



**FOCUSED SUBSURFACE SITE INVESTIGATION (FSSI)**

**161-01/11 29TH AVENUE  
AKA 161-01/11 BAYSIDE LANE  
FLUSHING, QUEENS, NEW YORK 11358**

**PREPARED FOR**

**FLUSHING BANK**

**JANUARY 2020**

**MECC PROJECT NO. M18982A**

**MERRITT ENVIRONMENTAL CONSULTING CORP.**

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January 3, 2020  
Project: M18982A

Ms. Kim Gentile  
Flushing Bank  
220 RXR Plaza  
Uniondale NY 11556

RE: Focused Subsurface Site Investigation (FSSI)  
161-01/11 29th Avenue  
Flushing, New York

Dear Ms. Gentile:

Merritt Environmental Consulting Corp. ("MECC") has completed a Focused Subsurface Site Investigation (the "FSSI") at the 161-01 to 161-11 29<sup>th</sup> Avenue property (the "Site"). The Site contains a series of six attached two-story mixed-use residential/commercial buildings constructed in 1931. No dry cleaning currently takes place at the Site. The principal intent of this study was to determine if soil or groundwater quality was adversely affected by potential releases of perchloroethylene (PCE) by historical Site dry cleaning operations. In addition, one closed in-place underground #2 heating oil storage tank (UST) is present at the Site; the scope of this study also included the UST. Three exterior soil borings were installed at the Site and converted to temporary well points for groundwater sampling. Groundwater samples were also collected from two sump pits in the basement of the former dry cleaner tenant space.

This study identified elevated concentrations of PCE in groundwater, along with other chlorinated volatile organic compounds (VOCs) that are PCE degradation products. The highest total chlorinated VOC content reported in the five collected groundwater samples is 140.2 micrograms per liter (ug/l) as identified in a sample collected from one of the two groundwater sump pits. Specifically, PCE was detected at 92 ug/l in this sump sample (the regulatory limit for PCE in ground water is 5 ug/l). Lesser total chlorinated VOC levels were detected in two additional collected groundwater samples: 90 ug/l in the sample collected from the second basement sump; and 5.7 ug/l in a groundwater sample collected from the building exterior. While the horizontal extent of groundwater impacted by chlorinated VOCs currently appears to be limited, the detected concentrations are great enough to warrant a recommendation for regulatory reporting and additional investigation to better understand the horizontal and vertical extent of the impacted media, and to determine if a volatile organic vapor intrusion condition exists within the Site building.

Further, evidence of a petroleum release from the UST was identified in groundwater. Petroleum-related VOCs and semi-volatile organic compounds (SVOCs) are reported in two groundwater samples collected from adjacent to the UST at concentrations that exceed applicable regulatory limits. Regulatory reporting is required in the State of New York when a petroleum release is discovered. MECC recommends that the UST be removed along with any petroleum-contaminated soil that may be a continuing source of a release to local groundwater. Depth to the local water table was measured to be as shallow as five feet bgs at the Site.

## **Background**

The Site is located at the northeast corner of the intersection of 29<sup>th</sup> Avenue and 161<sup>st</sup> Street in an urban setting. The large majority of properties surrounding the Site are used for residential purposes. The Site contains six attached two-story buildings housing commercial and retail operations on the ground floors and residential apartments on the second floors. A shared rear yard is present at the rear (north sides) of the Site buildings. Each of the Site building sections contains discrete full basements. The size of the Site is approximately 13,100 square feet inclusive of the building footprints and rear yard. The aggregate footprint of the Site buildings is approximately 7,300 square feet. Site building construction consists of wood-frame floor and roof decks with brick and mortar exterior walls. The Site appears to have always been connected to the local sewer and drinking water supply systems.

A recently completed phase I environmental site assessment (ESA) indicates that a dry cleaner historically occupied the commercial space at the 161-03 29<sup>th</sup> Avenue portion of the Site (currently occupied by a small drug store). According to sources of historical information gathered by the ESA, a dry cleaner occupied this Site tenant space between 1973 and 2014 and was known as “Rose Garden Cleaners.” Further, regulatory agency databases reviewed by the ESA shows that spent PCE was generated in this tenant space in 2007.

## **Topography and Geology**

The elevation of the Site is approximately 70 feet above mean sea level. Local surface topography has little relief with a slight downward slope to the north-northeast. MECC’s review of the attached USGS topographic map confirms an apparent slight downward slope to the northeast. Subsurface sediment encountered at the Site consists of clay with varying amounts of sand interspersed by water-bearing zones consisting of fine to coarse sand. This unconsolidated sediment likely represents a glaciofluvial depositional environment. Two of these water-bearing zones were encountered to a depth of 15 feet bgs. United States Geological Survey (USGS) interactive maps of Long Island list the depth to the unconfined aquifer in the Site area at approximately 40 feet bgs. Therefore, MECC believes that the encountered shallower water-bearing zones represent perched groundwater conditions. The lateral extent of these water-bearing zones is unknown but it appears that they extend beyond Site borders (evidence of water intrusion was observed within the Site building basements). Based on contaminant concentration gradients identified by this FSSI, it appears that local groundwater flow is likely to the north-northeast. Depth to water at the Site ranged from five feet to seven feet bgs.

## **Scope of Work Completed**

All field activities were conducted on December 12, 2019. A qualified contractor was retained to first conduct a ground-penetrating radar (GPR) survey of the rear yard at the Site. The GPR survey confirmed the location of the closed in-place heating oil UST. Please refer to the attached Site Sketch for the locations of the historical UST location. Based on the reported dimensions of the subsurface anomaly, MECC believes that the volume of the UST may be as great as 2,000 gallons.

The principal intent of this study was to determine if possible historical Site dry cleaning had adversely affected the environmental integrity of the Site. In addition, this FSSI was conducted to establish if the historical #2 heating UST released petroleum to the environment at actionable or reportable concentrations. A qualified contractor was retained to install a total of three exterior soil borings using a track-mount hydraulic direct-push drill rig (Soil Boring Nos. B1 through B3). B1 and B2 were installed directly adjacent to the UST and B3 was placed approximately 30 feet north of the rear entrance of the 161-03 29<sup>th</sup> Avenue Site address.

MECC originally proposed to install two soil borings into the basement floor of the 163-03 29<sup>th</sup> Avenue Site building for soil sample collection and laboratory analysis. However, two groundwater sump pits were observed in this basement. MECC therefore adjusted the scope of this project to collect a sample of the standing water

within each of these sumps. Since an unexpectedly shallow water-bearing deposit was encountered at the Site, this study was centered on establishing groundwater quality; no soil samples were submitted to the laboratory for analysis.

Mr. Frank Galdun, Qualified Environmental Professional (QEP) with MECC, conducted all field sampling activities and directed the drilling contractor.

All driller sampling tubes and rods were subjected to a water/alconox wash between soil boring locations to reduce the potential for cross contamination. All penetrations made by the drilling activities were filled and then patched with like surfacing material.

### **Soil Quality Field Screening Results**

Soil samples were continuously subjected to field screening techniques as B1 through B3 were drilled. The field screening techniques consisted of using a portable photoionization detector (PID) for measuring volatile organic vapors and assessing each soil sample for physical evidence of contamination. Field screening activities were conducted to boring termination at 15 feet bgs. PID readings in soil ranged from undetect to up to 100 parts per million (ppm) in B1 in clay and sand below the first water-bearing deposit at five feet to seven feet bgs. In addition, physical evidence of petroleum contamination was observed in soil and groundwater at both B1 and B2. No free-phase product was observed on water extracted from B1 and B2, although a heavy petroleum sheen and strong petroleum odors were identified. B3 was installed north of the dry cleaner tenant space, at some distance from the UST. No field evidence of soil or groundwater contamination as identified in this boring.

### **Soil/Groundwater Sampling and Laboratory Analysis**

Continuous soil sampling was accomplished by inserting a five-foot plastic sleeve into a casing at the end of the drill rods then driven into the subsurface. The sleeves were removed from the casings as they were extracted from the soil borings. Soil quality evaluation and soil sampling was conducted by cutting the sleeves longitudinally, exposing the collected soil.

Each of three exterior direct-push borings were converted to temporary well points by installing a ten-foot length of one-inch diameter PVC well screen to a depth of 15 feet bgs for groundwater sample collection. Unscreened riser extended to ground surface at each well point. Dedicated disposable one-quarter inch diameter flexible tubing fitted with a foot valve was then used to collect the groundwater samples. Groundwater was purged until apparent turbidity was visibly reduced and one groundwater sample was collected from the each well point for laboratory analysis. In addition, MECC collected one sample each from the standing water within the two sump pits in the basement of 161-03 29<sup>th</sup> Avenue for laboratory analysis.

The groundwater samples collected from the exterior temporary well points are identified on the attached laboratory report as B1GW through B3GW. The two water samples collected from the interior sumps are identified as Sump1 and Sump2. All samples (five groundwater) were analyzed at Veritech, a New York State Department of Health-Certified environmental laboratory (NYSDOH Cert. No. 10982). All samples were analyzed under EPA Method 8260 –VOCs. In addition, the two groundwater samples collected at B1 and B2 were further analyzed under EPA Method 8270 – SVOCs.

All appropriate chain of custody documentation shall be completed before sample shipment to the laboratory. All samples were collected in laboratory-supplied containers and shipped on ice to the laboratory within one day of completion of field activities.

VOCs were detected in the groundwater samples and the following table summarizes the laboratory report:

TABLE 1: VOC RESULTS FOR GROUNDWATER SAMPLES (detected compounds only)						
Compound	B1GW	B2GW	B3GW	Sump1	Sump2	Standards
Acetone	23	ND	ND	ND	<b>140</b>	50
Ethylbenzene	2.6	ND	ND	ND	ND	5
Isopropylbenzene	<b>18</b>	<b>14</b>	ND	ND	ND	5
Methyl-tert-butyl ether (MTBE)	3.6	2.0	ND	ND	ND	10
Naphthalene	<b>300</b>	<b>79</b>	ND	ND	ND	10
n-Propylbenzene	<b>26</b>	<b>22</b>	ND	ND	ND	5
n-Butylbenzene	ND	<b>6.2</b>	ND	ND	ND	5
sec-Butylbenzene	<b>16</b>	<b>13</b>	ND	ND	ND	5
tert-Butylbenzene	2.0	1.1	ND	ND	ND	5
cis-1,2-Dichloroethene	ND	ND	4.6	<b>8.2</b>	<b>13</b>	5
Trichloroethene	ND	ND	1.1	<b>40</b>	<b>12</b>	5
Perchloroethylene	ND	ND	ND	<b>92</b>	<b>65</b>	5
<b>Total VOCs</b>	391.2	137.3	5.7	140.2	230	

**NOTES**

All results are expressed in micrograms per liter (ug/l), which can also be expressed as parts per billion (ppb).

Any result in bold exceeds New York State Department of Health Maximum Contaminant Level for drinking water, and the guidance values or standard listed in the NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) or "TOGS" Water Quality Standards and Guidance Values.

ND: Parameter non-detected, below method detection limits.

Acetone was detected in two samples. However, this substance is commonly introduced into sample media during analytical procedures and is not considered by MECC as a representative of actual groundwater quality. Further, acetone is not a degradation product of PCE, nor is it a constituent of petroleum fuels.

Laboratory analysis of the groundwater samples identifies PCE at elevated concentrations in both of the interior sump samples. Trichloroethene (TCE) and cis-1,2-dichloroethene (cis-1,2-DCE) were also detected in both sump samples at concentrations exceeding the applicable regulatory limit (TCE and cis-1,2-DCE are PCE degradation products).

Aside from acetone, all detected VOCs in B1GW and B2GW are constituents of petroleum-related fuels. Naphthalene, which was detected in both B1GW and B2GW, is a common constituent of heavier petroleum fuels such as heating oil.

SVOCs were detected in B1GW and B2GW and Table 2 on the following page summarizes the laboratory data:

TABLE 2: SVOC RESULTS B1GW AND B2GW (detected compounds only)			
Compound	B1GW	B2GW	Standards
Acenaphthene	<b>89</b>	15	20
Anthracene	18	ND	50
Fluorene	<b>93</b>	21	50
Naphthalene	<b>290</b>	43	10
Phenanthrene	<b>190</b>	33	50
Pyrene	11	2.7	50
<b>Total SVOCs</b>	691	114.7	

**NOTES**

All results are expressed in micrograms per liter (ug/l), which can also be expressed as parts per billion (ppb).

Any result in bold exceeds New York State Department of Health Maximum Contaminant Level for drinking water, and the guidance values or standard listed in the NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) or "TOGS" *Water Quality Standards and Guidance Values*.

ND: Parameter non-detected, below method detection limits.

As shown, several individual SVOC concentrations exceed applicable regulatory limits, confirming MECC's field observations of groundwater quality.

**Conclusions/Recommendations**

Based on the data gathered by this study, MECC believes that the lateral extent of chlorinated VOC contamination caused by the former dry cleaner is limited and moderate in severity. However, the contaminant concentrations are great enough to warrant a recommendation to notify regulators and to conduct further investigation to better establish the horizontal and vertical extent of groundwater impact, and to determine if a vapor intrusion condition exists inside the building.

Laboratory analysis of the two groundwater samples collected from B1 and B2 show that an actionable petroleum release has occurred at the Site heating oil UST. Although MECC concludes that the extent and severity of this release is likely limited to the immediate vicinity of the UST, this finding requires regulatory reporting and corrective action. It is recommended that the UST be removed along with any soil containing petroleum contamination which is the presumed source of the discovered groundwater contamination.

**Limitations of the FSSI**

The scope of the FSSI is intended to aid in evaluating whether additional investigation would be prudent. The tasks that comprise this FSSI are not exhaustive or definitive. MECC has made no independent investigation of the accuracy of these secondary sources and has assumed them to be accurate and complete. MECC does not warrant the accuracy or completeness of information provided by secondary sources (MECC has no reason to believe that the secondary sources provided or acquired during this study contain intentionally false or misleading information). MECC does not warrant that all contamination that may exist under the Site has been discovered, that the Site is suitable for any particular purpose or that the Site is clean or free of liability.

If you have any questions concerning this document, please feel free to call our office.

Sincerely,  
MERRITT ENVIRONMENTAL CONSULTING CORP.



Frank Galdun  
Qualified Environmental Professional (QEP)

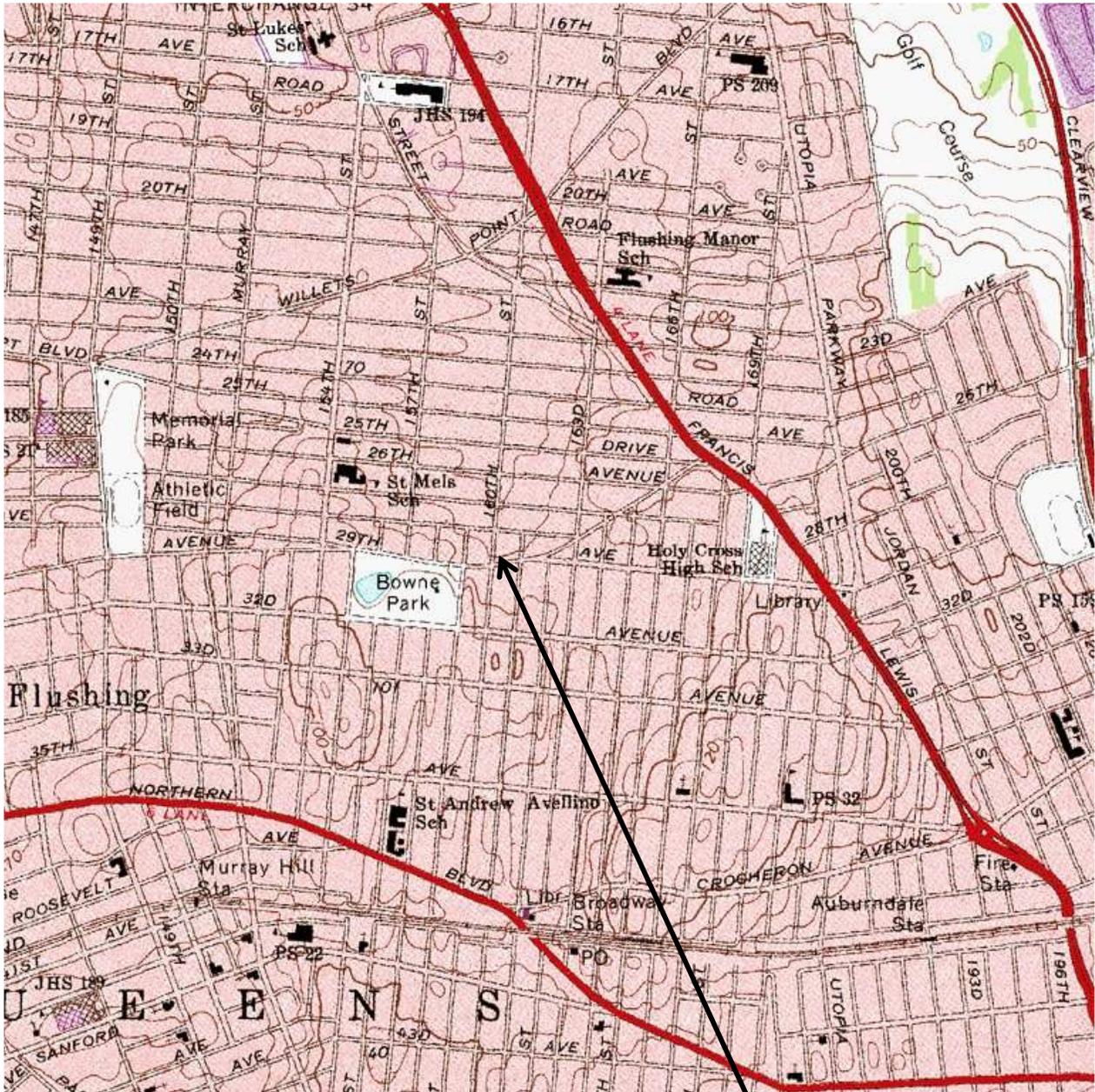


Charles G. Merritt  
President/LEED AP

**Attachments:**

- Attachment 1: Site Location Map and Site Plan
- Attachment 2: Laboratory Report of Analysis
- Attachment 3: Site Photographs
- Attachment 4: Soil Boring Logs

## Attachment 1: Site Location Map and Site Plan

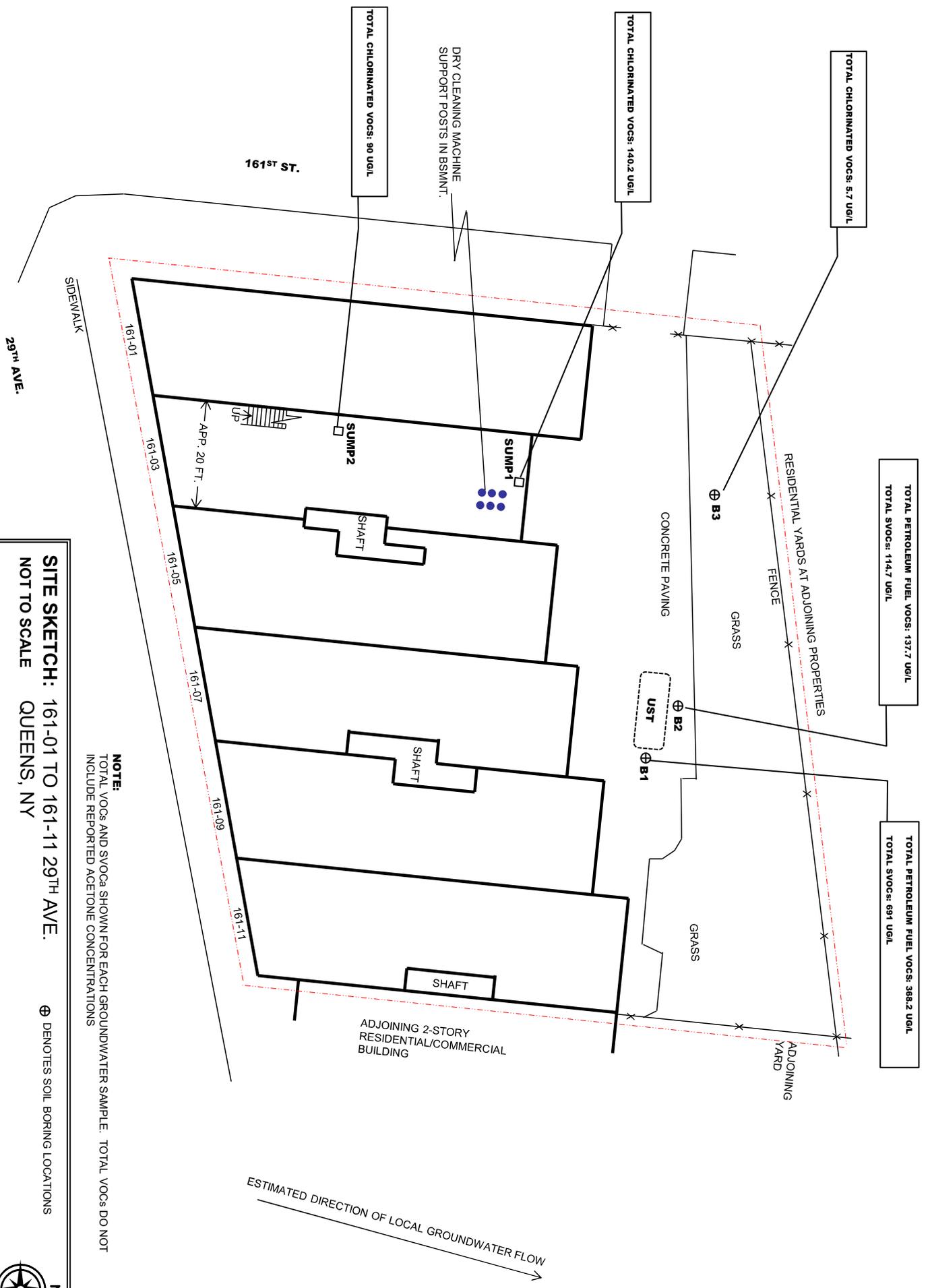


**SITE**

**FIGURE 1: SITE LOCATION MAP**  
 Contour Interval: 10'  
 USGS 7.5" Quadrangle Map titled *Flushing, NY*, dated 1995

**Site Address:**  
 161-01 to 161-11 29<sup>th</sup> Ave.  
 Queens, NY





**NOTE:**  
 TOTAL VOCs AND SVOCs SHOWN FOR EACH GROUNDWATER SAMPLE. TOTAL VOCs DO NOT  
 INCLUDE REPORTED ACETONE CONCENTRATIONS

**SITE SKETCH: 161-01 TO 161-11 29<sup>TH</sup> AVE.**

**NOT TO SCALE**

**QUEENS, NY**

⊕ DENOTES SOIL BORING LOCATIONS

PATTERNED LINES ENCLOSE THE SITE

INTERIOR DETAILS ARE APPROXIMATE AND BASED ON OBSERVATIONS ONLY



## Attachment 2: Laboratory Report of Analysis

# Hampton-Clarke Report Of Analysis

Client: Merritt Environmental  
Project: 161-01 29th Ave

HC Project #: 9121307

Sample ID: B1GW  
Lab#: AD14656-001  
Matrix: Aqueous

Collection Date: 12/12/2019  
Receipt Date: 12/13/2019

## PAH Compounds 8270

Analyte	DF	Units	RL	Result		
<b>Acenaphthene</b>	5	ug/l	10	89		
Acenaphthylene	5	ug/l	10	ND		
<b>Anthracene</b>	5	ug/l	10	18		
Benzo[a]anthracene	5	ug/l	10	ND		
Benzo[a]pyrene	5	ug/l	10	ND		
Benzo[b]fluoranthene	5	ug/l	10	ND		
Benzo[g,h,i]perylene	5	ug/l	10	ND		
Benzo[k]fluoranthene	5	ug/l	10	ND		
Chrysene	5	ug/l	10	ND		
Dibenzo[a,h]anthracene	5	ug/l	10	ND		
Fluoranthene	5	ug/l	10	ND		
<b>Fluorene</b>	5	ug/l	10	93		
Indeno[1,2,3-cd]pyrene	5	ug/l	10	ND		
<b>Naphthalene</b>	5	ug/l	2.5	290		
<b>Phenanthrene</b>	5	ug/l	10	190		
<b>Pyrene</b>	5	ug/l	10	11		
<b>Surrogate</b>	<b>Conc.</b>	<b>Spike</b>	<b>Low Limit</b>	<b>High Limit</b>	<b>Recovery</b>	<b>Flags</b>
Terphenyl-d14	6.55	50	55	146	65	
Phenol-d5	0.47	100	27	115	2	
Nitrobenzene-d5	7.70	50	51	139	77	
2-Fluorophenol	0.00	100	29	113	0	
2-Fluorobiphenyl	5.96	50	53	129	60	
2,4,6-Tribromophenol	0.00	100	54	149	0	

## Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result		
1,1,1-Trichloroethane	1	ug/l	1.0	ND		
1,1-Dichloroethane	1	ug/l	1.0	ND		
1,1-Dichloroethene	1	ug/l	1.0	ND		
1,2,4-Trimethylbenzene	1	ug/l	1.0	ND		
1,2-Dichlorobenzene	1	ug/l	1.0	ND		
1,2-Dichloroethane	1	ug/l	0.50	ND		
1,3,5-Trimethylbenzene	1	ug/l	1.0	ND		
1,3-Dichlorobenzene	1	ug/l	1.0	ND		
1,4-Dichlorobenzene	1	ug/l	1.0	ND		
1,4-Dioxane	1	ug/l	50	ND		
2-Butanone	1	ug/l	1.0	ND		
4-Isopropyltoluene	1	ug/l	1.0	ND		
<b>Acetone</b>	<b>1</b>	<b>ug/l</b>	<b>5.0</b>	<b>23</b>		
Benzene	1	ug/l	0.50	ND		
Carbon tetrachloride	1	ug/l	1.0	ND		
Chlorobenzene	1	ug/l	1.0	ND		
Chloroform	1	ug/l	1.0	ND		
cis-1,2-Dichloroethene	1	ug/l	1.0	ND		
<b>Ethylbenzene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>2.6</b>		
<b>Isopropylbenzene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>18</b>		
m&p-Xylenes	1	ug/l	1.0	ND		
Methylene chloride	1	ug/l	1.0	ND		
<b>Methyl-t-butyl ether</b>	<b>1</b>	<b>ug/l</b>	<b>0.50</b>	<b>3.6</b>		
<b>Naphthalene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>300</b>		
n-Butylbenzene	1	ug/l	1.0	ND		
<b>n-Propylbenzene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>26</b>		
o-Xylene	1	ug/l	1.0	ND		
<b>sec-Butylbenzene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>16</b>		
<b>t-Butylbenzene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>2.0</b>		
Tetrachloroethene	1	ug/l	1.0	ND		
Toluene	1	ug/l	1.0	ND		

**Sample ID: B1GW**  
**Lab#: AD14656-001**  
**Matrix: Aqueous**

**Collection Date: 12/12/2019**  
**Receipt Date: 12/13/2019**

trans-1,2-Dichloroethene	1	ug/l	1.0		ND	
Trichloroethene	1	ug/l	1.0		ND	
Vinyl chloride	1	ug/l	1.0		ND	
Xylenes (Total)	1	ug/l	1.0		ND	
<b>Surrogate</b>	<b>Conc.</b>	<b>Spike</b>	<b>Low Limit</b>	<b>High Limit</b>	<b>Recovery</b>	<b>Flags</b>
Toluene-d8	29.53	30	79	111	98	
Dibromofluoromethane	35.50	30	73	131	118	
Bromofluorobenzene	27.55	30	82	112	92	
1,2-Dichloroethane-d4	35.92	30	78	128	120	

Sample ID: B2GW  
 Lab#: AD14656-002  
 Matrix: Aqueous

Collection Date: 12/12/2019  
 Receipt Date: 12/13/2019

PAH Compounds 8270

Analyte	DF	Units	RL	Result		
<b>Acenaphthene</b>	1	ug/l	2.0	15		
Acenaphthylene	1	ug/l	2.0	ND		
Anthracene	1	ug/l	2.0	ND		
Benzo[a]anthracene	1	ug/l	2.0	ND		
Benzo[a]pyrene	1	ug/l	2.0	ND		
Benzo[b]fluoranthene	1	ug/l	2.0	ND		
Benzo[g,h,i]perylene	1	ug/l	2.0	ND		
Benzo[k]fluoranthene	1	ug/l	2.0	ND		
Chrysene	1	ug/l	2.0	ND		
Dibenzo[a,h]anthracene	1	ug/l	2.0	ND		
Fluoranthene	1	ug/l	2.0	ND		
<b>Fluorene</b>	1	ug/l	2.0	21		
Indeno[1,2,3-cd]pyrene	1	ug/l	2.0	ND		
<b>Naphthalene</b>	1	ug/l	0.50	43		
<b>Phenanthrene</b>	1	ug/l	2.0	33		
<b>Pyrene</b>	1	ug/l	2.0	2.7		
<b>Surrogate</b>	<b>Conc.</b>	<b>Spike</b>	<b>Low Limit</b>	<b>High Limit</b>	<b>Recovery</b>	<b>Flags</b>
Terphenyl-d14	45.22	50	55	146	90	
Phenol-d5	0.61	100	27	115	1	
Nitrobenzene-d5	50.89	50	51	139	102	
2-Fluorophenol	0.00	100	29	113	0	
2-Fluorobiphenyl	36.20	50	53	129	72	
2,4,6-Tribromophenol	0.00	100	54	149	0	

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result
1,1,1-Trichloroethane	1	ug/l	1.0	ND
1,1-Dichloroethane	1	ug/l	1.0	ND
1,1-Dichloroethene	1	ug/l	1.0	ND
1,2,4-Trimethylbenzene	1	ug/l	1.0	ND
1,2-Dichlorobenzene	1	ug/l	1.0	ND
1,2-Dichloroethane	1	ug/l	0.50	ND
1,3,5-Trimethylbenzene	1	ug/l	1.0	ND
1,3-Dichlorobenzene	1	ug/l	1.0	ND
1,4-Dichlorobenzene	1	ug/l	1.0	ND
1,4-Dioxane	1	ug/l	50	ND
2-Butanone	1	ug/l	1.0	ND
4-Isopropyltoluene	1	ug/l	1.0	ND
Acetone	1	ug/l	5.0	ND
Benzene	1	ug/l	0.50	ND
Carbon tetrachloride	1	ug/l	1.0	ND
Chlorobenzene	1	ug/l	1.0	ND
Chloroform	1	ug/l	1.0	ND
cis-1,2-Dichloroethene	1	ug/l	1.0	ND
Ethylbenzene	1	ug/l	1.0	ND
<b>Isopropylbenzene</b>	1	ug/l	1.0	14
m&p-Xylenes	1	ug/l	1.0	ND
Methylene chloride	1	ug/l	1.0	ND
<b>Methyl-t-butyl ether</b>	1	ug/l	0.50	2.0
<b>Naphthalene</b>	1	ug/l	1.0	79
<b>n-Butylbenzene</b>	1	ug/l	1.0	6.2
<b>n-Propylbenzene</b>	1	ug/l	1.0	22
o-Xylene	1	ug/l	1.0	ND
<b>sec-Butylbenzene</b>	1	ug/l	1.0	13
<b>t-Butylbenzene</b>	1	ug/l	1.0	1.1
Tetrachloroethene	1	ug/l	1.0	ND
Toluene	1	ug/l	1.0	ND
trans-1,2-Dichloroethene	1	ug/l	1.0	ND
Trichloroethene	1	ug/l	1.0	ND
Vinyl chloride	1	ug/l	1.0	ND
Xylenes (Total)	1	ug/l	1.0	ND

Sample ID: B2GW  
Lab#: AD14656-002  
Matrix: Aqueous

Collection Date: 12/12/2019  
Receipt Date: 12/13/2019

Surrogate	Conc.	Spike	Low Limit	High Limit	Recovery	Flags
Toluene-d8	30.53	30	79	111	102	
Dibromofluoromethane	34.29	30	73	131	114	
Bromofluorobenzene	30.66	30	82	112	102	
1,2-Dichloroethane-d4	34.54	30	78	128	115	

Sample ID: B3GW  
 Lab#: AD14656-003  
 Matrix: Aqueous

Collection Date: 12/12/2019  
 Receipt Date: 12/13/2019

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result		
1,1,1-Trichloroethane	1	ug/l	1.0	ND		
1,1-Dichloroethane	1	ug/l	1.0	ND		
1,1-Dichloroethene	1	ug/l	1.0	ND		
1,2,4-Trimethylbenzene	1	ug/l	1.0	ND		
1,2-Dichlorobenzene	1	ug/l	1.0	ND		
1,2-Dichloroethane	1	ug/l	0.50	ND		
1,3,5-Trimethylbenzene	1	ug/l	1.0	ND		
1,3-Dichlorobenzene	1	ug/l	1.0	ND		
1,4-Dichlorobenzene	1	ug/l	1.0	ND		
1,4-Dioxane	1	ug/l	50	ND		
2-Butanone	1	ug/l	1.0	ND		
4-Isopropyltoluene	1	ug/l	1.0	ND		
Acetone	1	ug/l	5.0	ND		
Benzene	1	ug/l	0.50	ND		
Carbon tetrachloride	1	ug/l	1.0	ND		
Chlorobenzene	1	ug/l	1.0	ND		
Chloroform	1	ug/l	1.0	ND		
<b>cis-1,2-Dichloroethene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>4.6</b>		
Ethylbenzene	1	ug/l	1.0	ND		
Isopropylbenzene	1	ug/l	1.0	ND		
m&p-Xylenes	1	ug/l	1.0	ND		
Methylene chloride	1	ug/l	1.0	ND		
Methyl-t-butyl ether	1	ug/l	0.50	ND		
Naphthalene	1	ug/l	1.0	ND		
n-Butylbenzene	1	ug/l	1.0	ND		
n-Propylbenzene	1	ug/l	1.0	ND		
o-Xylene	1	ug/l	1.0	ND		
sec-Butylbenzene	1	ug/l	1.0	ND		
t-Butylbenzene	1	ug/l	1.0	ND		
Tetrachloroethene	1	ug/l	1.0	ND		
Toluene	1	ug/l	1.0	ND		
trans-1,2-Dichloroethene	1	ug/l	1.0	ND		
<b>Trichloroethene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>1.1</b>		
Vinyl chloride	1	ug/l	1.0	ND		
Xylenes (Total)	1	ug/l	1.0	ND		
Surrogate	Conc.	Spike	Low Limit	High Limit	Recovery	Flags
Toluene-d8	28.53	30	79	111	95	
Dibromofluoromethane	36.01	30	73	131	120	
Bromofluorobenzene	29.54	30	82	112	98	
1,2-Dichloroethane-d4	36.69	30	78	128	122	

Sample ID: SUMP1  
 Lab#: AD14656-004  
 Matrix: Aqueous

Collection Date: 12/12/2019  
 Receipt Date: 12/13/2019

Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result		
1,1,1-Trichloroethane	1	ug/l	1.0	ND		
1,1-Dichloroethane	1	ug/l	1.0	ND		
1,1-Dichloroethene	1	ug/l	1.0	ND		
1,2,4-Trimethylbenzene	1	ug/l	1.0	ND		
1,2-Dichlorobenzene	1	ug/l	1.0	ND		
1,2-Dichloroethane	1	ug/l	0.50	ND		
1,3,5-Trimethylbenzene	1	ug/l	1.0	ND		
1,3-Dichlorobenzene	1	ug/l	1.0	ND		
1,4-Dichlorobenzene	1	ug/l	1.0	ND		
1,4-Dioxane	1	ug/l	50	ND		
2-Butanone	1	ug/l	1.0	ND		
4-Isopropyltoluene	1	ug/l	1.0	ND		
Acetone	1	ug/l	5.0	ND		
Benzene	1	ug/l	0.50	ND		
Carbon tetrachloride	1	ug/l	1.0	ND		
Chlorobenzene	1	ug/l	1.0	ND		
Chloroform	1	ug/l	1.0	ND		
<b>cis-1,2-Dichloroethene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>8.2</b>		
Ethylbenzene	1	ug/l	1.0	ND		
Isopropylbenzene	1	ug/l	1.0	ND		
m&p-Xylenes	1	ug/l	1.0	ND		
Methylene chloride	1	ug/l	1.0	ND		
Methyl-t-butyl ether	1	ug/l	0.50	ND		
Naphthalene	1	ug/l	1.0	ND		
n-Butylbenzene	1	ug/l	1.0	ND		
n-Propylbenzene	1	ug/l	1.0	ND		
o-Xylene	1	ug/l	1.0	ND		
sec-Butylbenzene	1	ug/l	1.0	ND		
t-Butylbenzene	1	ug/l	1.0	ND		
<b>Tetrachloroethene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>92</b>		
Toluene	1	ug/l	1.0	ND		
trans-1,2-Dichloroethene	1	ug/l	1.0	ND		
<b>Trichloroethene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>40</b>		
Vinyl chloride	1	ug/l	1.0	ND		
Xylenes (Total)	1	ug/l	1.0	ND		
Surrogate	Conc.	Spike	Low Limit	High Limit	Recovery	Flags
Toluene-d8	29.12	30	79	111	97	
Dibromofluoromethane	36.19	30	73	131	121	
Bromofluorobenzene	29.10	30	82	112	97	
1,2-Dichloroethane-d4	32.98	30	78	128	110	

Sample ID: SUMP2  
 Lab#: AD14656-005  
 Matrix: Aqueous

Collection Date: 12/12/2019  
 Receipt Date: 12/13/2019

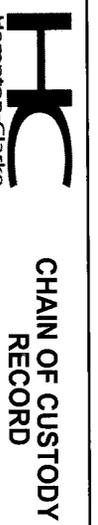
Volatile Organics (no search) 8260

Analyte	DF	Units	RL	Result		
1,1,1-Trichloroethane	1	ug/l	1.0	ND		
1,1-Dichloroethane	1	ug/l	1.0	ND		
1,1-Dichloroethene	1	ug/l	1.0	ND		
1,2,4-Trimethylbenzene	1	ug/l	1.0	ND		
1,2-Dichlorobenzene	1	ug/l	1.0	ND		
1,2-Dichloroethane	1	ug/l	0.50	ND		
1,3,5-Trimethylbenzene	1	ug/l	1.0	ND		
1,3-Dichlorobenzene	1	ug/l	1.0	ND		
1,4-Dichlorobenzene	1	ug/l	1.0	ND		
1,4-Dioxane	1	ug/l	50	ND		
2-Butanone	1	ug/l	1.0	ND		
4-Isopropyltoluene	1	ug/l	1.0	ND		
<b>Acetone</b>	<b>1</b>	<b>ug/l</b>	<b>5.0</b>	<b>140</b>		
Benzene	1	ug/l	0.50	ND		
Carbon tetrachloride	1	ug/l	1.0	ND		
Chlorobenzene	1	ug/l	1.0	ND		
Chloroform	1	ug/l	1.0	ND		
<b>cis-1,2-Dichloroethene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>13</b>		
Ethylbenzene	1	ug/l	1.0	ND		
Isopropylbenzene	1	ug/l	1.0	ND		
m&p-Xylenes	1	ug/l	2.0	ND		
Methylene chloride	1	ug/l	1.0	ND		
Methyl-t-butyl ether	1	ug/l	0.50	ND		
Naphthalene	1	ug/l	1.0	ND		
n-Butylbenzene	1	ug/l	1.0	ND		
n-Propylbenzene	1	ug/l	1.0	ND		
o-Xylene	1	ug/l	1.0	ND		
sec-Butylbenzene	1	ug/l	1.0	ND		
t-Butylbenzene	1	ug/l	1.0	ND		
<b>Tetrachloroethene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>65</b>		
Toluene	1	ug/l	1.0	ND		
trans-1,2-Dichloroethene	1	ug/l	1.0	ND		
<b>Trichloroethene</b>	<b>1</b>	<b>ug/l</b>	<b>1.0</b>	<b>12</b>		
Vinyl chloride	1	ug/l	1.0	ND		
Xylenes (Total)	1	ug/l	1.0	ND		
Surrogate	Conc.	Spike	Low Limit	High Limit	Recovery	Flags
Toluene-d8	29.04	30	79	111	97	
Dibromofluoromethane	27.76	30	73	131	93	
Bromofluorobenzene	29.70	30	82	112	99	
1,2-Dichloroethane-d4	30.51	30	78	128	102	

**Hampton-Clarke, Inc. (WBE/DBE/SBE)**  
 175 Route 46 West and 2 Madison Road, Fairfield, New Jersey 07004  
 Ph: 800-426-9992 | 973-244-9770 Fax: 973-244-9787 | 973-439-1458

Service Center: 137-D Galtier Drive, Mount Laurel, New Jersey 08054  
 PH (Service Center): 856-780-6057 Fax: 856-780-6056

NELACNU #07071 | PA #68-00463 | NY #11408 | CT #PH-0671 | KY #90124 | DE HSCA Approved



Project # (Lab Use Only) **9121307** Page **1** of **1**  
**3) Reporting Requirements (Please Circle)**

**Customer Information**  
 1a) Customer: MEALIST  
 Address: 77 AVALON DR.  
FRANKLIN TOWNSHIP NJ  
FRANKLIN TOWNSHIP ONLINE NET  
 1b) Email/Cell/Fax/Prn: \_\_\_\_\_  
 1c) Send Invoice to: \_\_\_\_\_  
 1d) Send Report to: FRANKLIN@GHTJWSNJ

**Project Information**  
 2a) Project: 161-01 ZGTH FIVE  
QUESTIONS ONLY  
GHTJWSNJ  
 2b) Project Mgr: \_\_\_\_\_  
 2c) Project Location (City/State): \_\_\_\_\_  
 2d) Quote/PO # (if applicable): \_\_\_\_\_

**Turnaround**  
 When Available:  
 1 Business Day (100%)\*  
 2 Business Days (75%)\*  
 3 Business Days (50%)\*  
 4 Business Days (35%)\*  
 5 Business Days (25%)  
 8 Business Days (Stand.)  
 Other: \_\_\_\_\_

**Report Type**  
 Summary  
 Results + QC (Waste)  
 Reduced:  
 [ ] NJ [ ] NY  
 [ ] PA [ ] Other \_\_\_\_\_  
 NJ Full / NY ASP CatB  
 NY ASP CatA  
 Other: \_\_\_\_\_

**Electronic Data Deliv.**  
 NJ HazSite  
 Excel Reg. NJ / NY / PA  
 EnviroData  
 EQUIS:  
 [ ] 4-File [ ] EZ  
 [ ] NYDEC  
 [ ] Region 2 or 5  
 Other: PDF

**FOR LAB USE ONLY** ====> Check if Contingent <====

Batch #	Matrix Codes	Sample		7) Analysis (specify methods & parameter lists)	8) # of Bottles						9) Comments		
		Type	Grab (G)		None	MeOH	En Core	NaOH	HCl	H2SO4		HNO3	Other:
<u>AN4656</u>	DW - Drinking Water GW - Ground Water WW - Waste Water OT - Other (please specify under item 9, Comments)	S - Soil SL - Sludge OL - Oil	A - Air										

Lab Sample #	4) Customer Sample ID	5) Matrix	6) Sample		7) Analysis (specify methods & parameter lists)	8) # of Bottles						9) Comments	
			Date	Time		None	MeOH	En Core	NaOH	HCl	H2SO4		HNO3
<u>001</u>	<u>B16W</u>	<u>GW</u>	<u>12/19</u>	<u>9:40</u>									
<u>002</u>	<u>B32GW</u>	<u>GW</u>	<u>12/19</u>	<u>11:00</u>									
<u>003</u>	<u>B32GW</u>	<u>GW</u>	<u>12/19</u>	<u>11:08</u>									
<u>004</u>	<u>SUMP1</u>	<u>GW</u>	<u>12/19</u>	<u>11:20</u>									
<u>005</u>	<u>SUMP2</u>	<u>GW</u>	<u>12/19</u>	<u>11:20</u>									

10) Relinquished by: \_\_\_\_\_ Accepted by: \_\_\_\_\_ Date: 12/19/20 Time: \_\_\_\_\_

Comments, Notes, Special Requirements, HAZARDS

Indicate if low-level methods required to meet current groundwater standards (SPLP for soil):  
 BN or BNA (8270D SIM)  
 VOC (8260C SIM or 8011)  
 SPLP (BN, BNA, Metals)  
 1,4 Dioxane

For NJ LSRP projects, indicate which standards need to be met:  
 NJDEP GWQS  
 NJDEP SRS  
 NJDEP SPLP  
 Other (specify): \_\_\_\_\_

Project-Specific Reporting Limits  
 High Contaminant Concentrations  
 NJ LSRP Project (also check boxes above/right)

Project-Specific Reporting Limits  
 High Contaminant Concentrations  
 NJ LSRP Project (also check boxes above/right)

Check if applicable:  
 Project-Specific Reporting Limits  
 High Contaminant Concentrations  
 NJ LSRP Project (also check boxes above/right)

Please note NUMBERED items. If not completed your analytical work may be delayed.  
 A fee of \$5/sample will be assessed for storage should sample not be activated for any analysis.

Internal use: sampling plan (check box) HC [ ] or client [ ] FSP# \_\_\_\_\_

Cooler Temperature 2.9

11) Sampler (print name): FRANKLIN@GHTJWSNJ Date: 12/12/19

Additional Notes

## Attachment 3: Site Photographs



**Photograph 1:** General view of the rear Site yard looking east from 161<sup>st</sup> Street. Site buildings at right.



**Photograph 2:** Outline of the UST in red spray paint as established by the GPR survey. Photographer facing west.



**Photograph 3:** View of Sump1 in the basement of 161-03 29<sup>th</sup> Avenue (sump is under plywood cover at background). Support posts for former dry cleaning machine visible at right.



**Photograph 4:** Sump2 in the basement of 161-03 29<sup>th</sup> Avenue.



**Photograph 5:** Soil samples collected from B1. Discoloration by petroleum is evident (grey-colored material).

## Attachment 4: Soil Boring Logs





