



## **WATER QUALITY SURVEY**

### **TOWN OF LONDONDERRY LONDONDERRY, NEW HAMPSHIRE**

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**Prepared For:**

**Town of Londonderry  
268B Mammoth Road  
Londonderry, NH 03053  
Mr. Stephen R. Cotton  
Administrative Support Coordinator**

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**Prepared By:**

**NOBIS GROUP®  
18 CHENELL DRIVE  
CONCORD, NH 03301**

(603) 224-4182

**Mark R. Henderson, P.G.  
mhenderson@nobis-group.com**

**October 25, 2019  
Nobis File No. 95160.00**



October 25, 2019

File No. 95160.00

Mr. Stephen R. Cotton  
Administrative Support Coordinator  
Town of Londonderry  
268B Mammoth Road  
Londonderry, NH 03053

**Re: Water Quality Survey**  
Town of Londonderry  
Londonderry, New Hampshire

Dear Mr. Cotton:

Nobis Group® (Nobis) is pleased to provide this *Water Quality Survey* (WQS) for the Town of Londonderry. This WQS was prepared in general accordance with a proposal authorized on September 6, 2018.

The enclosed report provides a summary of water quality sampling completed throughout the town of Londonderry during 2019. Thirty-two private water supplies and thirteen surface water samples were collected as part of this WQS. This report is subject to the limitations in Appendix A.

Thank you for the opportunity to be of service to you. Please do not hesitate to contact us if you have any questions.

Sincerely,

NOBIS GROUP®

Mark R. Henderson, PG  
Senior Project Manager





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**LONDONDERRY, NEW HAMPSHIRE**

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## 1.0 INTRODUCTION

On behalf of the town of Londonderry (client), Nobis Group® (Nobis) prepared this Water Quality Survey (WQS) for work completed within the town of Londonderry, New Hampshire. The town and participating properties are depicted on **Figure 1**.

This report presents information collected from field sampling activities completed in 2019. This report is subject to the Limitations provided in **Appendix A**. Private drinking water supply and surface water sampling was completed in general conformance with our proposal authorized on September 6, 2018. We note, discussion and negotiation with NHDES occurred throughout the fall of 2018 eventually successfully creating a teaming arrangement to modify the sampling program.

### 1.1 Summary of Prior Sampling

An Environmental Baseline Study of Water Well and Surface Water Quality from the town of Londonderry was first completed in 2001 and 2002. The Town of Londonderry established the Environmental Baseline Study Committee (EBSC) in March 2001. The primary objective of the EBSC was to establish a baseline of the environmental quality within the town, with specific regard to well water quality and surface water quality. The EBSC randomly selected over 600 residential locations from the Town's homeowner database, and only included homes that had individual deep or dug wells and the ability to bypass any type of treatment or filtration system. The sampling program ultimately consisted of 154 residential participants at locations distributed throughout the town. Areas where town water or community wells serve the population were not included in the study.

Results from the baseline study found 27% of the wells sampled contained the metal arsenic at a concentration above 10 micrograms per liter (ug/l) within the groundwater analyzed. Additionally, lead was detected within 6 water supply samples at concentrations in excess of the maximum concentration limit (MCL). Copper, zinc, cadmium and nickel were also detected but below their respective MCLs. The gasoline additive, methyl tert butyl ether (MTBE) was detected within twelve (12) water supplies but generally below the Ambient Groundwater Quality Standard (AGQS) of 13 ug/l. Note, per- and polyfluoroalkyl substances (PFAS) were not analyzed during the 2001/2002 baseline sampling.

The 2019 sampling activities associated with this WQS were completed to augment information and data collected during the original Baseline Study. A summary of our field methods, the sampling results, and our recommendations follow.

## **2.0 PROPERTY IDENTIFICATION & REQUEST LETTERS**

Nobis was retained by the Town of Londonderry to complete a follow-up water quality study. The purpose of the follow-up study is to further document water quality conditions within the town and assess potential changes in water quality over time. As such, many of the residential water supply wells that were part of the original study were included in the current sampling program. Additionally, new ‘target’ wells were identified and included in the study. Targeted wells were identified by proximity to environmental areas of interest and/or relative location to wells previously sampled that had detections of contaminants of concern (COCs).

The study area was divided into six (6) distinct sampling districts based upon inferred local watershed areas and topographical features. Specifically, they are comprised of the following districts:

- Watts Brook watershed (District 1),
- Little Cohas Brook watershed (District 2),
- Beaver Brook and Scobie Pond watershed (District 3),
- Nesenkeag Brook watershed (District 4),
- Chase Brook and lower Beaver Brook watershed (District 5), and
- Beaver Brook watershed (District 6).

After dividing the study area into sampling districts, the original sampling locations were evaluated for the potential presence of town water or community supply wells that may serve those locations. Ultimately, 50 locations were selected, 39 of which were participants of the original study with 11 new target locations. Access agreements and water supply well questionnaires were mailed to each homeowner once approved by the town.

Due to a low initial response rate, second attempt letters were mailed to homeowners yet to respond to access agreement letters. While waiting for the return of the second attempt agreements, alternate sample locations were identified. In total, 36 alternate locations were selected, 19 of which had previously been sampled with 17 new target locations. Access agreements and water supply well questionnaires were created and mailed for these alternate locations.

Due to continued low response rates to access agreements, a second group of alternate locations were identified. In total, 25 additional locations were selected for sampling, and were all new target locations.

In total, 32 out of 111 solicited homeowners elected to participate in the study. Of the 32 locations, 22 were sampled as part of the original EBSC study while 10 were new target wells. Further, each sampling district had varied response rates, ranging from 8 samples per district (District 1) to 3 samples per district (District 2). Sampling districts and residential drinking water sample locations are depicted on **Figure 1**.

### **3.0 SUMMARY OF COMPLETED ACTIVITIES**

#### **3.1 Private Water Supply Sample Collection**

Water supply sampling occurred during the period of May through July 2019. In total, 32 private water supplies were sampled by Nobis technicians. Private water supply samples were collected from a sampling port prior to water treatment (e.g. softeners) if present, or an interior kitchen faucet. The water supplies were allowed to run for at least 15 minutes to flush/purge the lines prior to sample collection.

Sampling dates were coordinated with individual property owners after receipt of a properly executed access agreement. Water supplies were sampled for the presence of RCRA-8 metals, nitrate, nitrite, volatile organic compounds (VOCs), and PFAS. Based on the cost sharing agreement with the NHDES, samples were split for delivery to the NHDES and to Nelson Analytical, Inc. (Nelson) of Manchester, New Hampshire. NHDES then sent samples for VOC analyses to ChemServe, Inc. (ChemServe) of Milford, New Hampshire and to Eurofins/Test America (Eurofins) of Sacramento, California for analysis of PFAS. Therefore, each water supply has three laboratory reports associated with the sampling.

#### **3.2 Surface Water Sample Collection**

Surface water samples were collected from various surface water bodies within the town during the original EBSC study. In total, 13 locations were sampled and consisted of locations along Beaver Brook, Little Cohas Brook, Shields Brook, Watts Brook, Nesenkeag Brook, Cohas Brook, Moose Hill Pond outlet, and Scobie Pond outlet. To the extent possible the original sample locations were used in the current study. Coordinates of each surface water sample location were recorded during sample collection and are presented on **Figure 1**.

Surface water was sampled for the presence of RCRA-8 metals, nitrate, nitrite, total phosphate, VOCs, and PFAS. As with the water supply samples, Nelson analyzed the samples for the presence of nitrate, nitrite, phosphate, and metals. ChemServe analyzed the samples for the presence of VOCs and Eurofins analyzed the samples for the presence of PFAS.

### 3.3 Laboratory Analytical Results

Analytical results were forwarded to Nobis (some via NHDES) where the data was tracked within a spreadsheet. Data was also uploaded via the environmental monitoring database (EMD) to the NHDES. The private water supply samples were collected within laboratory supplied containers and placed on ice during transportation under proper chain-of-custody procedures to Nelson Analytical, Inc. of Manchester, New Hampshire and NHDES. Water samples were analyzed by Nelson for the presence of nitrate/nitrite via Method SM 4500; metals via EPA Method 200.8; and phosphate via HACH 8190. ChemServe analyzed samples for the presence of VOCs by NHDES *Petroleum and Hazardous Waste Full List* via Environmental Protection Agency (EPA) Method 524.2. Eurofins analyzed samples for the presence of PFAS via EPA Method 537 (mod). A copy of the laboratory analytical reports from the 2019 sampling are included as **Appendix B**.

Private water supply sampling results were previously provided to the individual property owners via mail.

### 3.4 Evaluation of Water Supply Quality

#### VOCs

Only two water supplies contained detectable VOCs: MTBE was detected at a concentration of 0.58 parts per billion (ppb) in the water supply located at 5 Allison Lane and chloroform was detected at a concentration of 13 ppb in the sample collected from 11 Ross Drive. Neither VOC compound was detected at a concentration in excess of the corresponding AGQS. We note, chloroform was reported within the 11 Ross Drive water supply during the original sampling program at a concentration of 2.1 ppb.

MTBE was reported in 8% of the original sampling program wells (12 of 154) at detected concentrations ranging from 1.7 to 20 ppb. Five (5) of those original twelve locations were sampled during this WQS. None of the five wells originally impacted by MTBE contained a detectable level of MTBE in 2019. Only one well from Allison Lane contained a trace level of MTBE. These results suggest significant improvement related to VOCs.

#### PFAS

Thirteen (13) of the twenty (20) PFAS compounds analyzed were reported as detected within at least one of the water supplies samples. Of these 13 compounds, perfluorooctanoic acid (PFOA) is the most prevalent and concerning PFAS compound. A summary of PFAS results for water supply sampling is provided as **Table 1**. PFOA was detected within 29 of the 32 water supply samples collected and within each of the six sampling districts. NHDES adopted new AGQS for four PFAS compounds; PFOA, perfluorooctane sulfonic acid (PFOS), perfluorohexane sulfonic

acid (PFHxS) and perflouoronanoic acid (PFNA) on September 30, 2019. PFOA was reported above the new AGQS of 12 parts per trillion (ppt) in 13 of the 32 water supplies sampled. PFOA concentrations ranged from 0.9 to 41 ppt. **Figures 2A and 2B** depict distribution of PFOA in wells and surface water within the town. The majority of the highest PFOA concentration impacts are located within districts 1 and 4, generally located in the western portion of town nearest to the Litchfield town boundary.

#### Nitrate & Nitrite

Nitrate was reported in eleven of the 32 wells sampled. Detected nitrate concentration ranged from 1.0 to 4.0 ppm, well below the AGQS of 10 ppm. Nitrite generally was not detected during the sampling event. Nitrate and nitrite are generally related to fertilizers, animal waste and sewage and according to the US Geological Survey, “Nitrate is the most common inorganic contaminant derived from man-made sources”. In general, this study revealed low concentration and does not appear to indicate large scale nitrate issues.

#### Metals

Detectable levels of four (4) metals were reported within the water supply sampling program. Arsenic, barium, chromium and lead were detected in water supplies sampled. Of these, only arsenic and lead were reported above their corresponding AGQS of 0.01 and 0.015 ppm. Lead was detected within 13 of the 32 wells samples (40%); however, only four were reported above the AGQS with a maximum detected concentration of 0.3 ppm. A summary of metals results for water supply sampling is provided as **Table 2**.

Arsenic was detected within 24 of the 32 wells sampled (75%). Five (5) of the 24 detections exceed the current AGQS of 0.010 ppm. All five of these are in the northern three districts (District 1, District 2, and District 3) and likely correspond to specific bedrock composition of water bearing fractures in this area. There does not appear to be a corresponding distribution related to orchards and pesticide use. **Figure 3** provides a map depicting the distribution of arsenic in wells and surface water within the town.

In the original study 39% of the wells contained arsenic at a detectable concentration (>0.005 ppm). Using the same threshold, 29% of the current dataset would be deemed to contain arsenic. This is significant as the NHDES has proposed a new lower AGQS for arsenic of 5 ppb (0.005 ppm). Therefore, the current 16% of wells exceeding AGQS would increase to roughly one third of the water supplies in the town.

Property	Arsenic Concentration (ppm)	
	Original 2001	2019
21 Lawson Farm Road	0.043	0.034
15 Partridge Lane	0.034	0.036
19 Pine Hollow Drive	0.016	0.002
9 Acropolis Avenue	0.010	0.006
17 Wilshire Drive	0.009	0.007
97 Gilcreast Road	0.006	0.007
28 Hazelnut Lane	0.006	0.011
46 Otterson Road	0.006	0.004
17 Wimbeldon Drive	0.006	0.001

The table above provides a comparison of arsenic concentration at those properties sampled during both the original (2001) and 2019 sampling events and which contained detectable arsenic concentrations. Generally, arsenic concentration within these wells has remained consistent and stable.

### 3.5 Evaluation of Surface Water Quality

The surface water samples were evaluated for the presence of VOCs, RCRA-8 metals, phosphate and nitrate/nitrite. VOCs were not detected within the thirteen surface water samples collected as part of this study. The metal barium was detected in all samples analyzed at concentrations ranging from 0.011 to 0.24 ppm. These concentrations appear to be low and consistent throughout the town. Arsenic was detected in only two surface water samples at low concentrations. Lead was detected in one surface water sample at a concentration of 0.002 ppm. The remaining five metals were not detected within the samples analyzed. In general, adverse impact via metals to surface waters is not suggested. A summary of results for surface water sampling is provided as **Table 3**.

Nitrate/nitrite was evaluated in six of the surface water samples. None of the six locations contained nitrate/nitrite above method detection limits. Total phosphate as phosphorus was consistently reported within all but one of the surface water samples. Phosphate was reported at concentrations ranging from 0.11 to 0.52 ppm. These concentrations appear elevated relative to ideal surface water phosphorus concentrations reported within the published literature and may be attributable to the historic agricultural nature of the town, or native rock type. NHDES suggests (Env-Wq 1703.14(a)) phosphorus should be absent from Class A water bodies unless naturally occurring. Additional testing would be required to further evaluate the potential contributors to elevated phosphate.



Thirteen (13) of the twenty (20) PFAS compounds analyzed were reported as detected within at least one of the surface water samples. Of these 13 compounds, again perfluorooctanoic acid (PFOA) is the most prevalent and concerning PFAS compound. PFOA was detected within all thirteen surface water samples collected and within each of the six sampling districts. PFOA concentration ranged from 9.8 to 42 ppt, with a mean concentration of 20.5 ppt. A summary of PFAS results for surface water sampling is provided as **Table 4**.

## **4.0 CONCLUSIONS & RECOMMENDATIONS**

### **4.1 Conclusions**

Overall, low level PFAS impact is found throughout the town but higher concentrations are evident within the town in proximity to the Litchfield town boundary; therefore, some PFAS impacts may be attributable to the Saint Gobain facility operations in Merrimack, NH. The depositional model would be similar to impacts within the town of Litchfield but generally lesser in magnitude (further from the potential source). The outer boundary from the Saint Gobain Consent Decree is shown on **Figures 2A and 2B**, and generally runs along High Range Road. Per the Consent Decree, Saint Gobain may be responsible for providing bottled water to impacted water supplies to the west of High Range Road.

We note, the 2019 sampling was a small sub-sampling of the total of water supplies within the town. The results point to overall higher impacts from PFOA in the western portions of the town. Recent changes to the AGQS for PFOA suggest there is potential for health concerns associated with PFOA above 12 ppt. This is particularly of concern for pregnant women and breastfeeding mothers.

Arsenic impacts consistent with those observed during the original study were confirmed during this WQS. The arsenic standard was lowered to 10 ppb, and NHDES has proposed an even lower standard of 5 ppb that has yet to be implemented. Arsenic is a naturally occurring metal, but also was historically related to orchard pesticide use. This study did not reveal a significant relationship to orchard locations and the arsenic found in water supplies is presumed to be of a natural origin.

Overall, drinking water quality within the town appears to have improved relative to the original study. VOCs are generally not observed within the water supplies. Nitrates are generally low and metals are found within normal ranges. However, the occurrence of PFOA throughout town water supplies is of concern.

Surface water quality within the town appears stable relative to the original study. VOCs are not observed within surface waters tested. Metals are found within normal ranges. Phosphate levels appear somewhat elevated throughout the town and may be related to agricultural use, grass lawn fertilizers, or natural rock composition.

The occurrence of PFOA consistently throughout town surface waters is also of concern. Generally, the highest detected concentrations are within surface waters in the western portions of the town.

## **4.2 Recommendations**

Nobis Group® provides the following recommendations related to water sampling:

- The town should continue with a periodic (5-year) sampling program to monitor overall water quality and compile a comparable database of water quality;
- Followup PFAS sampling at those residences with elevated PFOA results may be warranted. A discussion of results and potential for long term health effects should be completed with impacted residents. In some, if not all cases, these tasks may be the responsibility of NHDES or Saint Gobain;
- Further research/study of arsenic impacts on town bedrock water resources may be warranted. A better understanding of distribution and magnitude of arsenic occurrence could assist to direct prioritization of future water infrastructure planning by the Town.

# T A B L E S

TABLE 1  
SUMMARY OF DRINKING WATER PFAS ANALYSES  
Drinking water Sampling Program  
Londonderry, New Hampshire  
Nobix Project No. 95160.00

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)		Perfluorobutanoic Acid (PFBA)	Perfluoropentanoic Acid (PFPeA)	Perfluorohexanoic Acid (PFHxA)	Perfluoroheptanoic Acid (PFHpA)	Perfluorooctanoic Acid (PFOA)	Perfluorononanoic Acid (PFNA)	Perfluorodecanoic Acid (PFDA)	Perfluoroundecanoic Acid (PFUnA)	Perfluorododecanoic Acid (PFDoA)	Perfluorotridecanoic Acid (PFTTrDA)	Perfluorotetradecanoic Acid (PFTEDA)	Perfluorobutane Sulfonate (PFBS)	Perfluorohexane sulfonate (PFHxS)	Perfluoroheptane Sulfonic acid (PFHpS)	Perfluorooctane Sulfonate (PFOS)	Perfluorodecane Sulfonate (PFDS)	N-methylperfluorooctanesulfonamideoacetic acid (NMeFOSAA)	6:2 Fluorotelomer Sulfonate	8:2 Fluorotelomer sulfonate	Perfluoro-n-hexadecanoic acid (PFHxDA)
NHDES AGQS		ns	ns	ns	ns	12	11	ns	ns	ns	ns	ns	ns	18	ns	15	ns	ns	ns	ns	ns
Location	Date																				
District 1																					
NOB-060 19 Justin Circle	6/5/2019	2.6B	2.4	2.9	3.3	22	<2	<2	<2	<2	<2	<2	6.3	2.0B	<2	2.5I	<2	<2	<10	<2	<2
NOB-59 7 Rolling Ridge Road	6/3/2019	5.7B	7.2	10	7.1	40	1.2J	0.5J	<1.9	<1.9	<1.9	<1.9	3.4	2.2B	0.2JI	12	<1.9	<1.9	<9.6	<1.9	<1.9
NOB-047 39 Rolling Ridge Road	5/15/2019	1.2J	0.7J	1.5J	2.1	13	<2	<2	<2	<2	<2	<2	0.8J	1.0JB	<2	1.2J	<2	<2	<9.9	<2	<2
NOB-058 114 Litchfield Road	6/3/2019	4.6B	5.9	7.8	5.9	41	0.4JI	<1.9	<1.9	<1.9	<1.9	<1.9	3.1	3.8B	0.2J	3.9	<1.9	<1.9	<9.5	<1.9	<1.9
NOB-41 19 Pine Hollow Drive	5/2/2019	4.2B	3.9	5.5	5.3	23	0.4J	<1.9	<1.9	<1.9	<1.9	<1.9	3.3	1.9B	<1.9	3.3I	<1.9	<1.9	<9.4	<1.9	<1.9
NOB-064 68 Alexander Road	6/11/2019	2.3B	2.4	4.7	6.6	37	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	4.0	1.1JB	<1.9	3.3	<1.9	<1.9	<9.5	<1.9	<1.9
NOB-072 8 Sara Beth Lane	6/17/2019	1.2 JH	<1.9	1.2JH	0.7JH	3.6H	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	0.9JH	0.9JHB	<1.9	1.2JH	<1.9	<1.9	<9.5	<1.9	<1.9
MTBE-2800 19 Teton Drive	6/20/2019	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	0.3JB	<1.8	<1.8	<1.8	<1.8	<9.1	<1.8	<1.8
District 2																					
NOB-043 21 Lawson Farm Road	5/2/2019	2.9B	0.7J	0.9JI	0.3J	3.1	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	0.6J	1.4JB	<1.9	<1.9	<1.9	<1.9	<9.4	<1.9	<1.9
NOB-048 28 Hazelnut Lane	5/15/2019	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	0.3JB	<1.9	<1.9	<1.9	<1.9	<9.6	<1.9	<1.9
NOB-050 2 Faye Lane	5/15/2019	<1.9	<1.9	<1.9	<1.9	0.9J	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	0.4JB	<1.9	<1.9	<1.9	<1.9	<9.5	<1.9	<1.9

TABLE 1  
SUMMARY OF DRINKING WATER PFAS ANALYSES  
Drinking water Sampling Program  
Londonderry, New Hampshire  
Nobix Project No. 95160.00

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)		Perfluorobutanoic Acid (PFBA)	Perfluoropentanoic Acid (PFPeA)	Perfluorohexanoic Acid (PFHxA)	Perfluoroheptanoic Acid (PFHpA)	Perfluorooctanoic Acid (PFOA)	Perfluorononanoic Acid (PFNA)	Perfluorodecanoic Acid (PFDA)	Perfluoroundecanoic Acid (PFUnA)	Perfluorododecanoic Acid (PFDoA)	Perfluorotridecanoic Acid (PFTnDA)	Perfluorotetradecanoic Acid (PFTEDA)	Perfluorobutane Sulfonate (PFBS)	Perfluorohexane sulfonate (PFHxS)	Perfluoroheptane Sulfonic acid (PFHpS)	Perfluorooctane Sulfonate (PFOS)	Perfluorodecane Sulfonate (PFDS)	N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	6:2 Fluorotelomer Sulfonate	8:2 Fluorotelomer sulfonate	Perfluoro-n-hexadecanoic acid (PFHxDA)
NHDES AGQS		ns	ns	ns	ns	12	11	ns	ns	ns	ns	ns	ns	18	ns	15	ns	ns	ns	ns	ns
Location	Date																				
District 3																					
NOB-042 15 Partridge Lane	5/2/2019	3.4B	2.1	3	1.8J	7.3	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	9.4	0.7JB	<1.9	0.8JI	<1.9	<1.9	<9.7	<1.9	<1.9
NOB-063 29 Beacon Street	6/11/2019	2.7B	2.7	3.4	2.0	7.9	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	7.7	1.6JB	<1.9	2.5	<1.9	<1.9	<9.3	<1.9	<1.9
NOB-062 5 Allison Lane	6/11/2019	1.1JB	<1.9	<1.9	<1.9	1.1J	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	0.7J	1.4JB	<1.9	0.7J	<1.9	<1.9	<9.6	<1.9	<1.9
NOB-073 5 Wilson Road	6/18/2019	0.8J	0.5J	1.2JI	1.7J	15	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	0.4J	0.7JIB	<1.8	0.5JI	<1.8	<1.8	<9.0	<1.8	<1.8
NOB-074 25 Coteville Road	6/26/2019	1.3J	2.0	3.3	1.6J	11	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	13	3.2B	<1.8	2.3I	<1.8	<1.8	<9.2	<1.8	<1.8
District 4																					
MTBE-1115 9 Acropolis Ave	6/11/2019	2.9B	2.5	3.3	1.8JB	9.4	0.3J	<1.9	<1.9	<1.9	<1.9	0.4JB	4.2B	1.4JB	0.2J	3.6	<1.9	<1.9	24B	<1.9	<1.9
NOB-044 15 Tyler Drive	5/9/2019	4.6B	5.7	7.0	3.2B	16	0.5J	<1.9	<1.9	<1.9	<1.9	0.3JB	8.5B	2.8B	<1.9	5.3	<1.9	<1.9	3.8JB	<1.9	<1.9
NOB-046 111 West Road	5/9/2019	3.8B	2.8	5	6.6B	41	0.7J	<1.9	<1.9	<1.9	<1.9	0.3JB	1.7JB	1.3JB	<1.9	3.6I	<1.9	<1.9	3.2JB	<1.9	<1.9
NOB-051 12 Mont Vernon Drive	5/21/2019	2.8	6.1	7.3	4.1	16	0.6J	<1.8	<1.8	<1.8	<1.8	<1.8	6.1	2.8B	0.2JI	4.9I	<1.8	<1.8	<9.0	<1.8	<1.8
NOB-045 25 Severence Drive	5/9/2019	5.1B	3.7	5.1	2.6B	13	0.3J	<1.9	<1.9	<1.9	<1.9	<1.9	11B	4.3B	0.3J	4.3I	<1.9	<1.9	2.3JB	<1.9	<1.9
District 5																					
MTBE-1118 95 Mammoth Road	5/9/2019	7.2B	8.8	9.4	5.1B	20	1.0J	0.6J	<1.9	<1.9	<1.9	<1.9	12B	6.3B	0.2J	8.1	<1.9	<1.9	<9.4	<1.9	<1.9
MTBE-1123 17 Wilshire Drive	5/9/2019	2.7B	3.0	4.3	2.5B	9.2	<1.9	<1.9	<1.9	<1.9	<1.9	0.3JB	7.1B	1.6JB	<1.9	1.2JI	<1.9	<1.9	<9.5	<1.9	<1.9
NOB-049 17 Wimbeldon Drive	5/15/2019	2.3	4.1	4.4	2.0	9.7	<2	<2	<2	<2	<2	<2	4.5	0.8JB	<2	1.2JI	<2	<2	17	<2	<2
NOB-075 4 Morningside Drive	7/18/2019	2.7	2.5	3.3	2	11	1.1J	<1.7	<1.7	<1.7	<1.7	<1.7	11	4.6B	0.3J	10	<1.7	<1.7	<8.5	<1.7	<1.7

TABLE 1  
SUMMARY OF DRINKING WATER PFAS ANALYSES  
Drinking water Sampling Program  
Londonderry, New Hampshire  
Nobix Project No. 95160.00

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)		Perfluorobutanoic Acid (PFBA)	Perfluoropentanoic Acid (PFPeA)	Perfluorohexanoic Acid (PFHxA)	Perfluoroheptanoic Acid (PFHpA)	Perfluorooctanoic Acid (PFOA)	Perfluorononanoic Acid (PFNA)	Perfluorodecanoic Acid (PFDA)	Perfluoroundecanoic Acid (PFUnA)	Perfluorododecanoic Acid (PFDoA)	Perfluorotridecanoic Acid (PFTTrDA)	Perfluorotetradecanoic Acid (PFTEDA)	Perfluorobutane Sulfonate (PFBS)	Perfluorohexane sulfonate (PFHxS)	Perfluoroheptane Sulfonic acid (PFHpS)	Perfluorooctane Sulfonate (PFOS)	Perfluorodecane Sulfonate (PFDS)	N-methylperfluorooctanesulfonamideacetic acid (NMeFOSAA)	6:2 Fluorotelomer Sulfonate	8:2 Fluorotelomer sulfonate	Perfluoro-n-hexadecanoic acid (PFHxDA)
NHDES AGQS		ns	ns	ns	ns	12	11	ns	ns	ns	ns	ns	ns	18	ns	15	ns	ns	ns	ns	ns
Location	Date																				
District 6																					
TNK_DW-4 11 Ross Drive	5/9/2019	3.0B	2.8	4.1	2.1B	8.2	0.4J	<1.9	<1.9	<1.9	<1.9	<1.9	2.6B	1.4JB	<1.9	2.8I	<1.9	<1.9	2.5JB	<1.9	<1.9
MTBE-1120 10 Spruce Street	5/9/2019	2.7B	2.5	4.3	2.3B	7.2	0.4J	<1.9	<1.9	<1.9	<1.9	0.3JB	14B	1.8JB	<1.9	4.1	<1.9	<1.9	22B	<1.9	<1.9
NOB-039 46 Otterson Road	5/2/2019	1.2JB	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	0.4JB	<2	<2	<2	<2	<9.9	<2	<2
NOB-040 97 Gilcreast Road	5/2/2019	5.6B	7.1	8.7	3.6	15	0.5JI	<1.9	<1.9	<1.9	<1.9	<1.9	6.0	9.7B	0.2JI	5.8	<1.9	<1.9	<9.6	<1.9	<1.9
MTBE-1122 21 Tokanel Drive	5/21/2019	3.1	2.4	2.5	1.4J	7.0	0.4J	0.3JI	<1.9	<1.9	<1.9	<1.9	6.2	4.7B	0.2J	7.5I	<1.9	<1.9	<9.5	<1.9	<1.9
NOB-061 18 Otterson Road	6/5/2019	2.2B	3.3	5.0	2.2	10	<1.9	<1.9	<1.9	<1.9	<1.9	<1.9	6.1	2.5B	<1.9	2.8I	<1.9	<1.9	<9.6	<1.9	<1.9
MTBE-4073 7 Gardner Circle	6/17/2019	3.0	1.6J	1.6JI	0.8J	4.5	<1.8	<1.8	<1.8	<1.8	<1.8	<1.8	2.4	1.3JB	<1.8	1.5JI	<1.8	<1.8	<9.1	<1.8	<1.8

Notes:

1. All samples were collected by Nobis Group on the dates indicated.

2. All concentrations are reported in ng/L, equivalent to parts per trillion (ppt), except where indicated.

3. "<X" indicates that the parameter was not detected at the specified reporting limit X. Concentrations in Bold indicate a detection, Bold and Shaded indicate exceedances of applicable AGQS. "ns" indicates that no standard is established for the compound. "NA" indicates the parameter was not analyzed.

4. The analyses were performed by Eurofins/Test America Laboratory of Sacramento, California by EPA Method 537 (mod) for PFAS.

5. AGQS refers to the Ambient Groundwater Quality Standards referenced in New Hampshire Code of Administrative Rules Part Env-Or 600 revised September 1, 2018.

Qualifiers: B - Compound also found in method blank; J - Less than RL but > or = to the MDL; I - Value is estimated maximum possible concentration

TABLE 2  
SUMMARY OF DRINKING WATER QUALITY ANALYSES  
Water Quality Sampling Program  
Londonderry, New Hampshire  
Nobis Project NoI 95160.00

		Nitrate	Nitrite	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Methyl tert Butyl Ether (MTBE)/Total VOCs
NHDES AGQS**		10	1	0.01	2	0.01	0.10	0.015	0.002	0.05	0.1	0.013
	Date											
District 1												
NOB-060 19 Justin Circle	6/5/2019	1.4	<0.01	<0.001	<0.010	<0.001	<0.01	0.010	<0.0004	<0.01	<0.01	BD
NOB-59 7 Rolling Ridge Road	6/3/2019	2.9	<0.01	0.011	0.019	<0.001	<0.01	0.038	<0.0004	<0.01	<0.01	BD
NOB-047 39 Rolling Ridge Road	5/15/2019	<1	<0.01	0.002	0.025	<0.001	0.007	0.002	<0.0004	<0.015	<0.01	BD
NOB-058 114 Litchfield Road	6/3/2019	<1	<0.01	<0.001	0.016	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	BD
NOB-41 19 Pine Hollow Drive	5/2/2019	1.4	<0.01	0.002	<0.010	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	BD
NOB-064 68 Alexander Road	6/11/2019	1.2	<0.01	<0.001	0.040	<0.001	0.012	0.002	<0.0004	<0.01	<0.01	BD
NOB-072 8 Sara Beth Lane	6/17/2019	<1	<0.01	0.018	0.074	<0.001	<0.01	0.200	<0.0004	<0.01	<0.01	BD
MTBE-2800 19 Teton Drive	6/20/2019	<1	<0.01	<0.001	0.016	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	BD
District 2												
NOB-043 21 Lawson Farm Road	5/2/2019	<1	<0.01	0.034	0.011	<0.001	<0.01	0.001	<0.0004	<0.01	<0.01	BD
NOB-048 28 Hazelnut Lane	5/15/2019	<1	<0.01	0.011	<0.010	<0.001	0.004	<0.001	<0.0004	<0.015	<0.01	BD
NOB-050 2 Faye Lane	5/15/2019	<1	<0.01	0.004	<0.010	<0.001	0.002	0.059	<0.0004	<0.015	<0.01	BD

TABLE 2  
SUMMARY OF DRINKING WATER QUALITY ANALYSES  
Water Quality Sampling Program  
Londonderry, New Hampshire  
Nobis Project NoI 95160.00

		Nitrate	Nitrite	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Methyl tert Butyl Ether (MTBE)/Total VOCs
NHDES AGQS**		10	1	0.01	2	0.01	0.10	0.015	0.002	0.05	0.1	0.013
	Date											
District 3												
NOB-042 15 Partridge Lane	5/2/2019	<1	<0.01	0.036	0.012	<0.001	<0.01	0.011	<0.0004	<0.01	<0.01	BD
NOB-063 29 Beacon Street	6/11/2019	<1	0.08	<0.001	0.005	<0.001	0.011	<0.001	<0.0004	<0.01	<0.01	BD
NOB-062 5 Allison Lane	6/11/2019	<1	<0.01	0.001	0.007	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.0006
NOB-073 5 Wilson Road	6/18/2019	<1	<0.01	0.001	0.129	<0.001	0.013	0.008	<0.0004	<0.01	<0.01	BD
NOB-074 25 Coteville Road	6/26/2019	1.2	<0.01	<0.001	<0.010	<0.001	<0.01	0.005	<0.0004	<0.01	<0.01	BD
District 4												
MTBE-1115 9 Acropolis Ave	6/11/2019	<1	<0.01	0.006	<0.010	<0.001	<0.01	<0.001	<0.0004	<0.015	<0.01	BD
NOB-044 15 Tyler Drive	5/9/2019	<1	<0.01	<0.001	<0.010	<0.001	<0.01	0.003	<0.0004	<0.015	<0.01	BD
NOB-046 111 West Road	5/9/2019	<1	<0.01	<0.001	0.014	<0.001	<0.01	<0.001	<0.0004	<0.015	<0.01	BD
NOB-051 12 Mont Vernon Drive	5/21/2019	1.4	<0.01	0.001	0.010	<0.001	<0.01	0.001	<0.0004	<0.01	<0.01	BD
NOB-045 25 Severence Drive	5/9/2019	<1	<0.01	0.001	<0.010	<0.001	<0.01	<0.001	<0.0004	<0.015	<0.01	BD



TABLE 2  
SUMMARY OF DRINKING WATER QUALITY ANALYSES  
Water Quality Sampling Program  
Londonderry, New Hasmpshire  
Nobis Project NoI 95160.00

		Nitrate	Nitrite	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Methyl tert Butyl Ether (MTBE)/Total VOCs
NHDES AGQS**		10	1	0.01	2	0.01	0.10	0.015	0.002	0.05	0.1	0.013
	Date											
District 5												
MTBE-1118 95 Mammoth Road	5/9/2019	<1	<0.01	0.010	0.014	<0.001	<0.01	<0.001	<0.0004	<0.015	<0.01	BD
MTBE-1123 17 Wilshire Drive	5/9/2019	1.0	<0.01	0.007	<0.010	<0.001	<0.01	<0.001	<0.0004	<0.015	<0.01	BD
NOB-049 17 Wimbeldon Drive	5/15/2019	<1	<0.01	0.001	0.027	<0.001	0.003	<0.001	<0.0004	<0.015	<0.01	BD
NOB-075 4 Morningside Drive	7/18/2019	4.0	<0.01	0.001	0.015	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	BD

TABLE 2  
SUMMARY OF DRINKING WATER QUALITY ANALYSES  
Water Quality Sampling Program  
Londonderry, New Hampshire  
Nobis Project NoI 95160.00

		Nitrate	Nitrite	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Methyl tert Butyl Ether (MTBE)/Total VOCs
NHDES AGQS**		10	1	0.01	2	0.01	0.10	0.015	0.002	0.05	0.1	0.013
	Date											
District 6												
TNK_DW-4 11 Ross Drive	5/9/2019	2.3	<0.01	0.003	0.013	<0.001	<0.01	<0.001	<0.0004	<0.015	<0.01	0.013
MTBE-1120 10 Spruce Street	5/9/2019	<1	<0.01	0.009	<0.010	<0.001	<0.01	<0.001	<0.0004	<0.015	<0.01	BD
NOB-039 46 Otterson Road	5/2/2019	4.0	<0.01	0.004	<0.010	<0.001	<0.01	0.30	<0.0004	<0.01	<0.01	BD
NOB-040 97 Gilcreast Road	5/2/2019	<1	<0.01	0.007	<0.010	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	BD
MTBE-1122 21 Tokanel Drive	5/21/2019	<1	<0.01	0.005	<0.010	<0.001	0.010	<0.001	<0.0004	<0.01	<0.01	BD
NOB-061 18 Otterson Road	6/5/2019	1.8	<0.01	0.002	<0.010	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	BD
MTBE-4073 7 Gardner Circle	6/17/2019	<1	<0.01	0.003	0.037	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	BD

Notes:

1. All samples were collected by Nobis Group on the dates indicated.
2. All concentrations are reported in mg/L, equivalent to parts per trillion (ppt), except where indicated.
3. "<X" indicates that the parameter was not detected at the specified reporting limit X. Concentrations in Bold indicate a detection, Bold and Shaded indicate exceedances of applicable standard. "ns" indicates that no standard is established for the compound. "NA" indicates the parameter was not analyzed.
4. VOCs were performed by ChemServe of Milford, NH. The remaining analyses were performed by Nelson Analytical Laboratory of Manchester, NH.

\*\*AGQS = Ambient Groundwater Quality Standard

TABLE 3  
SUMMARY OF SURFACE WATER QUALITY ANALYSES  
Water Quality Sampling Program  
Londonderry, New Hampshire  
Nobis Project No. 95160.00

		Nitrate	Nitrite	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver	Phosphate Total	Total VOCs
Freshwater Aquatic - Chronic		ns	ns	0.15	ns	0.00021	0.0198	0.00041	0.00077	0.005	ns	*	ns
Freshwater Aquatic - Acute		ns	ns	0.34	ns	0.00039	0.152	0.01	0.0014	ns	0.0002	*	ns
Human Health Water & Fish Ingestion		10	ns	18 ng	1	ns	ns	ns	0.00005	0.17	0.105	ns	ns
NHDES AGQS**		10	1	0.01	2	0.01	0.10	0.015	0.002	0.05	0.1	ns	ns
Location	Date												
SW-1	5/21/2019	<1	<0.01	<0.001	0.012	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.52	BD
SW-2	5/21/2019	<1	<0.01	0.001	0.018	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.25	BD
SW-3	5/21/2019	<1	<0.01	<0.001	0.024	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.23	BD
SW-4	5/21/2019	<1	<0.01	<0.001	0.023	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.21	BD
SW-5	5/21/2019	<1	<0.01	0.003	0.024	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.25	BD
SW-6	6/11/2019	NA	NA	<0.001	0.020	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.11	BD
SW-7	6/11/2019	NA	NA	<0.001	0.018	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	<0.05	BD
SW-8	6/11/2019	NA	NA	<0.001	0.016	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.13	BD
SW-9	5/21/2019	<1	<0.01	<0.001	0.024	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.23	BD
SW-10	6/11/2019	NA	NA	<0.001	0.011	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.14	BD
SW-11	6/12/2019	NA	NA	<0.001	0.016	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.15	BD
SW-12	6/12/2019	NA	NA	<0.001	0.011	<0.001	<0.01	<0.001	<0.0004	<0.01	<0.01	0.13	BD
SW-13	6/11/2019	NA	NA	<0.001	0.021	<0.001	<0.01	0.002	<0.0004	<0.01	<0.01	0.17	BD

- Notes:
1. All samples were collected by Nobis Group on the dates indicated.
  2. All concentrations are reported in mg/L, equivalent to parts per trillion (ppt), except where indicated.
  3. "<X" indicates that the parameter was not detected at the specified reporting limit X. Concentrations in Bold indicate a detection, Bold and Shaded indicate exceedances of applicable standard. "ns" indicates that no standard is established for the compound. "NA" indicates the parameter was not analyzed.
  4. VOCs were performed by ChemServe of Milford, NH. The remaining analyses were performed by Nelson Analytical Laboratory of Manchester, NH.
- \*\*AGQS are not directly applicable to surface water and provided simply for comparison purposes
5. Freshwater Aquatic Chronic and Acute Criteria, and Human Health Water & Fish Ingestion Criteria from Table 1703-1: Water Quality Criteria for Toxic Substances

TABLE 4  
SUMMARY OF SURFACE WATER PFAS ANALYSES  
Water Quality Sampling Program  
Londonderry, New Hampshire  
Nobis Project No. 95160.00

PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)		Perfluorobutanoic Acid (PFBA)	Perfluoropentanoic Acid (PFPeA)	Perfluorohexanoic Acid (PFHxA)	Perfluoroheptanoic Acid (PFHpA)	Perfluorooctanoic Acid (PFOA)	Perfluorononanoic Acid (PFNA)	Perfluorodecanoic Acid (PFDA)	Perfluoroundecanoic Acid (PFUnA)	Perfluorododecanoic Acid (PFDoA)	Perfluorotridecanoic Acid (PFTTrDA)	Perfluorotetradecanoic Acid (PFTEDA)	Perfluorobutane Sulfonate (PFBS)	Perfluorohexane sulfonate (PFHxS)	Perfluoroheptane Sulfonic Acid (PFHpS)	Perfluorooctane Sulfonate (PFOS)	Perfluorodecane Sulfonate (PFDS)	N-methylperfluorooctanesulfonamideoacetic acid (NMeFOSAA)	6:2 Fluorotelomer Sulfonate	8:2 Fluorotelomer sulfonate	Perfluoro-n-hexadecanoic acid (PFHxDA)
NHDES AGQS**		ns	ns	ns	ns	12	11	ns	ns	ns	ns	ns	ns	18	ns	15	ns	ns	ns	ns	ns
Location	Date																				
SW-1	5/21/2019	3.3B	3.7	4.3	3.3	12	0.8J	0.3JI	<1.9	<1.9	<1.9	<1.9	2.8	2.0B	<1.9	4.1I	<1.9	<1.9	<9.5	<1.9	<1.9
SW-2	5/21/2019	5.5B	7.2	8.0	5.4	20	1.1J	<1.9	<1.9	<1.9	<1.9	<1.9	3.4	2.7B	<1.9	5.0I	<1.9	<1.9	<9.5	<1.9	<1.9
SW-3	5/21/2019	3.7B	4.2	4.5	2.8	11	1.0J	0.3J	<1.8	<1.8	<1.8	<1.8	3.2	2.7B	<1.9	5.5	<1.8	<1.8	<9.2	<1.8	<1.8
SW-4	5/21/2019	3.2B	3.9	4.5	2.7	9.8	0.8J	0.4J	<1.9	<1.9	<1.9	<1.9	3.1	2.6B	<1.9	4.6	<1.9	<1.9	<9.5	<1.9	<1.9
SW-5	5/21/2019	4.8B	6.5	7.8	5.7	22	1.5J	<1.9	<1.9	<1.9	<1.9	<1.9	2.6	3.6B	0.2JI	7.4	<1.9	<1.9	<9.3	<1.9	<1.9
SW-6	6/11/2019	8.8B	14	16	9.0	33	3.6	0.9J	<1.9	<1.9	<1.9	<1.9	4.4	7.7B	<1.9	14	<1.9	<1.9	4.1J	1.7J	<1.9
SW-7	6/11/2019	7.2B	9.3	10	6.3	30	2.2	0.7JI	<2	<2	<2	<2	4.8	6.3B	<2	14	<2	<2	<9.9	<2	<2
SW-8	6/11/2019	4.9B	4.9	6.3	5.0	27	1.1J	<2	<2	<2	<2	<2	3.8	2.7B	<2	5.5	<2	<2	<9.8	<2	<2
SW-9	5/21/2019	3.3B	3.6	4.5	2.9	12	1.0J	0.3JI	<1.9	<1.9	<1.9	<1.9	2.8	2.0B	<1.9	3.9	<1.9	<1.9	<9.5	<1.9	<1.9
SW-10	6/11/2019	4.6B	4.3	5.2	3.3	12	1.1JI	0.4J	<1.9	<1.9	<1.9	<1.9	2.8	2.2B	<1.9	4.2	<1.9	<1.9	<9.5	<1.9	<1.9
SW-11	6/12/2019	5.8B	7.3	8.9	7.4	42	1.2J	0.3J	<1.9	<1.9	<1.9	<1.9	3.5	2.6B	<1.9	3.9	<1.9	<1.9	<9.6	<1.9	<1.9
SW-12	6/12/2019	5.3B	5.0	6.3	4.4	24	1.0J	<2	<2	<2	<2	<2	3.2	2.0B	<2	4.0	<2	<2	<9.9	<2	<2
SW-13	6/11/2019	3.2B	3.5	3.7	2.8	11	0.9J	0.4J	<2	<2	<2	<2	2.3	1.8JB	<2	3.8	<2	<2	<9.8	<2	<2

Notes:

1. All samples were collected by Nobis Group on the dates indicated.

2. All concentrations are reported in ng/L, equivalent to parts per trillion (ppt), except where indicated.

3. "<X" indicates that the parameter was not detected at the specified reporting limit X. Concentrations in Bold indicate a detection, Bold and Shaded indicate exceedances of applicable AGQS. "ns" indicates that no standard is established for the compound. "NA" indicates the parameter was not analyzed.

4. The analyses were performed by Eurofins/Test America Laboratory of Sacramento, California by EPA Method 537 (mod) for PFAS.

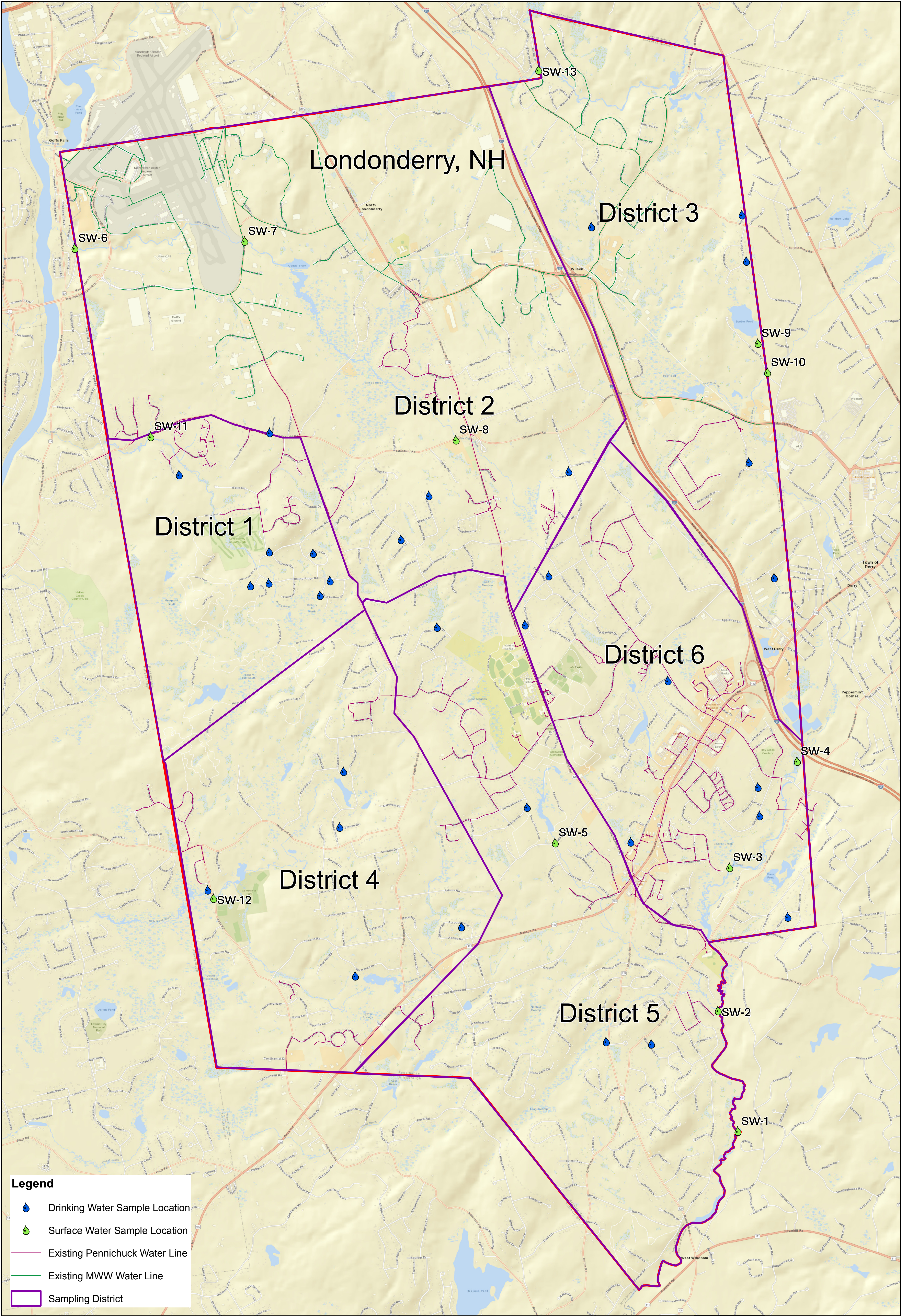
5. Surface water quality standards (SWQS) have not been developed for PFAS at this time.

\*\*AGQS are not directly applicable to surface water and provided simply for comparison purposes

Qualifiers: B - Compound also found in method blank; J - Less than RL but > or = to the MDL; I - Value is estimated maximum possible concentration

# **F I G U R E S**





Legend

Drinking Water Sample Location

Surface Water Sample Location

Existing Pennichuck Water Line

Existing MWW Water Line

Sampling District

Notes:

1. Locations of site features and sample locations depicted hereon are approximate and given for illustrative purposes only.

2. Sample Location Plan developed from observations made by Nobis, basemap provided by ESRI.

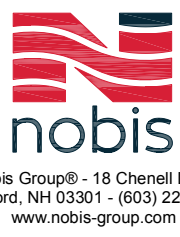
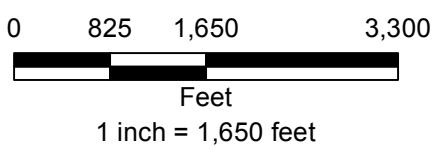
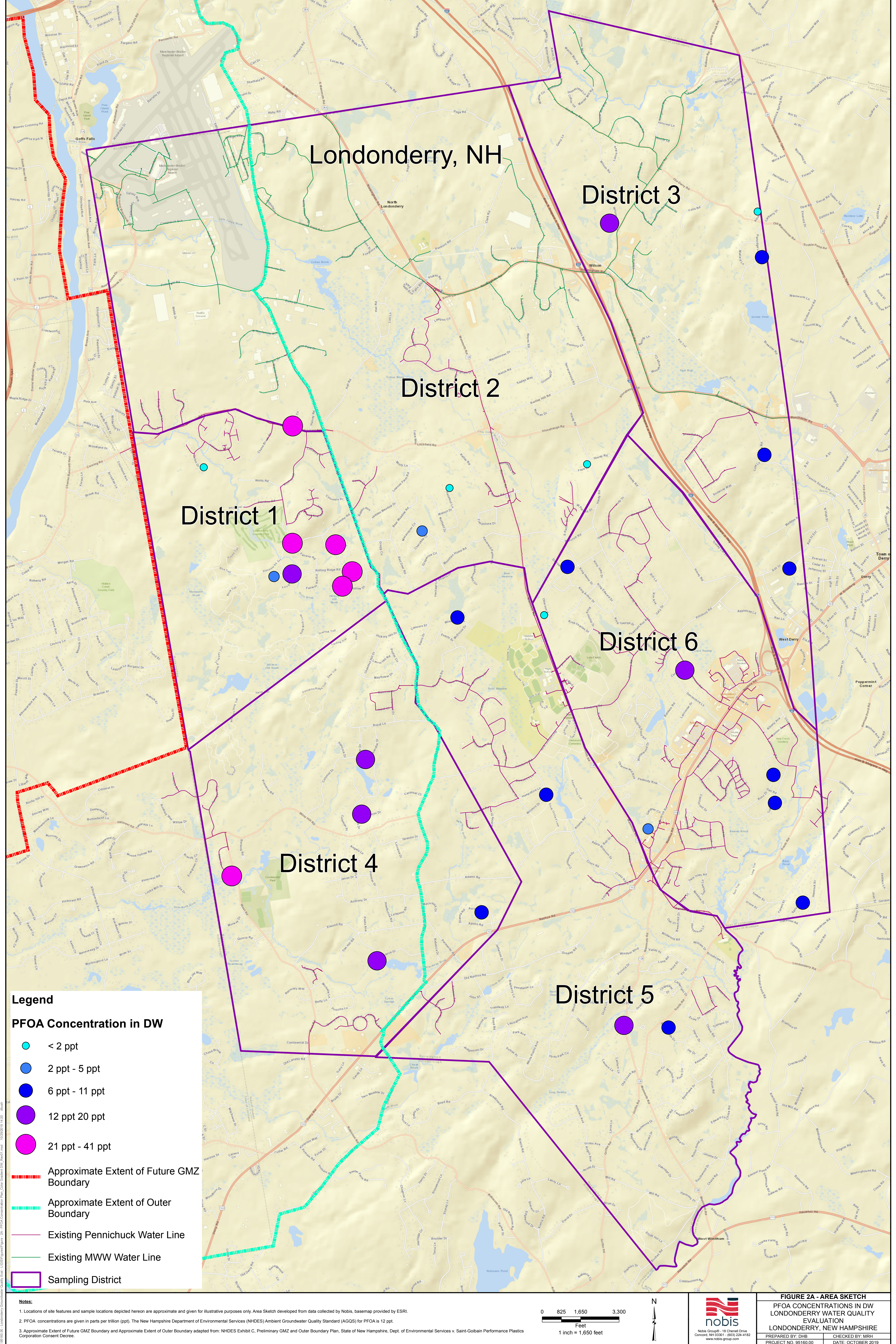


FIGURE 1 - SAMPLE LOCATION PLAN	
DRINKING WATER & SURFACE WATER	
SAMPLE LOCATION PLAN	
LONDONDERRY WATER QUALITY	
EVALUATION	
LONDONDERRY, NEW HAMPSHIRE	
PREPARED BY: DMB	CHECKED BY: MRH
PROJECT NO. 95160.00	DATE: OCTOBER 2019





**Legend**

**PFOA Concentration in DW**

< 2 ppt

2 ppt - 5 ppt

6 ppt - 11 ppt

12 ppt 20 ppt

21 ppt - 41 ppt

Approximate Extent of Future GMZ Boundary

Approximate Extent of Outer Boundary

Existing Pennichuck Water Line

Existing MWW Water Line

Sampling District

**Notes:**

1. Locations of site features and sample locations depicted hereon are approximate and given for illustrative purposes only. Area Sketch developed from data collected by Nobis, basemap provided by ESRI.

2. PFOA concentrations are given in parts per trillion (ppt). The New Hampshire Department of Environmental Services (NHDES) Ambient Groundwater Quality Standard (AGQS) for PFOA is 12 ppt.

3. Approximate Extent of Future GMZ Boundary and Approximate Extent of Outer Boundary adapted from: NHDES Exhibit C, Preliminary GMZ and Outer Boundary Plan, State of New Hampshire, Dept. of Environmental Services v. Saint-Gobain Performance Plastics Corporation Consent Decree.

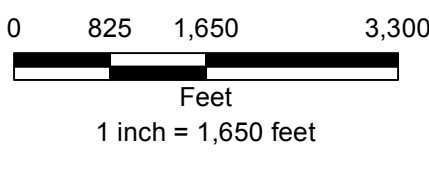
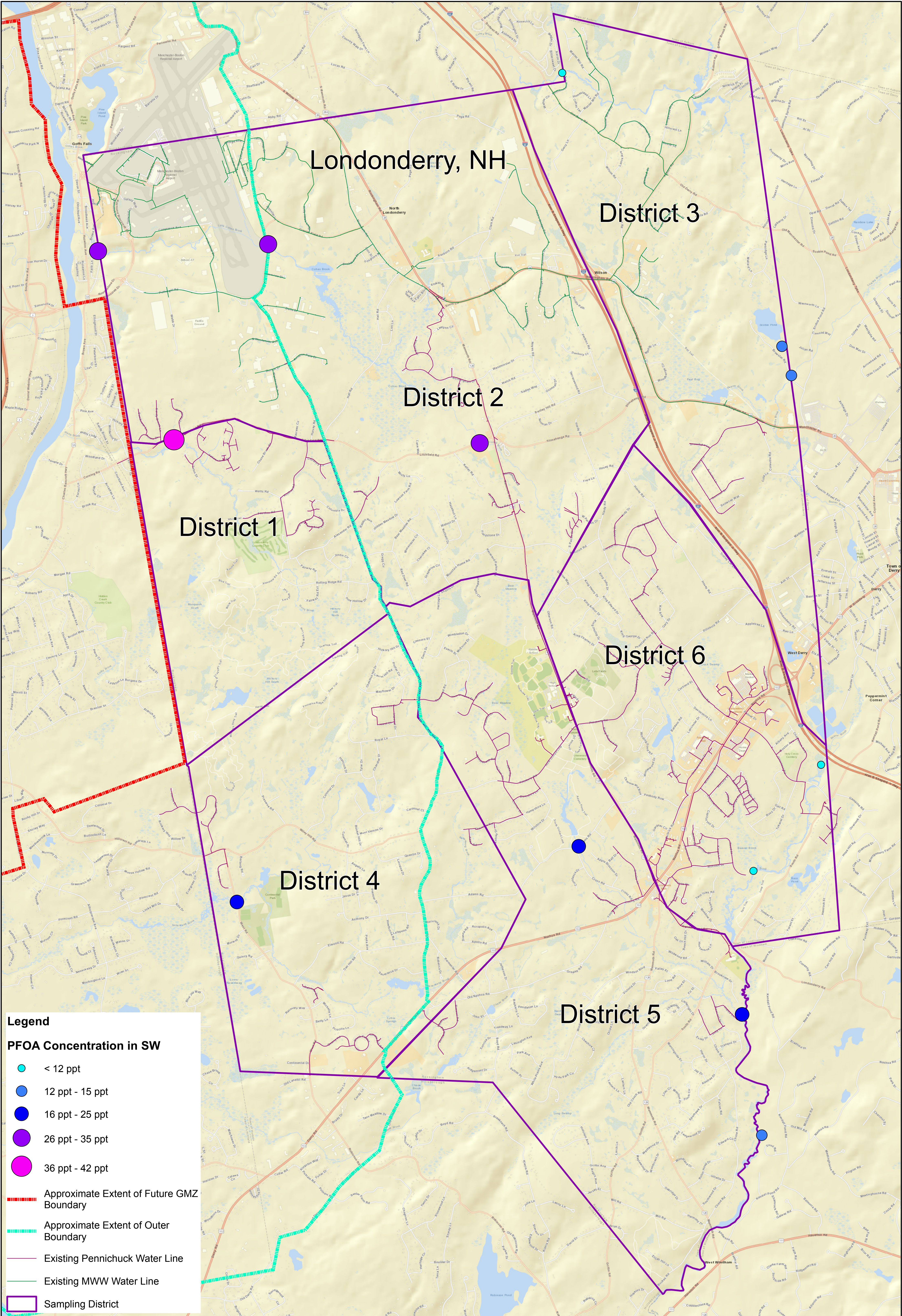


FIGURE 2A - AREA SKETCH	
PFOA CONCENTRATIONS IN DW LONDONDERRY WATER QUALITY EVALUATION LONDONDERRY, NEW HAMPSHIRE	
PREPARED BY: DHB	CHECKED BY: MRN
PROJECT NO. 95160.00	DATE: OCTOBER 2019





**Legend**

**PFOA Concentration in SW**

< 12 ppt

12 ppt - 15 ppt

16 ppt - 25 ppt

26 ppt - 35 ppt

36 ppt - 42 ppt

Approximate Extent of Future GMZ Boundary

Approximate Extent of Outer Boundary

Existing Pennichuck Water Line

Existing MWW Water Line

Sampling District

**Notes:**

1. Locations of site features and sample locations depicted hereon are approximate and given for illustrative purposes only. Area Sketch developed from data collected by Nobis, basemap provided by ESRI.

2. PFOA concentrations are given in parts per trillion (ppt). The New Hampshire Department of Environmental Services (NHDES) Ambient Groundwater Quality Standard (AGQS) for PFOA is 12 ppt.

3. Approximate Extent of Future GMZ Boundary and Approximate Extent of Outer Boundary adapted from: NHDES Exhibit C, Preliminary GMZ and Outer Boundary Plan, State of New Hampshire, Dept. of Environmental Services v. Saint-Gobain Performance Plastics Corporation Consent Decree.

08/02/2019 Londonderry, New Hampshire Draft, Final - PFOA Concentration Map, Color Graded, 25x35" 10/2/2019 12:17 0204

0 825 1,650 3,300

Feet

1 inch = 1,650 feet

N



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**FIGURE 2B - AREA SKETCH**

**PFOA CONCENTRATIONS IN SW  
LONDONDERRY WATER QUALITY  
EVALUATION**

**LONDONDERRY, NEW HAMPSHIRE**

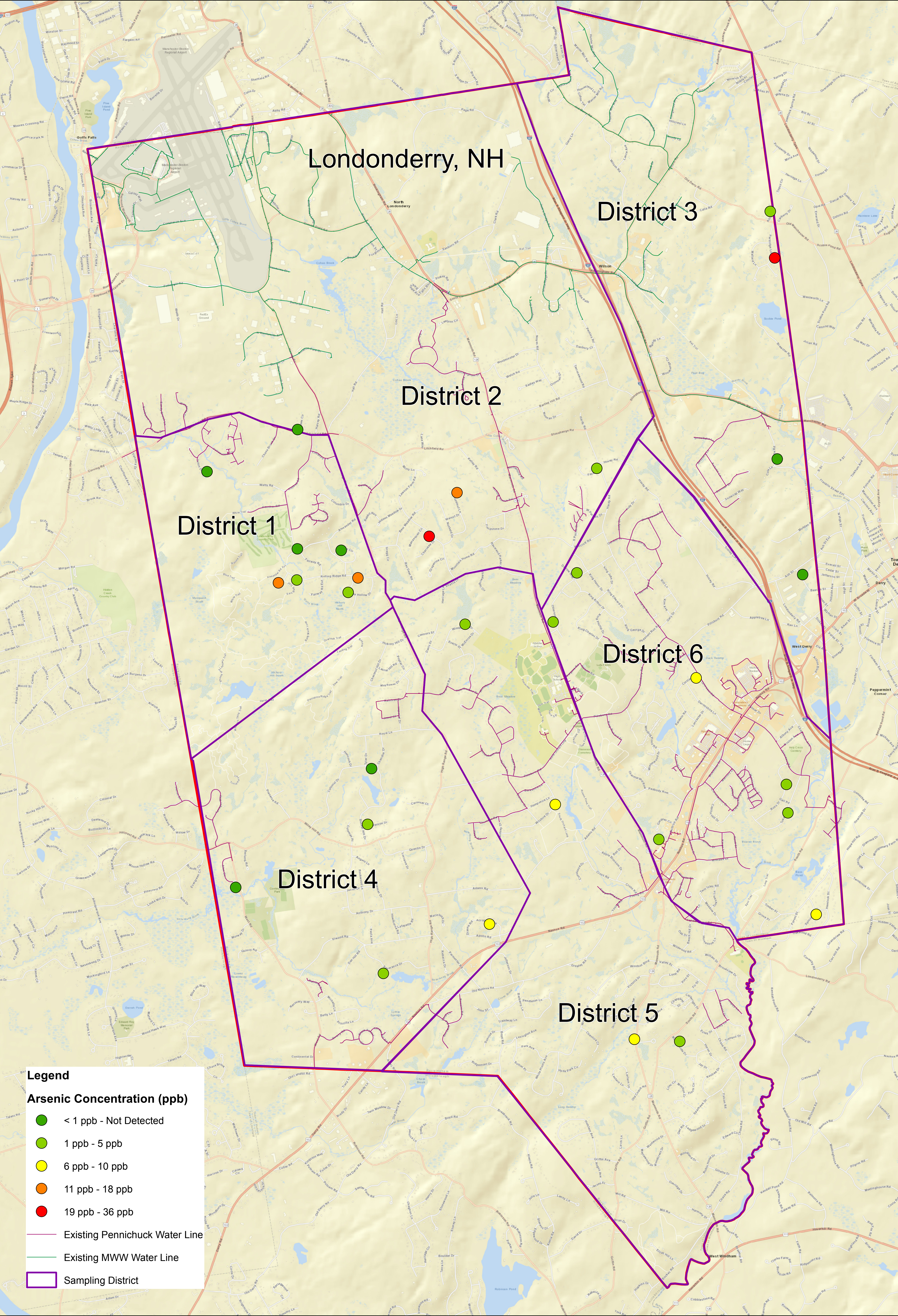
PREPARED BY: DHB

CHECKED BY: MRN

PROJECT NO. 95160.00

DATE: OCTOBER 2019





Legend

Arsenic Concentration (ppb)

< 1 ppb - Not Detected

1 ppb - 5 ppb

6 ppb - 10 ppb

11 ppb - 18 ppb

19 ppb - 36 ppb

Existing Pennichuck Water Line

Existing MWW Water Line

Sampling District

**Notes:**

1. Locations of site features and sample locations depicted hereon are approximate and given for illustrative purposes only.

2. Arsenic concentrations within drinking water are given in parts per billion (ppb). The New Hampshire Department of Environmental Services (NHDES) Ambient Groundwater Quality Standard (AGQS) for arsenic is 5 ppb.

3. Area Sketch developed from data collected by Nobis, basemap provided by ESRI.

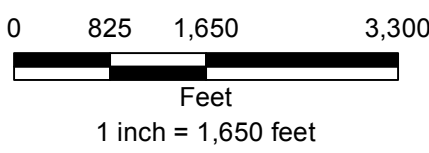


FIGURE 3 - AREA SKETCH	
ARSENIC CONCENTRATIONS LONDONDERRY WATER QUALITY EVALUATION LONDONDERRY, NEW HAMPSHIRE	
PREPARED BY: DHB	CHECKED BY: MRW
PROJECT NO. 95160.00	DATE: OCTOBER 2019



# **A P P E N D I C E S**

# **A P P E N D I X A**

## **LIMITATIONS**

- 1) These environmental services were performed in accordance with generally accepted practices of other consultants undertaking similar assessments at the same time and in the same geographical area. The results of this assessment are based on our professional judgment and are not scientific certainties. Specifically, Nobis Group® does not and cannot represent that the site contains no hazardous wastes, oil or other latent conditions beyond those observed during this assessment. No other warranty, express or implied, is made.
- 2) The observations and conclusions presented in this report were made solely on the basis of conditions described in the report and not on scientific tasks or procedures beyond the scope of described services or the budgetary and time constraints imposed by the client.
- 3) Observations were made of the site as indicated in this report. Where access to portions of the site was unavailable or limited, Nobis Group® renders no opinion as to the presence of hazardous wastes or the presence of indirect evidence of hazardous wastes in that portion of the site.
- 4) No property boundary, site feature or topographic surveys of the site were performed by Nobis Group® unless specifically indicated in the text of the report.
- 5) Chemical constituents not searched for during the current study may be present in soil and/or groundwater at the site. In addition, where any analyses have been conducted by an outside laboratory, Nobis Group® has relied upon the data provided and has not conducted an independent evaluation of the reliability of these data.
- 6) This report has been prepared for the exclusive use for Town of Londonderry solely for use in an environmental evaluation of the site. This report shall not, in whole or in part, be conveyed to any other party, other than the identified users without prior written consent of Nobis Group®.