice per day thereafter for 5 days following the pumping test, or until recovery criteria has been met for each pumping well.

5. Static water levels in the production wells will be monitored at least twice daily (minimum 8 hour increments) for a 10 day period ending no more than 5 days prior to the start of the prolonged pumping test.

6. A flow measuring device capable of providing instantaneous flow measurements accurate to within +/-3% of the proposed pumping rate will be used during the pumping test. The pumping rates for each well shall be recorded individually every two hours throughout the pumping test. The pumping rate shall not fluctuate more than 25% during the initial 12 hours of the test or more than 10% during the final 36 hours of the pumping test.

7. Ambient precipitation and barometric pressure in the new bedrock wells, will be monitored 5 days prior to the startup of the pumping test minimally once per day.

8. A 48-hour prolonged pumping test will be conducted on each pumping well with a two-hour staggered start, for a total of 52 hours of continuous pumping. Well Nos. 1 and 3 will begin pumping each at a rate of 20 gpm, and Well No. 2 will begin pumping at a rate of 15 gpm. The proposed pumping rates will be 133-1/3% of the final approvable pumping rates for each well. The wells will begin pumping in numerical order starting with Well No. 1, followed two hours later by Well No. 2, followed two hours later by Well No. 3. All wells will pump together continuously for 48 hours. Pumping of all wells will be terminated simultaneously.

   Water level readings will be recorded manually and using a pre-programmed water level pressure transducers every 5 minutes for the first 2 hours; once per hour for the first 48 hours; and once every 6 hours thereafter for the remainder of the pumping test.

Adequate fuel and equipment will be provided to pump the bedrock wells continuously. Pumping shall not cease for the duration of the test. The pumping test may be extended, terminated early, and/or repeated as directed by the Engineer or MassDEP. Pumping shall continue until the Engineer grants approval to shut down the test.

9. Field-testing for pH, odor, specific conductance, carbon dioxide, and temperature will be conducted at the beginning, middle, and end of the pumping test. Water samples from the new bedrock well will be collected at the wellhead. Certified laboratory testing for total coliform bacteria shall be collected at the beginning and end of the test; radionuclides (including gross alpha, radium 226 & 228, uranium and radon) shall be collected at the end of the test; regulated and unregulated VOCs, SOCs, nitrate, nitrite, perchlorate and inorganic compounds (IOCs) will be collected at the end of the pumping test; secondary contaminants, carbon dioxide, and specific conductance shall be collected 1 hour after commencement of the pumping test, at the end of the pumping test. The well driller will perform sampling and testing in accordance with the Guidelines for Public Water Systems and Appendix A of the Guidelines.

   All water quality samples will be collected as close to the pump as feasible to minimize possible pipe contamination of the samples and will be transmitted to a Massachusetts certified laboratory for analysis using proper sampling and storage protocols keeping accurate chain-of-custody records. Upon completion of the sample analysis, results will be forwarded to MassDEP on MassDEP reporting forms as part of the BRP WS 15 application.

10. During the pumping test and recovery period, ambient precipitation will be monitored twice daily (minimum 8-hour increments). Barometric pressure will be measured daily throughout the pumping test to a sensitivity of +/- 0.01 inch of mercury.

11. After the first 24-hours of the pumping test, the driller will transmit the manually recorded drawdown measurements for the wells to the Engineer. The Engineer will analyze the data and assess whether stabilization criteria have been met, as stated in the Guidelines for Public Water Systems. If in the opinion of the Engineer all stabilization criterion have been met, the Engineer will request approval from MassDEP to shutdown the pumping test. The pumping test shall not be shut down until authorization from MassDEP and the Engineer has been received.

12. After obtaining approval from the Engineer to shut down the pumping test, the well driller will measure recovery water levels in the new bedrock wells manually and with a pre-programmed water level pressure transducer immediately following shutdown, once every 5 minutes for the first 2 hours; every 10 minutes for the next 100 minutes; and twice per day thereafter for at least as long as the pumping test was conducted. Water levels shall be measured until recovery criteria have been met. Manual measurements in lieu of automatic water level transducer measurements are acceptable, at the stated intervals.

13. The well driller has prepared Well Completion Reports for Well Nos. 1 & 2, copies of which are included herewith. The well driller will prepare and submit a Well Completion Report for Well No.

3 following construction. All three Well Completion Reports will be included in the submittal of a BRP WS 15 application.

14. A BRP WS 15: *Approval of Pumping Test Report and to Construct Source Less than 70 Gallons per Minute* permit application will be prepared following the pumping test. The BRP WS 15 application with supporting documentation will be submitted to MassDEP.

PUMPING TEST REPORT AND CONSTRUCTION OF SOURCE

Upon completion of the pumping test and compilation of the data, a MassDEP permit application BRP WS 15 – *Approval of Pumping Test Report and to Construct Source Less than 70 Gallons per Minute* will be filed. The permit application will include a summary of the results of the pumping test, as-built well construction logs, the Zone I map, and water quality analyses. The submittal will include detailed design plans and specifications for the construction of the permanent well and its connection to the domestic water system. The design and plans will be stamped by a registered professional engineer.

ATTACHMENT A

Site Plan with Zone Is

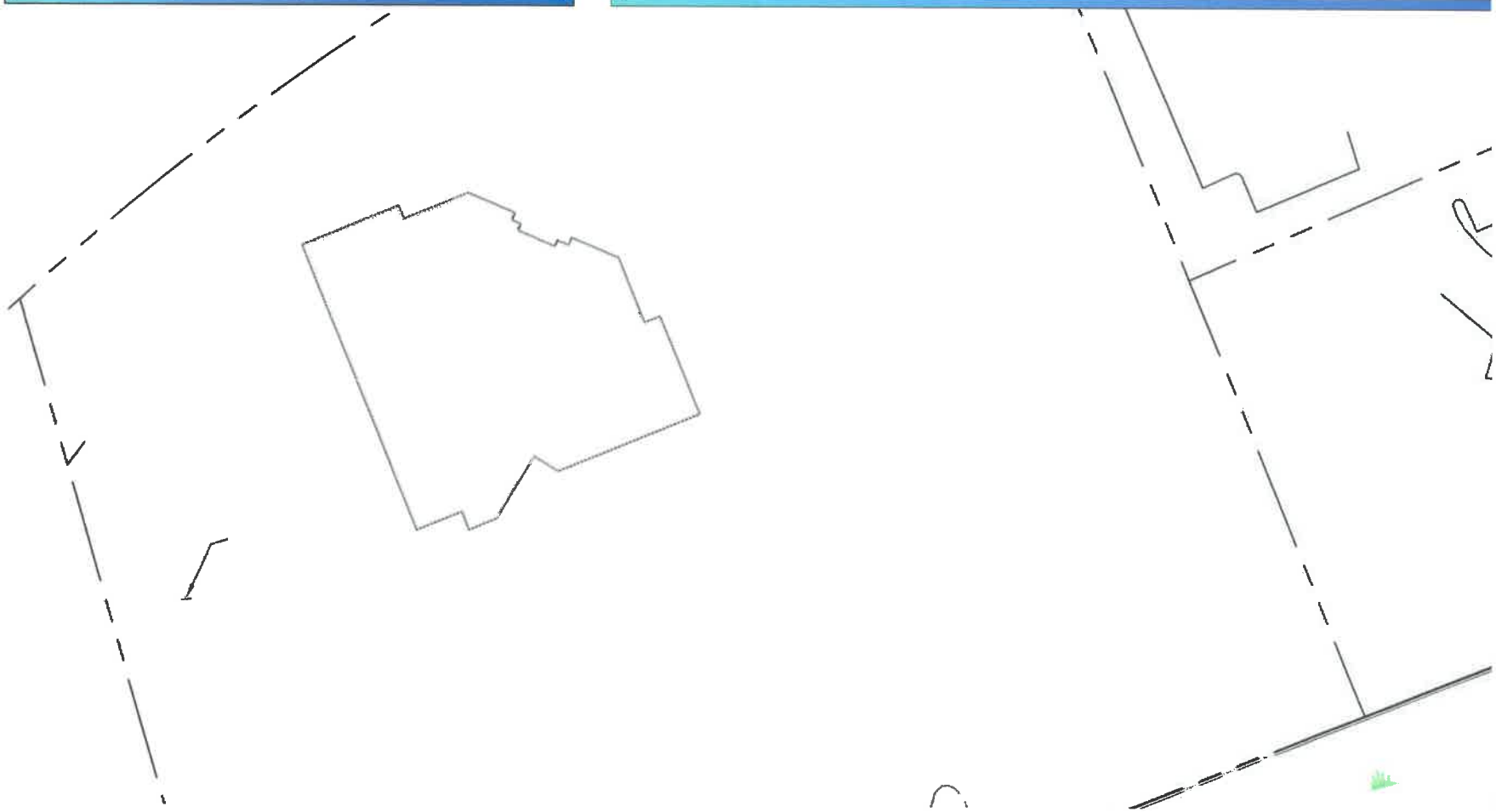
ONSITE
ENGINEERING
Water, Wastewater and Stormwater Specialists

279 East Central Street
Franklin, MA 02038

508-553-0616
www.onsite-eng.com

PROPOSED BEDROC
SITE OVERVIEW

NOT FOR CONSTRUC



ATTACHMENT B

Figure No. 1
Locus Map

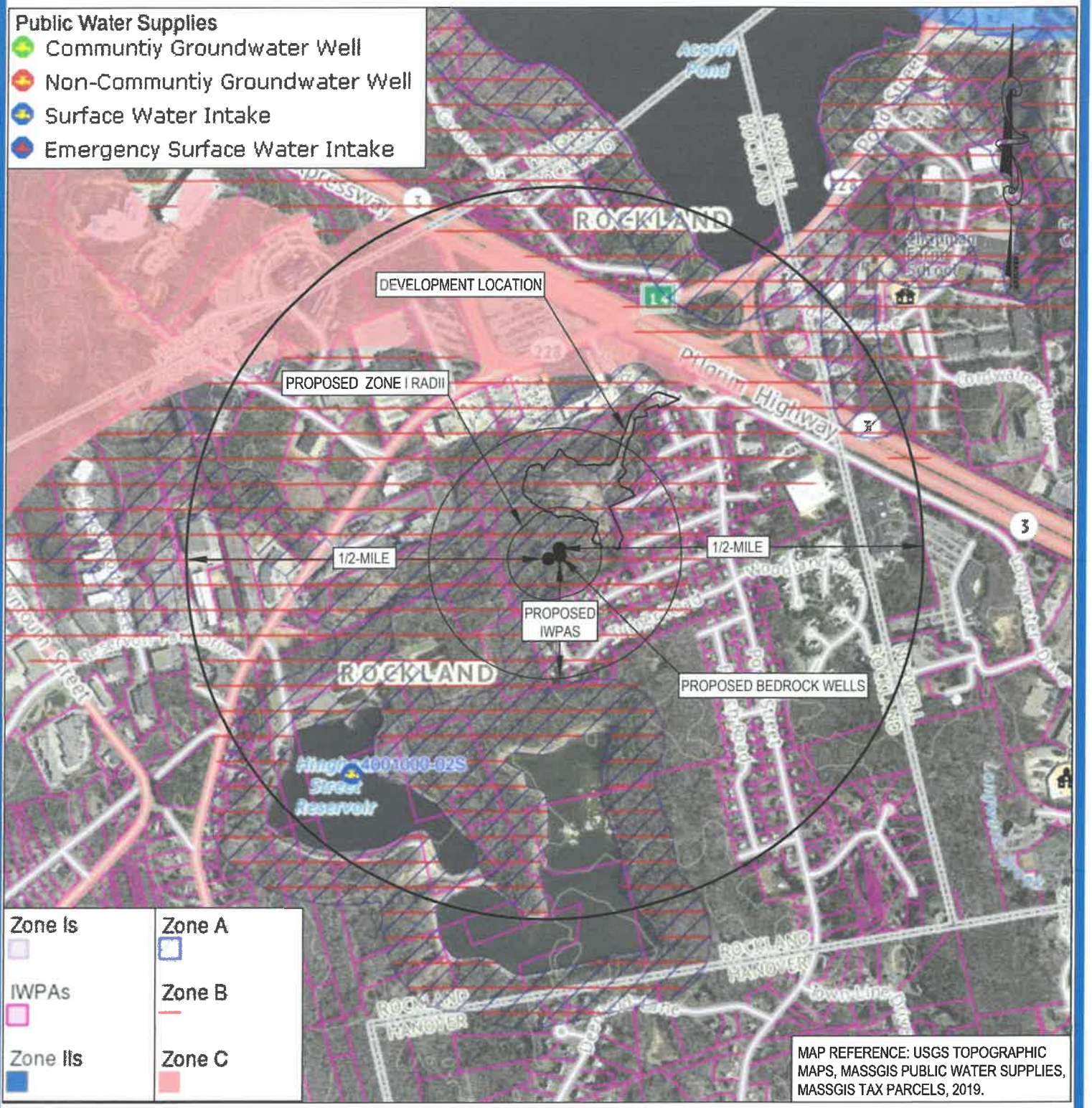
Figure No. 2
Surficial Geology Map

Figure No. 3
NHESP and ACEC Map

Figure No. 4
Wetlands & ORW Map

Figure No. 5
Land Use Map

Figure No. 6
Flood Zones &
Potential Contamination Sources



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508-553-0616
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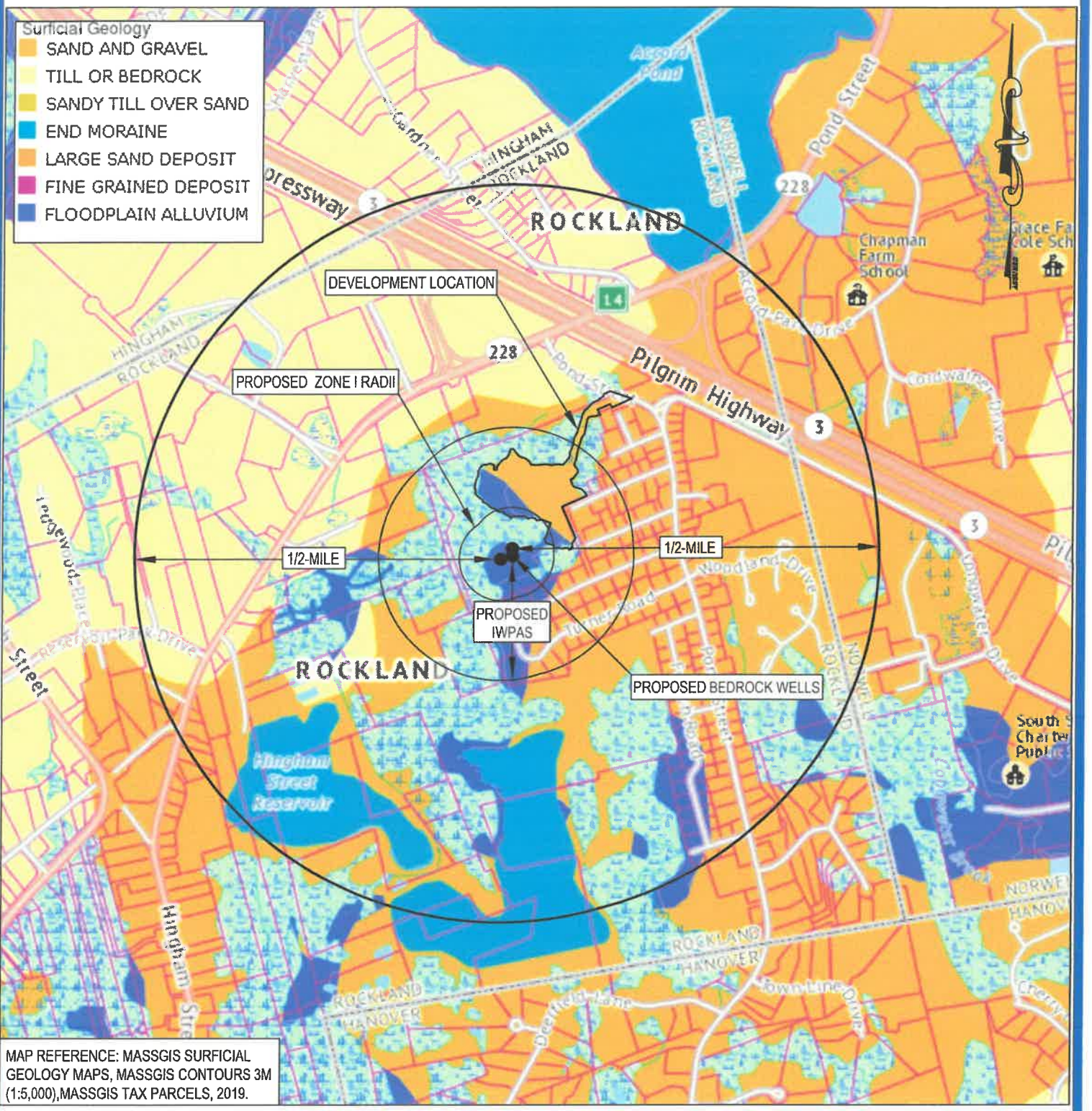
Locus Map

Pond Street Multifamily Residential Development
Rockland, Massachusetts
Proposed Bedrock Wells

FIGURE NO. 1

Project No.: 01507
Date: August 2019
Scale: 1"=1,000'



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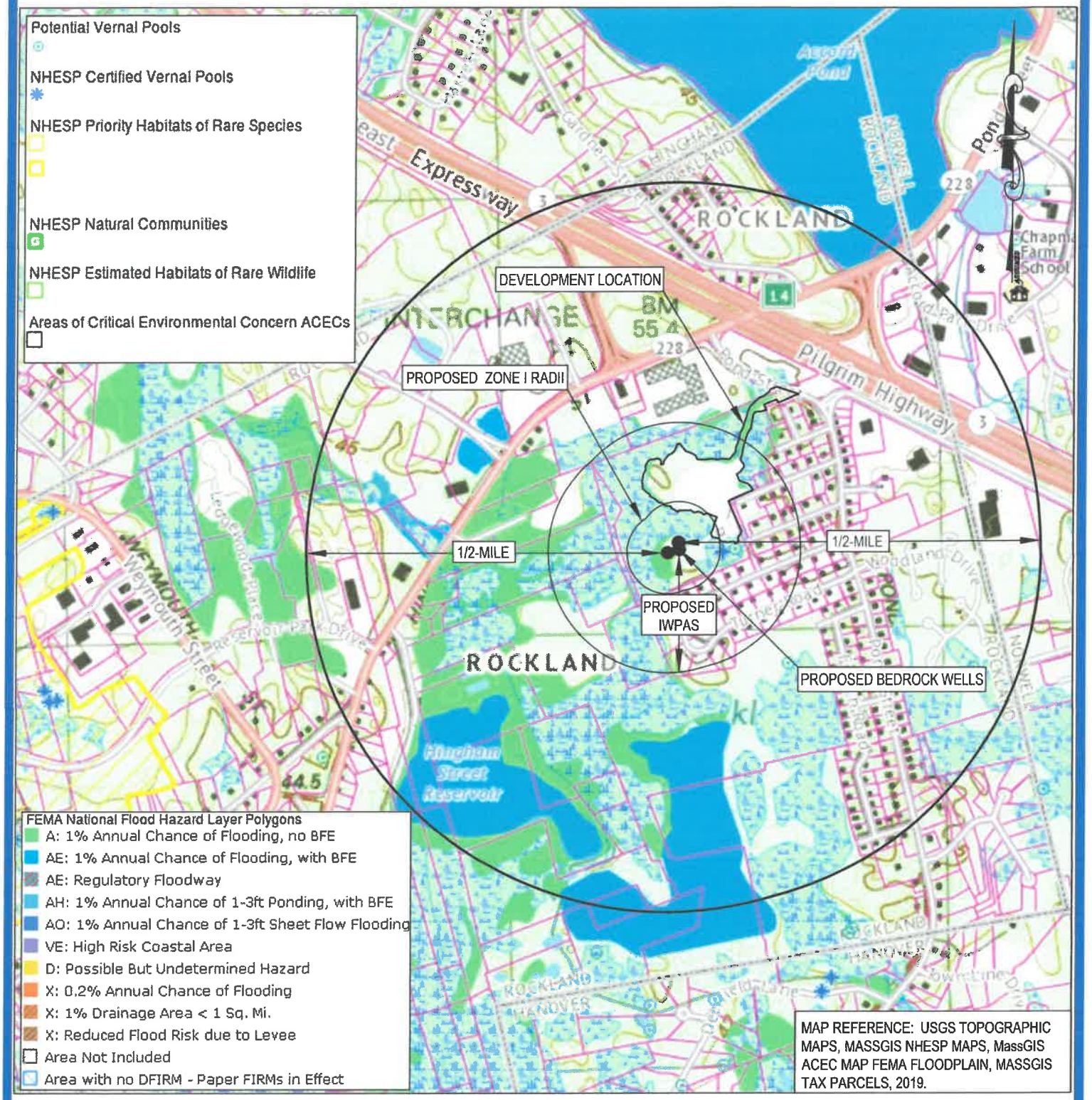
Franklin, MA 02038
508-553-0616
www.onsite-eng.com

Surficial Geology Map

Pond Street Multifamily Residential Development
Rockland, Massachusetts
Proposed Bedrock Wells

FIGURE NO. 2

Project No.: 01507
Date: August 2019
Scale: 1"=1,000'



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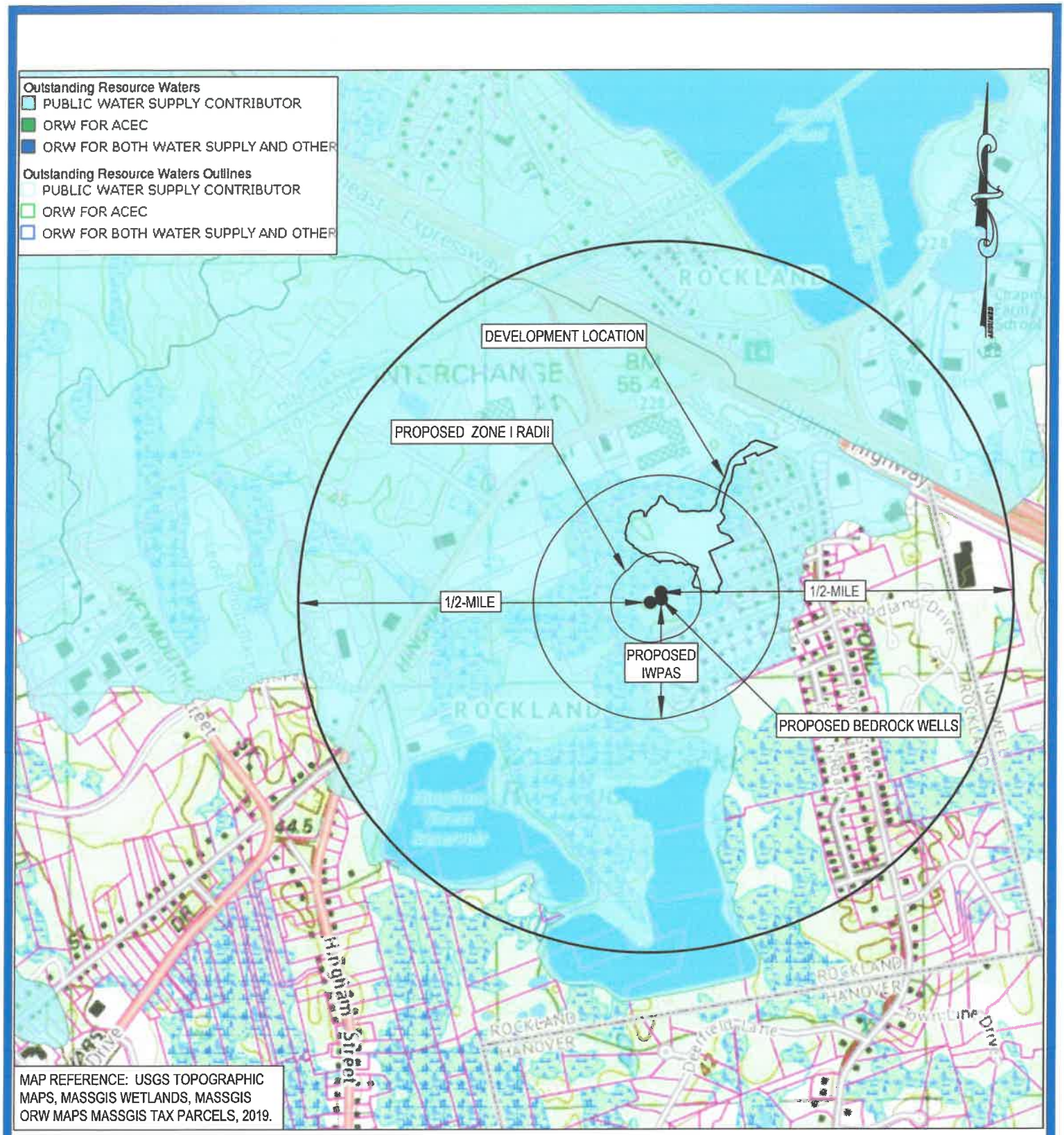
NHESP & ACEC MAP

Pond Street Multifamily Residential Development
Rockland, Massachusetts
Proposed Bedrock Wells

FIGURE NO. 3

Project No.: 01507
Date: August 2019
Scale: 1"=1,000'



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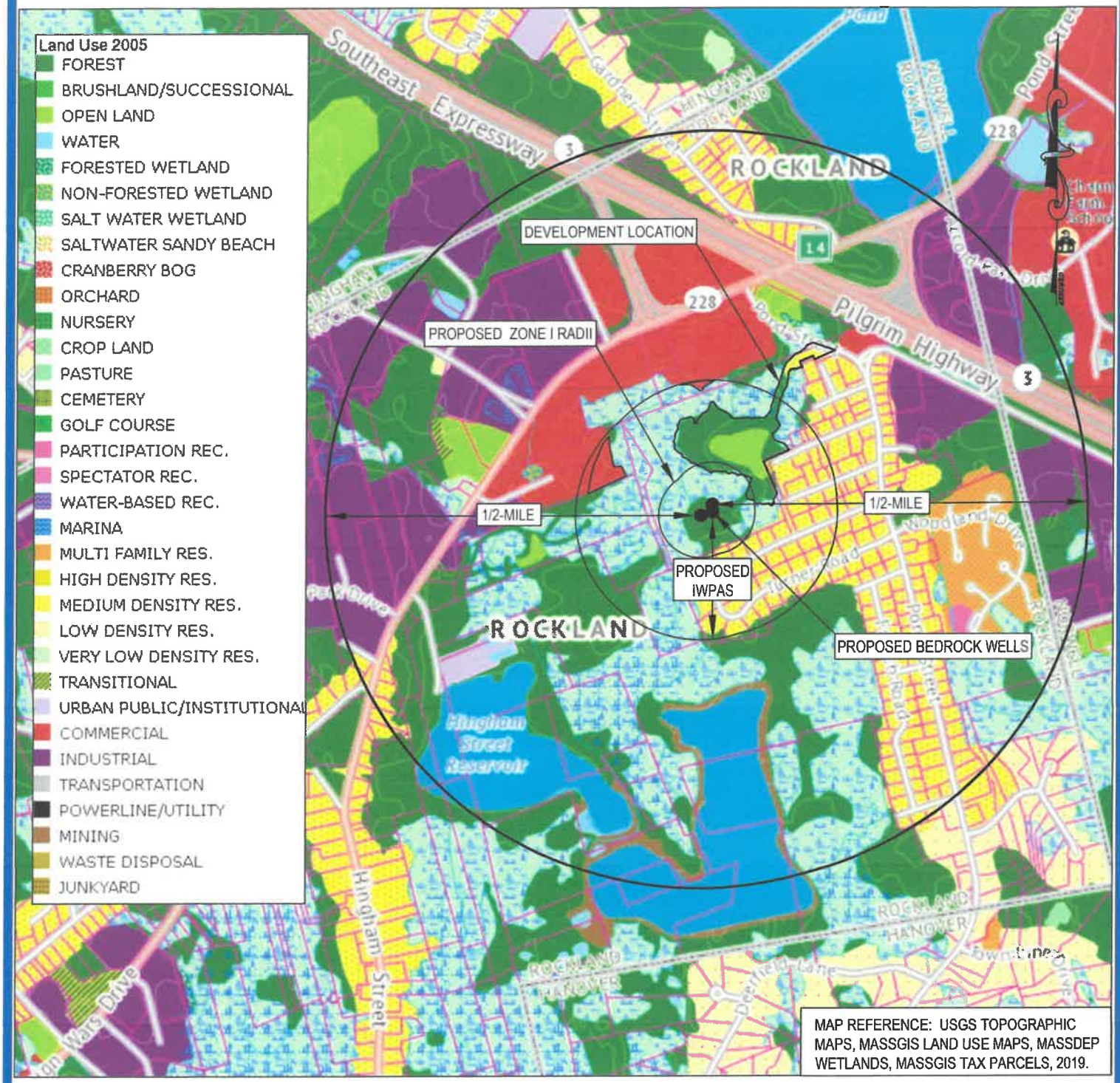
Water, Wastewater and Stormwater Specialists
279 East Central Street
Franklin, MA 02038
508-553-0616
www.onsite-eng.com

Wetlands & ORW MAP

Pond Street Multifamily Residential Development
Rockland, Massachusetts
Proposed Bedrock Wells

FIGURE NO. 4

Project No.: 01507
Date: August 2019
Scale: 1"=1,000'



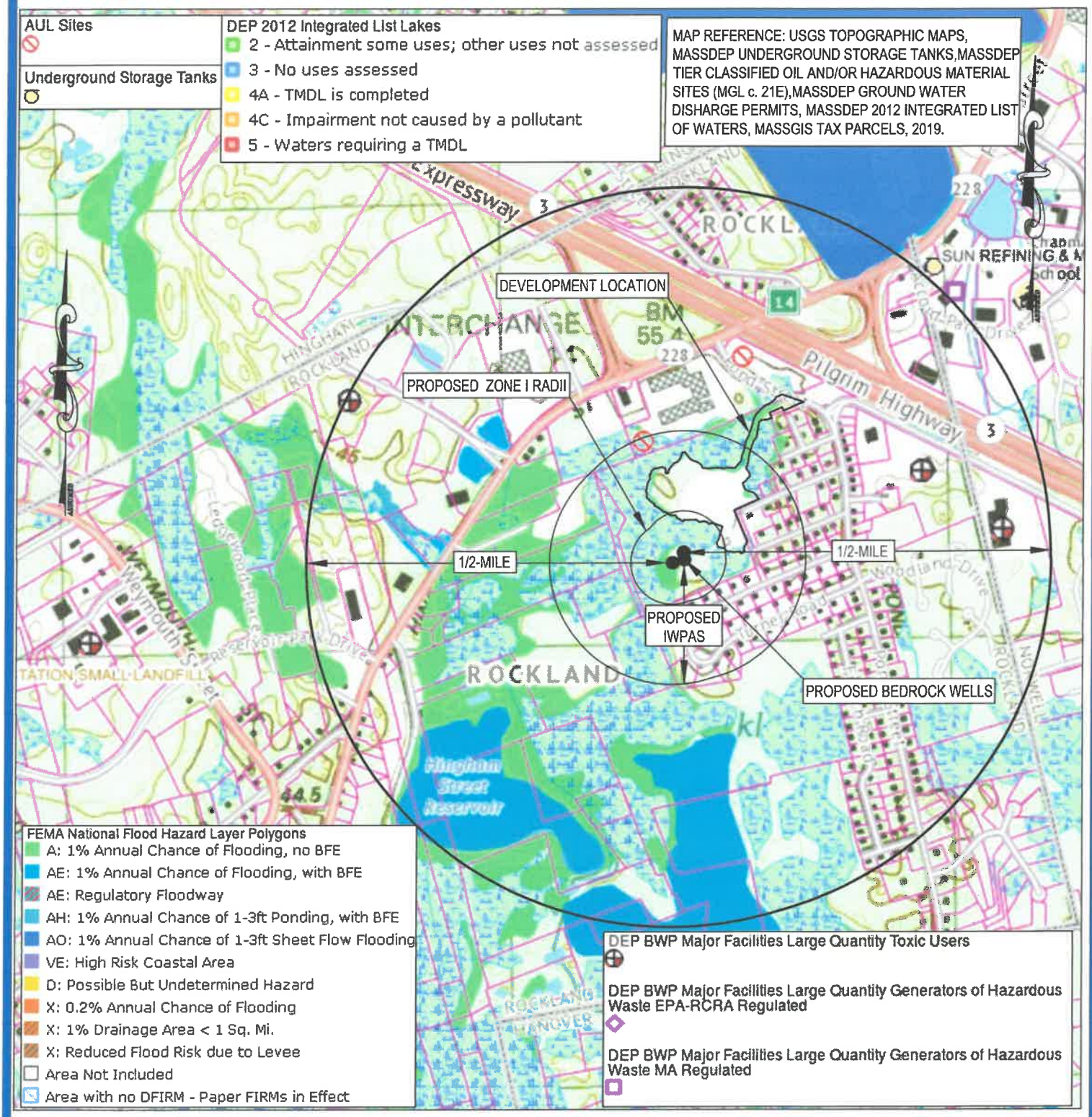
ONSITE ENGINEERING
Water, Wastewater and Stormwater Specialists
279 East Central Street
Franklin, MA 02038
508-553-0616
www.onsite-eng.com

Land Use Map

Pond Street Multifamily Residential Development
Rockland, Massachusetts
Proposed Bedrock Wells

FIGURE NO. 5

Project No.: 01507
Date: August 2019
Scale: 1"=1,000'



ONSITE ENGINEERING
Water, Wastewater and Stormwater Specialists
279 East Central Street
Franklin, MA 02038
508-553-0616
www.onsite-eng.com

Flood Zones & Potential Contamination Sources

Pond Street Multifamily Residential Development
Rockland, Massachusetts
Proposed Bedrock Wells

FIGURE NO. 6

Project No.: 01507
Date: August 2019
Scale: 1"=1,000'

ATTACHMENT C

Wells Completion Reports

Well No. 1

Massachusetts Department of Environmental Protection

eDEP Transaction Copy

Here is the file you requested for your records.

To retain a copy of this file you must save and/or print.

Username:	**SKILLINGSWELL**
Transaction ID:	**1103482**
Document:	**Well Driller**
Size of File:	**393.07K**
Status of Transaction:	**In Process**
Date and Time Created:	**5/2/2019:12:21:32 PM**

Note: This file only includes forms that were part of your transaction as of the date and time indicated above. If you need a more current copy of your transaction, return to eDEP and select to "Download a Copy" from the Current Submittals page.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection
Well Completion Reports

Well Driller

Please specify work performed:
New Well

Please specify well type:
Public Water Supply

Number Of Wells:

Well Location

In public right-of-way:
○ Yes ○ No

Subdivision/Property/Description:

Property Owner:
CONECO BUILDING

Engineering Firm:

Address at well location:

Street Number:	Street Name:
NA	WILSON STREET
Building Lot#:	Assessor's Map #:
Assessor's Lot#:	ZIP Code: 02370

City/Town:
ROCKLAND

GPS

North:	West:
42.16115	70.89523

Mailing Address:
☐ click here if same as well location address

Street Number:	Street Name:
4	FIRST STREET
City/Town:	State:
BRIDGEWATER	MASSACHUSETTS
ZIP Code:	

Board of health permit obtained:
○ Yes ◉ Not Required

Permit Number: Date Issued:

Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Well Driller Program
Well Completion Reports(General)

Well Driller - General Well Form

DRILLING METHOD

Overburden	Bedrock
Mud Rotary	Air Hammer

WELL LOG OVERBURDEN LITHOLOGY

From(ft)	To(ft)	Code	Color	Comment	Drop in drill stem	Extra fast or slow drill rate	Loss or addition of fluid
0	15	Til	Brown		YES NO	Fast Slow	Loss Addition
15	35	Til	Brown		YES NO	Fast Slow	Loss Addition
35	55	Til	Brown		YES NO	Fast Slow	Loss Addition

WELL LOG BEDROCK LITHOLOGY

From(ft)	To(ft)	Code	Comment	Drop in drill stem	Extra fast or slow drill rate	Loss or addition of fluid	Visible Rust Staining	Extra Large Chips
55	100	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
100	200	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
200	300	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
300	400	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
400	500	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
500	600	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes

ADDITIONAL WELL INFORMATION

Developed: Yes No

Disinfected: Yes No

Total Well Depth: 600

Depth to Bedrock: 55

Surface Seal Type: Cement/Bentonite

Fracture Enhancement: Yes No

CASING Is Casing above ground? From: 1.5 To: 0

From	To	Type	Thickness	Diameter	Driveshoe
0	98.5	Steel	Schedule 40	6	Yes

SCREEN No Screen

From	To	Type	Slot Size	Diameter

Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Well Driller Program
Well Completion Reports(General)

		--- Choose Screen Type ---		

WATER-BEARING ZONES ☐ DRY WELL

From	To	Yield (gpm)
140	160	15

PERMANENT PUMP (IF AVAILABLE)

Pump Description: --- Choose Pump Description ---
Horsepower: --- Choose Horsepower ---
Pump Intake Depth (ft):
Nominal Pump Capacity (gpm):

ANNULAR SEAL / FILTER PACK

From	To	Material 1	Weight	Material 2	Weight	Water (gal)	Batches (count)	Method Of Placement
0	98.5	Cement/Bentonite Grout		Choose Material				Tremie

WELL TEST DATA

Date	Method	Yield (gpm)	Time Pumped (HH:MM)	Pumping Level (ft BGS)	Time To Recover (HH:MM)	Recovery (ft BGS)
04/02/2019	Air Blow With Drill Stem	15	00:30	600		

WATER LEVEL

Date Measured	Static Depth BGS (ft)	Flowing Rate (gpm)
04/02/2019	40	0

COMMENTS

WELL DRILLERS STATEMENT

This well was drilled or altered under my direct supervision, according to the applicable rules and regulations, and this report is complete and accurate to the best of my knowledge.

Driller	BEN ROBBINS	Registration #	546	Monitoring [M]	Supervising Driller Signature	SKILLINGS, ROGER, B
Firm	SKILLINGS AND SONS, INC.	Rig Permit #	216		Date Job Complete	04/02/2019

Well No. 2

Massachusetts Department of Environmental Protection

eDEP Transaction Copy

Here is the file you requested for your records.

To retain a copy of this file you must save and/or print.

Username:	**SKILLINGSWELL**
Transaction ID:	**1103570**
Document:	**Well Driller**
Size of File:	**412.25K**
Status of Transaction:	**In Process**
Date and Time Created:	**5/7/2019:2:50:43 PM**

Note: This file only includes forms that were part of your transaction as of the date and time indicated above. If you need a more current copy of your transaction, return to eDEP and select to "Download a Copy" from the Current Submittals page.

Massachusetts Department of Environmental Protection
Bureau of Resource Protection
Well Completion Reports

Well Driller

Please specify work performed:
New Well

Please specify well type:
Public Water Supply

Number Of Wells:

Well Location

In public right-of-way:
( ) Yes ( ) No

Subdivision/Property/Description:

Property Owner:
CONECO BUILDING

Engineering Firm:

Address at well location:
Street Number: NA
Street Name: WILSON STREET
Building Lot#:
Assessor's Map #:
Assessor's Lot#:
ZIP Code: 02370
City/Town:
ROCKLAND

GPS
North: 42.16111
West: 70.89523

Mailing Address:
[ ] click here if same as well location address
Street Number: 4
Street Name: FIRST STREET
City/Town: BRIDGEWATER
State: MASSACHUSETTS
ZIP Code: 02324

Board of health permit obtained:
( ) Yes (•) Not Required
Permit Number:
Date Issued:

Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Well Driller Program
Well Completion Reports(General)

Well Driller - General Well Form

DRILLING METHOD

Overburden	Bedrock
Mud Rotary	Air Hammer

WELL LOG OVERBURDEN LITHOLOGY

From(ft)	To(ft)	Code	Color	Comment	Drop in drill stem	Extra fast or slow drill rate	Loss or addition of fluid
0	7	Cobbles	Brown		YES NO	Fast Slow	Loss Addition
7	27	Cobbles	Brown		YES NO	Fast Slow	Loss Addition
27	47	Cobbles	Brown		YES NO	Fast Slow	Loss Addition

WELL LOG BEDROCK LITHOLOGY

From(ft)	To(ft)	Code	Comment	Drop in drill stem	Extra fast or slow drill rate	Loss or addition of fluid	Visible Rust Staining	Extra Large Chips
47	100	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
100	200	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
200	300	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
300	400	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
400	500	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
500	600	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
600	700	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes
700	800	Granite		YES NO	Fast Slow	Loss Addition	Yes	Yes

ADDITIONAL WELL INFORMATION

Developed: Yes / No

Disinfected: Yes / No

Total Well Depth: 800

Depth to Bedrock: 47

Surface Seal Type: Cement/Bentonite

Fracture Enhancement: Yes / No

CASING

Is Casing above ground? From: 1.5 To: 0

From	To	Type	Thickness	Diameter	Driveshoe

Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Well Driller Program
Well Completion Reports(General)

0	68.5	Steel	Schedule 40	8	☑ Yes
0	118.5	Steel	Schedule 40	6	☑ Yes

SCREEN ☑ No Screen

From	To	Type	Slot Size	Diameter
		— Choose Screen Type —		

WATER-BEARING ZONES ☐ DRY WELL

From	To	Yield (gpm)
467	468	4
582	584	6

PERMANENT PUMP (IF AVAILABLE)

Pump Description — Choose Pump Description —

Horsepower — — Choose Horsepower —

Pump Intake Depth (ft)

Nominal Pump Capacity (gpm)

ANNULAR SEAL / FILTER PACK

From	To	Material 1	Weight	Material 2	Weight	Water (gal)	Batches (count)	Method Of Placement
0	68.5	Cement/Bentonite Grout		Choose Material				Tremie
0	118.5	Cement/Bentonite Grout		Choose Material			4	Tremie

WELL TEST DATA

Date	Method	Yield (gpm)	Time Pumped (HH:MM)	Pumping Level (ft BGS)	Time To Recover (HH:MM)	Recovery (ft BGS)
04/11/2019	Air Blow With Drill Stem	10	00:30			

WATER LEVEL

Date Measured	Static Depth BGS (ft)	Flowing Rate (gpm)
04/11/2019	40	0

COMMENTS

Massachusetts Department of Environmental Protection
Bureau of Resource Protection – Well Driller Program
Well Completion Reports(General)

WELL DRILLERS STATEMENT

This well was drilled or altered under my direct supervision, according to the applicable rules and regulations, and this report is complete and accurate to the best of my knowledge.

Driller	BILL CONWAY	Registration #	546	Monitoring [M]	Supervising Driller Signature	SKILLINGS, ROGER, B
Firm	SKILLINGS AND SONS, INC.	Rig Permit #	216		Date Job Complete	04/11/2019

NOTE: Well Completion Reports must be filed by the registered well driller within 30 days of well completion.

ATTACHMENT D

Results of Preliminary Water Analyses

con-test®
ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

April 9, 2019

Marc Brochu
Coneco Engineers & Scientists, Inc.
4 First Street
Bridgewater, MA 02324

Project Location: Pond St., Rockland, MA
Client Job Number:
Project Number: 3395.1
Laboratory Work Order Number: 19D0221

Enclosed are results of analyses for samples received by the laboratory on April 4, 2019. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

DRAFT REPORT
Project Manager

Table of Contents

con-test® ANALYTICAL LABORATORY

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Coneco Engineers & Scientists, Inc.
4 First Street
Bridgewater, MA 02324
ATTN: Marc Brochu

REPORT DATE: 4/9/2019

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 3395.1

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 19D0221

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Pond St., Rockland, MA

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
MW-01	19D0221-01	Ground Water		7500 RaB	CT PH-0694/NY10888/MA M-PA1457
				DOE 1990 U-02	CT PH-0694/NY10888/MA M-PA1457
				EPA 300.0	
				EPA 900.0	CT PH-0694/NY10888/MA M-PA1457
				EPA 904.0	CT PH-0694/NY10888/MA M-PA1457
				SM21-22 2510B	
				SM21-22 4500 H B	
				SW-846 6010	
				SW-846 6010D	
				SW-846 6020B	
				SW-846 8260C	
MW-01	19D0221-02	Ground Water		SM 9223B - COLILERT	

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

SM21-22 4500 H B

Qualifications:

H-05

Holding time was exceeded. pH analysis should be performed immediately at time of sampling. Nominal 15 minute holding time was exceeded.

Analyte & Samples(s) Qualified:

pH
19D0221-01[MW-01]

SW-846 8260C

Qualifications:

L-02

Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.

Analyte & Samples(s) Qualified:

Diethyl Ether
B227555-BS1, B227555-BSD1

L-04

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.

Analyte & Samples(s) Qualified:

2,2-Dichloropropane
19D0221-01[MW-01], B227555-BLK1, B227555-BS1, B227555-BSD1

L-06

Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Vinyl Chloride
B227555-BS1, B227555-BSD1

RL-07

Elevated reporting limit based on lowest point in calibration.
MA CAM reporting limit not met.

Analyte & Samples(s) Qualified:

1,2,3-Trichlorobenzene
19D0221-01[MW-01]

1,2,4-Trichlorobenzene
19D0221-01[MW-01]

1,2-Dibromo-3-chloropropane (DB
19D0221-01[MW-01]

Carbon Disulfide
19D0221-01[MW-01]

Methylene Chloride
19D0221-01[MW-01]

Naphthalene
19D0221-01[MW-01]

V-05

Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.

Analyte & Samples(s) Qualified:

1,2-Dibromo-3-chloropropane (DB
19D0221-01[MW-01], B227555-BLK1, B227555-BS1, B227555-BSD1, S034410-CCV1

2,2-Dichloropropane
19D0221-01[MW-01], B227555-BLK1, B227555-BS1, B227555-BSD1, S034410-CCV1

V-06

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.

Analyte & Samples(s) Qualified:

Vinyl Chloride
B227555-BS1, B227555-BSD1, S034410-CCV1

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

V-16

Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.

Analyte & Samples(s) Qualified:

1,4-Dioxane

19D0221-01[MW-01], B227555-BLK1, B227555-BS1, B227555-BSD1, S034410-CCV1

V-20

Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

Analyte & Samples(s) Qualified:

Bromomethane

B227555-BS1, B227555-BSD1, S034410-CCV1

Diethyl Ether

B227555-BS1, B227555-BSD1, S034410-CCV1

Styrene

B227555-BS1, B227555-BSD1, S034410-CCV1

SW-846 8260C

Laboratory control sample recoveries for required MCP Data Enhancement 8260 compounds were all within limits specified by the method except for "difficult analytes" where recovery control limits of 40-160% are used and/or unless otherwise listed in this narrative. Difficult analytes: MIBK, MEK, acetone, 1,4-dioxane, chloromethane, dichlorodifluoromethane, 2-hexanone, and bromomethane.

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and 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.

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Pond St., Rockland, MA | Sample Description: | Work Order: 19D0221

Date Received: 4/4/2019

Field Sample #: MW-01 | Sampled: 4/4/2019 10:00

Sample ID: 19D0221-01

Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Acetone	26	10	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
tert-Amyl Methyl Ether (TAME)	ND	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Benzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Bromobenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Bromochloromethane	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Bromodichloromethane	1.1	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Bromoform	ND	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Bromomethane	ND	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
2-Butanone (MEK)	ND	10	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
n-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
sec-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
tert-Butylbenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Carbon Disulfide	ND	5.0	µg/L	1	RL-07	SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Carbon Tetrachloride	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Chlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Chlorodibromomethane	0.60	0.50	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Chloroethane	ND	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Chloroform	7.3	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Chloromethane	3.6	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
2-Chlorotoluene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
4-Chlorotoluene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	µg/L	1	RL-07, V-05	SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,2-Dibromoethane (EDB)	ND	0.50	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Dibromomethane	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,2-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,3-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,4-Dichlorobenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,1-Dichloroethane	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,2-Dichloroethane	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,1-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
cis-1,2-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
trans-1,2-Dichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,2-Dichloropropane	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,3-Dichloropropane	ND	0.50	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
2,2-Dichloropropane	ND	1.0	µg/L	1	L-04, V-05	SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,1-Dichloropropene	ND	0.50	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
cis-1,3-Dichloropropene	ND	0.40	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
trans-1,3-Dichloropropene	ND	0.40	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Diethyl Ether	ND	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Diisopropyl Ether (DIPE)	ND	0.50	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,4-Dioxane	ND	50	µg/L	1	V-16	SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Ethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Pond St., Rockland, MA
Sample Description:
Work Order: 19D0221
Date Received: 4/4/2019
Field Sample #: MW-01
Sampled: 4/4/2019 10:00
Sample ID: 19D0221-01
Sample Matrix: Ground Water

Volatile Organic Compounds by GC/MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Hexachlorobutadiene	ND	0.60	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
2-Hexanone (MBK)	ND	10	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Isopropylbenzene (Cumene)	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Methylene Chloride	ND	5.0	µg/L	1	RL-07	SW-846 8260C	4/5/19	4/6/19 9:16	EEH
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Naphthalene	ND	5.0	µg/L	1	RL-07	SW-846 8260C	4/5/19	4/6/19 9:16	EEH
n-Propylbenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Styrene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Tetrachloroethylene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Tetrahydrofuran	ND	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Toluene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,2,3-Trichlorobenzene	ND	5.0	µg/L	1	RL-07	SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,2,4-Trichlorobenzene	ND	5.0	µg/L	1	RL-07	SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,1,1-Trichloroethane	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,1,2-Trichloroethane	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Trichloroethylene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,2,3-Trichloropropane	ND	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,2,4-Trimethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
1,3,5-Trimethylbenzene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
Vinyl Chloride	ND	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
m+p Xylene	ND	2.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH
o-Xylene	ND	1.0	µg/L	1		SW-846 8260C	4/5/19	4/6/19 9:16	EEH

Surrogates	% Recovery	Recovery Limits	Flag/Qual		
1,2-Dichloroethane-d4	87.9	70-130			4/6/19 9:16
Toluene-d8	80.1	70-130			4/6/19 9:16
4-Bromofluorobenzene	100	70-130			4/6/19 9:16

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Pond St., Rockland, MA | Sample Description: | Work Order: 19D0221

Date Received: 4/4/2019

Field Sample #: MW-01 | Sampled: 4/4/2019 10:00

Sample ID: 19D0221-01

Sample Matrix: Ground Water

Metals Analyses (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	ND	0.40	µg/L	1		SW-846 6020B	4/5/19	4/8/19 14:19	QNW
Iron	17	0.050	mg/L	1		SW-846 6010D	4/5/19	4/8/19 14:55	MJH
Manganese	160	1.0	µg/L	1		SW-846 6020B	4/5/19	4/8/19 14:19	QNW
Hardness	220		mg/L	10		SW-846 6010	4/5/19	4/9/19 8:17	QNW

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Pond St., Rockland, MA | Sample Description: | Work Order: 19D0221

Date Received: 4/4/2019

Field Sample #: MW-01 | Sampled: 4/4/2019 10:00

Sample ID: 19D0221-01

Sample Matrix: Ground Water

Metals Analyses (Dissolved)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Arsenic	1.1	0.40	µg/L	1		SW-846 6020B	4/5/19	4/8/19 11:14	QNW
Iron	1.8	0.050	mg/L	1		SW-846 6010D	4/5/19	4/8/19 12:43	EJB
Manganese	25	1.0	µg/L	1		SW-846 6020B	4/5/19	4/8/19 11:14	QNW

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Pond St., Rockland, MA | Sample Description: | Work Order: 19D0221

Date Received: 4/4/2019

Field Sample #: MW-01 | Sampled: 4/4/2019 10:00

Sample ID: 19D0221-01

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Nitrate as N	0.68	0.10	mg/L	1		EPA 300.0	4/5/19	4/5/19 3:40	IS
Nitrite as N	ND	0.100	mg/L	1		EPA 300.0	4/5/19	4/5/19 3:40	IS
pH @20.8°C	6.7		pH Units	1	H-05	SM21-22 4500 H B	4/5/19	4/5/19 20:00	SLB
Specific conductance	2800	2.0	µmhos/cm	1		SM21-22 2510B	4/5/19	4/5/19 15:25	KMV

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Pond St., Rockland, MA | Sample Description: | Work Order: 19D0221

Date Received: 4/4/2019

Field Sample #: MW-01 | Sampled: 4/4/2019 10:00

Sample ID: 19D0221-02

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	MCL/SMCL MA ORSG	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Coliform, Total	ND	1.0	1	MPN/100 mL	1		SM 9223B - COLILERT	4/4/19	4/4/19 14:30	DJM
E. Coli	ND	1.0	1	MPN/100 mL	1		SM 9223B - COLILERT	4/4/19	4/4/19 14:30	DJM

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: EPA 300.0-EPA 300.0

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19D0221-01 [MW-01]	B227484	10.0	10.0	04/05/19

SM 9223B - COLILERT

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19D0221-02 [MW-01]	B227473	100	100	04/04/19

SM21-22 2510B

Lab Number [Field ID]	Batch	Initial [mL]	Date
19D0221-01 [MW-01]	B227523	100	04/05/19

SM21-22 4500 H B

Lab Number [Field ID]	Batch	Initial [mL]	Date
19D0221-01 [MW-01]	B227584	50.0	04/05/19

Prep Method: SW-846 3005A-SW-846 6010

Lab Number [Field ID]	Batch	Initial [mL]	Date
19D0221-01 [MW-01]	B227559	50.0	04/05/19

Prep Method: SW-846 3005A-SW-846 6010D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19D0221-01 [MW-01]	B227559	50.0	50.0	04/05/19

Prep Method: SW-846 3005A Dissolved-SW-846 6010D

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19D0221-01 [MW-01]	B227578	5.00	5.00	04/05/19

Prep Method: SW-846 3005A-SW-846 6020B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19D0221-01 [MW-01]	B227554	50.0	50.0	04/05/19

Prep Method: SW-846 3005A Dissolved-SW-846 6020B

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19D0221-01 [MW-01]	B227576	10.0	10.0	04/05/19

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Sample Extraction Data

Prep Method: SW-846 5030B-SW-846 8260C

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
19D0221-01 [MW-01]	B227555	5	5.00	04/05/19

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B227555 - SW-846 5030B										
Blank (B227555-BLK1)				Prepared: 04/05/19 Analyzed: 04/06/19						
Acetone	ND	10	µg/L							
tert-Amyl Methyl Ether (TAME)	ND	0.50	µg/L							
Benzene	ND	1.0	µg/L							
Bromobenzene	ND	1.0	µg/L							
Bromochloromethane	ND	1.0	µg/L							
Bromodichloromethane	ND	1.0	µg/L							
Bromoform	ND	1.0	µg/L							
Bromomethane	ND	2.0	µg/L							
2-Butanone (MEK)	ND	10	µg/L							
n-Butylbenzene	ND	1.0	µg/L							
sec-Butylbenzene	ND	1.0	µg/L							
tert-Butylbenzene	ND	1.0	µg/L							
tert-Butyl Ethyl Ether (TBEE)	ND	0.50	µg/L							
Carbon Disulfide	ND	5.0	µg/L							
Carbon Tetrachloride	ND	1.0	µg/L							
Chlorobenzene	ND	1.0	µg/L							
Chlorodibromomethane	ND	0.50	µg/L							
Chloroethane	ND	2.0	µg/L							
Chloroform	ND	2.0	µg/L							
Chloromethane	ND	2.0	µg/L							
2-Chlorotoluene	ND	1.0	µg/L							
4-Chlorotoluene	ND	1.0	µg/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	2.0	µg/L							V-05
1,2-Dibromoethane (EDB)	ND	0.50	µg/L							
Dibromomethane	ND	1.0	µg/L							
1,2-Dichlorobenzene	ND	1.0	µg/L							
1,3-Dichlorobenzene	ND	1.0	µg/L							
1,4-Dichlorobenzene	ND	1.0	µg/L							
Dichlorodifluoromethane (Freon 12)	ND	2.0	µg/L							
1,1-Dichloroethane	ND	1.0	µg/L							
1,2-Dichloroethane	ND	1.0	µg/L							
1,1-Dichloroethylene	ND	1.0	µg/L							
cis-1,2-Dichloroethylene	ND	1.0	µg/L							
trans-1,2-Dichloroethylene	ND	1.0	µg/L							
1,2-Dichloropropane	ND	1.0	µg/L							
1,3-Dichloropropane	ND	0.50	µg/L							
2,2-Dichloropropane	ND	1.0	µg/L							L-04, V-05
1,1-Dichloropropene	ND	0.50	µg/L							
cis-1,3-Dichloropropene	ND	0.40	µg/L							
trans-1,3-Dichloropropene	ND	0.40	µg/L							
Diethyl Ether	ND	2.0	µg/L							
Diisopropyl Ether (DIPE)	ND	0.50	µg/L							
1,4-Dioxane	ND	50	µg/L							V-16
Ethylbenzene	ND	1.0	µg/L							
Hexachlorobutadiene	ND	0.60	µg/L							
2-Hexanone (MBK)	ND	10	µg/L							
Isopropylbenzene (Cumene)	ND	1.0	µg/L							
p-Isopropyltoluene (p-Cymene)	ND	1.0	µg/L							
Methyl tert-Butyl Ether (MTBE)	ND	1.0	µg/L							
Methylene Chloride	ND	5.0	µg/L							
4-Methyl-2-pentanone (MIBK)	ND	10	µg/L							
Naphthalene	ND	2.0	µg/L							

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes	
Batch B227555 - SW-846 5030B											
Blank (B227555-BLK1)				Prepared: 04/05/19 Analyzed: 04/06/19							
n-Propylbenzene	ND	1.0	µg/L								
Styrene	ND	1.0	µg/L								
1,1,1,2-Tetrachloroethane	ND	1.0	µg/L								
1,1,2,2-Tetrachloroethane	ND	0.50	µg/L								
Tetrachloroethylene	ND	1.0	µg/L								
Tetrahydrofuran	ND	2.0	µg/L								
Toluene	ND	1.0	µg/L								
1,2,3-Trichlorobenzene	ND	2.0	µg/L								
1,2,4-Trichlorobenzene	ND	1.0	µg/L								
1,1,1-Trichloroethane	ND	1.0	µg/L								
1,1,2-Trichloroethane	ND	1.0	µg/L								
Trichloroethylene	ND	1.0	µg/L								
Trichlorofluoromethane (Freon 11)	ND	2.0	µg/L								
1,2,3-Trichloropropane	ND	2.0	µg/L								
1,2,4-Trimethylbenzene	ND	1.0	µg/L								
1,3,5-Trimethylbenzene	ND	1.0	µg/L								
Vinyl Chloride	ND	2.0	µg/L								
m+p Xylene	ND	2.0	µg/L								
o-Xylene	ND	1.0	µg/L								
Surrogate: 1,2-Dichloroethane-d4	*22.7*		µg/L	25.0		90.8	70-130				
Surrogate: Toluene-d8	*25.1*		µg/L	25.0		101	70-130				
Surrogate: 4-Bromofluorobenzene	*25.4*		µg/L	25.0		102	70-130				
LCS (B227555-BS1)				Prepared: 04/05/19 Analyzed: 04/06/19							
Acetone	94.8	10	µg/L	100		94.8	40-160				†
tert-Amyl Methyl Ether (TAME)	10.1	0.50	µg/L	10.0		101	70-130				
Benzene	9.72	1.0	µg/L	10.0		97.2	70-130				
Bromobenzene	11.2	1.0	µg/L	10.0		112	70-130				
Bromochloromethane	10.2	1.0	µg/L	10.0		102	70-130				
Bromodichloromethane	10.7	1.0	µg/L	10.0		107	70-130				
Bromoform	10.4	1.0	µg/L	10.0		104	70-130				
Bromomethane	7.50	2.0	µg/L	10.0		75.0	40-160			V-20	†
2-Butanone (MEK)	73.8	10	µg/L	100		73.8	40-160				†
n-Butylbenzene	11.1	1.0	µg/L	10.0		111	70-130				
sec-Butylbenzene	11.2	1.0	µg/L	10.0		112	70-130				
tert-Butylbenzene	11.2	1.0	µg/L	10.0		112	70-130				
tert-Butyl Ethyl Ether (TBEE)	10.4	0.50	µg/L	10.0		104	70-130				
Carbon Disulfide	12.0	5.0	µg/L	10.0		120	70-130				
Carbon Tetrachloride	9.63	1.0	µg/L	10.0		96.3	70-130				
Chlorobenzene	11.5	1.0	µg/L	10.0		115	70-130				
Chlorodibromomethane	11.2	0.50	µg/L	10.0		112	70-130				
Chloroethane	11.2	2.0	µg/L	10.0		112	70-130				
Chloroform	9.79	2.0	µg/L	10.0		97.9	70-130				
Chloromethane	7.63	2.0	µg/L	10.0		76.3	40-160				†
2-Chlorotoluene	10.8	1.0	µg/L	10.0		108	70-130				
4-Chlorotoluene	11.7	1.0	µg/L	10.0		117	70-130				
1,2-Dibromo-3-chloropropane (DBCP)	7.95	2.0	µg/L	10.0		79.5	70-130			V-05	
1,2-Dibromoethane (EDB)	10.8	0.50	µg/L	10.0		108	70-130				
Dibromomethane	10.6	1.0	µg/L	10.0		106	70-130				
1,2-Dichlorobenzene	11.3	1.0	µg/L	10.0		113	70-130				
1,3-Dichlorobenzene	11.6	1.0	µg/L	10.0		116	70-130				
1,4-Dichlorobenzene	11.1	1.0	µg/L	10.0		111	70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B227555 - SW-846 5030B												
LCS (B227555-BS1)				Prepared: 04/05/19 Analyzed: 04/06/19								
Dichlorodifluoromethane (Freon 12)	6.85	2.0	µg/L	10.0		68.5		40-160			L-14	†
1,1-Dichloroethane	10.3	1.0	µg/L	10.0		103		70-130				
1,2-Dichloroethane	9.11	1.0	µg/L	10.0		91.1		70-130				
1,1-Dichloroethylene	11.7	1.0	µg/L	10.0		117		70-130				
cis-1,2-Dichloroethylene	10.0	1.0	µg/L	10.0		100		70-130				
trans-1,2-Dichloroethylene	10.8	1.0	µg/L	10.0		108		70-130				
1,2-Dichloropropane	9.94	1.0	µg/L	10.0		99.4		70-130				
1,3-Dichloropropane	10.5	0.50	µg/L	10.0		105		70-130				
2,2-Dichloropropane	6.91	1.0	µg/L	10.0		**69.1**	*	70-130			L-04, V-05	
1,1-Dichloropropene	9.56	0.50	µg/L	10.0		95.6		70-130				
cis-1,3-Dichloropropene	10.7	0.40	µg/L	10.0		107		70-130				
trans-1,3-Dichloropropene	11.1	0.40	µg/L	10.0		111		70-130				
Diethyl Ether	13.5	2.0	µg/L	10.0		**135**	*	70-130			L-02, V-20	
Diisopropyl Ether (DIPE)	10.1	0.50	µg/L	10.0		101		70-130				
1,4-Dioxane	95.2	50	µg/L	100		95.2		40-160			V-16	†
Ethylbenzene	11.0	1.0	µg/L	10.0		110		70-130				
Hexachlorobutadiene	11.6	0.60	µg/L	10.0		116		70-130				
2-Hexanone (MBK)	83.9	10	µg/L	100		83.9		40-160				†
Isopropylbenzene (Cumene)	11.4	1.0	µg/L	10.0		114		70-130				
p-Isopropyltoluene (p-Cymene)	11.2	1.0	µg/L	10.0		112		70-130				
Methyl tert-Butyl Ether (MTBE)	10.9	1.0	µg/L	10.0		109		70-130				
Methylene Chloride	12.3	5.0	µg/L	10.0		123		70-130				
4-Methyl-2-pentanone (MIBK)	88.5	10	µg/L	100		88.5		40-160				†
Naphthalene	9.05	2.0	µg/L	10.0		90.5		70-130				
n-Propylbenzene	11.3	1.0	µg/L	10.0		113		70-130				
Styrene	12.5	1.0	µg/L	10.0		125		70-130			V-20	
1,1,1,2-Tetrachloroethane	11.6	1.0	µg/L	10.0		116		70-130				
1,1,2,2-Tetrachloroethane	10.7	0.50	µg/L	10.0		107		70-130				
Tetrachloroethylene	10.6	1.0	µg/L	10.0		106		70-130				
Tetrahydrofuran	9.37	2.0	µg/L	10.0		93.7		70-130				
Toluene	10.6	1.0	µg/L	10.0		106		70-130				
1,2,3-Trichlorobenzene	10.2	2.0	µg/L	10.0		102		70-130				
1,2,4-Trichlorobenzene	9.91	1.0	µg/L	10.0		99.1		70-130				
1,1,1-Trichloroethane	9.71	1.0	µg/L	10.0		97.1		70-130				
1,1,2-Trichloroethane	11.1	1.0	µg/L	10.0		111		70-130				
Trichloroethylene	10.7	1.0	µg/L	10.0		107		70-130				
Trichlorofluoromethane (Freon 11)	9.70	2.0	µg/L	10.0		97.0		70-130				
1,2,3-Trichloropropane	9.89	2.0	µg/L	10.0		98.9		70-130				
1,2,4-Trimethylbenzene	10.9	1.0	µg/L	10.0		109		70-130				
1,3,5-Trimethylbenzene	11.4	1.0	µg/L	10.0		114		70-130				
Vinyl Chloride	16.2	2.0	µg/L	10.0		**162**	*	70-130			L-06, V-06	
m+p Xylene	22.4	2.0	µg/L	20.0		112		70-130				
o-Xylene	11.5	1.0	µg/L	10.0		115		70-130				
Surrogate: 1,2-Dichloroethane-d4	*23.0*		µg/L	25.0		91.9		70-130				
Surrogate: Toluene-d8	*24.7*		µg/L	25.0		98.7		70-130				
Surrogate: 4-Bromofluorobenzene	*26.2*		µg/L	25.0		105		70-130				

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes	
Batch B227555 - SW-846 5030B												
LCS Dup (B227555-BSD1)				Prepared: 04/05/19 Analyzed: 04/06/19								
Acetone	94.3	10	µg/L	100		94.3		40-160	0.529	20		†
tert-Amyl Methyl Ether (TAME)	9.72	0.50	µg/L	10.0		97.2		70-130	3.83	20		
Benzene	9.79	1.0	µg/L	10.0		97.9		70-130	0.718	20		
Bromobenzene	11.4	1.0	µg/L	10.0		114		70-130	1.41	20		
Bromochloromethane	10.3	1.0	µg/L	10.0		103		70-130	1.37	20		
Bromodichloromethane	10.6	1.0	µg/L	10.0		106		70-130	0.749	20		
Bromoform	11.0	1.0	µg/L	10.0		110		70-130	5.24	20		
Bromomethane	8.51	2.0	µg/L	10.0		85.1		40-160	12.6	20	V-20	†
2-Butanone (MEK)	73.2	10	µg/L	100		73.2		40-160	0.721	20		†
n-Butylbenzene	11.0	1.0	µg/L	10.0		110		70-130	1.45	20		
sec-Butylbenzene	11.3	1.0	µg/L	10.0		113		70-130	0.798	20		
tert-Butylbenzene	11.2	1.0	µg/L	10.0		112		70-130	0.447	20		
tert-Butyl Ethyl Ether (TBEE)	10.4	0.50	µg/L	10.0		104		70-130	0.672	20		
Carbon Disulfide	12.0	5.0	µg/L	10.0		120		70-130	0.334	20		
Carbon Tetrachloride	9.65	1.0	µg/L	10.0		96.5		70-130	0.207	20		
Chlorobenzene	11.9	1.0	µg/L	10.0		119		70-130	3.25	20		
Chlorodibromomethane	11.5	0.50	µg/L	10.0		115		70-130	2.20	20		
Chloroethane	11.5	2.0	µg/L	10.0		115		70-130	2.73	20		
Chloroform	9.70	2.0	µg/L	10.0		97.0		70-130	0.924	20		
Chloromethane	7.75	2.0	µg/L	10.0		77.5		40-160	1.56	20		†
2-Chlorotoluene	11.0	1.0	µg/L	10.0		110		70-130	1.38	20		
4-Chlorotoluene	11.8	1.0	µg/L	10.0		118		70-130	1.19	20		
1,2-Dibromo-3-chloropropane (DBCP)	7.25	2.0	µg/L	10.0		72.5		70-130	9.21	20	V-05	
1,2-Dibromoethane (EDB)	11.2	0.50	µg/L	10.0		112		70-130	3.82	20		
Dibromomethane	10.9	1.0	µg/L	10.0		109		70-130	2.60	20		
1,2-Dichlorobenzene	11.7	1.0	µg/L	10.0		117		70-130	3.30	20		
1,3-Dichlorobenzene	11.7	1.0	µg/L	10.0		117		70-130	0.775	20		
1,4-Dichlorobenzene	11.2	1.0	µg/L	10.0		112		70-130	0.448	20		
Dichlorodifluoromethane (Freon 12)	6.74	2.0	µg/L	10.0		67.4		40-160	1.62	20	L-14	†
1,1-Dichloroethane	10.2	1.0	µg/L	10.0		102		70-130	0.978	20		
1,2-Dichloroethane	9.17	1.0	µg/L	10.0		91.7		70-130	0.656	20		
1,1-Dichloroethylene	11.5	1.0	µg/L	10.0		115		70-130	2.33	20		
cis-1,2-Dichloroethylene	10.1	1.0	µg/L	10.0		101		70-130	1.09	20		
trans-1,2-Dichloroethylene	10.5	1.0	µg/L	10.0		105		70-130	2.53	20		
1,2-Dichloropropane	9.75	1.0	µg/L	10.0		97.5		70-130	1.93	20		
1,3-Dichloropropane	10.5	0.50	µg/L	10.0		105		70-130	0.381	20		
2,2-Dichloropropane	6.75	1.0	µg/L	10.0		**67.5**	*	70-130	2.34	20	L-04, V-05	
1,1-Dichloropropene	9.51	0.50	µg/L	10.0		95.1		70-130	0.524	20		
cis-1,3-Dichloropropene	10.9	0.40	µg/L	10.0		109		70-130	2.22	20		
trans-1,3-Dichloropropene	11.2	0.40	µg/L	10.0		112		70-130	0.719	20		
Diethyl Ether	13.5	2.0	µg/L	10.0		**135**	*	70-130	0.518	20	L-02, V-20	
Diisopropyl Ether (DIPE)	10.2	0.50	µg/L	10.0		102		70-130	0.395	20		
1,4-Dioxane	94.3	50	µg/L	100		94.3		40-160	1.02	20	V-16	†
Ethylbenzene	11.2	1.0	µg/L	10.0		112		70-130	0.991	20		
Hexachlorobutadiene	11.6	0.60	µg/L	10.0		116		70-130	0.517	20		
2-Hexanone (MBK)	83.6	10	µg/L	100		83.6		40-160	0.322	20		†
Isopropylbenzene (Cumene)	11.4	1.0	µg/L	10.0		114		70-130	0.440	20		
p-Isopropyltoluene (p-Cymene)	11.2	1.0	µg/L	10.0		112		70-130	0.714	20		
Methyl tert-Butyl Ether (MTBE)	10.8	1.0	µg/L	10.0		108		70-130	1.48	20		
Methylene Chloride	12.2	5.0	µg/L	10.0		122		70-130	1.06	20		
4-Methyl-2-pentanone (MIBK)	86.6	10	µg/L	100		86.6		40-160	2.19	20		†
Naphthalene	8.75	2.0	µg/L	10.0		87.5		70-130	3.37	20		

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QUALITY CONTROL

Volatile Organic Compounds by GC/MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC		%REC Limits	RPD	RPD Limit	Notes
Batch B227555 - SW-846 5030B											
LCS Dup (B227555-BSD1)				Prepared: 04/05/19 Analyzed: 04/06/19							
n-Propylbenzene	11.4	1.0	µg/L	10.0		114		70-130	0.529	20	
Styrene	12.8	1.0	µg/L	10.0		128		70-130	3.00	20	V-20
1,1,1,2-Tetrachloroethane	12.1	1.0	µg/L	10.0		121		70-130	3.71	20	
1,1,2,2-Tetrachloroethane	10.9	0.50	µg/L	10.0		109		70-130	1.57	20	
Tetrachloroethylene	10.4	1.0	µg/L	10.0		104		70-130	2.19	20	
Tetrahydrofuran	9.14	2.0	µg/L	10.0		91.4		70-130	2.49	20	
Toluene	10.5	1.0	µg/L	10.0		105		70-130	1.42	20	
1,2,3-Trichlorobenzene	10.1	2.0	µg/L	10.0		101		70-130	1.38	20	
1,2,4-Trichlorobenzene	9.75	1.0	µg/L	10.0		97.5		70-130	1.63	20	
1,1,1-Trichloroethane	9.60	1.0	µg/L	10.0		96.0		70-130	1.14	20	
1,1,2-Trichloroethane	11.1	1.0	µg/L	10.0		111		70-130	0.360	20	
Trichloroethylene	10.3	1.0	µg/L	10.0		103		70-130	3.14	20	
Trichlorofluoromethane (Freon 11)	9.75	2.0	µg/L	10.0		97.5		70-130	0.514	20	
1,2,3-Trichloropropane	10.1	2.0	µg/L	10.0		101		70-130	1.80	20	
1,2,4-Trimethylbenzene	11.2	1.0	µg/L	10.0		112		70-130	2.71	20	
1,3,5-Trimethylbenzene	11.4	1.0	µg/L	10.0		114		70-130	0.702	20	
Vinyl Chloride	17.1	2.0	µg/L	10.0		**171**	*	70-130	5.41	20	L-06, V-06
m+p Xylene	22.4	2.0	µg/L	20.0		112		70-130	0.178	20	
o-Xylene	11.8	1.0	µg/L	10.0		118		70-130	2.15	20	
Surrogate: 1,2-Dichloroethane-d4	*22.8*		µg/L	25.0		91.0		70-130			
Surrogate: Toluene-d8	*24.6*		µg/L	25.0		98.6		70-130			
Surrogate: 4-Bromofluorobenzene	*26.3*		µg/L	25.0		105		70-130			

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QUALITY CONTROL

Metals Analyses (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B227554 - SW-846 3005A										
Blank (B227554-BLK1)				Prepared: 04/05/19 Analyzed: 04/08/19						
Arsenic	ND	0.40	µg/L							
Manganese	ND	1.0	µg/L							
LCS (B227554-BS1)				Prepared: 04/05/19 Analyzed: 04/08/19						
Arsenic	544	4.0	µg/L	500		109	80-120			
Manganese	548	10	µg/L	500		110	80-120			
LCS Dup (B227554-BSD1)				Prepared: 04/05/19 Analyzed: 04/08/19						
Arsenic	504	4.0	µg/L	500		101	80-120	7.71	20	
Manganese	501	10	µg/L	500		100	80-120	8.98	20	
Batch B227559 - SW-846 3005A										
Blank (B227559-BLK1)				Prepared: 04/05/19 Analyzed: 04/08/19						
Iron	ND	0.050	mg/L							
LCS (B227559-BS1)				Prepared: 04/05/19 Analyzed: 04/08/19						
Iron	4.09	0.050	mg/L	4.00		102	80-120			
LCS Dup (B227559-BSD1)				Prepared: 04/05/19 Analyzed: 04/08/19						
Iron	4.03	0.050	mg/L	4.00		101	80-120	1.38	20	

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QUALITY CONTROL

Metals Analyses (Dissolved) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B227576 - SW-846 3005A Dissolved										
Blank (B227576-BLK1)				Prepared: 04/05/19 Analyzed: 04/08/19						
Arsenic	ND	0.40	µg/L							
Manganese	ND	1.0	µg/L							
LCS (B227576-BS1)				Prepared: 04/05/19 Analyzed: 04/08/19						
Arsenic	41.3	0.40	µg/L	40.0		103	80-120			
Manganese	42.6	1.0	µg/L	40.0		107	80-120			
Duplicate (B227576-DUP1)	**Source: 19D0221-01**			Prepared: 04/05/19 Analyzed: 04/08/19						
Arsenic	0.912	0.40	µg/L		1.08			16.8	20	
Manganese	25.3	1.0	µg/L		25.1			0.896	20	
Matrix Spike (B227576-MS1)	**Source: 19D0221-01**			Prepared: 04/05/19 Analyzed: 04/08/19						
Arsenic	28.9	0.50	µg/L	25.0	1.08	111	75-125			
Manganese	54.1	1.2	µg/L	25.0	25.1	116	75-125			
Batch B227578 - SW-846 3005A Dissolved										
Blank (B227578-BLK1)				Prepared: 04/05/19 Analyzed: 04/08/19						
Iron	ND	0.050	mg/L							
LCS (B227578-BS1)				Prepared: 04/05/19 Analyzed: 04/08/19						
Iron	3.97	0.050	mg/L	4.00		99.2	80-120			

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QUALITY CONTROL

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B227473 - SM 9223B - COLILERT										
Blank (B227473-BLK1)				Prepared & Analyzed: 04/04/19						
Coliform, Total	ND	1.0	MPN/100 mL							
E. Coli	ND	1.0	MPN/100 mL							
Batch B227484 - EPA 300.0										
Blank (B227484-BLK1)				Prepared & Analyzed: 04/04/19						
Nitrate as N	ND	0.10	mg/L							
Nitrite as N	ND	0.100	mg/L							
LCS (B227484-BS1)				Prepared & Analyzed: 04/04/19						
Nitrate as N	0.94	0.10	mg/L	1.00		93.5	90-110			
Nitrite as N	1.05	0.100	mg/L	1.00		105	90-110			
LCS Dup (B227484-BSD1)				Prepared & Analyzed: 04/04/19						
Nitrate as N	0.94	0.10	mg/L	1.00		94.3	90-110	0.873	20	
Nitrite as N	1.05	0.100	mg/L	1.00		105	90-110	0.0760	20	
Batch B227523 - SM21-22 2510B										
Blank (B227523-BLK1)				Prepared & Analyzed: 04/05/19						
Specific conductance	ND	2.0	µmhos/cm							
LCS (B227523-BS1)				Prepared & Analyzed: 04/05/19						
Specific conductance	200		µmhos/cm	192		103	90-110			
Duplicate (B227523-DUP1)	**Source: 19D0221-01**			Prepared & Analyzed: 04/05/19						
Specific conductance	2800	2.0	µmhos/cm		2800			2.46	21	
Batch B227584 - SM21-22 4500 H B										
LCS (B227584-BS1)				Prepared & Analyzed: 04/05/19						
pH	5.96		pH Units	6.00		99.4	90-110			
LCS (B227584-BS2)				Prepared: 04/05/19 Analyzed: 04/09/19						
pH	5.91		pH Units	6.00		98.5	90-110			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
H-05	Holding time was exceeded. pH analysis should be performed immediately at time of sampling. Nominal 15 minute holding time was exceeded.
L-02	Laboratory fortified blank/laboratory control sample recovery and duplicate recoveries outside of control limits. Data validation is not affected since all results are "not detected" for associated samples in this batch and bias is on the high side.
L-04	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the low side.
L-06	Laboratory fortified blank/laboratory control sample recovery and duplicate recovery are outside of control limits. Reported value for this compound is likely to be biased on the high side.
L-14	Compound classified by MA CAM as difficult with acceptable recoveries of 40-160%. Recovery does not meet 70-130% criteria but does meet difficult compound criteria.
RL-07	Elevated reporting limit based on lowest point in calibration. MA CAM reporting limit not met.
V-05	Continuing calibration verification (CCV) did not meet method specifications and was biased on the low side for this compound.
V-06	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side for this compound.
V-16	Response factor is less than method specified minimum acceptable value. Reduced precision and accuracy may be associated with reported result.
V-20	Continuing calibration verification (CCV) did not meet method specifications and was biased on the high side. Data validation is not affected since sample result was "not detected" for this compound.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA 300.0 in Water	
Nitrate as N	NC,NY,MA,VA,ME,NH,CT,RI
Nitrite as N	NY,NC,NH,VA,ME,CT,RI
SM 9223B - COLILERT in Drinking Water	
Coliform, Total	MA,CT,RI
E. Coli	MA,CT,RI
SM21-22 2510B in Water	
Specific conductance	CT,MA,NH,NY,RI,NC,ME,VA
SM21-22 4500 H B in Water	
pH	CT,MA,RI
SW-846 6010 in Water	
Hardness	CT,MA,NH,NY
SW-846 6010D in Water	
Iron	CT,NH,NY,ME,VA,NC
Iron	CT,NH,NY,ME,NC,VA
SW-846 6020B in Water	
Arsenic	CT,NH,NY,ME,VA,NC
Arsenic	CT,NH,NY,NC,ME,VA
Manganese	CT,NH,NY,NC,ME,VA
Manganese	CT,NH,NY,ME,VA,NC
SW-846 8260C in Water	
Acetone	CT,NH,NY,ME
tert-Amyl Methyl Ether (TAME)	NH,NY,ME
Benzene	CT,NH,NY,ME
Bromobenzene	ME
Bromochloromethane	NH,NY,ME
Bromodichloromethane	CT,NH,NY,ME
Bromoform	CT,NH,NY,ME
Bromomethane	CT,NH,NY,ME
2-Butanone (MEK)	CT,NH,NY,ME
n-Butylbenzene	NY,ME
sec-Butylbenzene	NY,ME
tert-Butylbenzene	NY,ME
tert-Butyl Ethyl Ether (TBEE)	NH,NY,ME
Carbon Disulfide	CT,NH,NY,ME
Carbon Tetrachloride	CT,NH,NY,ME
Chlorobenzene	CT,NH,NY,ME
Chlorodibromomethane	CT,NH,NY,ME
Chloroethane	CT,NH,NY,ME
Chloroform	CT,NH,NY,ME
Chloromethane	CT,NH,NY,ME
2-Chlorotoluene	NY,ME
4-Chlorotoluene	NY,ME
1,2-Dibromo-3-chloropropane (DBCP)	NY
1,2-Dibromoethane (EDB)	NY

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
SW-846 8260C in Water	
Dibromomethane	NH,NY,ME
1,2-Dichlorobenzene	CT,NY,ME
1,3-Dichlorobenzene	CT,NH,NY,ME
1,4-Dichlorobenzene	CT,NH,NY,ME
Dichlorodifluoromethane (Freon 12)	NH,NY,ME
1,1-Dichloroethane	CT,NH,NY,ME
1,2-Dichloroethane	CT,NH,NY,ME
1,1-Dichloroethylene	CT,NH,NY,ME
cis-1,2-Dichloroethylene	NY,ME
trans-1,2-Dichloroethylene	CT,NH,NY,ME
1,2-Dichloropropane	CT,NH,NY,ME
1,3-Dichloropropane	NY,ME
2,2-Dichloropropane	NH,NY,ME
1,1-Dichloropropene	NH,NY,ME
cis-1,3-Dichloropropene	CT,NH,NY,ME
trans-1,3-Dichloropropene	CT,NH,NY,ME
Diisopropyl Ether (DIPE)	NH,NY,ME
Ethylbenzene	CT,NH,NY,ME
Hexachlorobutadiene	CT,NH,NY,ME
2-Hexanone (MBK)	CT,NH,NY,ME
Isopropylbenzene (Cumene)	NY,ME
p-Isopropyltoluene (p-Cymene)	CT,NH,NY,ME
Methyl tert-Butyl Ether (MTBE)	CT,NH,NY,ME
Methylene Chloride	CT,NH,NY,ME
4-Methyl-2-pentanone (MIBK)	CT,NH,NY,ME
Naphthalene	NH,NY,ME
n-Propylbenzene	CT,NH,NY,ME
Styrene	CT,NH,NY,ME
1,1,1,2-Tetrachloroethane	CT,NH,NY,ME
1,1,2,2-Tetrachloroethane	CT,NH,NY,ME
Tetrachloroethylene	CT,NH,NY,ME
Toluene	CT,NH,NY,ME
1,2,3-Trichlorobenzene	NH,NY,ME
1,2,4-Trichlorobenzene	CT,NH,NY,ME
1,1,1-Trichloroethane	CT,NH,NY,ME
1,1,2-Trichloroethane	CT,NH,NY,ME
Trichloroethylene	CT,NH,NY,ME
Trichlorofluoromethane (Freon 11)	CT,NH,NY,ME
1,2,3-Trichloropropane	NH,NY,ME
1,2,4-Trimethylbenzene	NY,ME
1,3,5-Trimethylbenzene	NY,ME
Vinyl Chloride	CT,NH,NY,ME
m+p Xylene	CT,NH,NY,ME
o-Xylene	CT,NH,NY,ME

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The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC - ISO17025:2005	100033	03/1/2020
MA	Massachusetts DEP	M-MA100	06/30/2019
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2019
NY	New York State Department of Health	10899 NELAP	04/1/2020
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2020
RI	Rhode Island Department of Health	LAO00112	12/30/2019
NC	North Carolina Div. of Water Quality	652	12/31/2019
NJ	New Jersey DEP	MA007 NELAP	06/30/2019
FL	Florida Department of Health	E871027 NELAP	06/30/2019
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2019
ME	State of Maine	2011028	06/9/2019
VA	Commonwealth of Virginia	460217	12/14/2019
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2019
VT-DW	Vermont Department of Health Drinking Water	VT-255716	06/12/2019
NC-DW	North Carolina Department of Health	25703	07/31/2019

19D0221

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Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 2 of 2

Company Name: Corbo Engineers & Scientists
Address: 4 First Street Bridgewater MA
Phone: 508-697-3191
Project Name: Pond Street
Project Location: 0 Pond Street Rockland MA
Project Number: 3395.1
Project Manager: Marc Brown
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: DCK

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☒ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☒ EXCEL ☐
Other:
CLP Like Data Pkg Required: ☐
Email To:
Fax To #:

ANALYSIS REQUESTED

	Total Iron	Total Manganese	Total Arsenic
# of Containers	1 →	→	→
Preservation Code	N →	→	→
Container Code	P →	→	→

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code	Total Iron	Total Manganese	Total Arsenic
1	MW-01	4/4/19 10:00	4/4/19 10:00		X	GW	U	X	X	X

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

Comments:

Please use the following codes to indicate possible sample concentration within the Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

Relinquished by: (signature)	Date/Time: 4/4/19 10:30
Received by: (signature)	Date/Time: 4/4/19 1030
Relinquished by: (signature)	Date/Time: 4/4/19 1235
Received by: (signature)	Date/Time: 4/4/19 1235
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Detection Limit Requirements
MA: RCGW-1
CT:
Other:

Special Requirements
☒ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
☐ Federal ☐ 21 J ☐ School
☐ City ☐ Brownfield ☐ MBTA

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NELAC and AIHA-LAP, LLC Accredited

Other
☐ Chromatogram
☐ AIHA-LAP, LLC

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] **Container Codes:**
A = Amber Glass
G = Glass
P = Plastic
ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define)

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples_____

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Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client Conco

Received By RAP Date 4/4/19 Time 1235

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____

Direct from Sampling _____ Ambient _____ Melted Ice _____

By Gun # 5 Actual Temp - 3.5

Were samples within Temperature? 2-6°C T By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T

Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? T Who was notified? Katie, Emily, Ryan, Lauren

Are there Short Holds? T Who was notified? Katie

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? Acid HNO2 Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic	2	16 oz Amb.	
HCL-	3	500 mL Amb.		500 mL Plastic	1	8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	2	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria	1	2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

Three day Turn around time per J.L.H.

1400'cc1

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CHAIN OF CUSTODY RECORD

Doc # 381 Rev 1_03242017

39 Spruce Street
East Longmeadow, MA 01028

Page 1 of 2

Company Name: Coneco Engineers & Scientists
Address: 4 First Street, Bridgewater MA
Phone: 508-697-3191
Project Name: Pond Street
Project Location: 0 Pond Street, Rockland MA
Project Number: 3395.1
Project Manager: Marc Broihu
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: DCK

Requested Turnaround Time
- 7-Day ☐ 10-Day ☐
- Due Date:

Rush-Approval Required
- 1-Day ☒ 3-Day ☐
- 2-Day ☐ 4-Day ☐

Data Delivery
- Format: PDF ☒ EXCEL ☐
- Other:
- CLP Like Data Pkg Required: ☐
- Email To: MBroihu@coneco.com
- Fax To #:

ANALYSIS REQUESTED

	VOCs 8260	pH	Conductivity	Nitrate	Nitrite	Dissolved Iron	Dissolved Manganese	Dissolved Arsenic	Radionuclides	Coliform Bacteria	Hardness
# of Containers	3	1	→	→	→	1	→	→	1	2	1
Preservation Code	H	I	→	→	→	N	→	→	N	I	H
Container Code	V	P	→	→	→	P	→	→	P	O	P

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code	VOCs 8260	pH	Conductivity	Nitrate	Nitrite	Dissolved Iron	Dissolved Manganese	Dissolved Arsenic	Radionuclides	Coliform Bacteria	Hardness
1	MW-01	4/4/19 10:00	4/4/19 10:00		X	GW	U	X	X	X	X	X	X	X	X	X	X	X

Dissolved Metals Samples
- ☒ Field Filtered
- ○ Lab to Filter

Orthophosphate Samples
- ○ Field Filtered
- ○ Lab to Filter

Comments:
Coliform Bacteria - Total count

Lab said it could take 3 days. client was notified. JLH 4/5/19

...s to indicate possible sample concentration ...Conc Code column above:
H - High; M - Medium; L - Low; C - Clean; U - Unknown

		Date/Time:
Relinquished by: (signature)	[signature]	4/4/19 16:30
Received by: (signature)	[signature]	4/4/19 1030
Relinquished by: (signature)	[signature]	4/4/19 1235
Received by: (signature)	3.5	4/4/19 1235
Relinquished by: (signature)		
Received by: (signature)		

Detection Limit Requirements
- MA: RCGW-1
- CT:
- Other:

Special Requirements
- ☒ MA MCP Required
- MCP Certification Form Required
- ☐ CT RCP Required
- RCP Certification Form Required
- ☐ MA State DW Required
- PWSID #

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
- ☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
- ☐ Federal ☐ 21 J ☐ School
- ☐ City ☐ Brownfield ☐ MBTA

Other
- ☐ Chromatogram
- ☐ AIHA-LAP, LLC

PCB ONLY
- ☐ Soxhlet
- ☐ Non Soxhlet

[1] **Matrix Codes:**
GW = Ground Water
WW = Waste Water
DW = Drinking Water
A = Air
S = Soil
SL = Sludge
SOL = Solid
O = Other (please define)

[2] **Preservation Codes:**
I = Iced
H = HCL
M = Methanol
N = Nitric Acid
S = Sulfuric Acid
B = Sodium Bisulfate
X = Sodium Hydroxide
T = Sodium Thiosulfate
O = Other (please define)

[3] **Container Codes:**
A = Amber Glass
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ST = Sterile
V = Vial
S = Summa Canister
T = Tedlar Bag
O = Other (please define) Bact

19D0221

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Doc # 381 Rev 1_03242017

CHAIN OF CUSTODY RECORD

39 Spruce Street
East Longmeadow, MA 01028

Page 2 of 2

Company Name: Conco Engineers & Scientists
Address: 4 First Street Bridgewater MA
Phone: 508-697-3191
Project Name: Pond Street
Project Location: 0 Pond Street Rockland MA
Project Number: 3395.1
Project Manager: Marc Brown
Con-Test Quote Name/Number:
Invoice Recipient:
Sampled By: DCK

Requested Turnaround Time
7-Day ☐ 10-Day ☐
Due Date:

Rush-Approval Required
1-Day ☒ 3-Day ☐
2-Day ☐ 4-Day ☐

Data Delivery
Format: PDF ☒ EXCEL ☐
Other:
CLP Like Data Pkg Required: ☐
Email To:
Fax To #:

ANALYSIS REQUESTED

Con-Test Work Order#	Client Sample ID / Description	Beginning Date/Time	Ending Date/Time	Composite	Grab	Matrix Code	Conc Code	Total Iron	Total Manganese	Total Arsenic
# of Containers								1 →	→	→
Preservation Code								N →	→	→
Container Code								P →	→	→
1	MW-01	4/4/19 10:00	4/4/19 10:00		X	GW	U	X	X	X

# of Containers
[2] Preservation Code
[3] Container Code

Dissolved Metals Samples
○ Field Filtered
○ Lab to Filter

Orthophosphate Samples
○ Field Filtered
○ Lab to Filter

[1] **Matrix Codes:**
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A = Amber Glass
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Comments:

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H - High; M - Medium; L - Low; C - Clean; U - Unknown

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Relinquished by: (signature)	Date/Time: 4/4/19 1235
Received by: (signature) 35	Date/Time: 4/4/19 1235
Relinquished by: (signature)	Date/Time:
Received by: (signature)	Date/Time:

Detection Limit Requirements
MA: RCGW-1
CT:
Other:

Special Requirements
☒ MA MCP Required
MCP Certification Form Required
☐ CT RCP Required
RCP Certification Form Required
☐ MA State DW Required
PWSID #

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NELAC and AIHA-LAP, LLC Accredited

Project Entity
☐ Government ☐ Municipality ☐ MWRA ☐ WRTA
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☐ City ☐ Brownfield ☐ MBTA

Other
☐ Chromatogram
☐ *AIHA-LAP,LLC*

PCB ONLY
☐ Soxhlet
☐ Non Soxhlet

I Have Not Confirmed Sample Container Numbers With Lab Staff Before Relinquishing Over Samples _____

con-test® ANALYTICAL LABORATORY

Doc# 277 Rev 5 2017

Login Sample Receipt Checklist - (Rejection Criteria Listing - Using Acceptance Policy) Any False Statement will be brought to the attention of the Client - State True or False

Client Conco

Received By RAP Date 4/4/19 Time 1235

How were the samples received? In Cooler T No Cooler _____ On Ice T No Ice _____ Direct from Sampling _____ Ambient _____ Melted Ice _____

Were samples within Temperature? 2-6°C T By Gun # 5 Actual Temp - 3.5 By Blank # _____ Actual Temp - _____

Was Custody Seal Intact? NA Were Samples Tampered with? NA

Was COC Relinquished ? T Does Chain Agree With Samples? T

Are there broken/leaking/loose caps on any samples? F

Is COC in ink/ Legible? T Were samples received within holding time? T

Did COC include all pertinent Information? Client T Analysis T Sampler Name T Project T ID's T Collection Dates/Times T

Are Sample labels filled out and legible? T

Are there Lab to Filters? F Who was notified? _____

Are there Rushes? T Who was notified? Katie, Emily, Ryan, Lauren

Are there Short Holds? T Who was notified? Katie

Is there enough Volume? T

Is there Headspace where applicable? F MS/MSD? F

Proper Media/Containers Used? T Is splitting samples required? F

Were trip blanks received? F On COC? F

Do all samples have the proper pH? Acid pH<2 Base _____

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic	2	16 oz Amb.	
HCL-	3	500 mL Amb.		500 mL Plastic	1	8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic	2	4oz Amb/Clear	
Bisulfate-		Flashpoint		Col./Bacteria	1	2oz Amb/Clear	
DI-		Other Glass		Other Plastic		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Unused Media

Vials	#	Containers:	#		#		#
Unp-		1 Liter Amb.		1 Liter Plastic		16 oz Amb.	
HCL-		500 mL Amb.		500 mL Plastic		8oz Amb/Clear	
Meoh-		250 mL Amb.		250 mL Plastic		4oz Amb/Clear	
Bisulfate-		Col./Bacteria		Flashpoint		2oz Amb/Clear	
DI-		Other Plastic		Other Glass		Encore	
Thiosulfate-		SOC Kit		Plastic Bag		Frozen:	
Sulfuric-		Perchlorate		Ziplock			

Comments:

Three day Turn around time per J.L.H.

Pond Street (Map 9/Lot 13), Rockland, Massachusetts
Groundwater Analytical Results: April 4, 2019

Analyte	MW-01[1]	MMCLs[2]
VOCs by EPA Method 8260 (µg/l) (Detections Only)		
Acetone	26	6,300[3]
Bromodichloromethane	1.1	NA[4]
Chlorodibromomethane	0.60	NA
Chloroform	7.3	70
Total Trihalomethanes[5]	9.0	80
Chloromethane	3.6	NA
Total Metals by SW-846 Methods (µg/l)		
Arsenic	<0.40[6]	10
Iron	**17,000**	300[7]
Manganese	**160**	300[3]
Hardness[7]	220[7]	NA
Dissolved Metals by SW-846 Methods (µg/l)		
Arsenic	1.1	10
Iron	**1,800**	300[8]
Manganese	25	300[3] / 50[8]
Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods		
Nitrate[7]	0.68[7]	10
Nitrite[7]	<0.100[7]	1
pH	6.7	6.5 - 8.5
Specific conductance[9]	2,800	NA
Total Coliform[10]	<1.0	Non-Detect
E. Coli[10]	<1.0	Non-Detect

Notes:
1) Sample identification.
2) Massachusetts Maximum Contaminant Levels (MMCLs) are listed in 310 CMR 22.00.
3) Massachusetts Drinking Water Quality Guideline (ORSG)
4) NA indicates no applicable guideline promulgated for the specified analyte.
5) Total Trihalomethane concentration is the sum of detected concentrations of chloroform, bromodichloromethane, and chlorodibromomethane.
6) < indicates the analyte was not detected above the specified laboratory quantification limit.
7) Hardness, Nitrate and Nitrite reported in milligrams per liter (mg/L).
8) Secondary Maximum Contaminant Level (SMCL)
9) Specific conductance reported in µmhos/cm.
10) Bacteria analyses reported in MPN/100 mL.