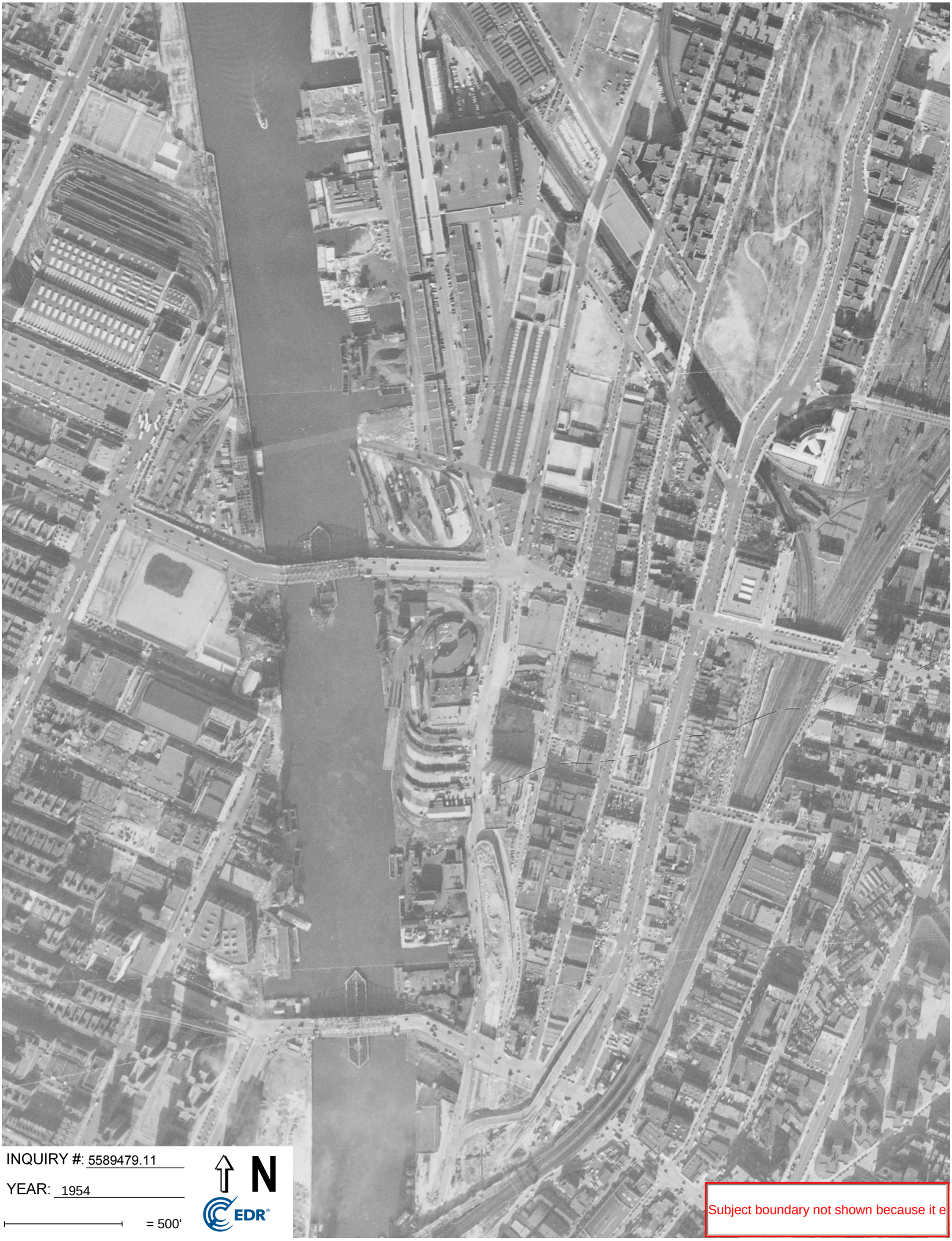
INQUIRY #: 5589479.11

YEAR: 1961

= 500'

N

EDR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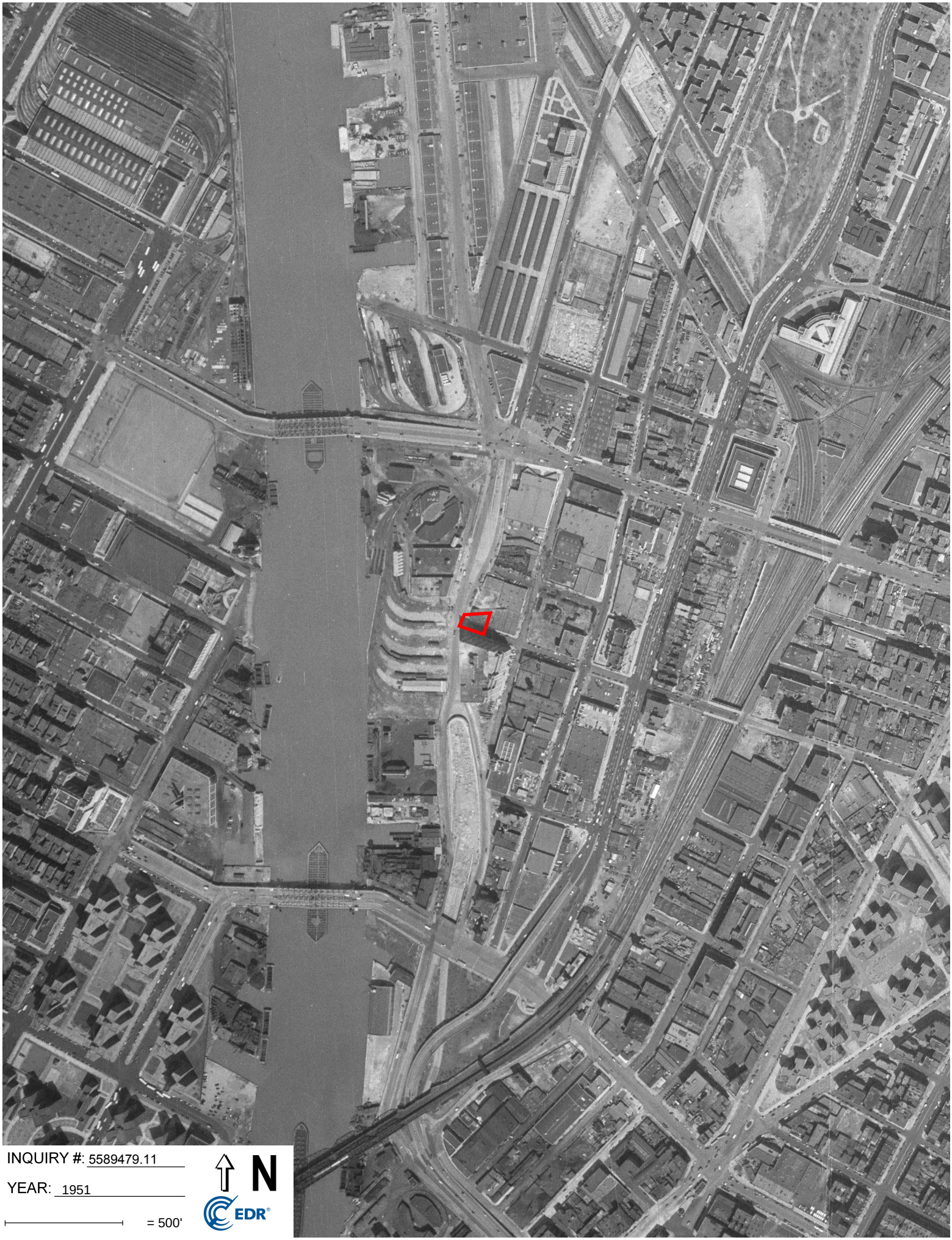
YEAR: 1954
= 500'
N
EDR
Subject boundary not shown because it e



INQUIRY #: 5589479.11

YEAR: 1951

= 500'

N

EDR

INQUIRY #: 5589479.11

YEAR: 1924

= 500'

N

EDR

APPENDIX H

Sanborn Fire Insurance Maps

404 Exterior Street

404 Exterior Street

Bronx, NY 10451

Inquiry Number: 5589479.3

March 14, 2019

Certified Sanborn® Map Report

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

03/14/19

Site Name:

404 Exterior Street
404 Exterior Street
Bronx, NY 10451
EDR Inquiry # 5589479.3

Client Name:

Langan Engineering, Inc.
360 W. 31st Street
New York, NY 10001
Contact: Kyle Twombly

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Langan Engineering, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Certification # ECE2-4AFB-92A9

PO # 170487001

Project 404 Exterior Street

Maps Provided:

2007	1996	1984	1944
2006	1995	1981	1935
2005	1994	1980	1928
2004	1993	1978	1922
2003	1992	1977	1908
2002	1991	1951	1903
2001	1989	1947	1891
1998	1986	1946	

Sanborn® Library search results

Certification #: ECE2-4AFB-92A9

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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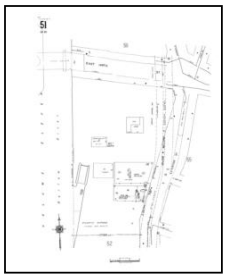
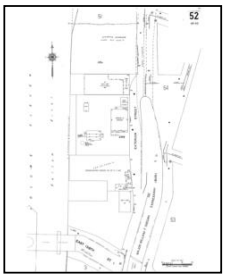
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

2007 Source Sheets

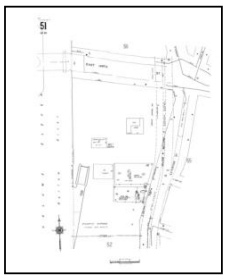

Volume 9N, Sheet 51
2007


Volume 9N, Sheet 52
2007


Volume 9N, Sheet 54
2007


Volume 9N, Sheet 55
2007

2006 Source Sheets


Volume 9N, Sheet 51
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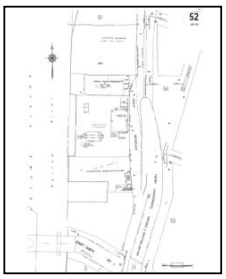
Volume 9N, Sheet 52
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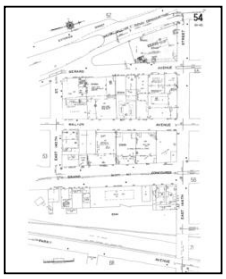
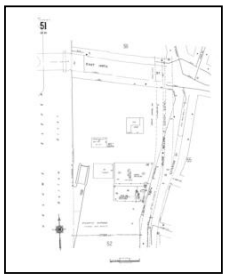

Volume 9N, Sheet 54
2006


Volume 9N, Sheet 55
2006

2005 Source Sheets


Volume 9N, Sheet 51
2005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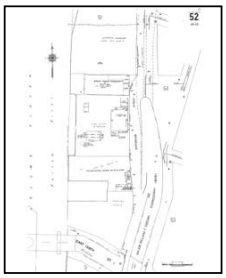
2005


Volume 9N, Sheet 52
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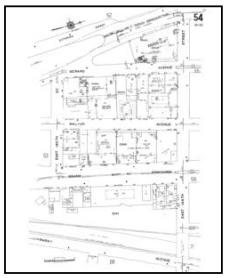
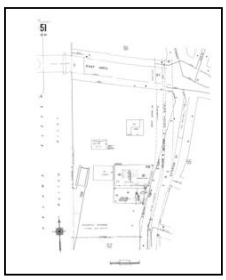

Volume 9N, Sheet 54
2005

2004 Source Sheets


Volume 9N, Sheet 51
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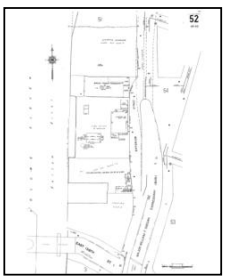
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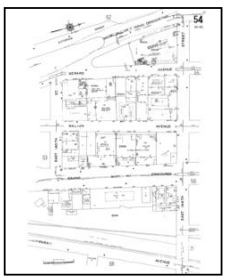
Volume 9N, Sheet 54
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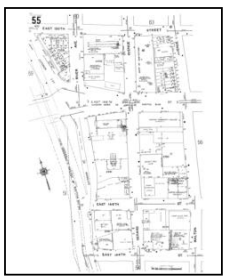
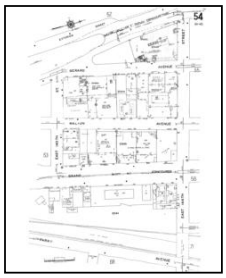
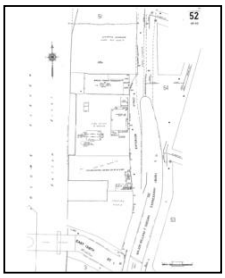

Volume 9N, Sheet 55
2004

Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

2003 Source Sheets


Volume 9N, Sheet 54
2003


Volume 9N, Sheet 52
2003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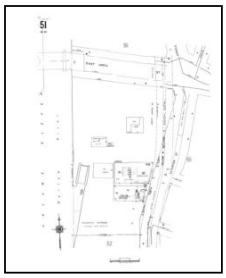
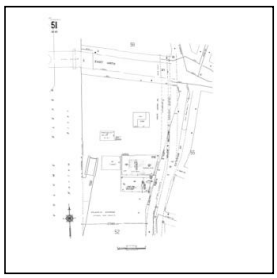
2003


Volume 9N, Sheet 51
2003

2002 Source Sheets


Volume 9N, Sheet 51
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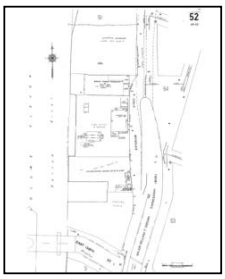
Volume 9N, Sheet 52
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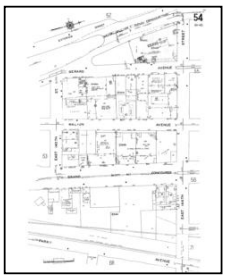
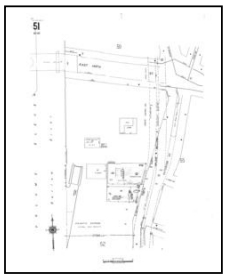
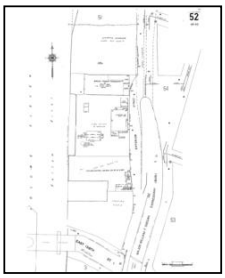

Volume 9N, Sheet 54
2002


Volume 9N, Sheet 55
2002

2001 Source Sheets


Volume 9N, Sheet 51
2001


Volume 9N, Sheet 52
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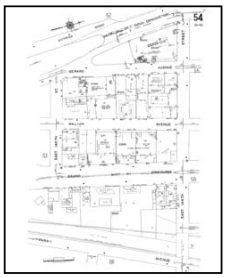
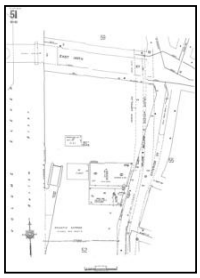

Volume 9N, Sheet 54
2001


Volume 9N, Sheet 55
2001

1998 Source Sheets


Volume 9N, Sheet 51
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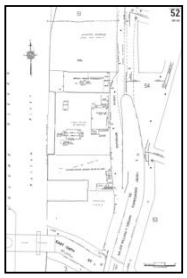

Volume 9N, Sheet 52
1998


Volume 9N, Sheet 54
1998

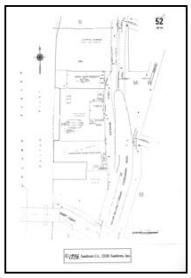

Volume 9N, Sheet 55
1998

Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1996 Source Sheets


Volume 9N, Sheet 51
1996


Volume 9N, Sheet 52
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Volume 9N, Sheet 54
1996


Volume 9N, Sheet 55
1996

1995 Source Sheets


Volume 9N, Sheet 55
1995


Volume 9N, Sheet 51
1995


Volume 9N, Sheet 52
1995


Volume 9N, Sheet 54
1995

1994 Source Sheets


Volume 9N, Sheet 51
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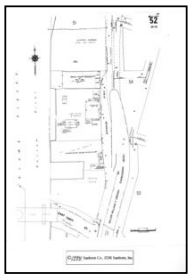
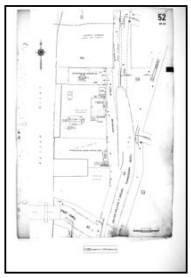

Volume 9N, Sheet 52
1994


Volume 9N, Sheet 54
1994

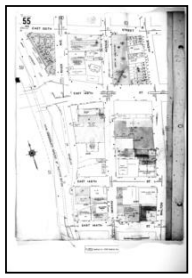

Volume 9N, Sheet 55
1994

1993 Source Sheets


Volume 9N, Sheet 51
1993


Volume 9N, Sheet 52
1993


Volume 9N, Sheet 54
1993


Volume 9N, Sheet 55
1993

Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1992 Source Sheets


Volume 9N, Sheet 51
1992

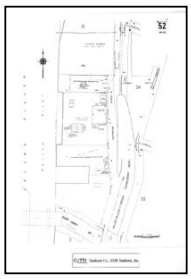

Volume 9N, Sheet 52
1992


Volume 9N, Sheet 54
1992


Volume 9N, Sheet 55
1992

1991 Source Sheets

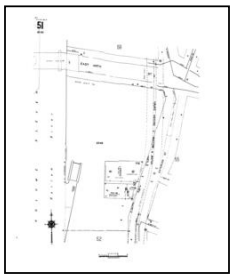

Volume 9N, Sheet 51
1991


Volume 9N, Sheet 52
1991


Volume 9N, Sheet 54
1991


Volume 9N, Sheet 55
1991

1989 Source Sheets


Volume 9N, Sheet 51
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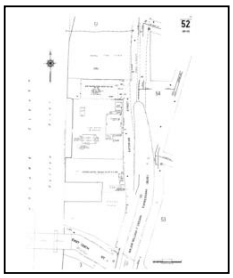
Volume 9N, Sheet 52
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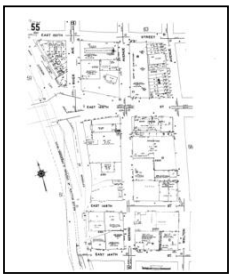
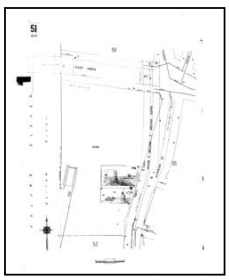
1989


Volume 9N, Sheet 55
1989

1986 Source Sheets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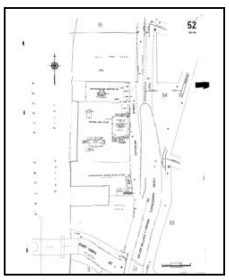
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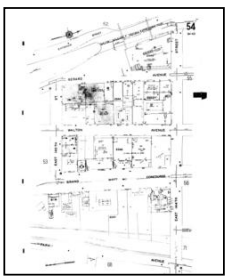
Volume 9N, Sheet 54
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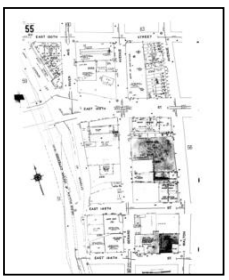
Volume 9N, Sheet 55
1986

Sanborn Sheet Key

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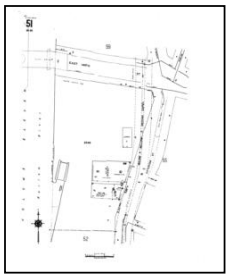
Volume 9N, Sheet 51
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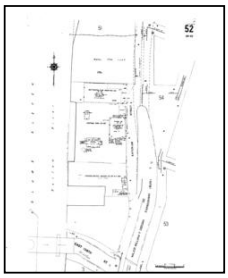
Volume 9N, Sheet 52
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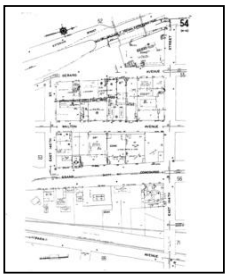

Volume 9N, Sheet 54
1984


Volume 9N, Sheet 55
1984

1981 Source Sheets

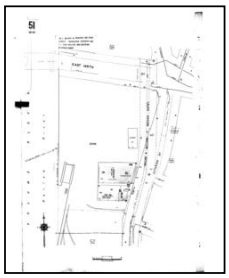

Volume 9N, Sheet 51
1981


Volume 9N, Sheet 52
1981


Volume 9N, Sheet 54
1981


Volume 9N, Sheet 55
1981

1980 Source Sheets


Volume 9N, Sheet 51
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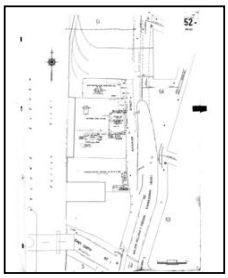
Volume 9N, Sheet 52
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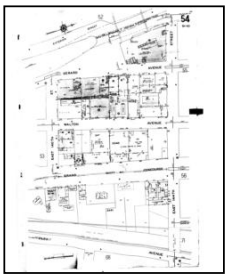
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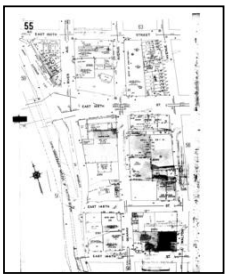
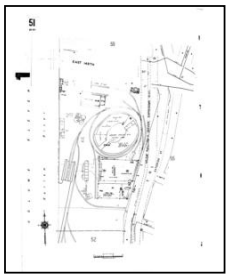

Volume 9N, Sheet 55
1980

1978 Source Sheets


Volume 9N, Sheet 51
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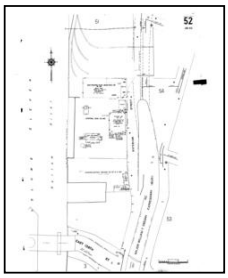
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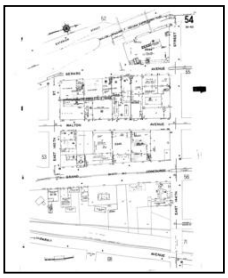
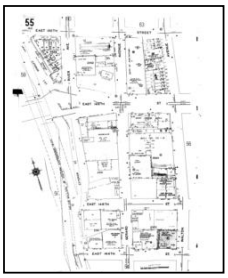
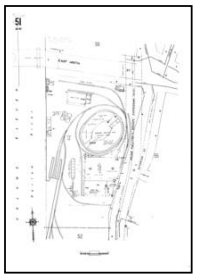

Volume 9N, Sheet 54
1978

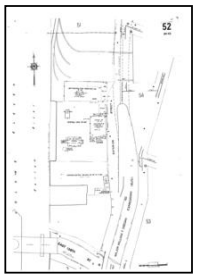

Volume 9N, Sheet 55
1978

Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1977 Source Sheets

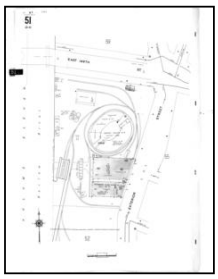

Volume 9N, Sheet 51
1977


Volume 9N, Sheet 52
1977


Volume 9N, Sheet 54
1977


Volume 9N, Sheet 55
1977

1951 Source Sheets


Volume 9N, Sheet 51
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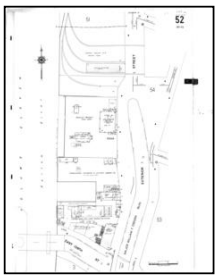

Volume 9N, Sheet 52
1951


Volume 9N, Sheet 54
1951


Volume 9N, Sheet 55
1951

1947 Source Sheets

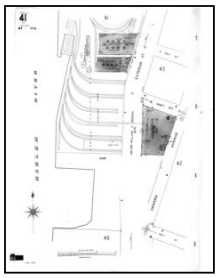

Volume 9N, Sheet 51
1947

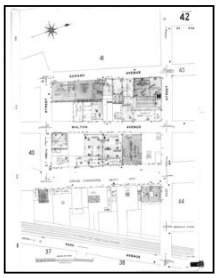

Volume 9N, Sheet 55
1947


Volume 9N, Sheet 52
1947

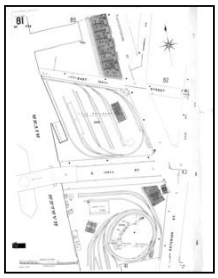

Volume 9N, Sheet 54
1947

1946 Source Sheets


Volume 9, Sheet 41
1946


Volume 9, Sheet 42
1946


Volume 9, Sheet 43
1946


Volume 9, Sheet 81
1946

Sanborn Sheet Key

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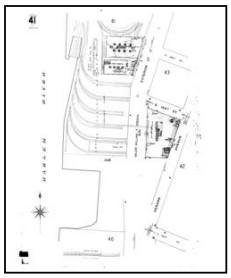
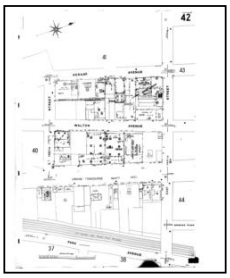
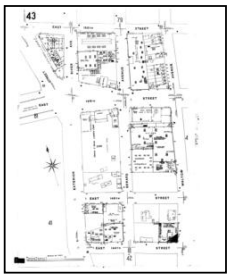
1944 Source Sheets



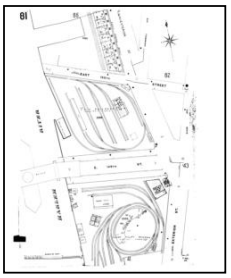
Volume 9, Sheet 41
1944



Volume 9, Sheet 42
1944

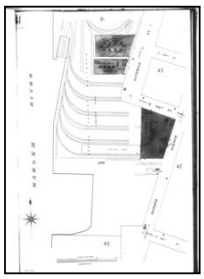


Volume 9, Sheet 43
1944

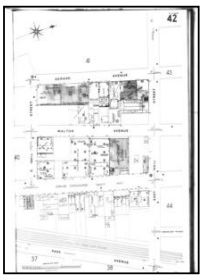


Volume 9, Sheet 81
1944

1935 Source Sheets

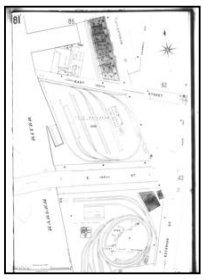


Volume 9, Sheet 41
1935



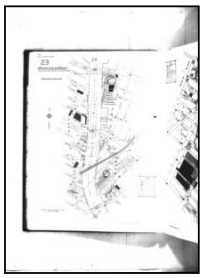
Volume 9, Sheet 42
1935

Volume 9, Sheet 43
1935



Volume 9, Sheet 81
1935

1928 Source Sheets



Volume Pier Maps, Sheet 23
1928

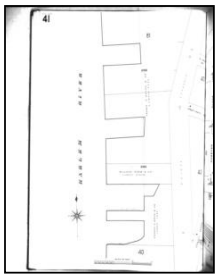
1922 Source Sheets

Volume Pier Maps, Sheet 23
1922

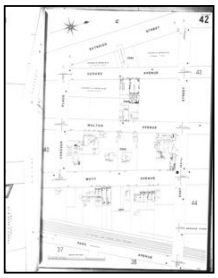
Sanborn Sheet Key

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

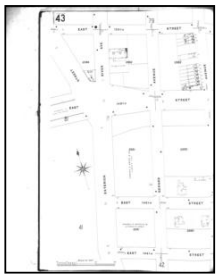
1908 Source Sheets



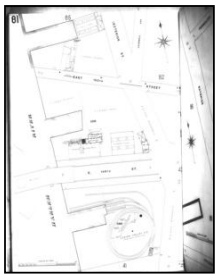
Volume 9, Sheet 41
1908



Volume 9, Sheet 42
1908



Volume 9, Sheet 43
1908



Volume 9, Sheet 81
1908

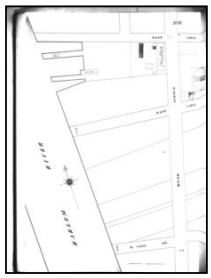
1903 Source Sheets

Volume Atlas Maps, Sheet xxxx
1903

Volume Atlas Maps, Sheet 1
1903

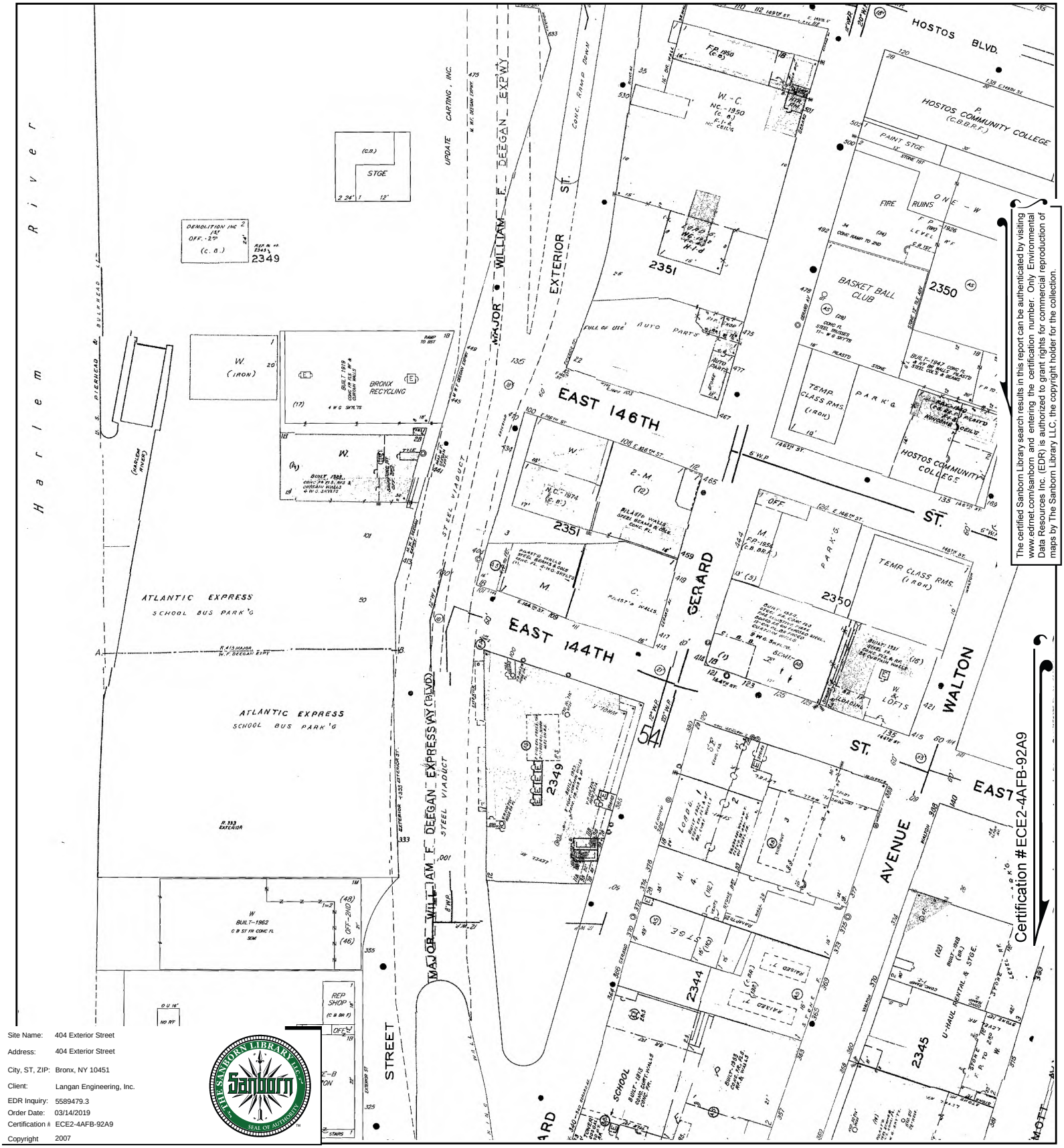
1891 Source Sheets

Volume 9, Sheet 194
1891



Volume 9, Sheet 205
1891

Volume 9, Sheet 205
1891



Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	2007

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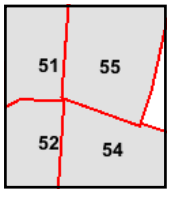

Volume 9N, Sheet 55
Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 51

0 Feet 150 300 600

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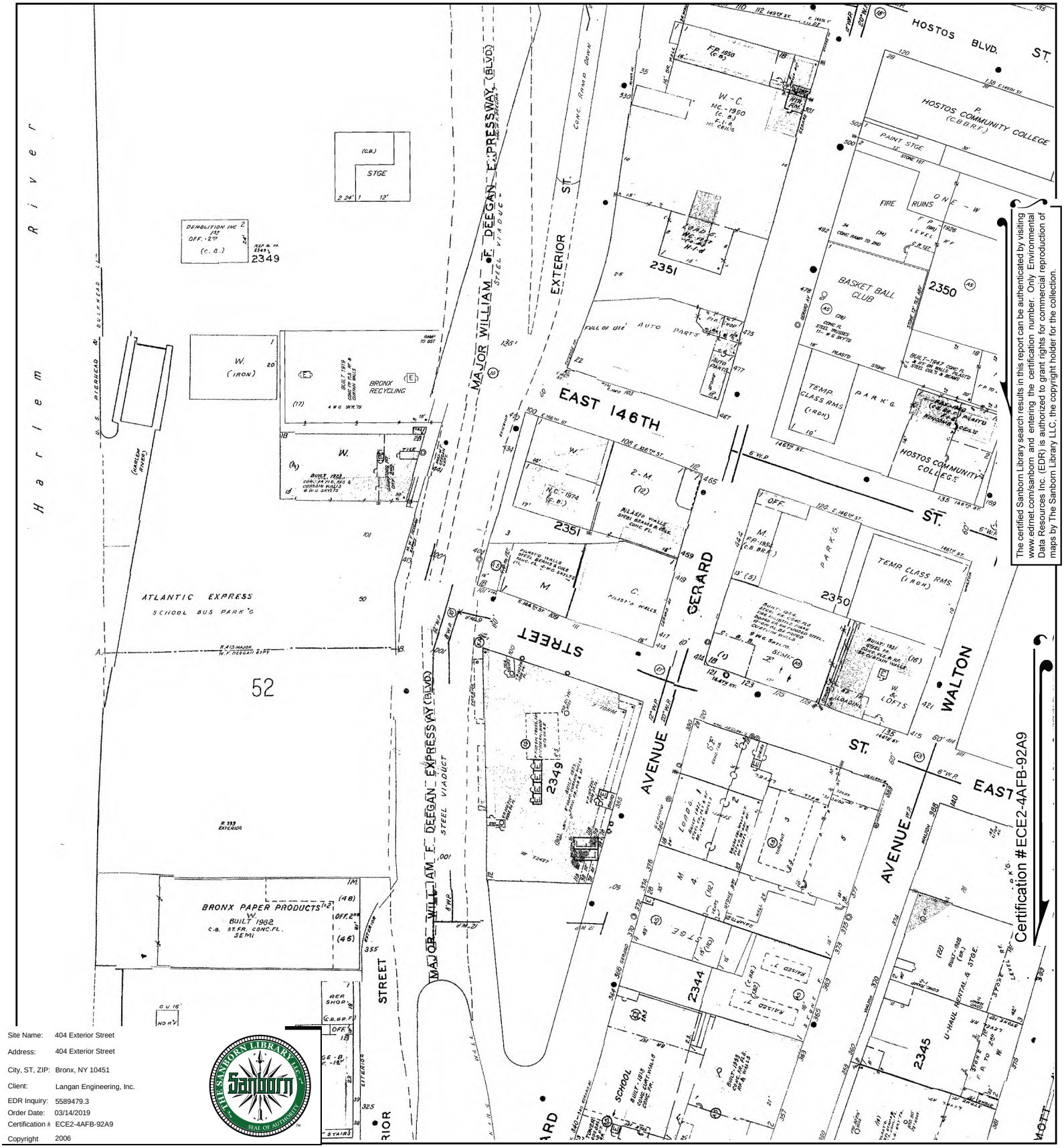

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Client:	Langan Engineering, Inc.
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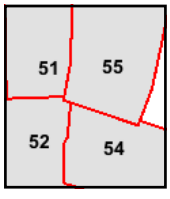

Volume 9N, Sheet 55
Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 51

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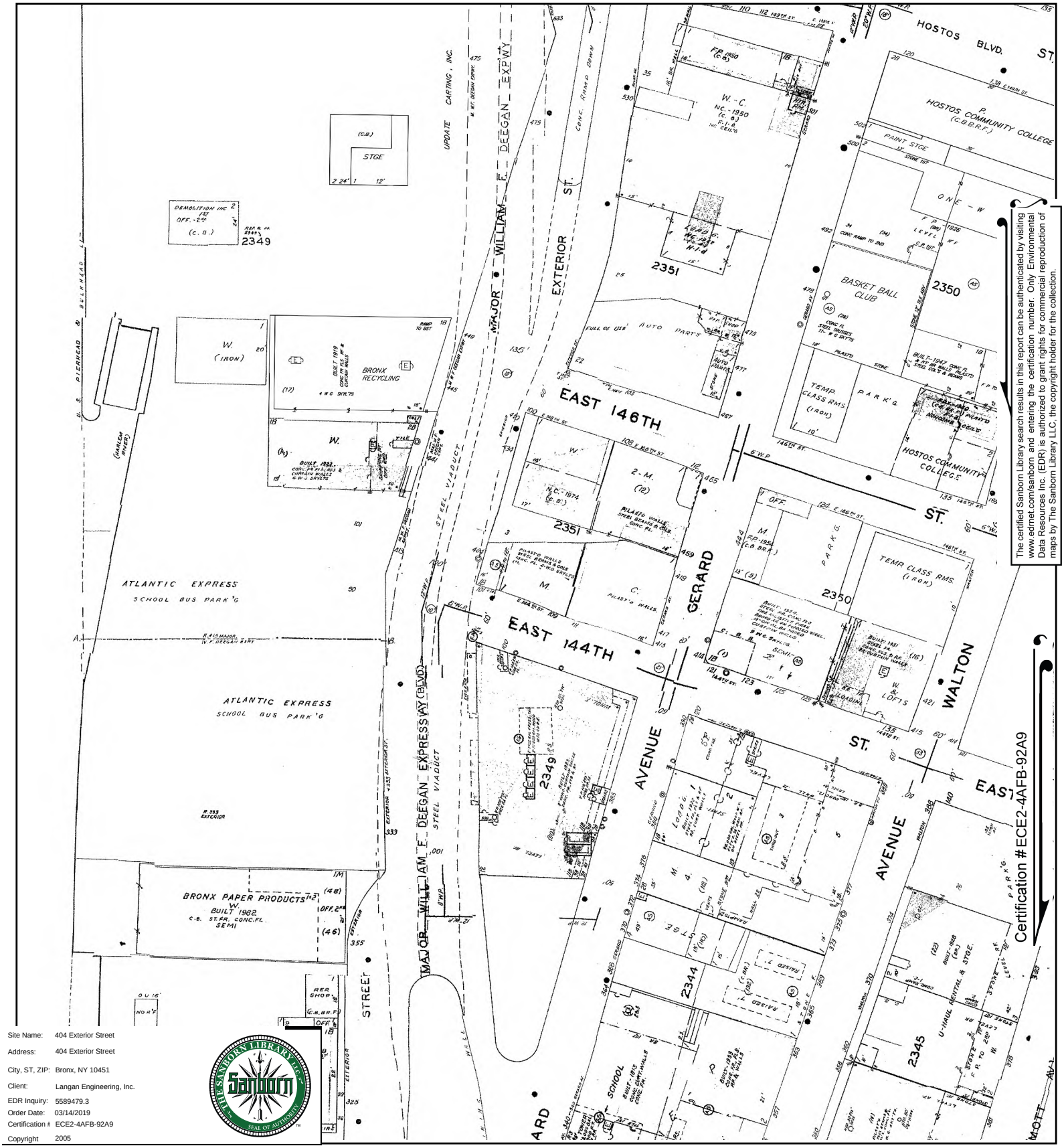

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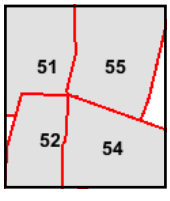

Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 55
Volume 9N, Sheet 51

0 Feet 150 300 600

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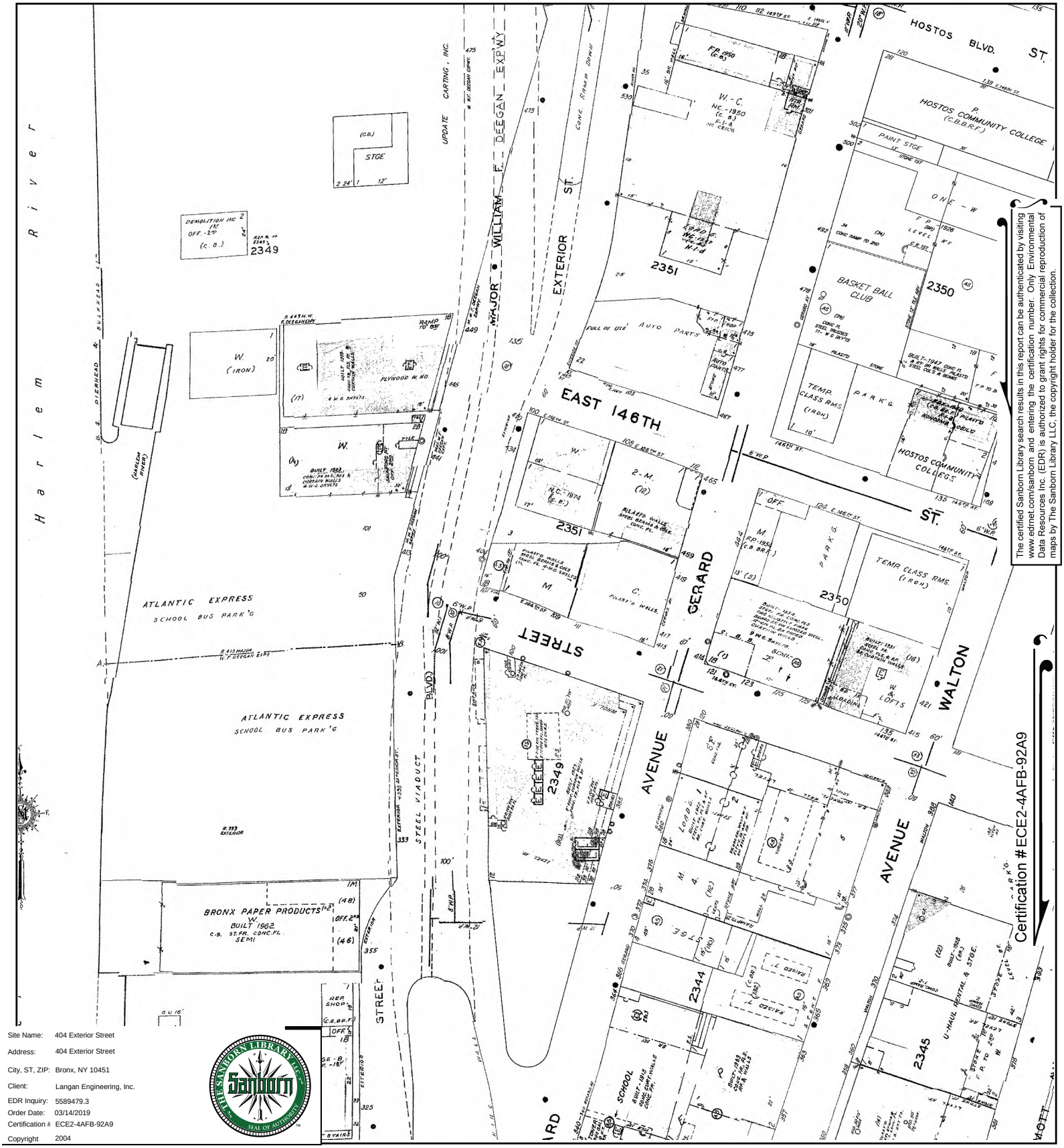

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Copyright	2004

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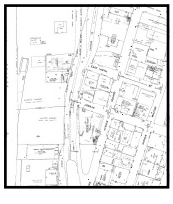

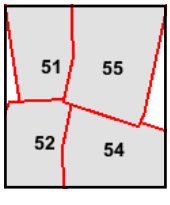

Volume 9N, Sheet 55
Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 51

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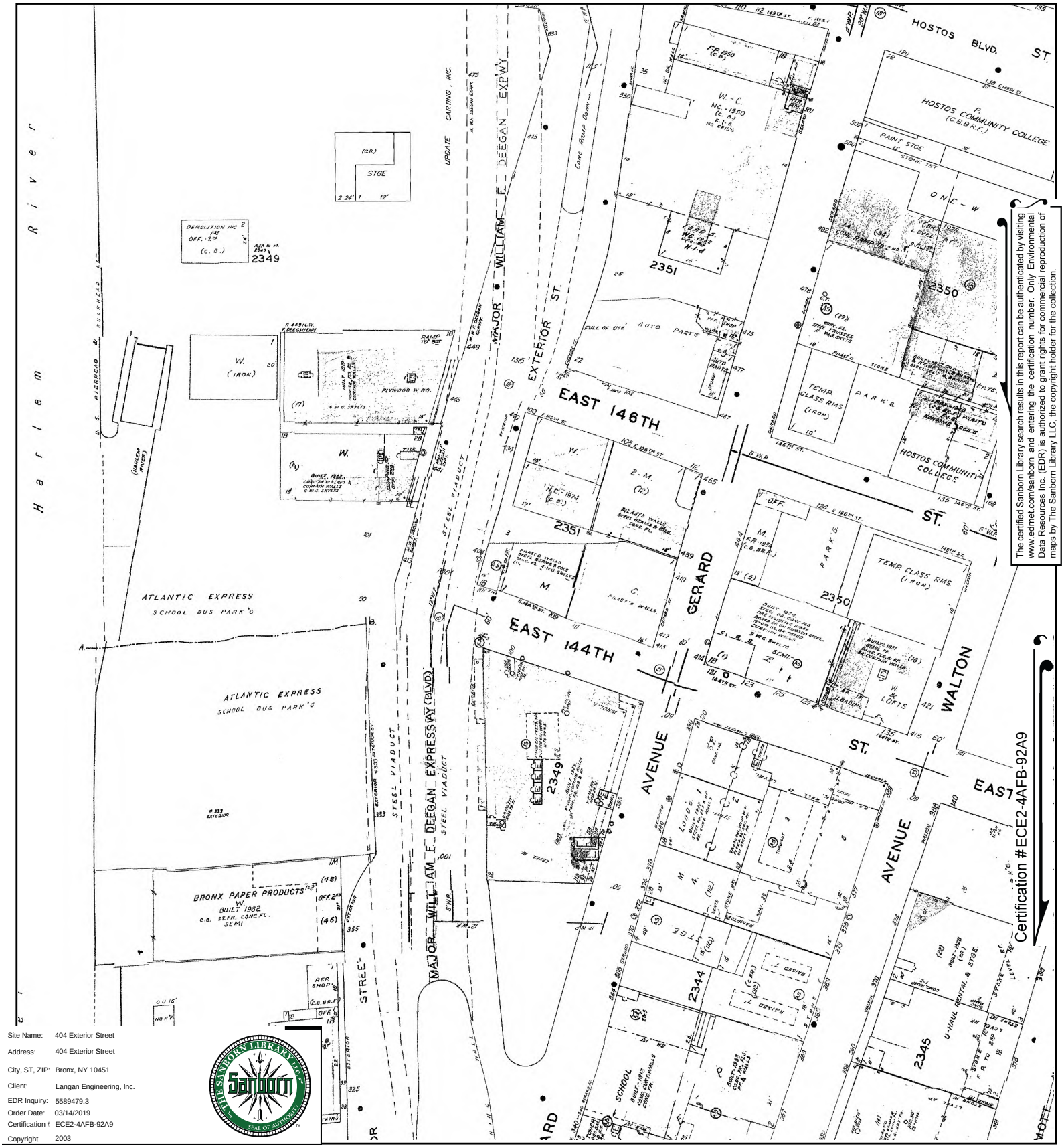

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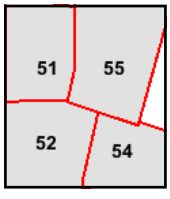

Volume 9N, Sheet 51
Volume 9N, Sheet 55
Volume 9N, Sheet 52
Volume 9N, Sheet 54

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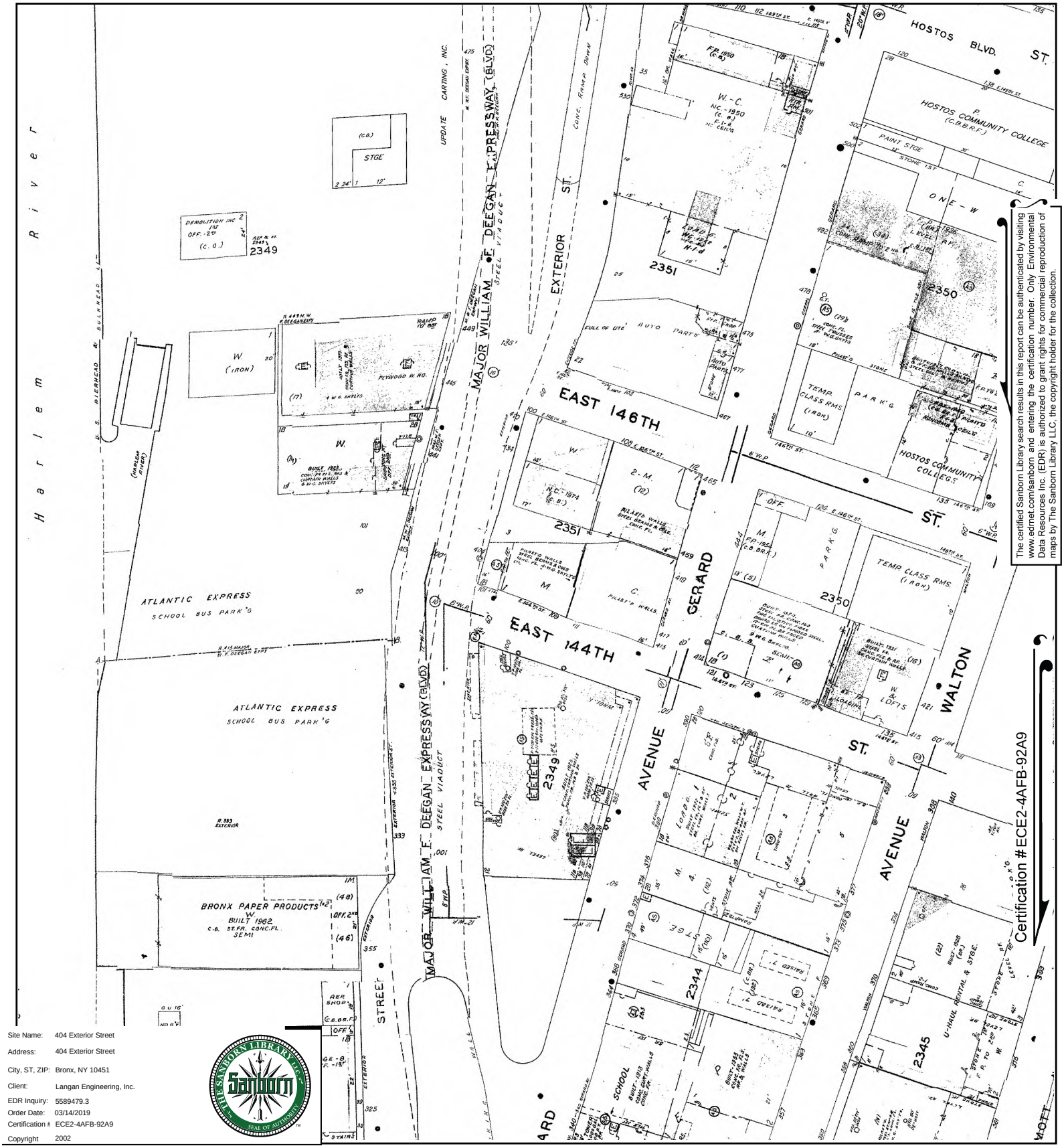

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Copyright	2002

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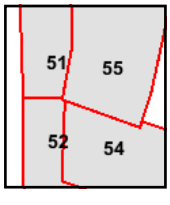

Volume 9N, Sheet 55
Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 51

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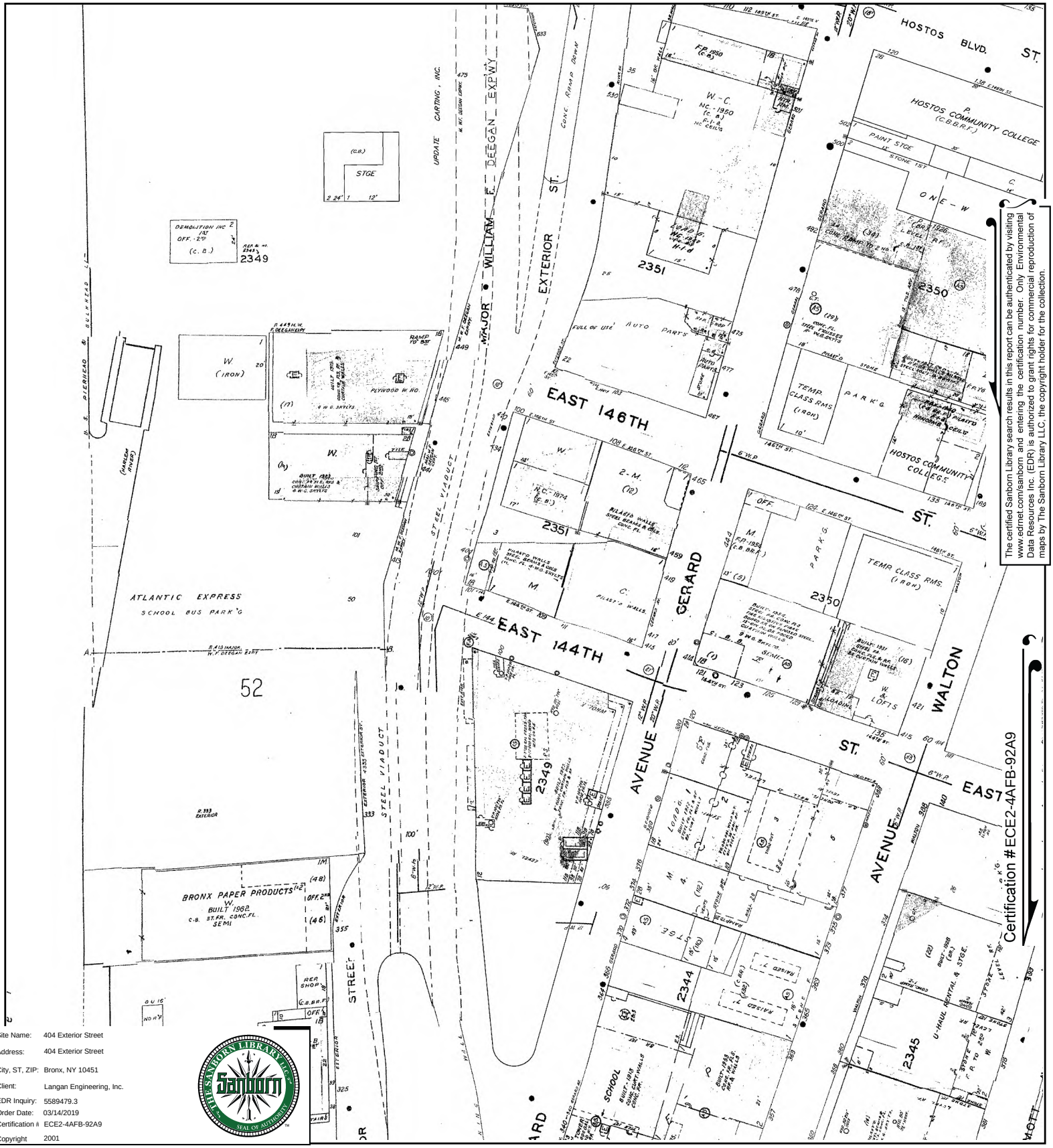

Certification #ECE2-4AFB-92A9

Site Name:	404 Exterior Street
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City, ST, ZIP:	Bronx, NY 10451
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Copyright	2001

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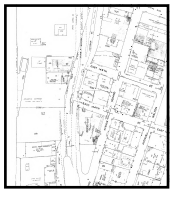

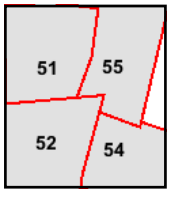

Volume 9N, Sheet 55
Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 51

0 Feet 150 300 600

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Site Name:	404 Exterior Street
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City, ST, ZIP:	Bronx, NY 10451
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Copyright	1998

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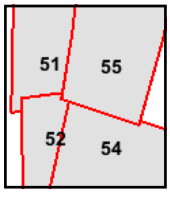
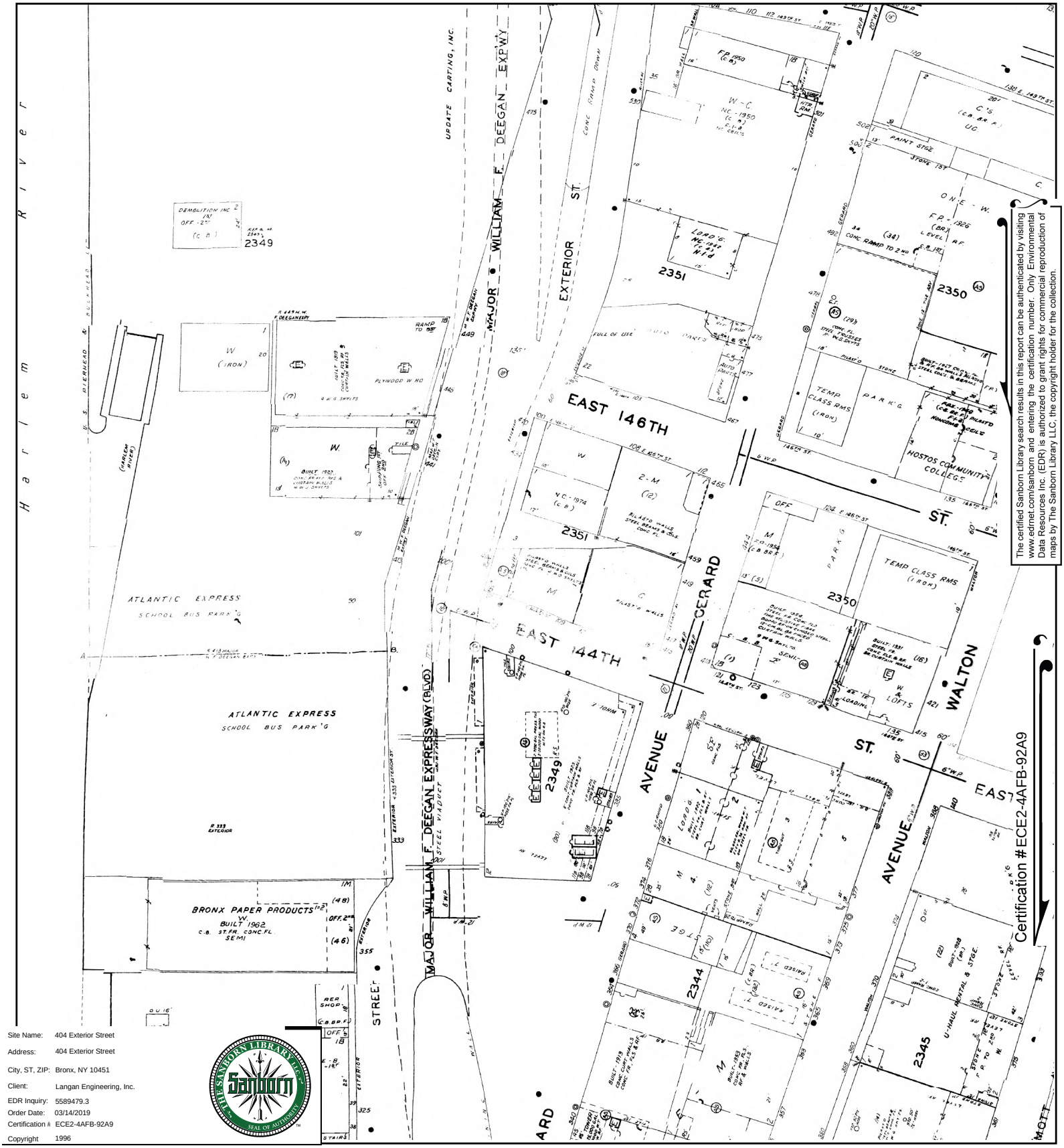


Volume 9N, Sheet 55
Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 51

N



Certification #ECE2-4AFB-92A9

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Copyright	1996

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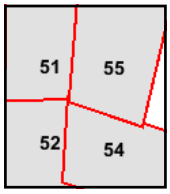

Volume 9N, Sheet 55
Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 51

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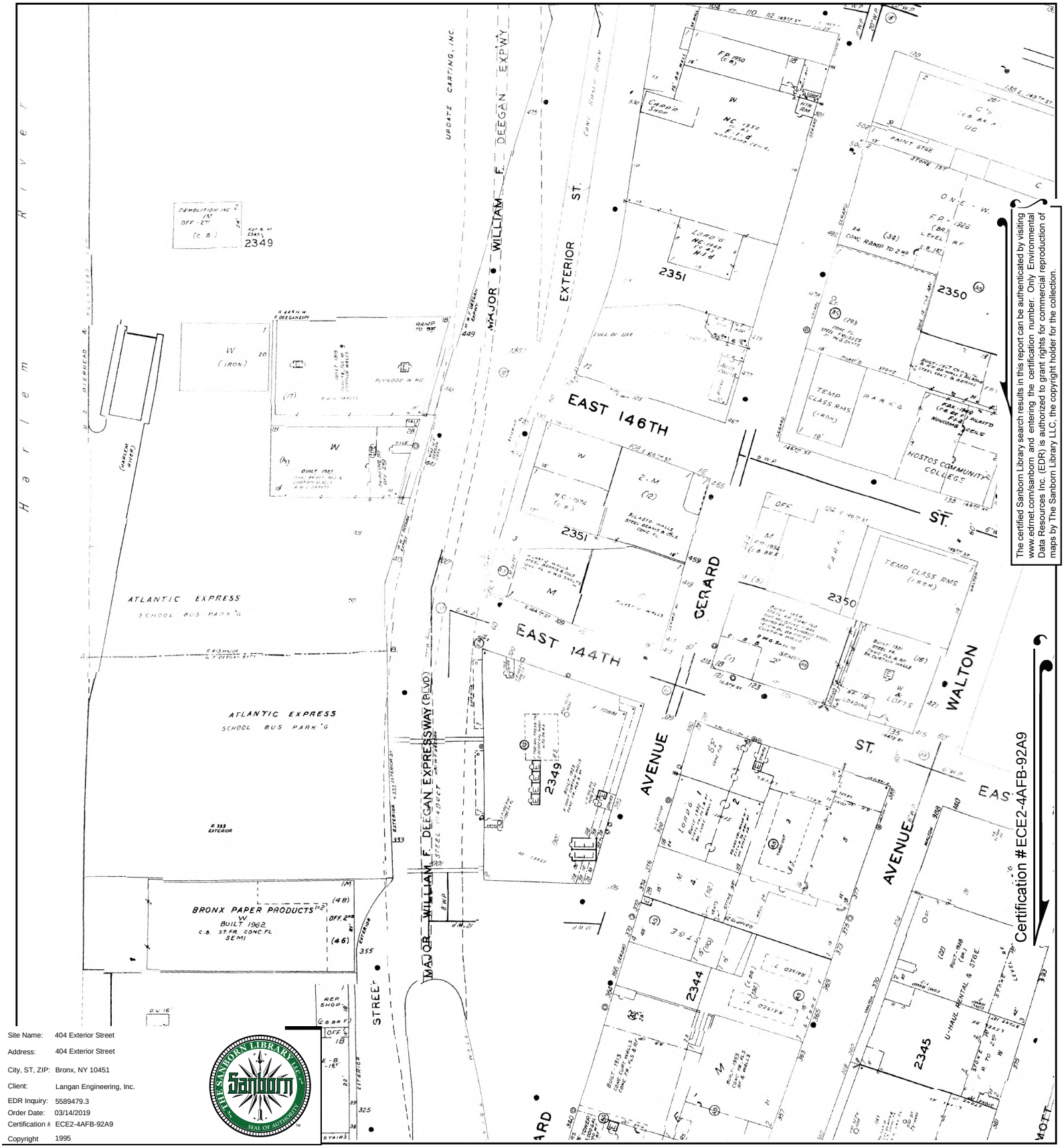

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Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1995

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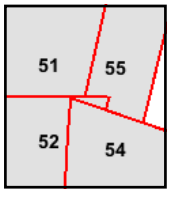

Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 51
Volume 9N, Sheet 55

0 Feet 150 300 600

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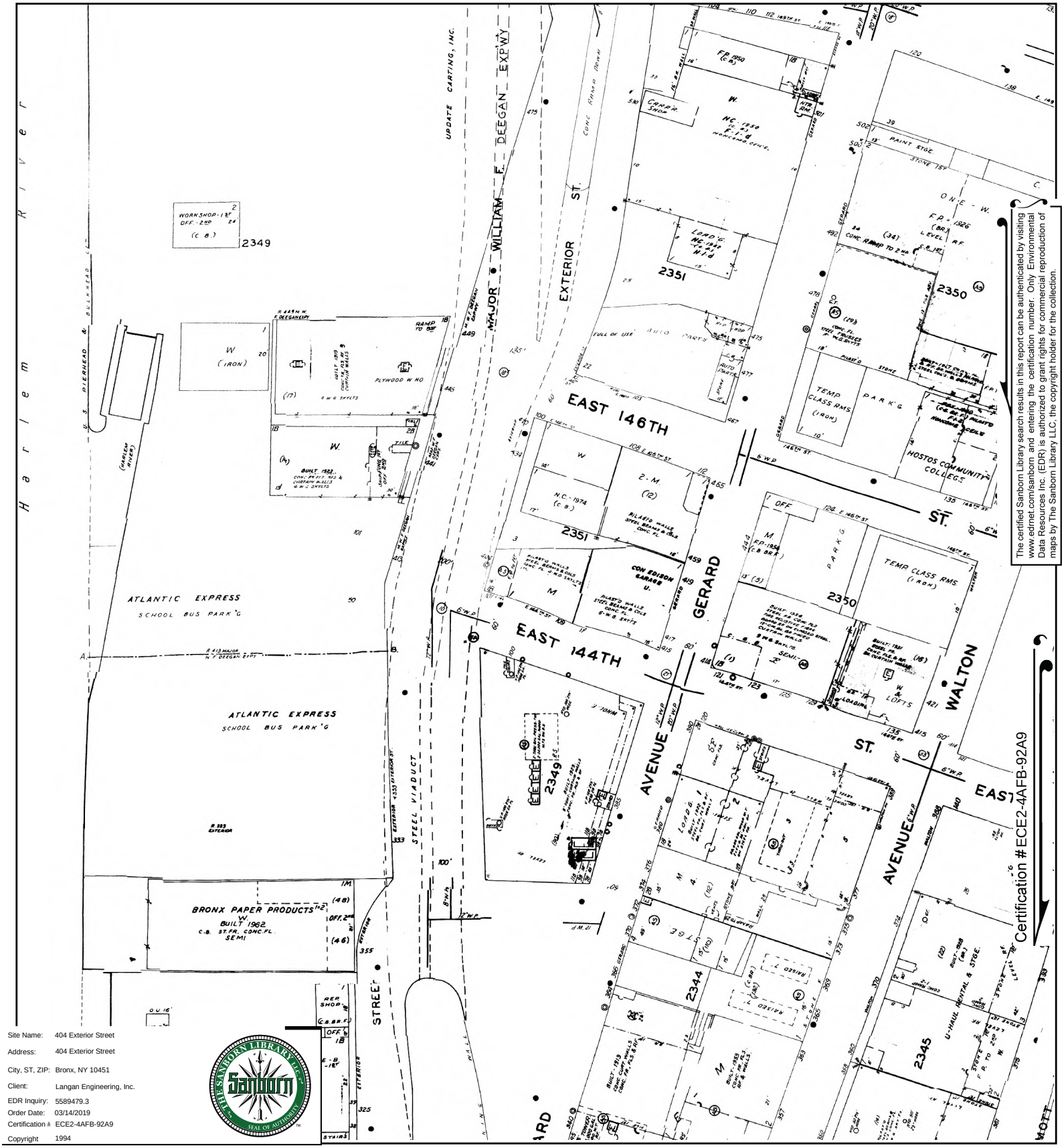

Certification #ECE2-4AFB-92A9

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Certification #:	ECE2-4AFB-92A9
Copyright	1994

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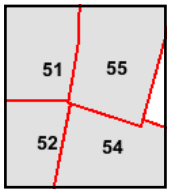

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0 Feet 150 300 600

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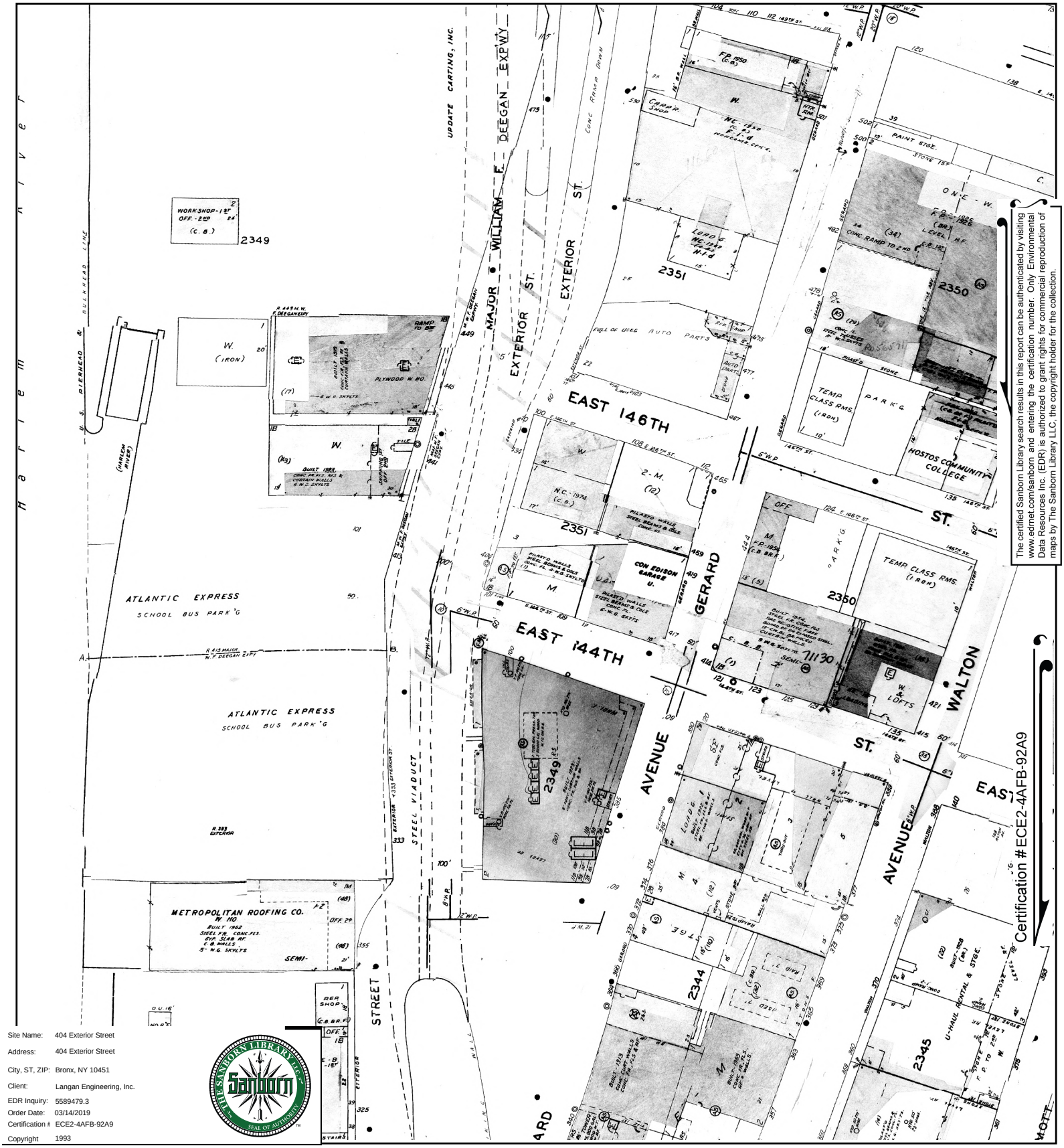

Certification #ECE2-4AFB-92A9

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1993

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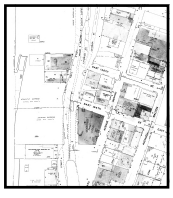

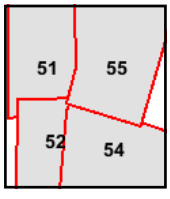

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Volume 9N, Sheet 51

0 Feet 150 300 600

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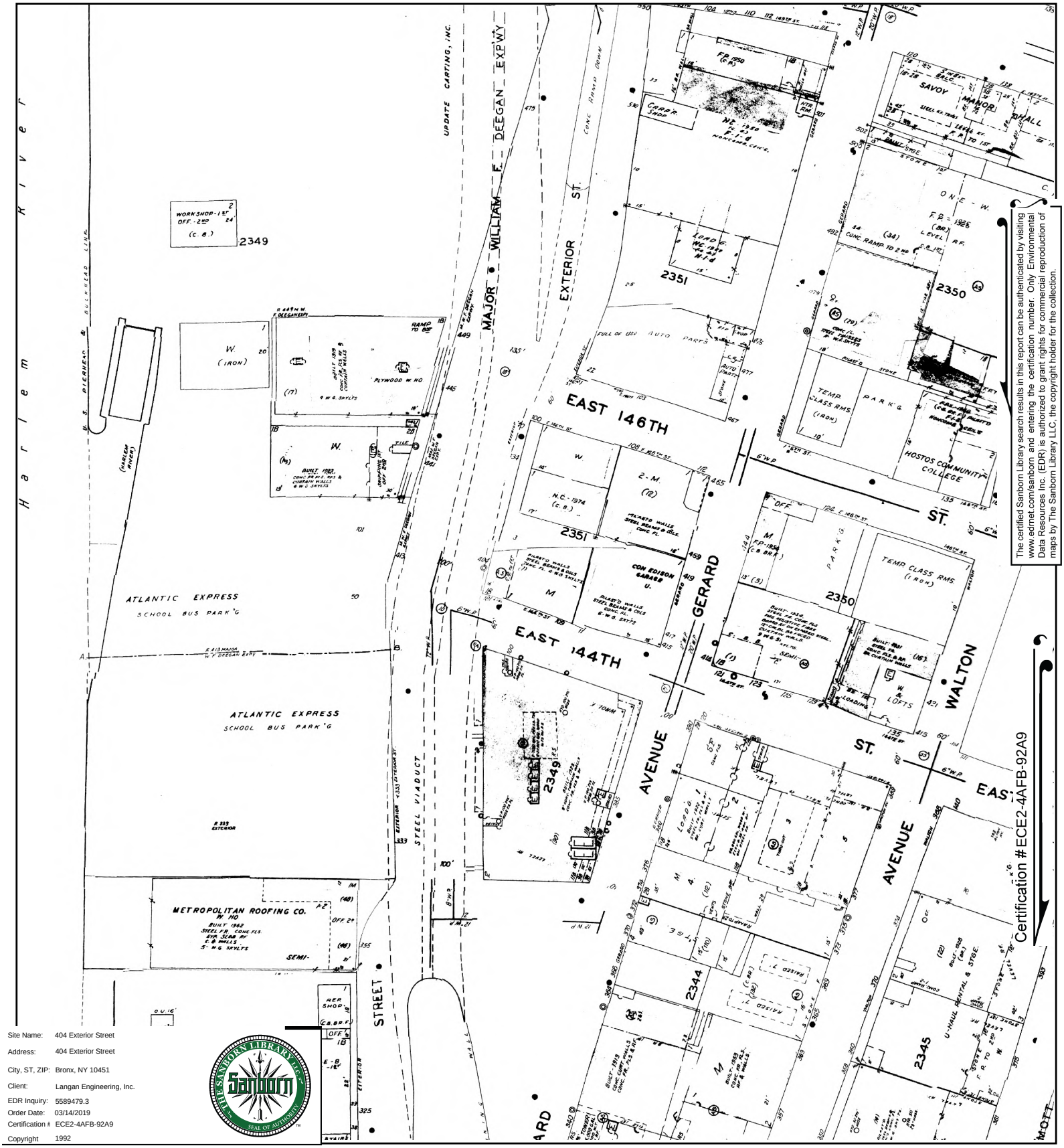

Certification #ECE2-4AFB-92A9

Site Name:	404 Exterior Street
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City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1992

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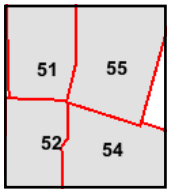

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Volume 9N, Sheet 51

0 Feet 150 300 600

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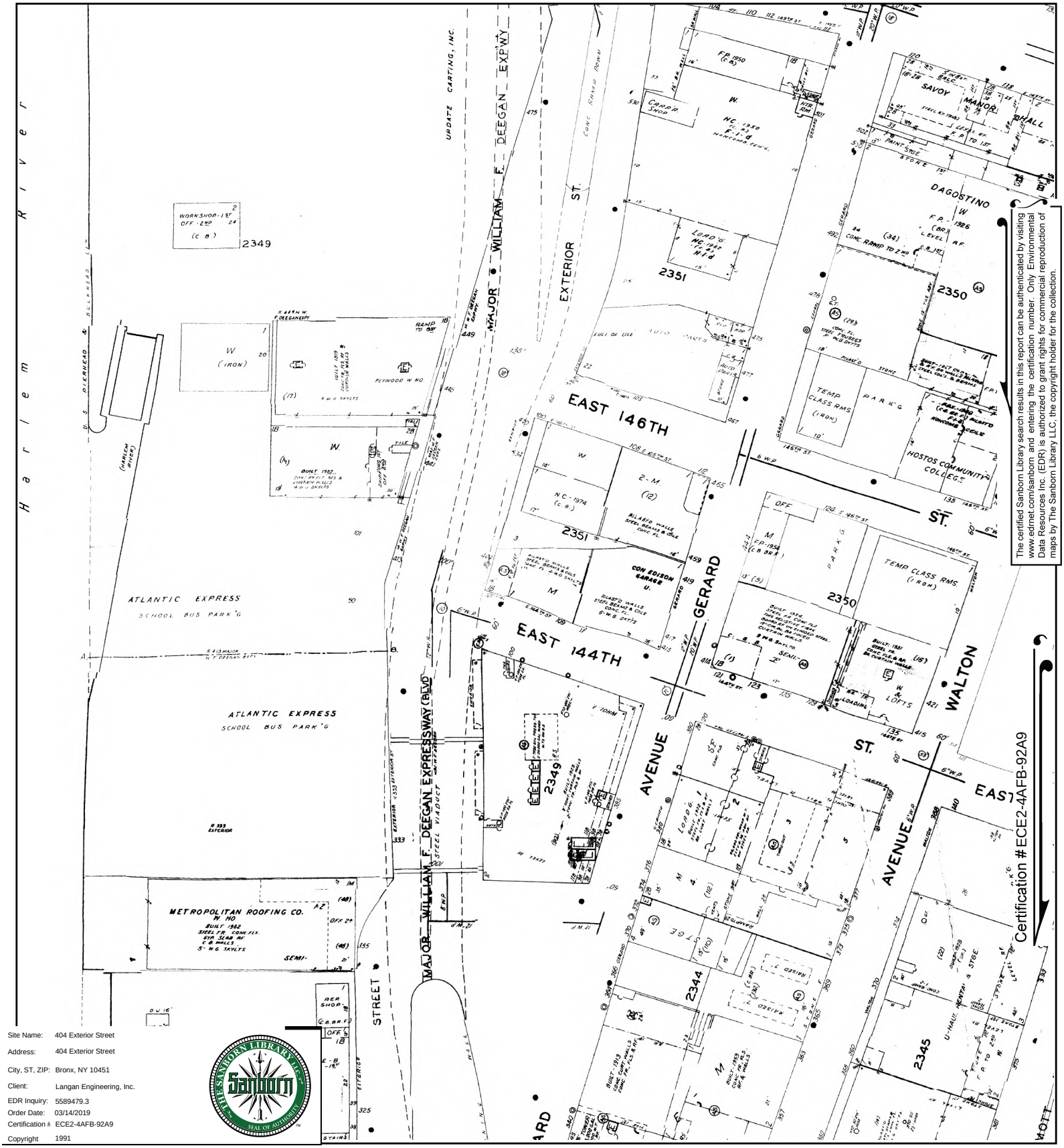

Site Name:	404 Exterior Street
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City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1991

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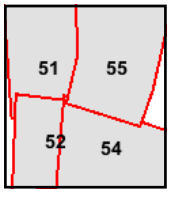

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Volume 9N, Sheet 51

0 Feet 150 300 600

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Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1989

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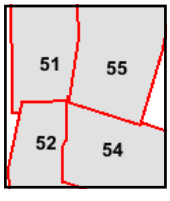

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Volume 9N, Sheet 51

0 Feet 150 300 600

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Certification #ECE2-4AFB-92A9

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1986

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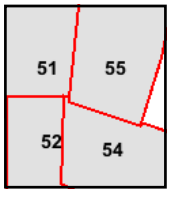

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Certification #ECE2-4AFB-92A9

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1984

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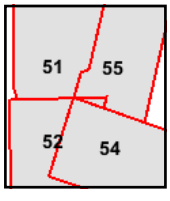

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Volume 9N, Sheet 52
Volume 9N, Sheet 51

0 Feet 150 300 600

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Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1981

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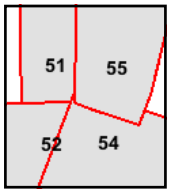

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Volume 9N, Sheet 52
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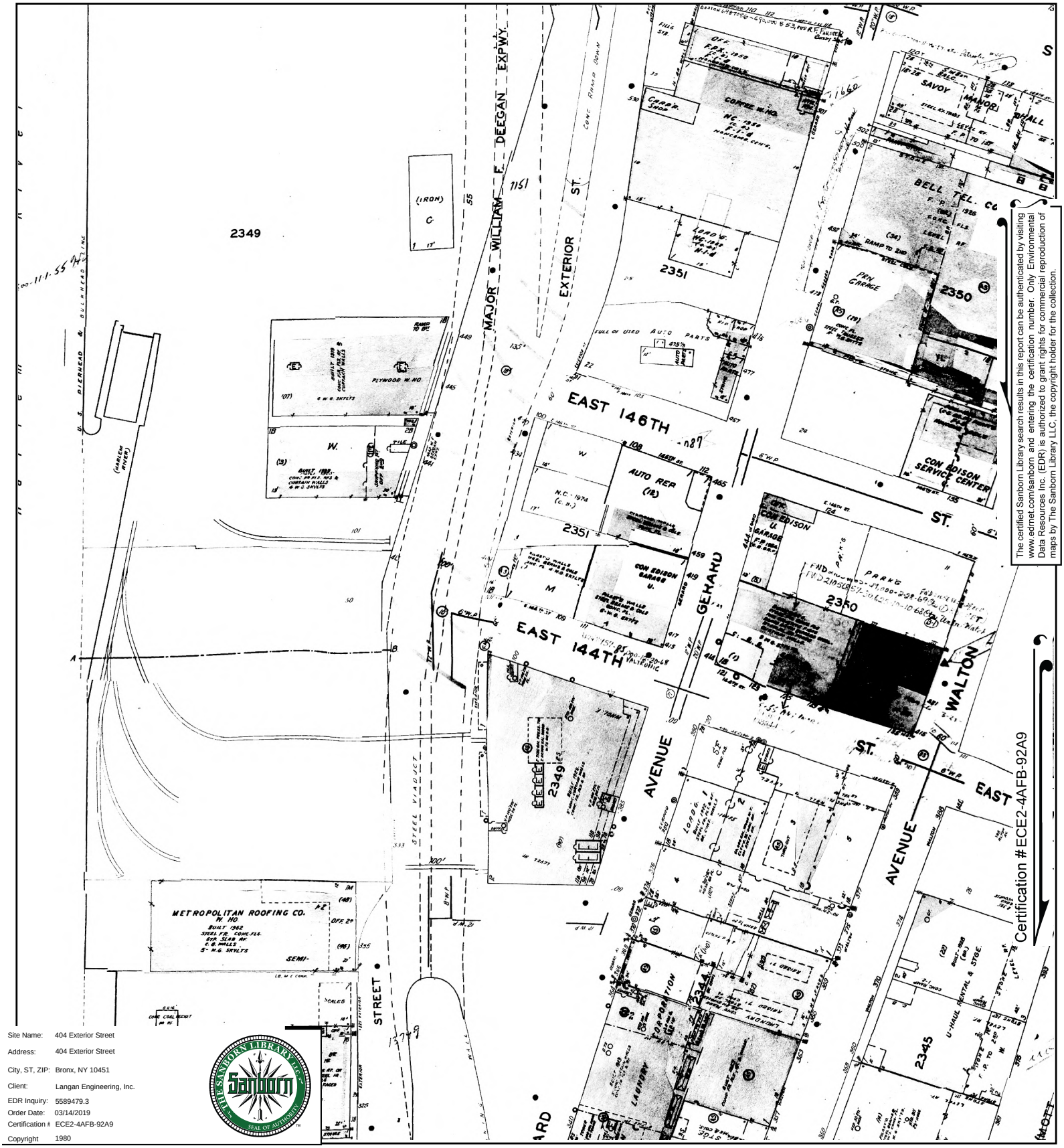

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #	ECE2-4AFB-92A9
Copyright	1980

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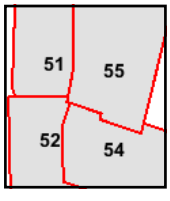

Volume 9N, Sheet 55
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Volume 9N, Sheet 52
Volume 9N, Sheet 51

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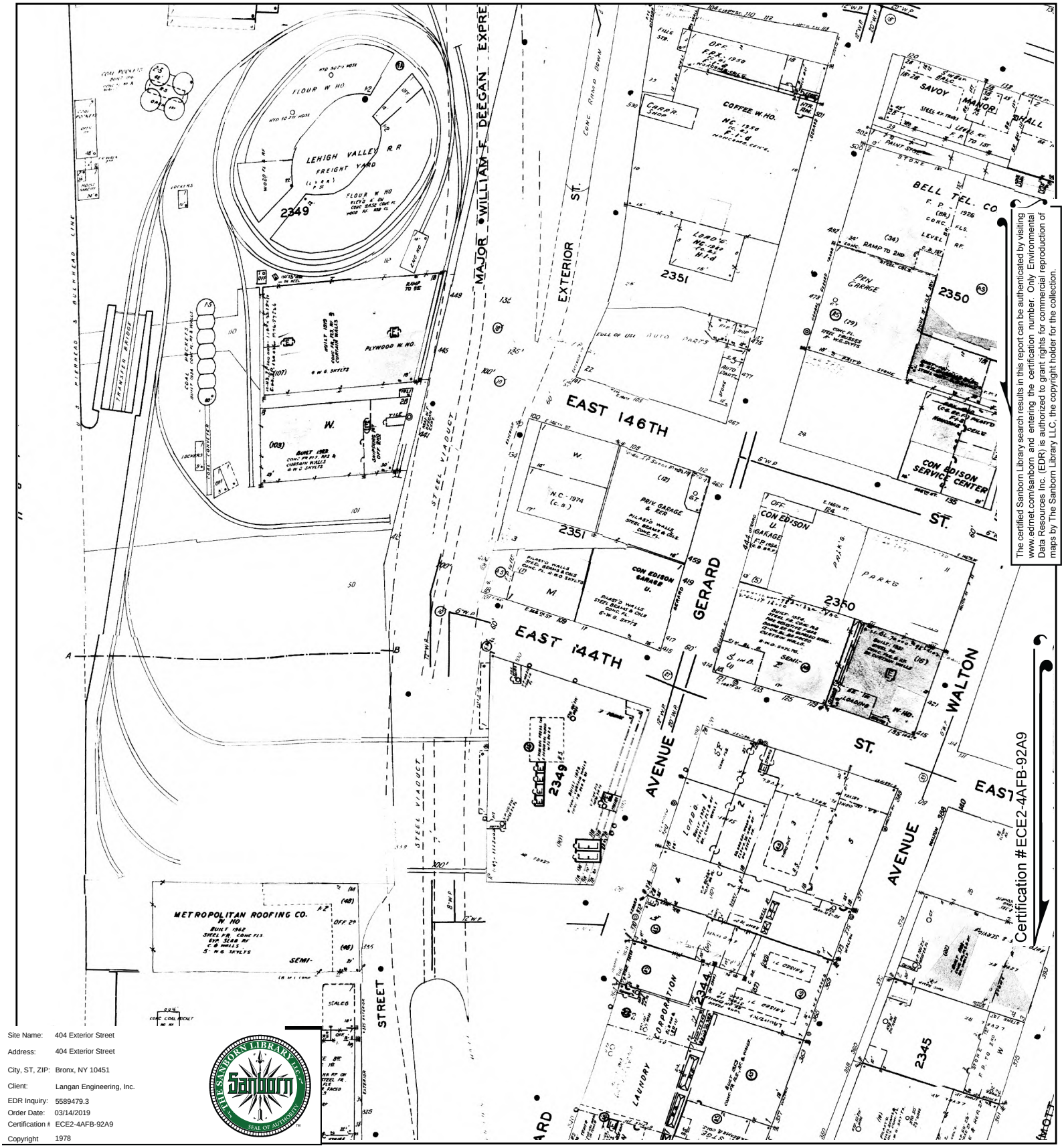

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1978

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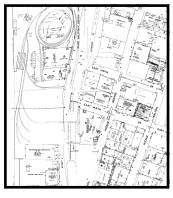

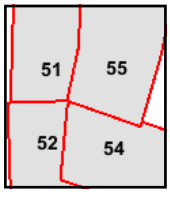

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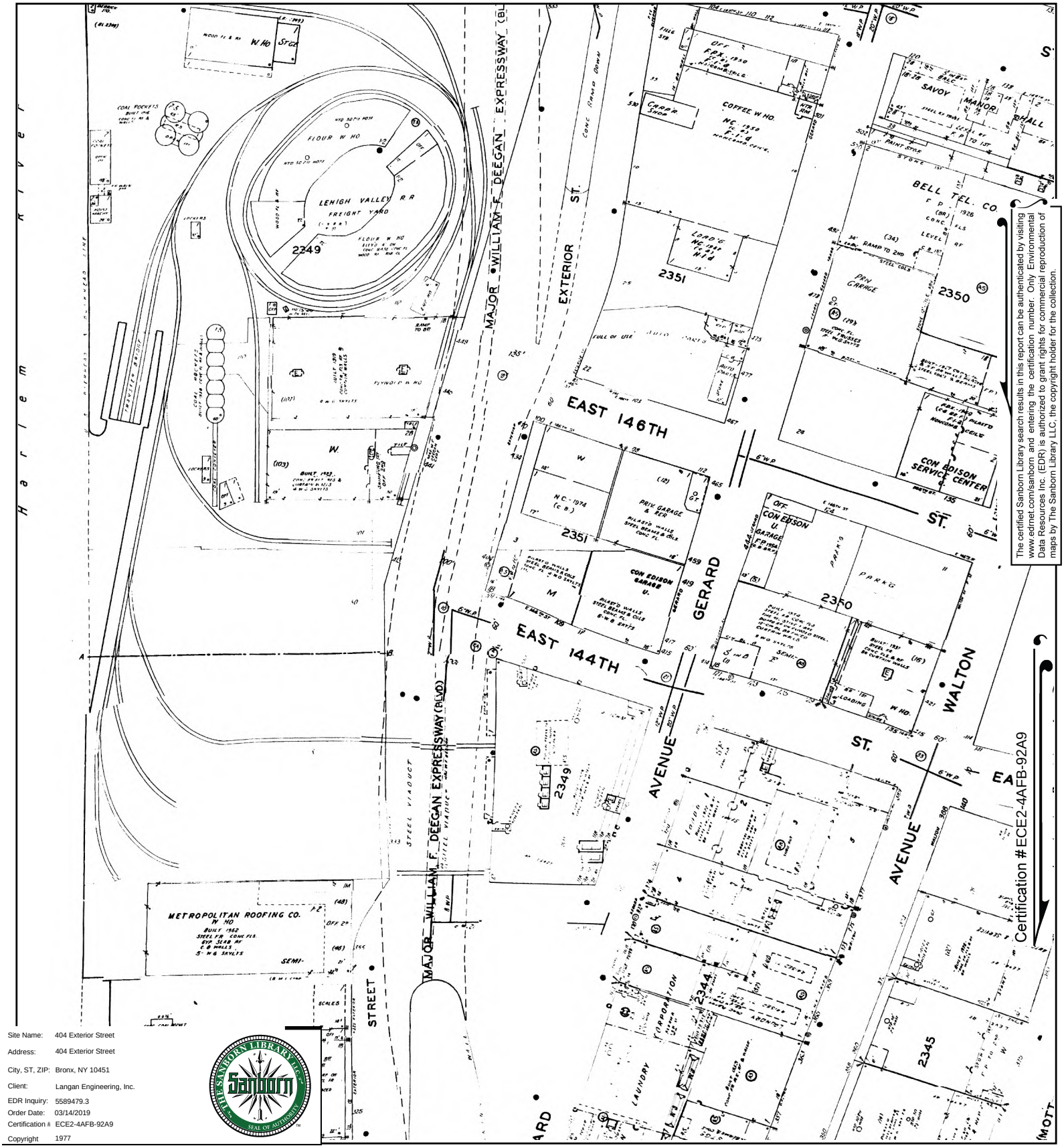

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #	ECE2-4AFB-92A9
Copyright	1977

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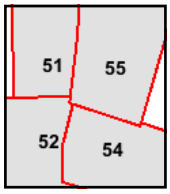

Volume 9N, Sheet 55
Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 51

0 Feet 150 300 600

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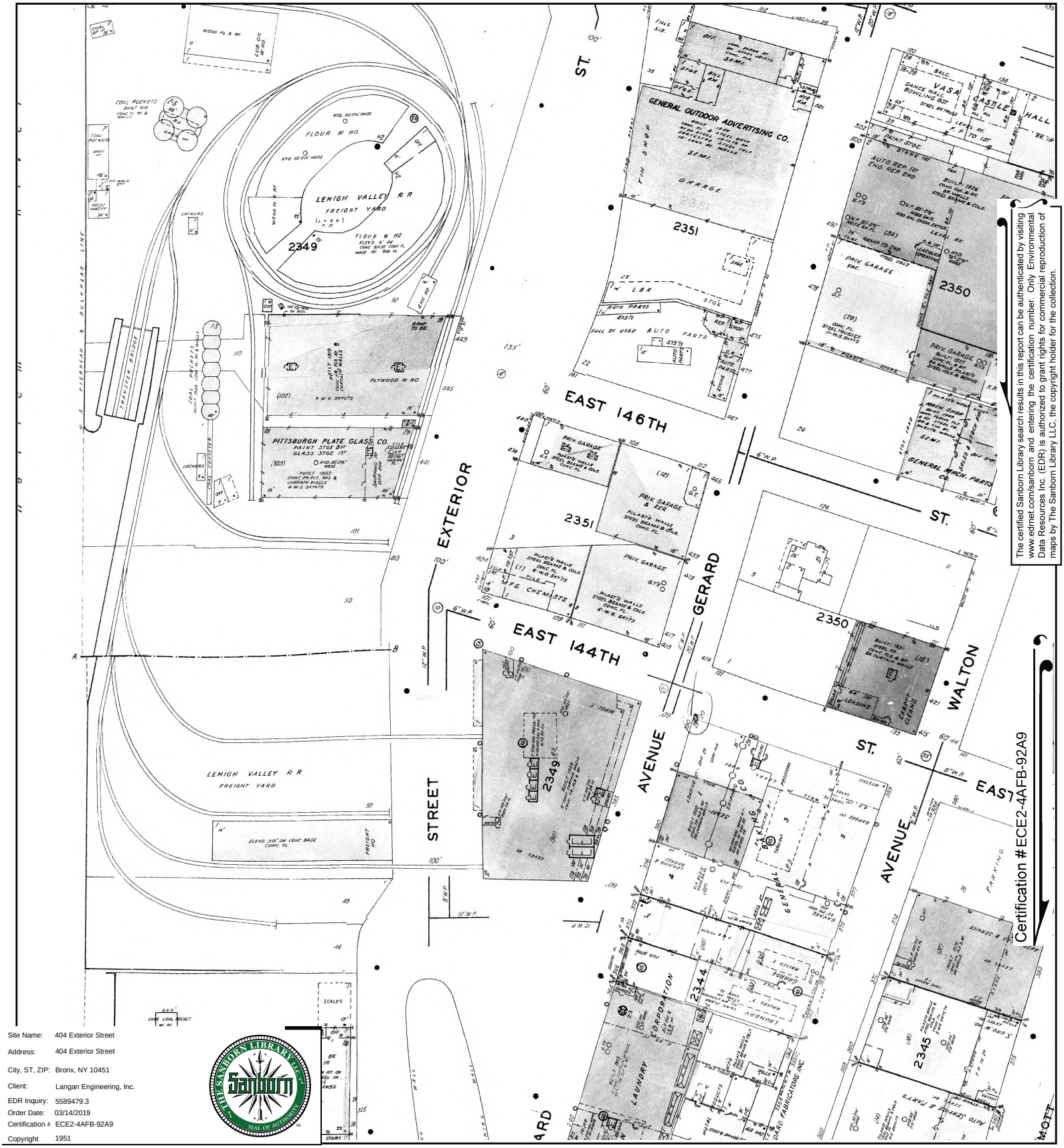

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1951

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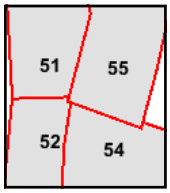

Volume 9N, Sheet 55
Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 51

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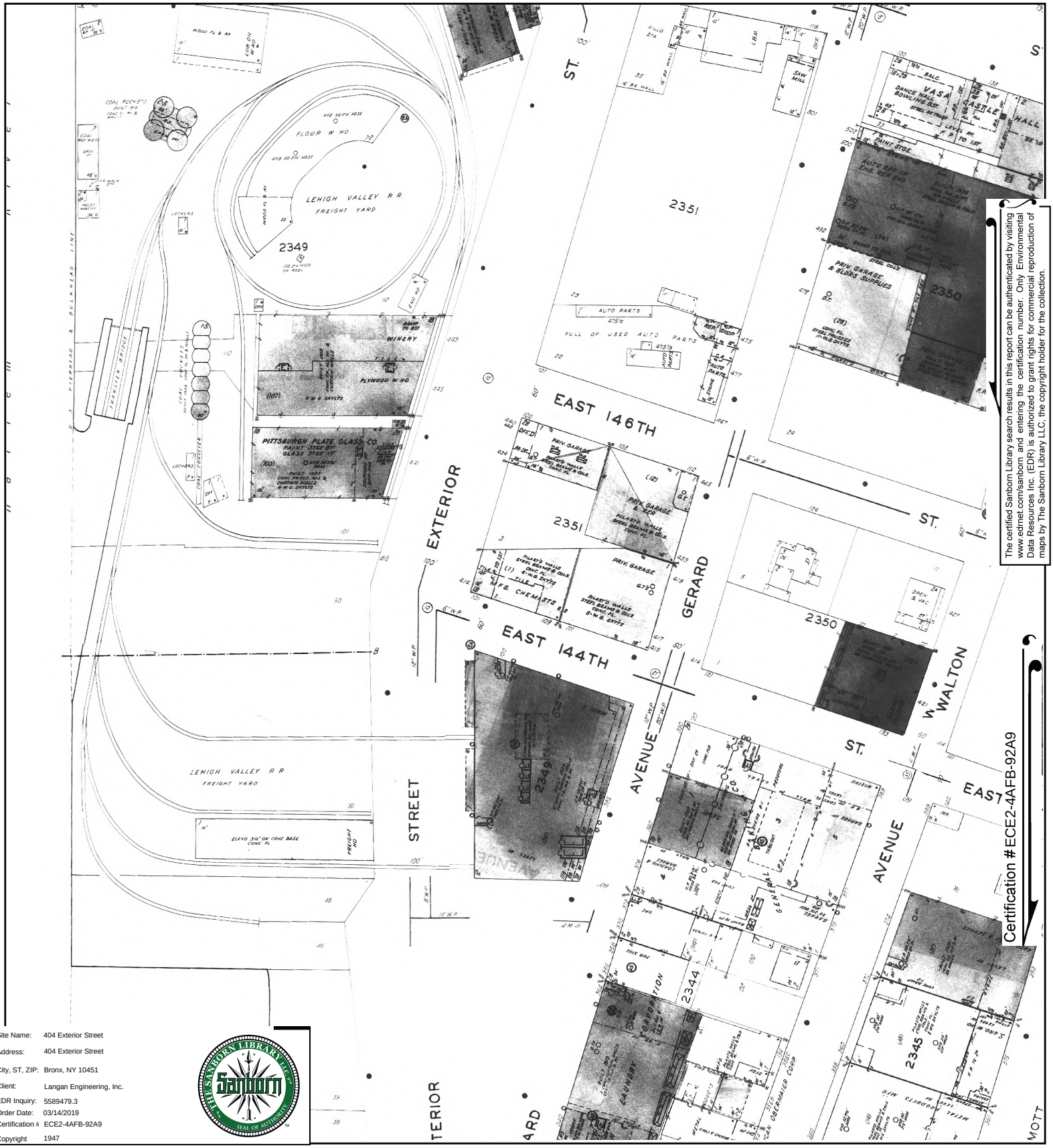

Certification #ECE2-4AFB-92A9

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1947

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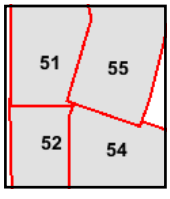

Volume 9N, Sheet 54
Volume 9N, Sheet 52
Volume 9N, Sheet 55
Volume 9N, Sheet 51

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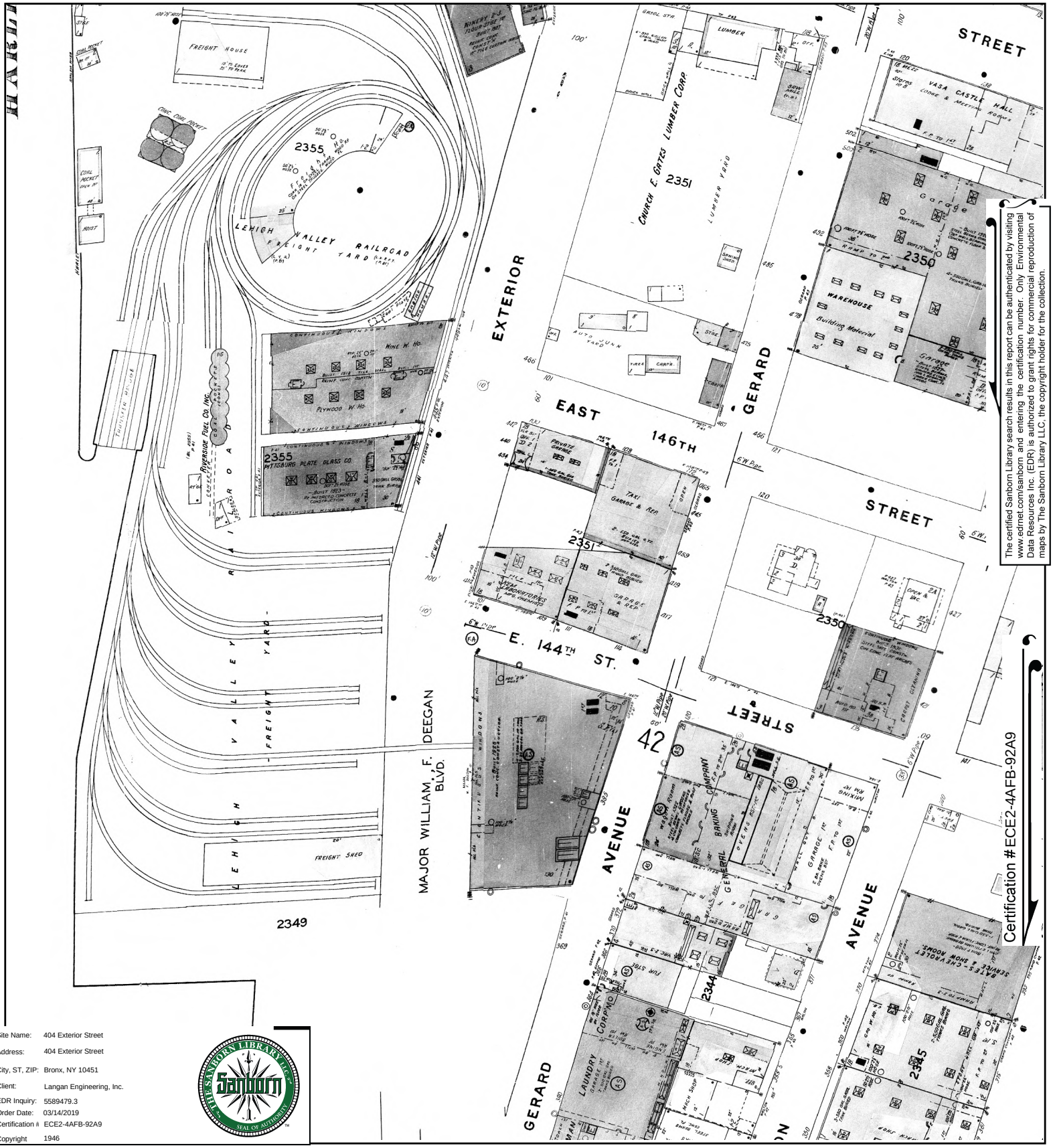

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1946

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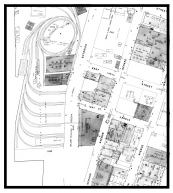

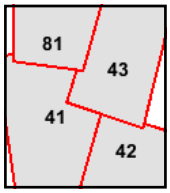

Volume 9, Sheet 81
Volume 9, Sheet 43
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Volume 9, Sheet 41

0 Feet 150 300 600

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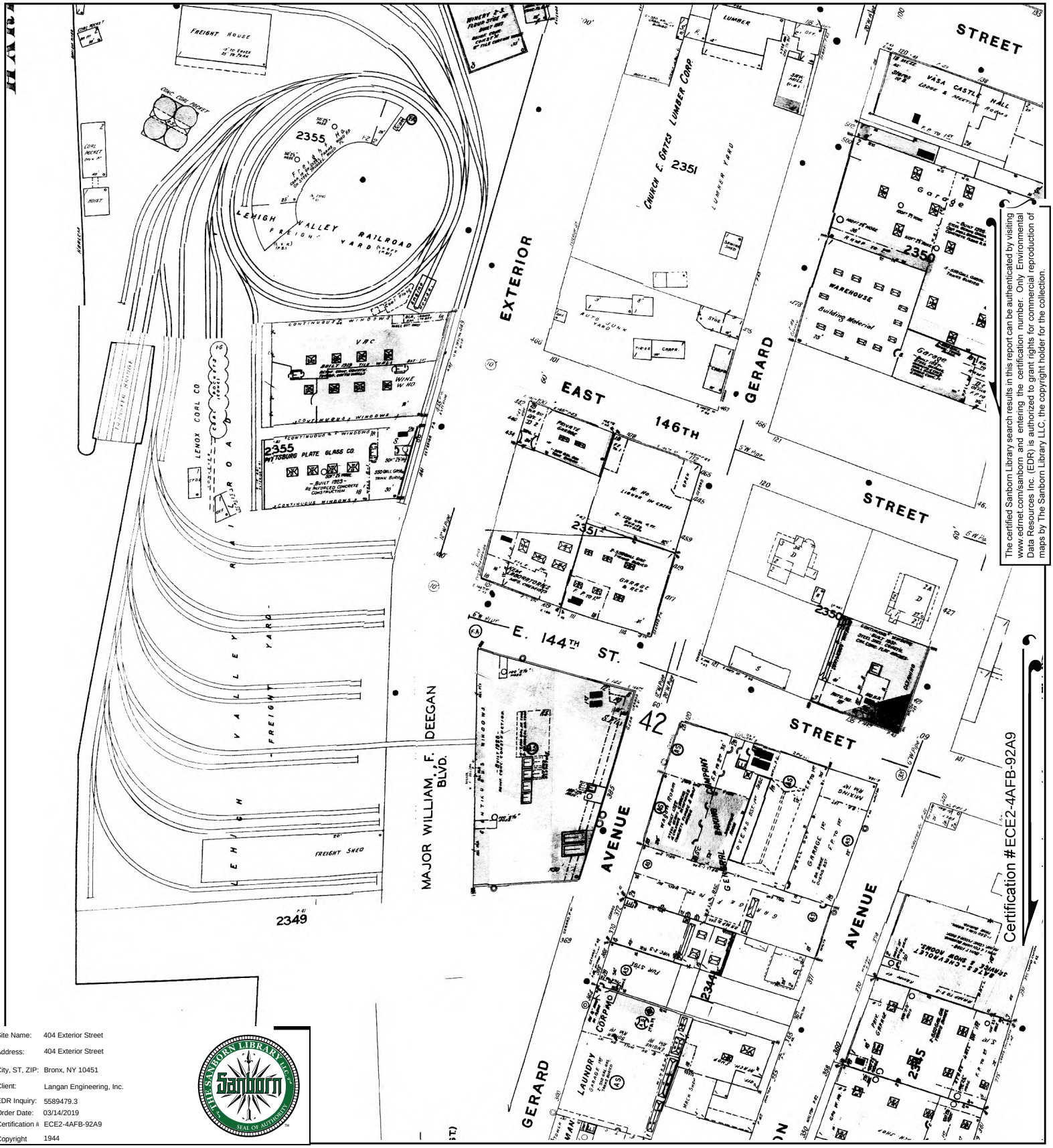

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1944

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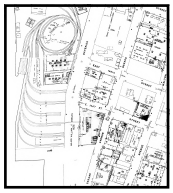

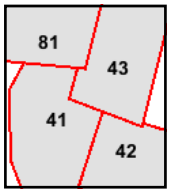

Volume 9, Sheet 81
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Volume 9, Sheet 42
Volume 9, Sheet 41

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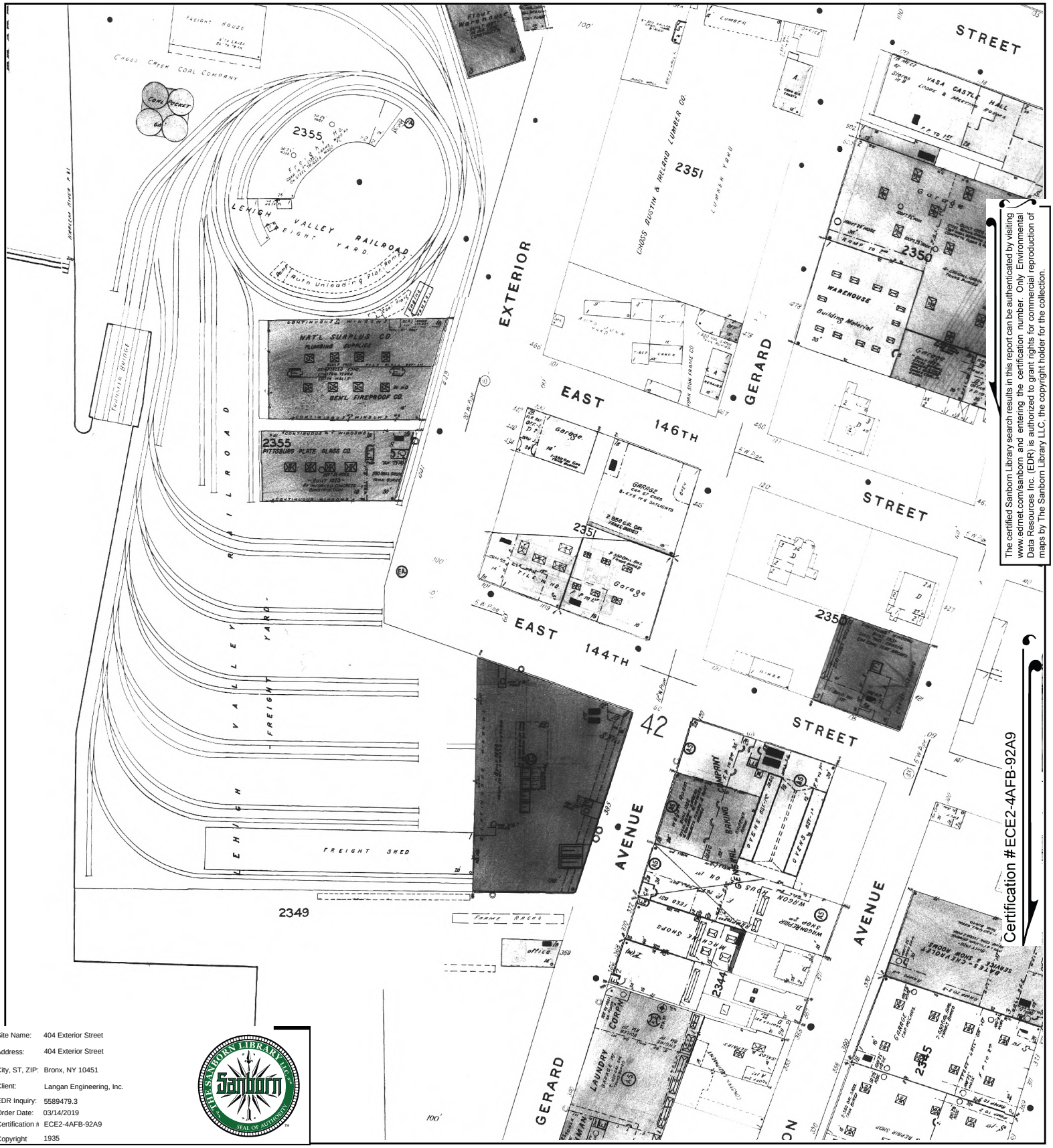

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1935

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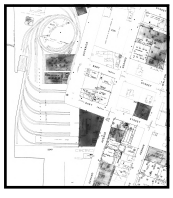

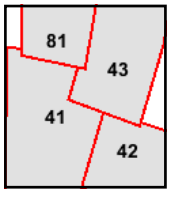

Volume 9, Sheet 81
Volume 9, Sheet 43
Volume 9, Sheet 42
Volume 9, Sheet 41

0 Feet 150 300 600

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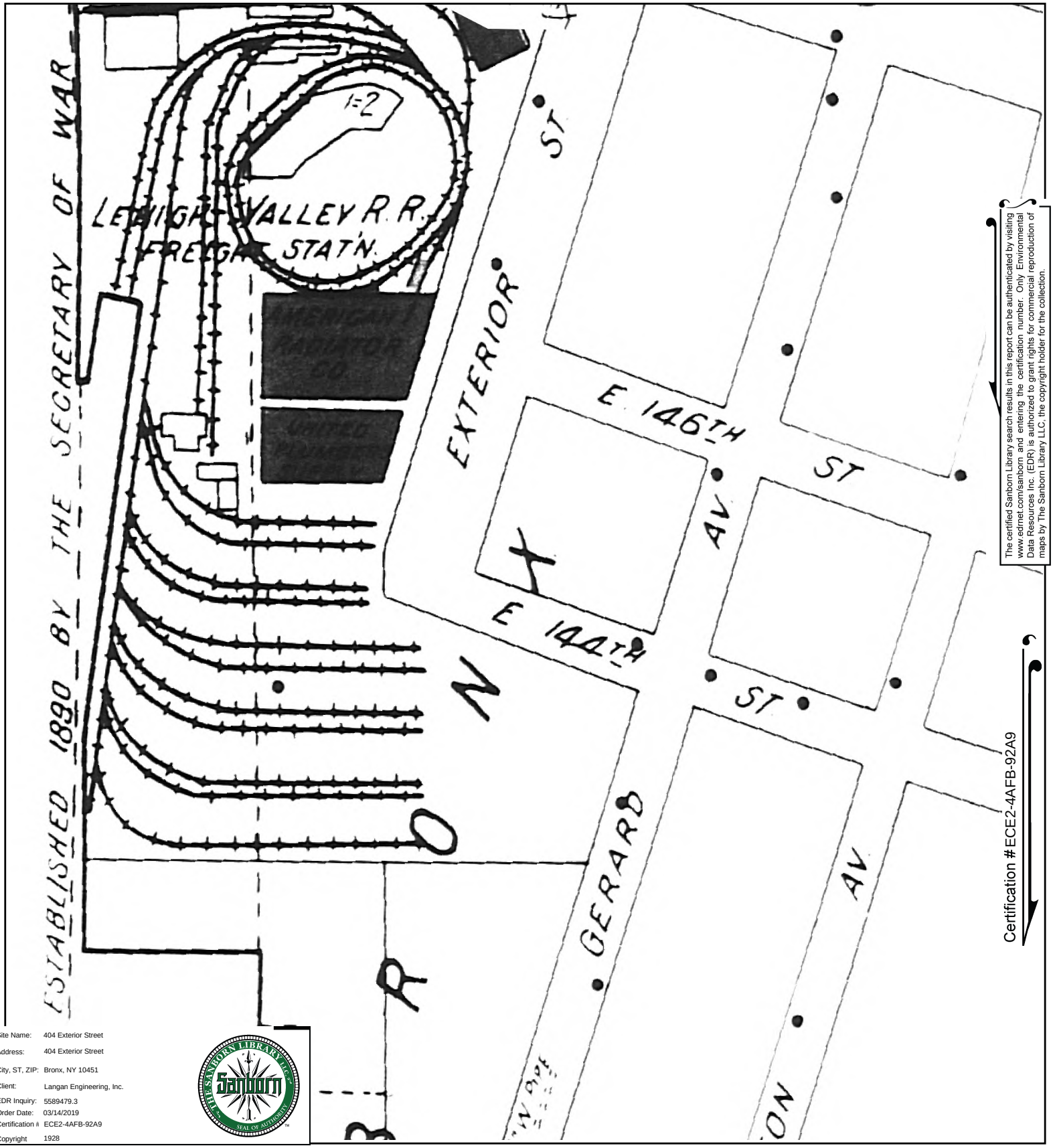

Certification #ECE2-4AFB-92A9

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1928

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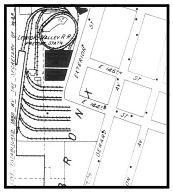

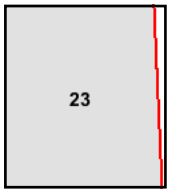

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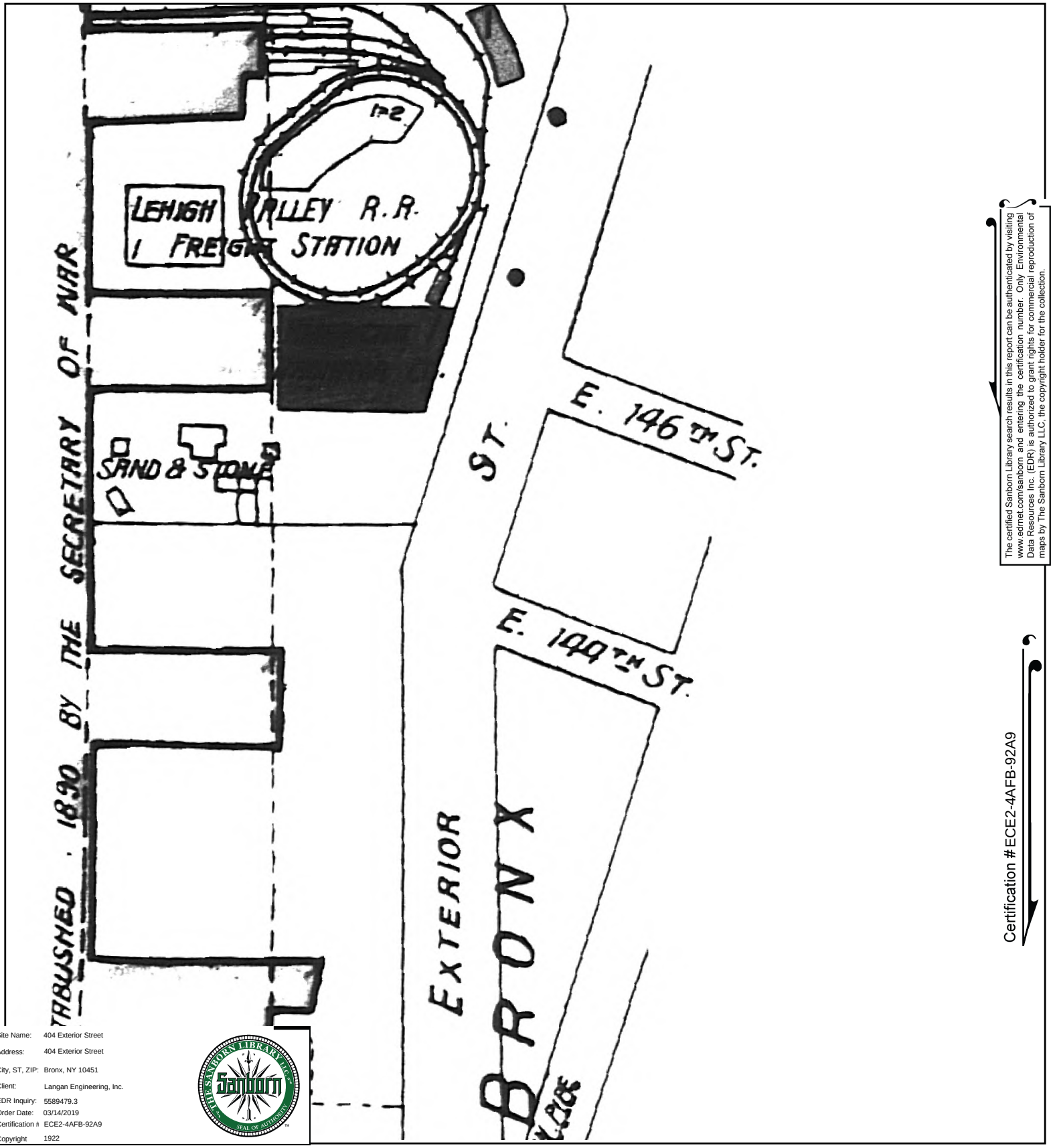

Certification #ECE2-4AFB-92A9

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1922

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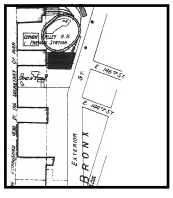

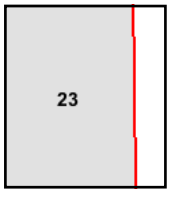

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Certified Sanborn® Map

1908

Certification #ECE2-4AFB-92A9

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1908

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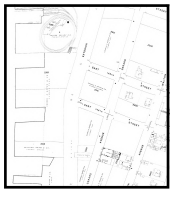
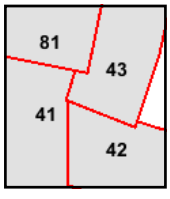
Outlined areas indicate map sheets within the collection.

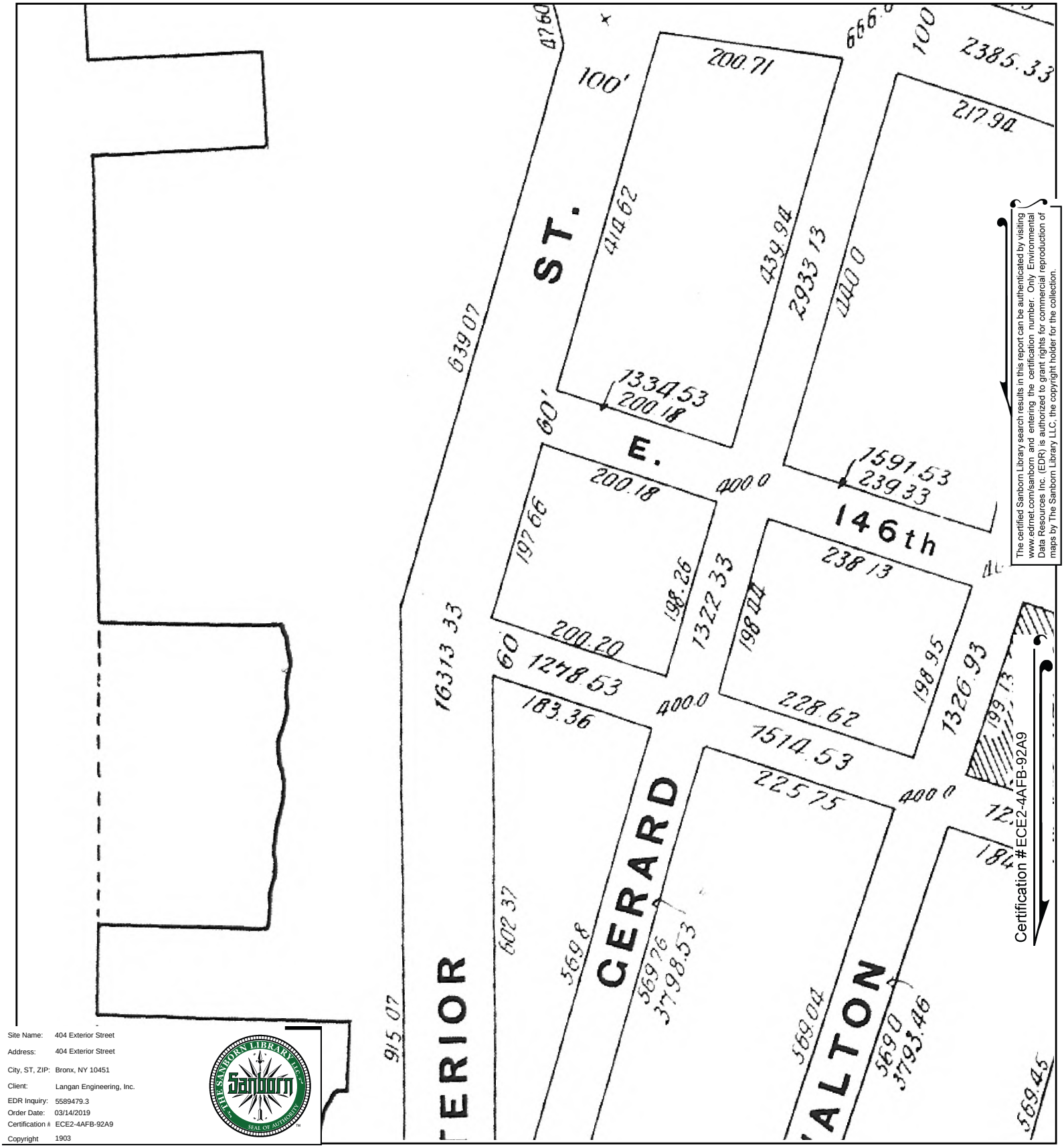




Volume 9, Sheet 81
Volume 9, Sheet 43
Volume 9, Sheet 42
Volume 9, Sheet 41

0 Feet 150 300 600

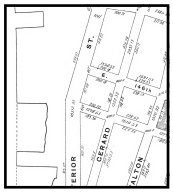
N

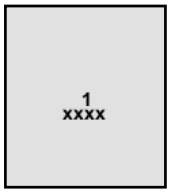


Site Name: 404 Exterior Street
Address: 404 Exterior Street
City, ST, ZIP: Bronx, NY 10451
Client: Langan Engineering, Inc.
EDR Inquiry: 5589479.3
Order Date: 03/14/2019
Certification #: ECE2-4AFB-92A9
Copyright: 1903

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.

0 Feet 150 300 600





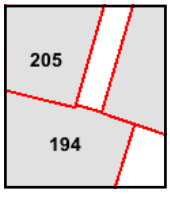
Volume Atlas Maps, Sheet 1
Volume Atlas Maps, Sheet xxxx

N

Certification #ECE2-4AFB-92A9

Site Name:	404 Exterior Street
Address:	404 Exterior Street
City, ST, ZIP:	Bronx, NY 10451
Client:	Langan Engineering, Inc.
EDR Inquiry:	5589479.3
Order Date:	03/14/2019
Certification #:	ECE2-4AFB-92A9
Copyright	1891

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.



Volume 9, Sheet 205
Volume 9, Sheet 205
Volume 9, Sheet 194

0 Feet 150 300 600

N

APPENDIX I

Historical USGS Topographic Quandrangle Maps

404 Exterior Street

404 Exterior Street

Bronx, NY 10451

Inquiry Number: 5589479.4

March 14, 2019

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

03/14/19

Site Name:

404 Exterior Street
404 Exterior Street
Bronx, NY 10451
EDR Inquiry # 5589479.4

Client Name:

Langan Engineering, Inc.
360 W. 31st Street
New York, NY 10001
Contact: Kyle Twombly

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Langan Engineering, Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# 170487001
Project: 404 Exterior Street

Coordinates:

Latitude:	40.817333 40° 49' 2" North
Longitude:	-73.930569 -73° 55' 50" West
UTM Zone:	Zone 18 North
UTM X Meters:	590189.41
UTM Y Meters:	4519029.82
Elevation:	9.22' above sea level

Maps Provided:

2013
1997
1979
1966
1956
1947
1900
1898
1897

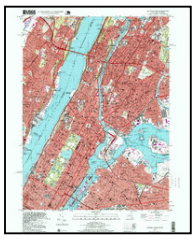
Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2013 Source Sheets

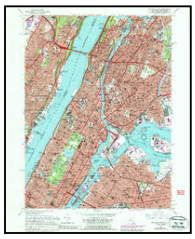
Central Park
2013
7.5-minute, 24000

1997 Source Sheets



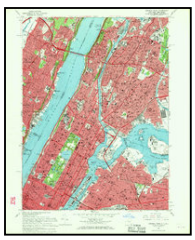
Central Park
1997
7.5-minute, 24000
Aerial Photo Revised 1997

1979 Source Sheets



Central Park
1979
7.5-minute, 24000
Aerial Photo Revised 1977

1966 Source Sheets

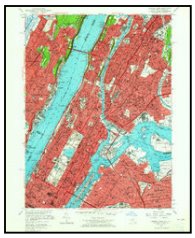


Central Park
1966
7.5-minute, 24000
Aerial Photo Revised 1966

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1956 Source Sheets



Central Park
1956
7.5-minute, 24000

1947 Source Sheets

Central Park
1947
7.5-minute, 24000
Aerial Photo Revised 1941

1900 Source Sheets

Harlem
1900
15-minute, 62500

1898 Source Sheets

Harlem
1898
15-minute, 62500

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1897 Source Sheets

Harlem
1897
15-minute, 62500

Historical Topo Map

2013

This report includes information from the following map sheet(s).

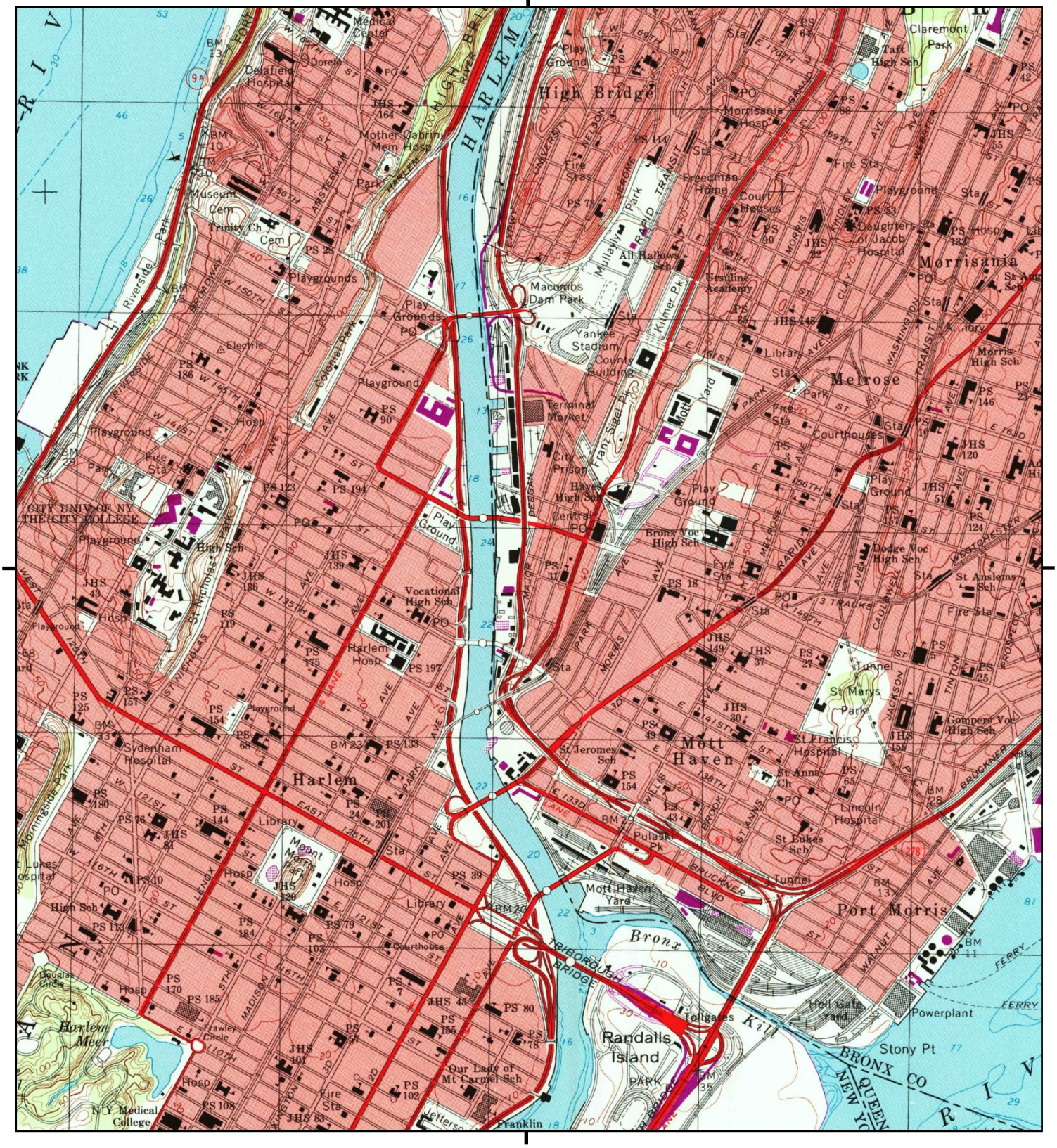
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Central Park, 2013, 7.5-minute

SITE NAME: 404 Exterior Street
ADDRESS: 404 Exterior Street
Bronx, NY 10451
CLIENT: Langan Engineering, Inc.

N



This report includes information from the following map sheet(s).

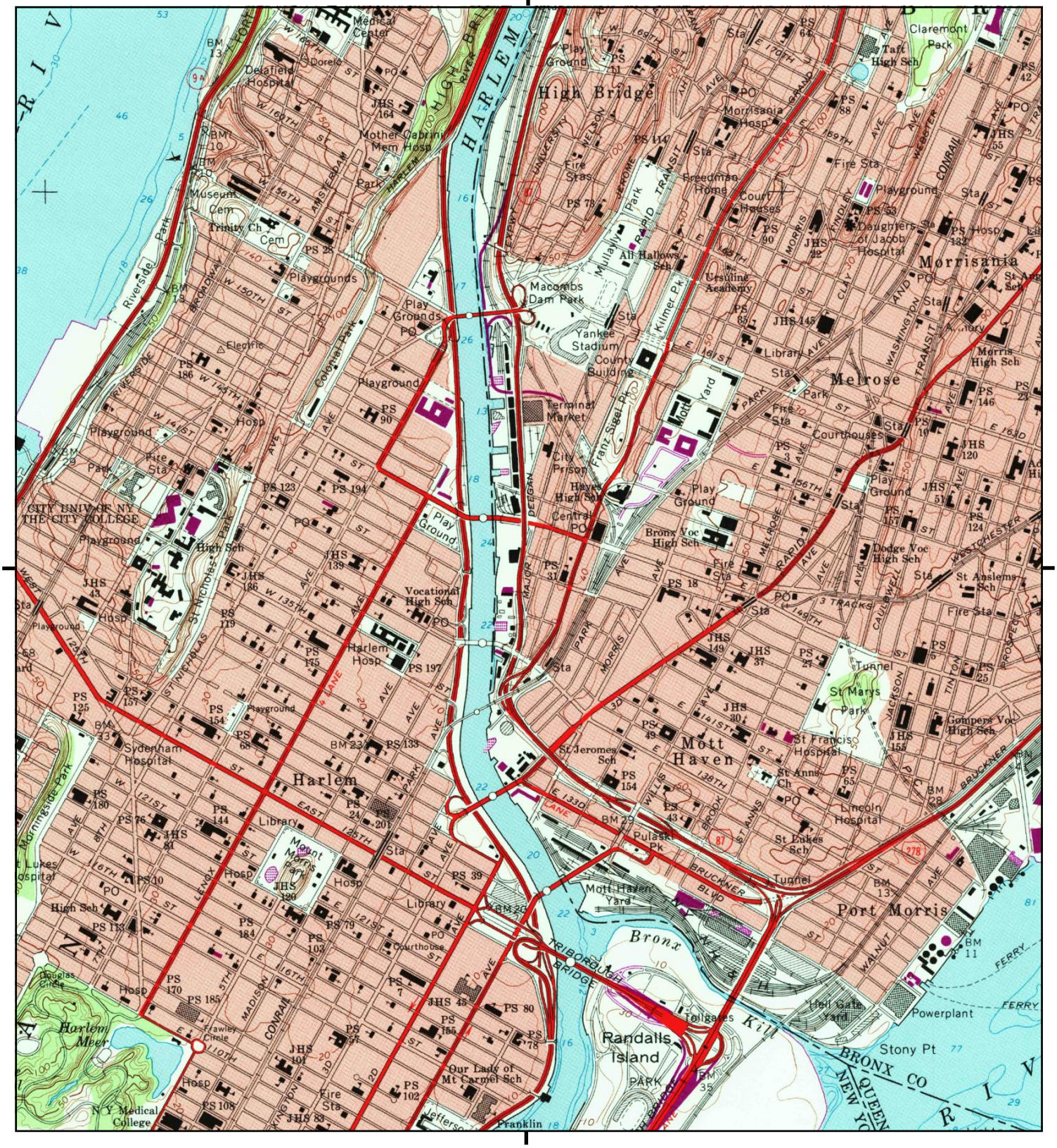
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Central Park, 1997, 7.5-minute

SITE NAME: 404 Exterior Street
ADDRESS: 404 Exterior Street
Bronx, NY 10451
CLIENT: Langan Engineering, Inc.

N



This report includes information from the following map sheet(s).

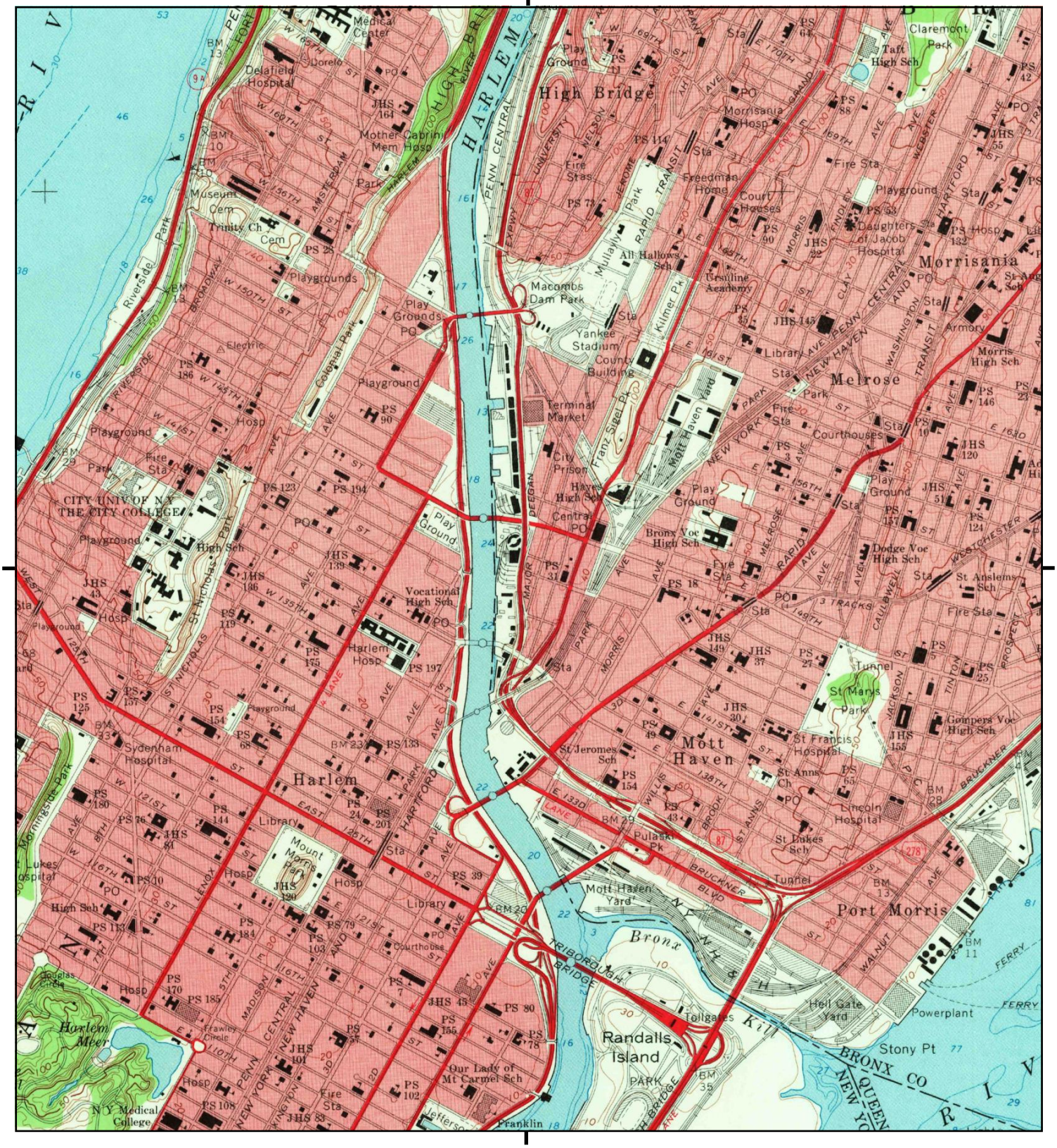
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Central Park, 1979, 7.5-minute

SITE NAME: 404 Exterior Street
ADDRESS: 404 Exterior Street
Bronx, NY 10451
CLIENT: Langan Engineering, Inc.

N



This report includes information from the following map sheet(s).

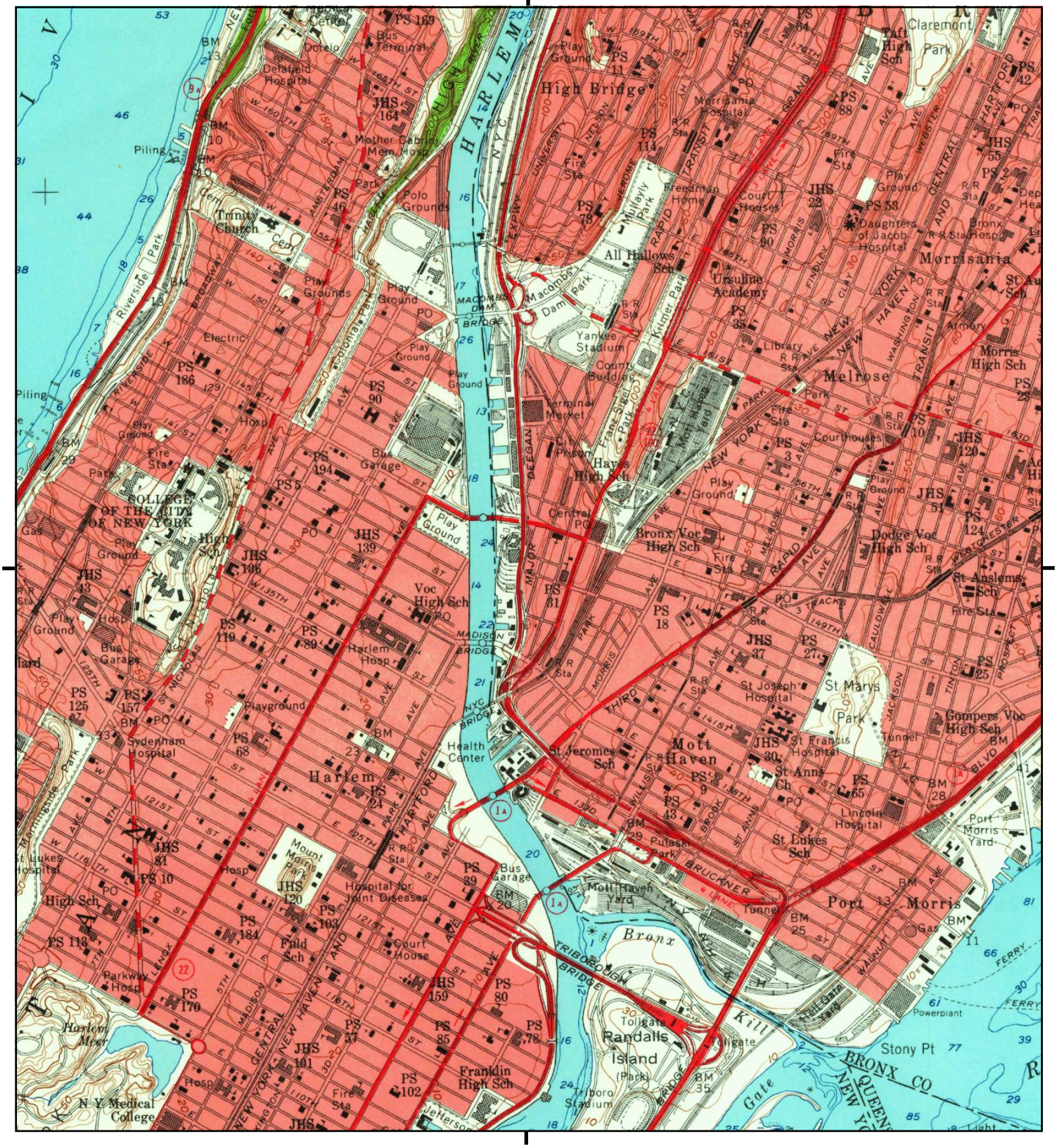
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Central Park, 1966, 7.5-minute

SITE NAME: 404 Exterior Street
ADDRESS: 404 Exterior Street
Bronx, NY 10451
CLIENT: Langan Engineering, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Central Park, 1956, 7.5-minute

SITE NAME: 404 Exterior Street
ADDRESS: 404 Exterior Street
Bronx, NY 10451
CLIENT: Langan Engineering, Inc.

N

This report includes information from the following map sheet(s).

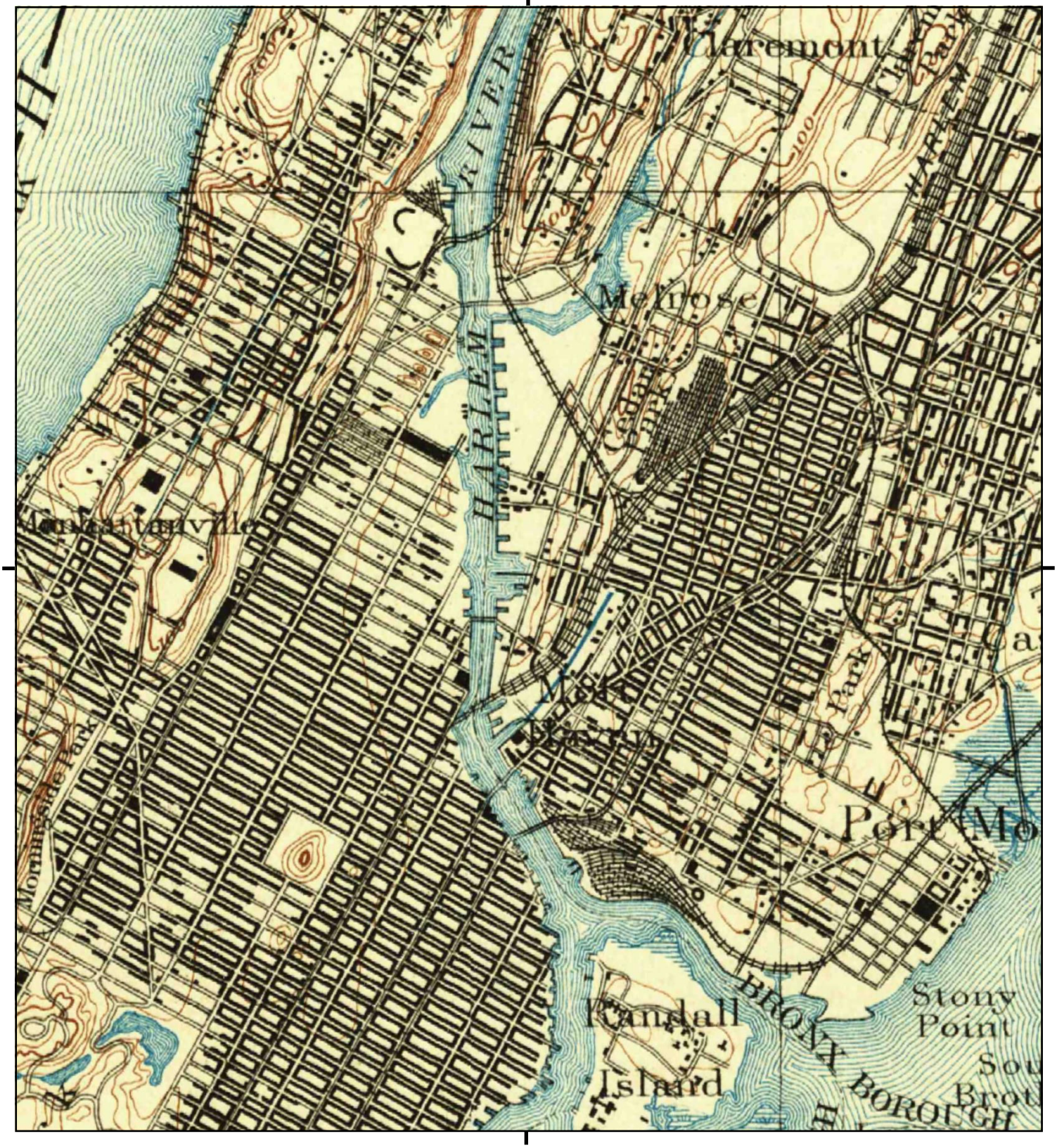
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Central Park, 1947, 7.5-minute

SITE NAME: 404 Exterior Street
ADDRESS: 404 Exterior Street
Bronx, NY 10451
CLIENT: Langan Engineering, Inc.

N



This report includes information from the following map sheet(s).

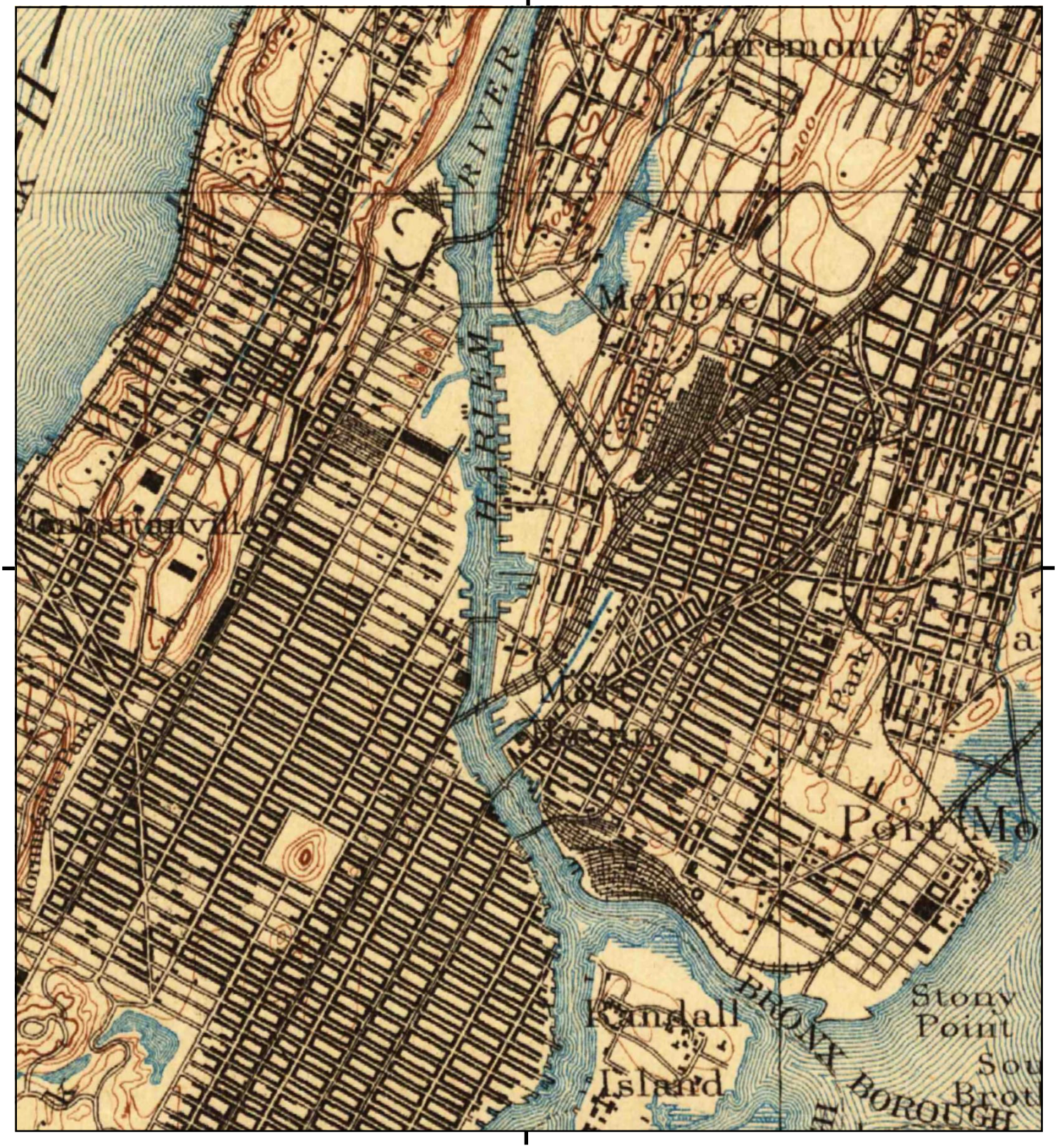
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Harlem, 1900, 15-minute

SITE NAME: 404 Exterior Street
ADDRESS: 404 Exterior Street
Bronx, NY 10451
CLIENT: Langan Engineering, Inc.

N



This report includes information from the following map sheet(s).

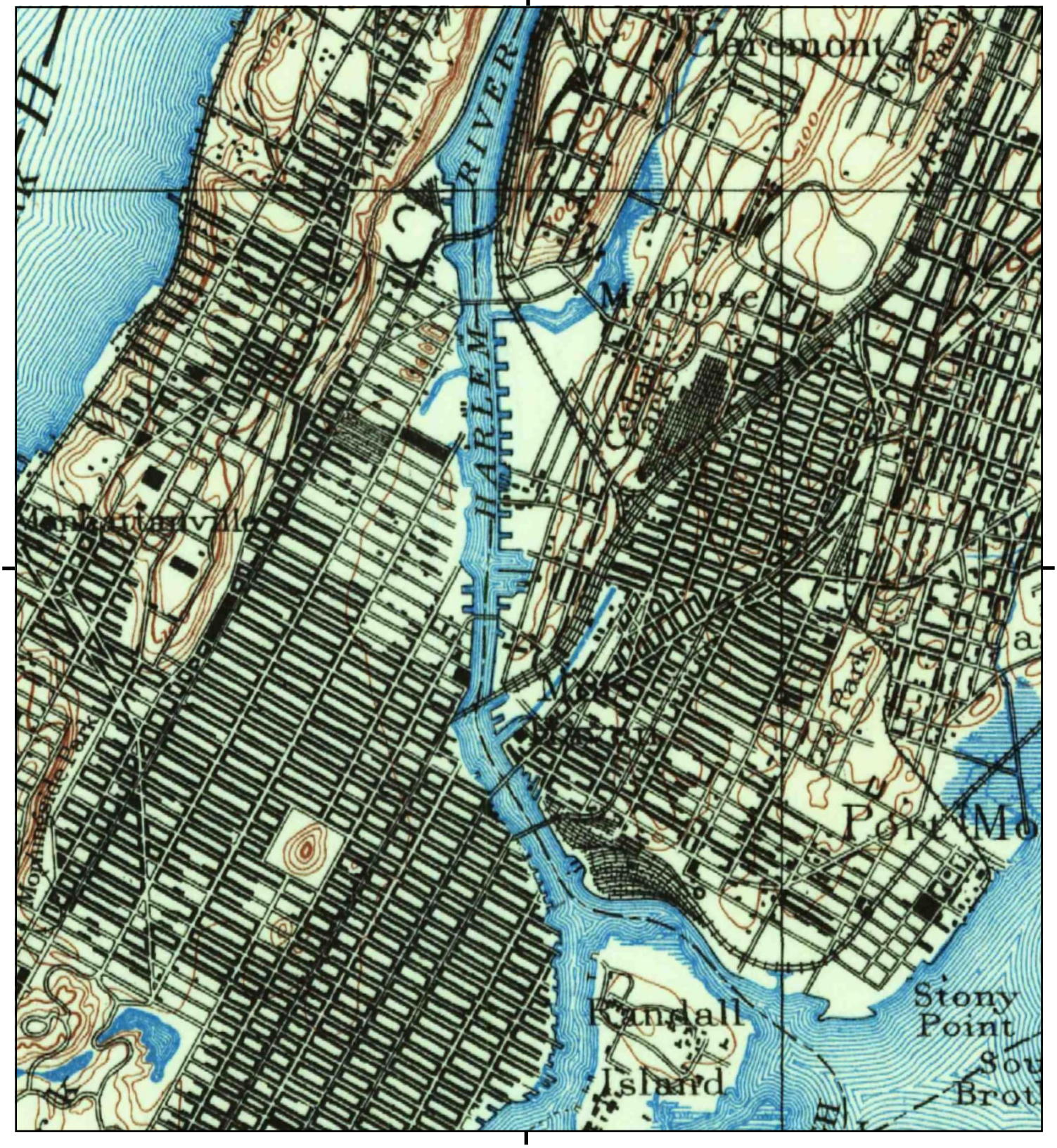
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Harlem, 1898, 15-minute

SITE NAME: 404 Exterior Street
ADDRESS: 404 Exterior Street
Bronx, NY 10451
CLIENT: Langan Engineering, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Harlem, 1897, 15-minute

SITE NAME: 404 Exterior Street
ADDRESS: 404 Exterior Street
Bronx, NY 10451
CLIENT: Langan Engineering, Inc.

N

APPENDIX J

City Directory Abstract

404 Exterior Street
404 Exterior Street
Bronx, NY 10451

Inquiry Number: 5589479.5
March 14, 2019

The EDR-City Directory Abstract

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

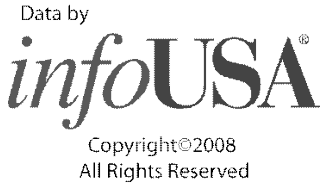
Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1927 through 2014. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 200 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

EDR is licensed to reproduce certain City Directory works by the copyright holders of those works. The purchaser of this EDR City Directory Report may include it in report(s) delivered to a customer. Reproduction of City Directories without permission of the publisher or licensed vendor may be a violation of copyright.



RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	Source	TP	Adjoining	Text Abstract	Source Image
2014	EDR Digital Archive	-	X	X	-
2010	EDR Digital Archive	-	X	X	-
2005	Hill-Donnelly Information Services	-	X	X	-
2000	Cole Information Services	-	X	X	-
1993	New York Telephone	-	X	X	-
1983	New York Telephone	-	X	X	-
1976	New York Telephone Company	-	X	X	-
1971	New York Telephone	-	X	X	-
1965	New York Telephone Company	-	X	X	-
1961	New York Telephone	-	X	X	-
1956	New York Telephone	-	X	X	-
	New York Telephone	X	X	X	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1949	New York Telephone	-	X	X	-
	New York Telephone	X	X	X	-
1940	New York Telephone	-	X	X	-
1931	Manhattan and Bronx Directory Publishing Company Residential Directory	-	X	X	-
1927	New York Telephone	-	X	X	-

EXECUTIVE SUMMARY

SELECTED ADDRESSES

The following addresses were selected by the client, for EDR to research. An "X" indicates where information was identified.

Address	***Type***	***Findings***
417 Gerard Avenue	Client Entered	X
445 Gerard Avenue	Client Entered	X
445 Maj Wm Deegan Boulevard	Client Entered	
385 Gerard Avenue	Client Entered	X
441 River Avenue	Client Entered	
445 River Avenue	Client Entered	X
444 Gerard Avenue	Client Entered	X
121 East 144 Street	Client Entered	
120 East 144 Street	Client Entered	X

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

404 Exterior Street
Bronx, NY 10451

FINDINGS DETAIL

Target Property research detail.

EXTERIOR

404 EXTERIOR

Year	*Uses*	*Source*
1956	METRO DECORATG CO INC PAINTG CONTRS	New York Telephone
	METRO INDUSTRL PAINTING CO INC	New York Telephone
1949	TEXACHEM CORP	New York Telephone

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

E 144

100 E 144

Year	Uses	Source
1965	ROYNAT CORP	New York Telephone Company
1961	ROYNAT CORP	New York Telephone
	STANART PRINTED SPECIALTY CO INC	New York Telephone
1956	ROYNAT CORP	New York Telephone
1949	ROYNAT CORP	New York Telephone

101 E 144

Year	Uses	Source
1976	LOWY EDW J DR B	New York Telephone Company
1971	LOWY EDW J DR B	New York Telephone
1965	LOWY EDW J DR B	New York Telephone Company
1961	LOWY EDW J DR B	New York Telephone
1956	LOWY EDW J DR B	New York Telephone
1949	KEM LABS	New York Telephone
	LOWY EDW J SC DB	New York Telephone

120 E 144

Year	Uses	Source
1993	PANORAMIC INDUSTRIES INC	New York Telephone
	MILEDYS RESTAURANT	New York Telephone
1983	PANORAMIC INDUSTRIES INC	New York Telephone
	LIGHTEMORE B	New York Telephone
	EGGLESTON OFC EQUIPT CO INC	New York Telephone
1976	CROSSWAY COFFEE SHOP INC	New York Telephone Company
	CROSSWAY COFFEE SHOPS	New York Telephone Company
	EGLESTON OFC EQUOPT CO INC	New York Telephone Company
	LIVING WALLS INC	New York Telephone Company
	MODUMATIC INDUSTRIES INC	New York Telephone Company
	VALTRONIC CORP THE	New York Telephone Company
1971	COSMOS LIGHTING CORP	New York Telephone
	CROSSWAY COFFEE SHOP INC	New York Telephone

FINDINGS

Year	Uses	Source
1971	CROSSWAY COFFEE SHOPS	New York Telephone
	EGGLESTON OFC EQUIPT COLOC	New York Telephone
	LUXCRAFT INC IMPS	New York Telephone
	VALTRONIC CORP THE	New York Telephone
1965	COSMOS LIGHTING CORP	New York Telephone Company
	CROSSWAY COFFEE SHOPS	New York Telephone Company
	LUXCRAFT INC IMPS	New York Telephone Company
1961	GERARD LUNCHEONETTE INC	New York Telephone
	SAW REALTY CO	New York Telephone
1956	DURALITE CO INC	New York Telephone
	GERARD LUNCHEONETTE INC	New York Telephone
	STATE DENTAL TECHNICIAN S INC DNTL LAB	New York Telephone
1949	GENL BAKING CO BRNX BL & ROSEWD	New York Telephone

E 144TH

100 E 144TH

Year	Uses	Source
1931	Prince Eveleyn	Manhattan and Bronx Directory Publishing Company Residential Directory
1927	Manzo M rags & paper	New York Telephone

101 E 144TH

Year	Uses	Source
1940	Amer Franklin Olean Tiles inc warehse	New York Telephone
	Franklin Tile Co	New York Telephone
	Olean Tile Co	New York Telephone

110 E 144TH

Year	Uses	Source
1931	Bishop Dorothy	Manhattan and Bronx Directory Publishing Company Residential Directory

120 E 144TH

Year	Uses	Source
1940	Bakery	New York Telephone
	Genl Baking Co Exec off	New York Telephone
	Equity Const Co	New York Telephone

FINDINGS

E 144TH ST

120 E 144TH ST

Year	Uses	Source
2005	Webers Online 1s	Hill-Donnelly Information Services
	Tori Realty Corp 2 F	Hill-Donnelly Information Services
2000	TORI REALTY CORP	Cole Information Services

East 144 Street

120 East 144 Street

Year	Uses	Source
2005	Tori Realty Corp 2 F	Hill-Donnelly Information Services
	Webers Online 1s	Hill-Donnelly Information Services
2000	TORI REALTY CORP	Cole Information Services
1993	MILEDYS RESTAURANT	New York Telephone
	PANORAMIC INDUSTRIES INC	New York Telephone
1983	EGGLESTON OFC EQUIPT CO INC	New York Telephone
	LIGHTEMORE B	New York Telephone
	PANORAMIC INDUSTRIES INC	New York Telephone
1976	CROSSWAY COFFEE SHOP INC	New York Telephone Company
	CROSSWAY COFFEE SHOPS	New York Telephone Company
	EGLESTON OFC EQUOPT CO INC	New York Telephone Company
	LIVING WALLS INC	New York Telephone Company
	MODUMATIC INDUSTRIES INC	New York Telephone Company
	VALTRONIC CORP THE	New York Telephone Company
1971	COSMOS LIGHTING CORP	New York Telephone
	CROSSWAY COFFEE SHOP INC	New York Telephone
	CROSSWAY COFFEE SHOPS	New York Telephone
	EGGLESTON OFC EQUIPT COLOC	New York Telephone
	LUXCRAFT INC IMPS	New York Telephone
	VALTRONIC CORP THE	New York Telephone
1965	COSMOS LIGHTING CORP	New York Telephone Company
	CROSSWAY COFFEE SHOPS	New York Telephone Company
	LUXCRAFT INC IMPS	New York Telephone Company
1961	GERARD LUNCHEONETTE INC	New York Telephone
	SAW REALTY CO	New York Telephone
1956	DURALITE CO INC	New York Telephone
	GERARD LUNCHEONETTE INC	New York Telephone

Year	Uses	Source
1956	STATE DENTAL TECHNICIAN S INC DNTL LAB	New York Telephone
1949	GENL BAKING CO BRNX BL & ROSEWD	New York Telephone
1940	Equity Const Co	New York Telephone
	Genl Baking Co Exec off	New York Telephone
	Bakery	New York Telephone

EXTERIOR

385 EXTERIOR

Year	Uses	Source
1993	BORAX PAPER PRODS INC	New York Telephone

399 EXTERIOR

Year	Uses	Source
1993	AMBOY BUS CO	New York Telephone
	ATLANTIC HUDSON INC	New York Telephone

440 EXTERIOR

Year	Uses	Source
1993	SMIR ADVTNG & PROMOTION STORAGE	New York Telephone
	ALLIED OUTDOOR ADVTNG INC	New York Telephone
1983	ALLIED OUTDOOR ADVTNG INC	New York Telephone
1976	MANDELL & CORSINI MECHANICAL CONSTR CORP	New York Telephone Company
1965	POLLACK NORMAN H ATTY	New York Telephone Company
1956	CITY CINDER SUPL CORP	New York Telephone
	MANHATN & BRONX CINDER SUPL CO INC	New York Telephone
1949	CITY CINDER SUPL CORP	New York Telephone
	LA ROCCA ANTHONY C B	New York Telephone
	LA ROCCA ANTHONY C INC CONTRS	New York Telephone
	MANHATN & BRONX CINDER SUPL CO INC	New York Telephone
	DOLLAN PETER F B	New York Telephone

441 EXTERIOR

Year	Uses	Source
1983	DITZLER AUTOMOTIVE FINISHES PPG INDUSTRIES INC	New York Telephone
1976	DITZLER COLOR DIV OF PPG INDUSTRIES INC	New York Telephone Company

Year	Uses	Source
1976	DITZLER AUTOMOTIVE FINISHES-P P G INDUSTRIES INC	New York Telephone Company
	DITZLER AUTOMTV FINISHES	New York Telephone Company
1971	DITZLER AOTOMTV FINISHES	New York Telephone
	DITZLER COLOR DIV OF PPG INDUSTRIES INC	New York Telephone
	DITZLER AUTOMOTIVE FINISHES P P G INDUSTRIES INC	New York Telephone
1965	DITZLER COLOR DIV OF PITTSBURGH PLATE GLASS CO	New York Telephone Company
1961	DITZLER COLOR DIV OF PITTSBURGH PLATE GLASS CO	New York Telephone

445 EXTERIOR

Year	Uses	Source
1983	NATIONAL PLYWOOD CO INC	New York Telephone
	DIMENSIONAL INDUSTRIES LTD	New York Telephone
	FLAX STEPHEN G B	New York Telephone
1976	NATL PLYWD CO INC	New York Telephone Company
1971	NATL PLYWD CO INC	New York Telephone
1965	NATL PLYWOOD CO INC	New York Telephone Company
1961	NATL PLYWOOD CO INC	New York Telephone
1956	NATL PLYWOOD CO INC	New York Telephone
1949	NATL PLYWOOD CO INC	New York Telephone

Exterior St

325 Exterior St

Year	Uses	Source
2010	INTERNTNAL PRIVATE CAR SVC INC	EDR Digital Archive
	INTERNTNAL PRIVATE CAR SVC INC	EDR Digital Archive

355 Exterior St

Year	Uses	Source
2014	JC FOOD SYSTEM INC	EDR Digital Archive
	KIMS PROVISION CO INC	EDR Digital Archive
	LEE & GIANT FOOD SYSTEM INC	EDR Digital Archive
	JC FOOD SYSTEM INC	EDR Digital Archive
	KIMS PROVISION CO INC	EDR Digital Archive
	LEE & GIANT FOOD SYSTEM INC	EDR Digital Archive
2010	LEGITO INC	EDR Digital Archive

Year	Uses	Source
2010	LEGITO INC	EDR Digital Archive

399 Exterior St

Year	Uses	Source
2010	ATLANTIC EXPRESS TRNSP CORP	EDR Digital Archive
	AMBOY BUS CO INC	EDR Digital Archive
	ATLANTIC EXPRESS TRNSP CORP	EDR Digital Archive
	AMBOY BUS CO INC	EDR Digital Archive

EXTERIOR ST

399 EXTERIOR ST

Year	Uses	Source
2005	Tract	Hill-Donnelly Information Services
	Amboy Bus Co Inc	Hill-Donnelly Information Services
	Atlantic Hudson Inc	Hill-Donnelly Information Services
2000	AMBOY BUS CO	Cole Information Services
	ATLANTIC HDSN INC	Cole Information Services

440 EXTERIOR ST

Year	Uses	Source
2005	Clear Channel Outdoor is	Hill-Donnelly Information Services
	Universal Outdoor Inc 1 s	Hill-Donnelly Information Services
2000	UNIVERSAL OTDR INC	Cole Information Services
1940	Dollan Peter F Inc rubbish	New York Telephone
	Manhatn & Bronx Cinder Supply Co	New York Telephone
1931	Cerulla Pasquale	Manhattan and Bronx Directory Publishing Company Residential Directory

441 EXTERIOR ST

Year	Uses	Source
1940	Pittsburgh Plate Glass Co	New York Telephone

449 EXTERIOR ST

Year	Uses	Source
1940	Goldberg Jacob b	New York Telephone

FINDINGS

GERARD AVE

417 GERARD AVE

Year	Uses	Source
2005	Glasstown Inc	Hill-Donnelly Information Services
2000	GASSTOWN INC	Cole Information Services
1993	GLASSTOWN INC	New York Telephone
1976	ALTYPE FIRE DOOR CORP	New York Telephone Company

Gerard Avenue

385 Gerard Avenue

Year	Uses	Source
2005	Multi Unit Address 385 Gerard Av LLC	Hill-Donnelly Information Services
	American Housewares Mfg Corp	Hill-Donnelly Information Services
	Angora Novelty Corp I R	Hill-Donnelly Information Services
	Jerry Elsner Co	Hill-Donnelly Information Services
	John Nguyen Woodworking Inc	Hill-Donnelly Information Services
	Loveline Industries Inc	Hill-Donnelly Information Services
	Perfect Shoulder Inc	Hill-Donnelly Information Services
	Rosa Mark Copy Svc 1 s	Hill-Donnelly Information Services
	Salzberg Creations Inc R	Hill-Donnelly Information Services
	Sleeping Partners	Hill-Donnelly Information Services
	Snap N Wear	Hill-Donnelly Information Services
2000	ABRAM EMB NOAH	Cole Information Services
	ALL-TCH WR PRDCTS	Cole Information Services
	AMRCN HSWRS MFG	Cole Information Services
	ANGORA NOVLT CORP	Cole Information Services
	BARCLAY BUILDING	Cole Information Services
	CHILDRENS WEAR MFR	Cole Information Services
	ELSNER JRRY CO INC	Cole Information Services
	KORAM TRADING CO	Cole Information Services
	LVLN INDSTRS INC	Cole Information Services
	LYNN YARN CORP	Cole Information Services
	S & S INDSTRS INC	Cole Information Services
	SPORT SCREEN INC	Cole Information Services
1993	ALPER INC	New York Telephone
	AMERICAN HOUSEWARES MFG CORP	New York Telephone
	ANGORA NOVELTY CORP TOYS	New York Telephone
	ATLAS H & H INC	New York Telephone

FINDINGS

Year	Uses	Source
1993	BARCLAY BUILDING	New York Telephone
	BORDA PRODUCTS INC	New York Telephone
	CHILDRENS WEAR MR	New York Telephone
	CROSS PATCH LTD	New York Telephone
	ELSNER JERRY CO INC TUR TOYS	New York Telephone
	HAMBURGER FRANK E PATTERNS	New York Telephone
	KORAM PRNTNG & TRADING CO	New York Telephone
	LOVELLNE INDSTRIES INC	New York Telephone
	LYNN YARN CORP	New York Telephone
	ROYAL SEWING CO INC	New York Telephone
	S & S INDUSTRIES INC	New York Telephone
	SPORT SCREEN INC	New York Telephone
	SUNGMIN FASHIONS INC	New York Telephone
	WHITE METAL JEWELRY EQUIP CORP	New York Telephone
1983	ALPER INC	New York Telephone
	ANGORA NOVELTY CORP TOYS	New York Telephone
	AUTOMATIC WIRE GOODS MFG CO INC	New York Telephone
	BARCLAY BUILDING	New York Telephone
	BLOOMCRAFT INC	New York Telephone
	ELSNER JERRY CO INC FUR TOYS	New York Telephone
	I SIMON INC	New York Telephone
	LYNIN JAMES INC	New York Telephone
	LYNN YARN CORP	New York Telephone
	M & M CARPENTER	New York Telephone
	ROYAL SEWING CO INC	New York Telephone
	S & S INDUSTRIES INC	New York Telephone
	WHITE METAL JEWELRY EQUIPT CORP	New York Telephone
1976	AUTOMATIC WIRE GOODS MFG CO INC	New York Telephone Company
	BALTIC INDUSTRIES INC	New York Telephone Company
	BLOOMCRAFT INC	New York Telephone Company
	I SIMON INC	New York Telephone Company
	JACOBY BENDER INC	New York Telephone Company
	LION RIBBON CO	New York Telephone Company
	NOMAL SPORTSWR	New York Telephone Company
	ROYAL SEWING CO INC	New York Telephone Company
	S & S INDUSTRIES INC WIRE PRODUCTS	New York Telephone Company

FINDINGS

Year	Uses	Source
1976	SIMCO SHOE STORES OFFICE WAREHOUSE	New York Telephone Company
	TAURONE LABEL COINC	New York Telephone Company
	WALKER H M B	New York Telephone Company
	WEINFIELD AARON SPORTSWR	New York Telephone Company
	WUNDERWEAR MILLS INC	New York Telephone Company
1971	ALLEN HOLLANDER CO INC LABLS	New York Telephone
	AMICO INSTRMNT CORP	New York Telephone
	AUTOMATIC WIRE GOODS MFG CO INC	New York Telephone
	BARCLAY BUILDING	New York Telephone
	BLOOM CHAS INC	New York Telephone
	COXEN PRESS	New York Telephone
	INTERNATL SALT CO	New York Telephone
	INTERNATL SALT CO WRHSE	New York Telephone
	LION RIBBON AFFILIATES	New York Telephone
	LION RIBBON CO	New York Telephone
	ROYAL SEWING CO	New York Telephone
	ROYAL SEWING CO	New York Telephone
	S & S INDUSTRIES INC	New York Telephone
	S & S INDUSTRIES INC	New York Telephone
	S & S INDUSTRIES INC WIRE PRODUCTS	New York Telephone
	SIMCO SHOE STORES OFC & WRHSE	New York Telephone
	STANDARD NOVELTY BOX CO INC	New York Telephone
	WUNDERWEAR MILLS INC	New York Telephone
	WERNER PRNTNG & LITHOGRAPH CO	New York Telephone
1965	ABLE LABELS	New York Telephone Company
	ABLE-STIK	New York Telephone Company
	ABSORBO BEER PAD CO INC	New York Telephone Company
	AEROMARINE INSTRUMENT CO INC OFC & FCTY	New York Telephone Company
	ALLEN HOLLANDER CO INC LABIS	New York Telephone Company
	AMICO INSTRMNT CORP	New York Telephone Company
	ANTOVILLE MILTON F B	New York Telephone Company
	AUTOMATIC WIRE GOODS MFG CO INC	New York Telephone Company
	BARCLAY BUILDING	New York Telephone Company
	BARCLAY MFG CO INC TILE BD	New York Telephone Company
	BARCLITE CORP OF AMER	New York Telephone Company

FINDINGS

Year	Uses	Source
1965	BERLISS ARTHUR D JR B	New York Telephone Company
	BLOOM CHAS INC	New York Telephone Company
	BRASSIERE ACESRIES LTD	New York Telephone Company
	COXEN PRESS	New York Telephone Company
	HARMAC MFG CO	New York Telephone Company
	HOLLANDER ALLEN CO INC	New York Telephone Company
	HOLLANDER S LABELS	New York Telephone Company
	HOLLANDER STANLEY LABELS	New York Telephone Company
	INSTRUMENTOOL CORP THE	New York Telephone Company
	INTERNATL SALT CO WRHSE	New York Telephone Company
	RINEL CONTRCTG CO	New York Telephone Company
	ROYAL SEWING CO	New York Telephone Company
	ROYAL SEWING CO	New York Telephone Company
	ROYBAR CORP	New York Telephone Company
	ROYBAR CORP TILE BD	New York Telephone Company
	S & S INDUSTRL PRODS CORP	New York Telephone Company
	S & S INDSTRIES INC WIRE PRODS	New York Telephone Company
	STANDARD NOVELTY BOX CO INC	New York Telephone Company
	TAURONE LABEL CO INC	New York Telephone Company
	WERNER PRNTNG & LITHO CO	New York Telephone Company
	WUNDERWEAR MILLS INC	New York Telephone Company
1961	ABLE LABELS	New York Telephone
	ABLE STIK	New York Telephone
	ABSORBO BEER PAD CO INC	New York Telephone
	AEROMARINE INSTRUMENT CO INC OFC & FCTY	New York Telephone
	ALLEN HOLLANDER CO INC LABLS	New York Telephone
	AMICO INSTRMNT CORP	New York Telephone
	ANTOVILLE MILTON F B	New York Telephone
	AUTOMATIC WIRE GOODS MFG CO INC	New York Telephone
	BARCLAY BUILDING	New York Telephone
	BARCLAY MFG CO INC TILE BD	New York Telephone
	BARCLITE CORP OF AMER	New York Telephone
	BERLISS ARTHUR D JR B	New York Telephone
	BRASSLERE ACESRIES LTD	New York Telephone
	COUNTY MACH & TOOL CO	New York Telephone
	COXEN PRESS	New York Telephone
	CROWN STATIONERS	New York Telephone

FINDINGS

Year	Uses	Source
1961	DEPENDABLE SHOES INC	New York Telephone
	HARMAC MFG CO	New York Telephone
	HOLLANDER ALLEN CO INC	New York Telephone
	HOLLANDER S LABELS	New York Telephone
	HOLLANDER STANLEY LABELS	New York Telephone
	ICON PRODS INC	New York Telephone
	INSTRUMENTOOL CORP THE	New York Telephone
	INTERNATL SALT CO INC WRHSE	New York Telephone
	ROBEE MFG CO INC HNDBG ORNMTS	New York Telephone
	ROYAL SEWING CO	New York Telephone
	ROYAL SEWING CO	New York Telephone
	ROYBAR CORP	New York Telephone
	ROYBAR CORP TILE BD	New York Telephone
	S & S INDUSTRL PRODS CORP	New York Telephone
	S & S INDSTRIES INC WIRE PRODS	New York Telephone
	STANDARD NOVELTY BOX CO INC	New York Telephone
	TAURONE LABEL CO INC	New York Telephone
	WERNER PRNTNG & LITHO CO	New York Telephone
1956	ABLE STIK	New York Telephone
	ABSORBO BEER PAD CO INC	New York Telephone
	ABSORBO PRODS CORP	New York Telephone
	AEROMARINE INSTRUMENT CO INC OFC & FCTY	New York Telephone
	ALLEN HOLLANDER CO INC LABELS	New York Telephone
	AUTOMATIC WIRE GOODS MFG CO INC	New York Telephone
	BARCLAY BUILDING	New York Telephone
	BARCLITE C0 RP OF AMERICA	New York Telephone
	BLOOM CHAS INC	New York Telephone
	BRONX TERMNL BONDED WAREHOUSE CO INC	New York Telephone
	COXEN PRESS	New York Telephone
	CRAIG SUPL CORP	New York Telephone
	CROWN DIE CASTING CO	New York Telephone
	CROWN DIE CASTING CO	New York Telephone
	CROWN STATIONERS	New York Telephone
	DUNLOP TIRE & RUBR CORP	New York Telephone
	HARMAC SPORTSWR CO	New York Telephone
	HOLLANDER ALLEN CO INC	New York Telephone

FINDINGS

Year	Uses	Source
1956	HOLLANDER HAROLD SANFORD LABLS	New York Telephone
	HOLLANDER S LABELS	New York Telephone
	HOLLANDER STANLEY LABELS	New York Telephone
	INSTRUMENTOOL CORP THE	New York Telephone
	INTERNATL SALT CO INC	New York Telephone
	LINBRO MFG CORP	New York Telephone
	MANOR-MADE SHOES INC	New York Telephone
	MATISSE BROS INC LENSES	New York Telephone
	MCCABE KNITTING MILLS	New York Telephone
	ROBEE MFG CO INC HNDBG ORNMTS	New York Telephone
	ROYAL SEWING CO	New York Telephone
	ROYBAR CORP TILE BD	New York Telephone
	RULAND PAUL E INC WOOLNS	New York Telephone
	STANART PRINTED SPECIALTY CO INC	New York Telephone
	STANDARD NOVELTY BOX CO INC	New York Telephone
	STERLING ELEC MOTORS INC	New York Telephone
	TAURONE LABEL CO INC	New York Telephone
	TAURONE LABEL CO INC	New York Telephone
	WERNER PRNTNG & LITHO CO	New York Telephone
1949	AEROMARINE INSTRUMENT CO INC OFC & FCTY	New York Telephone
	ALGENE STUDIOS HND PAINTED TEXTLS	New York Telephone
	AQUA SYSTMS INC	New York Telephone
	ATLANTIC LIQUOR WHOLESALER	New York Telephone
	BARCLAY MFG CO INC TILE BD	New York Telephone
	BRONX LEHIGH BLDG	New York Telephone
	BRONX TERM BONDED WAREHOUSE CO INC	New York Telephone
	COXEN PRESS	New York Telephone
	CREST VIEW WINES INC	New York Telephone
	CRESTWICK INC PUBLS	New York Telephone
	CROWN DIE CASTING CO	New York Telephone
	DEMON TRUCKING CORP	New York Telephone
	DUNLOP TIRE & RUBR CORP	New York Telephone
	HELLER CANDY CO INC	New York Telephone
	INTERNATL SALT CO INC	New York Telephone
	MANHATN GROCRY CO	New York Telephone
	MANHATN QUALITY STORE WAREHSE	New York Telephone

FINDINGS

Year	Uses	Source
1949	MATISSE BROS LENSES	New York Telephone
	NEPTUNE METER CO	New York Telephone
	ROYBAR CORP TILE BD	New York Telephone
	RULAND PAUL E INC WOOLNS	New York Telephone
	STANDARD UNBREAKABLE WATCH CRYSTALS INC	New York Telephone
	UNIT VENETIAN BLIND SUPL CORP	New York Telephone
	URFER ADOLF B	New York Telephone
	ZIERICK MFG CORP METL STMPNGS	New York Telephone
1940	Barclay Mfg Corp	New York Telephone
	Bronx Lehigh Bldg	New York Telephone
	Bronx Term Bonded Warehouse Co Inc	New York Telephone
	Bronx Terminal Celery Co Exterior &	New York Telephone
	Capitol Wine & Spirit Corp	New York Telephone
	Consolidated Dougherty Card Co Inc	New York Telephone
	Cookes Foods Inc	New York Telephone
	Davis Harry liqrs	New York Telephone
	Dunlop Tire & Rubber Corp	New York Telephone
	Frigidaire Div Genl Motors Sales Carp Genl office	New York Telephone
	Svce	New York Telephone
	G & H Refrigtn Sales & Svce Corp	New York Telephone
	Gersen Geo H b	New York Telephone
	Hahr Walter b	New York Telephone
	Br wrhse	New York Telephone
	Indepndnt Salt Co ofc	New York Telephone
	Marshuetz S N C liqrs	New York Telephone
	Matisse Bros lenses	New York Telephone
	Pokrass Louis Liqrs	New York Telephone
	Standard Novelty Box Co Inc	New York Telephone
	Standard Unbreakable Watch Crystals Inc	New York Telephone
	Wolfsie Sportswr Inc knit gds	New York Telephone
	Zierick Mfg Corp metl stmpgs	New York Telephone

417 Gerard Avenue

Year	Uses	Source
2005	Glasstown Inc	Hill-Donnelly Information Services
2000	GASSTOWN INC	Cole Information Services
1993	GLASSTOWN INC	New York Telephone
1976	ALTYPE FIRE DOOR CORP	New York Telephone Company

FINDINGS

444 Gerard Avenue

Year	*Uses*	*Source*
2005	Omega	Hill-Donnelly Information Services
2000	OMEGA	Cole Information Services
1993	SAGE PLUMBING & HEATING CORP	New York Telephone
1971	RODNEY MAINTNCE CORP	New York Telephone
1965	RODNEY MAINTNCE CORP	New York Telephone Company
	RODNEY MAINTNCE CORP	New York Telephone Company
1961	FEM CORP GARGE	New York Telephone
	FEM CORP TAXIS	New York Telephone
	FLUR HERMAN L INS	New York Telephone
1956	FEM CORP GARGE	New York Telephone
	FEM CORP TAXIS	New York Telephone
	FLUR HERMAN L INS	New York Telephone
	FREDOR CAB INC	New York Telephone

445 Gerard Avenue

Year	*Uses*	*Source*
2005	AAA Glass & Mirror Supis	Hill-Donnelly Information Services
	Jesse Shapiro & James Glass	Hill-Donnelly Information Services
2000	AAA GLS & MIR SUPLS	Cole Information Services
	JESSE SHAPIRO & JMS	Cole Information Services
	SHAPIRO & JAMES CRP	Cole Information Services
1993	A STONE SVCES	New York Telephone
	AAA GLASS & MIRROR SUPLS	New York Telephone
	ALL HANDS DISPOSABLE INC	New York Telephone
	JESSE SHAPIRO & JAMES GLASS CORP	New York Telephone
	SHAPIRO & JAMES JESSE GLASS CORP	New York Telephone
	STONE SERVICES INC	New York Telephone
1983	A STONE SVCES	New York Telephone
	JESSE SHAPIRO & JAMES INC	New York Telephone
	STONE SERVICES INC	New York Telephone
1976	KUSTOM AUTO COLLISION	New York Telephone Company
1971	LENOX MAINTENANCE CORP	New York Telephone
1965	SUPER ADJSTMT CO	New York Telephone Company
	SUPER OPERATING CORP	New York Telephone Company
1961	SUPER OPERATING CORP	New York Telephone
1956	SUPER OPERATING CORP	New York Telephone

Year	Uses	Source
1949	DELMART SVCE CORP GARAGE	New York Telephone
	DELMART SVCE CORP GARAGE	New York Telephone
1940	Gehn Harry auto parts	New York Telephone
	Harrigan Auto Parts Co Inc	New York Telephone
	Philco Sales & Svce Corp radios	New York Telephone
1927	Gehn Harry Auto Co	New York Telephone

RIVER AVE

390 RIVER AVE

Year	Uses	Source
1927	Schiff Bernard r	New York Telephone
	Sherman Max S r	New York Telephone

400 RIVER AVE

Year	Uses	Source
1927	Hinrichs Robt P r	New York Telephone

River Avenue

445 River Avenue

Year	Uses	Source
1927	Biesenthal I C r	New York Telephone
	Corsin E H Lewinski Dr r	New York Telephone
	Fisk Franklin Dr r	New York Telephone
	Fisk Franklin Dr r	New York Telephone
	Fiske Franklin D O office	New York Telephone
	Residence	New York Telephone
	Residence	New York Telephone
	Fiske Franklin D O office	New York Telephone
	Friedlander Geo S r	New York Telephone
	Goldwater Henry r	New York Telephone
	Jacoby Philip S r	New York Telephone
	Kiene Wm O C r	New York Telephone
	King I Strickland r	New York Telephone
	Leit Frances Mrs r	New York Telephone
	Leit Gertrude Miss r	New York Telephone
	Mayer Philip r	New York Telephone
	Mc Hvaine Ruth Miss r	New York Telephone
	Morrow Alice r	New York Telephone

Year	Uses	Source
1927	Naimska Zofia Miss r	New York Telephone
	Schultz O R r	New York Telephone
	Weed R W r	New York Telephone

RIVER DR

400 RIVER DR

Year	Uses	Source
1927	Applebaum Ralph r	New York Telephone
	Walton Elizabeth Miss r	New York Telephone
	Vassar Geo W r	New York Telephone
	Taber E W Miss r	New York Telephone
	Slattery Lawrence J r	New York Telephone
	Reidy Richard r	New York Telephone
	Reidy Catherine M Mrs r	New York Telephone
	Potter Edw r	New York Telephone
	Lincoln Edmond E r	New York Telephone
	Lincoln Edmond E r	New York Telephone
	Lawson Robt Mrs r	New York Telephone
	Knight Fred S r	New York Telephone
	Jedel M Mrs r	New York Telephone
	Hershfield R N r	New York Telephone
	Fuller Robt H r	New York Telephone
	Fowler Court Apts	New York Telephone
	Yelland Wm H r	New York Telephone
	Borden Mary Mrs r	New York Telephone
	Cohen Nathan r	New York Telephone

404 RIVER DR

Year	Uses	Source
1927	Tilson Frank H r	New York Telephone
	Bailey Jas S Jr Mrs r	New York Telephone
	Spielberg Harold r	New York Telephone
	Simon Robert E	New York Telephone
	Residence	New York Telephone
	Modra Roman L I	New York Telephone
	Gould Harry r	New York Telephone
	Elman Saul r	New York Telephone
	Blum Henri r	New York Telephone

FINDINGS

Year	Uses	Source
1927	White Thos r	New York Telephone
	Williams Roger Butler Jr r	New York Telephone
	Amdur S r	New York Telephone
	Strathmore The	New York Telephone

410 RIVER DR

Year	Uses	Source
1993	REINHOLD S	New York Telephone
1927	Stephens Anna C Mrs r	New York Telephone
	Valentine Laura Miss r	New York Telephone
	Tobin H A r	New York Telephone
	Black Lula Miss r	New York Telephone
	Black Mary Miss r	New York Telephone
	Burrows F W r	New York Telephone
	Chave W G r	New York Telephone
	Constantian Raphael Dr r	New York Telephone
	Ford Jean r	New York Telephone
	Frank Meyer r	New York Telephone
	Frank Sam r	New York Telephone
	Jones Ruth B Miss r	New York Telephone
	Klion Saml M r	New York Telephone
	Lewis B Palmer CS	New York Telephone
	Residence	New York Telephone
	Luckstone Harold C r	New York Telephone
	Luckstone Isidore studio	New York Telephone
	Luckstone Maurice E r	New York Telephone
	Mooney Paul C r	New York Telephone
	Perlman J M r	New York Telephone
	Phillips Leonore Miss r	New York Telephone
	Phillips Nettie Miss r	New York Telephone
	Ring Geo J r	New York Telephone
	Rosen Zara B Mrs ins	New York Telephone
	Sandberg Bertha r	New York Telephone
	Stenz B F r	New York Telephone
	Willard W R r	New York Telephone

414 RIVER DR

Year	Uses	Source
1927	Murdock Beatrice E T Mrs r	New York Telephone

FINDINGS

Year	Uses	Source
1927	Merrill Marion C Mrs r	New York Telephone

415 RIVER DR

Year	Uses	Source
1927	Sigma Chi Fraternity	New York Telephone

417 RIVER DR

Year	Uses	Source
1927	Goodman David C r	New York Telephone
	Grant John L r	New York Telephone
	Grant Louis M r	New York Telephone
	Grant Margery F Miss r	New York Telephone
	Harrison Rebecca Miss r	New York Telephone
	Hurd Chas F Jr r	New York Telephone
	Johnson Walter E r	New York Telephone
	Keeley Wm J r	New York Telephone
	Lissman Edw Rev r	New York Telephone
	Ludington R B Dr r	New York Telephone
	Oakley H Wayne r	New York Telephone
	Sakamoto S r	New York Telephone
	Tobin M r	New York Telephone
	Van Ness Frank H r	New York Telephone
	Wilson W J Jr r	New York Telephone
	Amer Vault Co Bklyn	New York Telephone
	Night & Sunday calls	New York Telephone
	Arrowood S D r	New York Telephone
	Bry Louis r	New York Telephone
	Cliff Haven Apts	New York Telephone
	Couch John R Mrs r	New York Telephone
	Friedman Jos r	New York Telephone
	Gibbons J M Dr r	New York Telephone
	Gilligan Edw A r	New York Telephone
	Goldberg Isidore r	New York Telephone

418 RIVER DR

Year	Uses	Source
1927	Heidelberg Morris H r	New York Telephone

FINDINGS

420 RIVER DR

Year	*Uses*	*Source*
1927	Markel Michael r	New York Telephone
	Mayer Clarence S r	New York Telephone
	Michelman I Mrs r	New York Telephone
	Miller Harris r	New York Telephone
	Pauly Hedwig Mrs r	New York Telephone
	Pearsall Harry C r	New York Telephone
	Perrow J r	New York Telephone
	Sanborn James F r	New York Telephone
	Schappert Chas L r	New York Telephone
	Schere R Richard r	New York Telephone
	Smith Ada C Mrs r	New York Telephone
	Strasbourger Minnie Z Mrs r	New York Telephone
	Udell Jerome I r	New York Telephone
	Ulen Earl C r	New York Telephone
	Underwood K S r	New York Telephone
	Weinstein Saul J r	New York Telephone
	Weinstein Wm J lwyr	New York Telephone
	Residence	New York Telephone
	Witt Max A r	New York Telephone
	Wolff M bonds	New York Telephone
	Residence	New York Telephone
	Wolfsohn Leopold piano studio	New York Telephone
	Wolfsohn Viola Miss artiste	New York Telephone
	Ackermann A Henry r	New York Telephone
	Baldwin B J r	New York Telephone
	Barnett Saml r	New York Telephone
	Bellamore David G r	New York Telephone
	Bergstein Adolph r	New York Telephone
	Berwald A H r	New York Telephone
	Biers Louis D r	New York Telephone
	Residenec	New York Telephone
	Bloch Adolph lwyr	New York Telephone
	Bloch Henry lwyr	New York Telephone
	Residence	New York Telephone
	Blum Morris r	New York Telephone
	Blumlein Arthur Mrs r	New York Telephone
	Broderick Anne M Mrs r	New York Telephone

FINDINGS

Year	Uses	Source
1927	Carroll Peter Jas	New York Telephone
	Del Valle Carlo M MD r	New York Telephone
	Dickinson H B r	New York Telephone
	Frankel Fred r	New York Telephone
	Hall Lewis B Jr r	New York Telephone
	Hamilton Apts	New York Telephone
	Hirsch Leo r	New York Telephone
	Hirsh Nathan moving pictures	New York Telephone
	Residence	New York Telephone
	Hohenstein H r	New York Telephone
	Hubbell John E r	New York Telephone
	Humphrey Henry M r	New York Telephone
	Isaacs Maurice plaiting	New York Telephone
	Residence	New York Telephone
	Kalman A L Mrs r	New York Telephone
	Kalman Dore r	New York Telephone
	Kalman Lester A r	New York Telephone
	Kann Geo E r	New York Telephone
	Kaufman M Zenn r	New York Telephone
	Kaufman May Zenn r	New York Telephone
	Kendall L Z r	New York Telephone
	Kross Isidor Dr off	New York Telephone
	Residence	New York Telephone
	Kuhne Paul r	New York Telephone
	Lavalle Helen Miss r	New York Telephone
	Lavat W C r	New York Telephone
	Lehrer Henry Dr dntst	New York Telephone
	Levis Robt P Mrs r	New York Telephone
	Residence	New York Telephone
	Levy Michael jeweler	New York Telephone

423 RIVER DR

Year	Uses	Source
1927	Comptons Geo Brokaw	New York Telephone

425 RIVER DR

Year	Uses	Source
1927	Alvord Gladys Miss r	New York Telephone
	Bach Phil M	New York Telephone

FINDINGS

Year	Uses	Source
1927	Residence	New York Telephone
	Berman Philip r	New York Telephone
	Bernard Agnes Mrs r	New York Telephone
	Butler Louis M r	New York Telephone
	Cowen Gertrude F	New York Telephone
	Curran Jas J r	New York Telephone
	Dalton W A coml supt Manh	New York Telephone
	Residence	New York Telephone
	Devaney Thos F r	New York Telephone
	Eggert W F r	New York Telephone
	Force A E r	New York Telephone
	Frese Fred r	New York Telephone
	Friml Rudolpl r	New York Telephone
	Fullerton Edw Darcy r	New York Telephone
	Gerson Louis M r	New York Telephone
	Gluck Moses r	New York Telephone
	Glucksman Harry L r	New York Telephone
	Goldberg Shepard J Mrs r	New York Telephone
	Goldstein M Mme r	New York Telephone
	Greenfield Harry r	New York Telephone
	Greenwald Jerome E r	New York Telephone
	Grey Marie r	New York Telephone
	Gruner Clarence E r	New York Telephone
	Haberman Wm r	New York Telephone
	Residence	New York Telephone
	Holmes Bayard P lwyr	New York Telephone
	Jacobs V A r	New York Telephone
	Katz Saml r	New York Telephone
	Kinsie Paul M r	New York Telephone
	Klinkowstein M Mrs r	New York Telephone
	Korn Fannie Mrs r	New York Telephone
	Korn Harold I r	New York Telephone
	Landesman Ernest W r	New York Telephone
	Lintz M H r	New York Telephone
	Man Letchie Robt M r	New York Telephone
	Marks Celia F r	New York Telephone
	Matthews Frank C Dr ofc	New York Telephone
	Mead Marcia arch	New York Telephone

FINDINGS

Year	Uses	Source
1927	Melcher Margaret S Dr r	New York Telephone
	Mellon Geo W MD r	New York Telephone
	Meyer Morris r	New York Telephone
	Minsky Morton r	New York Telephone
	Minsky Ruth G r	New York Telephone
	Mougenthau Eugene r	New York Telephone
	Morris Clayton r	New York Telephone
	Muller Harold C DDS off	New York Telephone
	Niclols Julia Mrs r	New York Telephone
	Norton A Warren r	New York Telephone
	O Brien Wm r	New York Telephone
	Peel John P r	New York Telephone
	Pettit Carolyn Mrs r	New York Telephone
	Peyser Kaufman r	New York Telephone
	Platt Murray M r	New York Telephone
	Quinn I M r	New York Telephone
	Raffloer Ernest Mrs r	New York Telephone
	Raffloer W D r	New York Telephone
	Rebbane Fred W r	New York Telephone
	Resor R P r	New York Telephone
	Rice Nathaniel J r	New York Telephone
	Robinson Abbot S r	New York Telephone
	Rosen Harry E r	New York Telephone
	Rosenbaum Gustav r	New York Telephone
	Rudd Margaret Miss r	New York Telephone
	Sackheim Ida Mrs r	New York Telephone
	Residence	New York Telephone
	Schubart Henry A	New York Telephone
	Schwartz Benj r	New York Telephone
	Seeman Fredk R r	New York Telephone
	Shroyer Geo E r	New York Telephone
	Simons Dorothy r	New York Telephone
	Smith Chas V r	New York Telephone
	Springer Mordecai P r	New York Telephone
	Stecker Jack r	New York Telephone
	Sterling E M r	New York Telephone
	Street A W Mrs r	New York Telephone
	Residence	New York Telephone

FINDINGS

Year	Uses	Source
1927	Sturtz Samuel lwyr	New York Telephone
	Swain Henry D Mrs r	New York Telephone
	Tannenbaum Harold	New York Telephone
	Tannenbaum Max rl est	New York Telephone
	Residence	New York Telephone
	Tannenbaum Wm	New York Telephone
	Van Pelt Wm D atty	New York Telephone
	Warder Anna I Mrs r	New York Telephone
	Residence	New York Telephone
	Weber Jos lwyr	New York Telephone
	Wells Clifton K r	New York Telephone
	Wells Morgan C r	New York Telephone
	Wollheim Saml r	New York Telephone

431 RIVER DR

Year	Uses	Source
1927	Bartnett W J r	New York Telephone
	Larimore Louise D Dr r	New York Telephone
	Taylor Jas A Mrs r	New York Telephone
	Brockett Francis S r	New York Telephone
	Brown Renie r	New York Telephone
	Ferris Theodore E r	New York Telephone
	Gwalter L Ivimy Miss r	New York Telephone
	Larimore D T Mrs r	New York Telephone
	Smith Alex r	New York Telephone
	Larimore Louise D Dr r	New York Telephone
	Lecatis A r	New York Telephone
	Leeds Edw L r	New York Telephone
	Mc Court James r	New York Telephone
	Neiman Max r	New York Telephone
	Philips Fredericka P Mrs r	New York Telephone
	Seager Ilka K r	New York Telephone

432 RIVER DR

Year	Uses	Source
1927	Hirsch Eugenie Mrs r	New York Telephone

FINDINGS

434 RIVER DR

Year	Uses	Source
1927	Schlesinger Julius CPA	New York Telephone
	Aigner Martin r	New York Telephone
	Residence	New York Telephone
	Schooley Ella Miss r	New York Telephone

435 RIVER DR

Year	Uses	Source
1927	Schauffler Frederick H	New York Telephone
	Shenk Jos r	New York Telephone
	Bushman Edw L r	New York Telephone
	Callender Jas P r	New York Telephone
	Clark Wm M r	New York Telephone
	Colter Jos r	New York Telephone
	Germain Max r	New York Telephone
	Lasdon Milton A r	New York Telephone
	Lasdon Oscar r	New York Telephone
	Lasdon Saml D r	New York Telephone
	Mc Guire Jos Hubert r	New York Telephone
	Rumely Edw A r	New York Telephone
	Residence	New York Telephone

436 RIVER DR

Year	Uses	Source
1927	Residence	New York Telephone
	Nagel Harold DDS	New York Telephone

440 RIVER DR

Year	Uses	Source
1927	Sweeney Winfield H r	New York Telephone
	Viola Emily Mme beauty parlor	New York Telephone
	Residence	New York Telephone
	Strauss L L elec signs	New York Telephone
	Stapleton Chas W r	New York Telephone
	Simon Morton r	New York Telephone
	Silverman J r	New York Telephone
	Ryan Jas L r	New York Telephone
	Royer Harry B r	New York Telephone
	Robinson Clark r	New York Telephone

FINDINGS

Year	Uses	Source
1927	Ritchie J W r	New York Telephone
	Riegger Constantin r	New York Telephone
	Paterno Apt	New York Telephone
	Moore Florence Miss r	New York Telephone
	Macnamara E J r	New York Telephone
	Lewis Phyllis A Mrs r	New York Telephone
	Landers Marsden H r	New York Telephone
	Kohn Stuart M r	New York Telephone
	Ingalls Will C r	New York Telephone
	Amos B F r	New York Telephone
	Atteridge Harold r	New York Telephone
	Brandon Stuart K r	New York Telephone
	Elias M tailor	New York Telephone
	Hazen Elizabeth S r	New York Telephone

445 RIVER DR

Year	Uses	Source
1927	Jacoby Philip S r	New York Telephone
	Kiene Wm O C r	New York Telephone
	King I Strickland r	New York Telephone
	Leit Frances Mrs r	New York Telephone
	Leit Gertrude Miss r	New York Telephone
	Mayer Philip r	New York Telephone
	Mc Hvaine Ruth Miss r	New York Telephone
	Morrow Alice r	New York Telephone
	Naimska Zofia Miss r	New York Telephone
	Schultz O R r	New York Telephone
	Weed R W r	New York Telephone
	Biesenthal I C r	New York Telephone
	Corsin E H Lewinski Dr r	New York Telephone
	Fisk Franklin Dr r	New York Telephone
	Fisk Franklin Dr r	New York Telephone
	Fiske Franklin D O office	New York Telephone
	Residence	New York Telephone
	Residence	New York Telephone
	Fiske Franklin D O office	New York Telephone
	Friedlander Geo S r	New York Telephone
	Goldwater Henry r	New York Telephone

FINDINGS

461 RIVER DR

Year	***Uses***	***Source***
1927	Dowrie Wm G r	New York Telephone

FINDINGS

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
100 E 144	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1940, 1931, 1927
100 E 144TH	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940
101 E 144	2014, 2010, 2005, 2000, 1993, 1983, 1940, 1931, 1927
101 E 144TH	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1931, 1927
110 E 144TH	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1927
120 E 144	2014, 2010, 2005, 2000, 1940, 1931, 1927
120 E 144TH	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1931, 1927
120 E 144TH ST	2014, 2010, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
120 East 144 Street	2014, 2010, 1931, 1927
121 East 144 Street	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
325 Exterior St	2014, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
325 Exterior St	2014, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
355 Exterior St	2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
355 Exterior St	2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
385 EXTERIOR	2014, 2010, 2005, 2000, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
385 Gerard Avenue	2014, 2010, 1931, 1927
390 RIVER AVE	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
399 EXTERIOR	2014, 2010, 2005, 2000, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
399 EXTERIOR ST	2014, 2010, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
399 Exterior St	2014, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
399 Exterior St	2014, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
400 RIVER AVE	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
400 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931

FINDINGS

Address Researched	Address Not Identified in Research Source
404 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
410 RIVER DR	2014, 2010, 2005, 2000, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
414 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
415 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
417 GERARD AVE	2014, 2010, 1983, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
417 Gerard Avenue	2014, 2010, 1983, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
417 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
418 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
420 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
423 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
425 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
431 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
432 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
434 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
435 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
436 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
440 EXTERIOR	2014, 2010, 2005, 2000, 1971, 1961, 1940, 1931, 1927
440 EXTERIOR ST	2014, 2010, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1927
440 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
441 EXTERIOR	2014, 2010, 2005, 2000, 1993, 1956, 1949, 1940, 1931, 1927
441 EXTERIOR ST	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1931, 1927
441 River Avenue	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927
444 Gerard Avenue	2014, 2010, 1983, 1976, 1949, 1940, 1931, 1927
445 EXTERIOR	2014, 2010, 2005, 2000, 1993, 1940, 1931, 1927
445 Gerard Avenue	2014, 2010, 1931
445 Maj Wm Deegan Boulevard	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931, 1927

FINDINGS

Address Researched	Address Not Identified in Research Source
445 River Avenue	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
445 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931
449 EXTERIOR ST	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1931, 1927
461 RIVER DR	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1956, 1949, 1940, 1931

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
404 Exterior Street	2014, 2010, 2005, 2000, 1993, 1983, 1976, 1971, 1965, 1961, 1940, 1931, 1927

APPENDIX K

Environmental Lien Search

404 Exterior Street
404 Exterior Street
Bronx, NY 10451

Inquiry Number: 5589479.7
March 15, 2019

EDR Environmental Lien and AUL Search

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

EDR Environmental Lien and AUL Search

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

404 Exterior Street
404 Exterior Street
Bronx, NY 10451

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found ☐ Not Found ☒

RESEARCH SOURCE

Source 1:

New York City Register of Deeds
Bronx, NY

PROPERTY INFORMATION

Deed 1:

Type of Deed:	Indenture
Title is vested in:	Rocket Jewelry Box Inc
Title received from:	101 East 144th Street Corp
Deed Dated	9/4/1969
Deed Recorded:	9/11/1969
Book:	116
Page:	217
Volume:	NA
Instrument:	NA
Docket:	NA
Land Record Comments:	see exhibit
Miscellaneous Comments:	NA
Legal Description:	see exhibit
Legal Current Owner:	Rocket Jewelry Box Inc
Parcel # / Property Identifier:	Block: 2351 Lot: 1
Comments:	see exhibit

Deed Exhibit 1

PF 29 12/67 Standard N.Y.B.T.U. Form 8002 Bargain and Sale Deed, with Covenant against Grantor's Acts – Individual or Corporation (single Sheet)

CONSULT YOUR LAWYER BEFORE SIGNING THIS INSTRUMENT — THIS INSTRUMENT SHOULD BE USED BY LAWYERS ONLY.

REEL 116 PAGE 217

THIS INDENTURE, made the 4th day of September, nineteen hundred and sixty-nine

BETWEEN

101 EAST 144th STREET CORP., a New York Corporation having its principal office at #101 East 144th Street, The Bronx, New York,

party of the first part, and ROCKET JEWELRY BOX, INC. a domestic corporation and its principal office at 173-179 E 144 street Bronx New York

party of the second part,

WITNESSETH, that the party of the first part, in consideration of Ten Dollars and other valuable consideration paid by the party of the second part, does hereby grant and release unto the party of the second part, the heirs or successors and assigns of the party of the second part forever,

ALL that certain plot, piece or parcel of land, with the buildings and improvements thereon erected, situate, lying and being in the Borough and County of the Bronx, City and State of New York, bounded and described as follows:

BEGINNING at the corner formed by the intersection of the easterly side of Major Deegan Boulevard (Exterior Street) and the northerly side of East 144th Street; thence EASTERLY along the northerly side of East 144th Street, 100.10 feet;

thence NORTHERLY, parallel with the easterly side of Major Deegan Boulevard, 81.90 feet;

thence WESTERLY along a line which forms an angle of 73 degrees 20 minutes 30 seconds on its southerly side with the last mentioned course, 104.38 feet to the easterly side of Major Deegan Boulevard;

thence SOUTHERLY along the easterly side of Major Deegan Boulevard, 47.46 feet to the corner aforesaid, the point or place of Beginning.

Said Premises now being known as and by the Street Number 404 Exterior Street.

The premises herein conveyed shall not be used as a body and fender automobile repair shop for a period of five years from the date of this instrument.

This conveyance is made with the unanimous consent of the shareholders of the party of the first part.

TOGETHER with all right, title and interest, if any, of the party of the first part in and to any streets and roads abutting the above described premises to the center lines thereof; TOGETHER with the appurtenances and all the estate and rights of the party of the first part in and to said premises; TO HAVE AND TO HOLD the premises herein granted unto the party of the second part, the heirs or successors and assigns of the party of the second part forever.

AND the party of the first part covenants that the party of the first part has not done or suffered anything whereby the said premises have been encumbered in any way whatever, except as aforesaid.
AND the party of the first part, in compliance with Section 13 of the Lien Law, covenants that the party of the first part will receive the consideration for this conveyance and will hold the right to receive such consideration as a trust fund to be applied first for the purpose of paying the cost of the improvement and will apply the same first to the payment of the cost of the improvement before using any part of the total of the same for any other purpose.
The word "party" shall be construed as if it read "parties" whenever the sense of this indenture so requires.

IN WITNESS WHEREOF, the party of the first part has duly executed this deed the day and year first above written.

IN PRESENCE OF:

101 EAST 144th STREET CORP.

BY: ALFRED L. PALLADINO, President

REEL 116 PAGE 248

STATE OF NEW YORK, COUNTY OF ss.:

On the day of 19 , before me personally came

to me known to be the individual described in and who executed the foregoing instrument, and acknowledged that executed the same.

STATE OF NEW YORK, COUNTY OF ss.:

On the day of 19 , before me personally came

to me known to be the individual described in and who executed the foregoing instrument, and acknowledged that executed the same.

REAL ESTATE TRANSFER TAX STATE OF NEW YORK
Dept of Taxation & Finance SEP 11 '69 $60.50

STATE OF NEW YORK, COUNTY OF Bronx ss.:

On the 4 day of September 19 69, before me personally came Alfred L. Palladino to me known, who, being by me duly sworn, did depose and say that he resides at No. 135 MacKay Drive, Tenafly, New Jersey that he is the President of 101 East 144th Street Corp., the corporation described in and which executed the foregoing instrument; that he knows the seal of said corporation: that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the board of directors of said corporation, and that he signed his name thereto by like order.

Milton Silver
MILTON SILVER
Notary Public, State of New York
Commission Expires March 30, 1970

STATE OF NEW YORK, COUNTY OF ss.:

On the day of 19 , before me personally came the subscribing witness to the foreging instrument, with whom I am personally acquainted, who, being by me duly sworn, did depose and say that he resides at No. ;

that he knows to be the individual described in and who executed the foregoing instrument; that he, said subscribing witness, was present and saw execute the same; and that he, said witness, at the same time subscribed h name as witness thereto.

Bargain and Sale Deed

With Covenant Against Grantor's Acts

Title No. 706 5976

TO

STANDARD FORM OF NEW YORK BOARD OF TITLE UNDERWRITERS
Distributed by
INTER-COUNTY TITLE GUARANTY and MORTGAGE COMPANY
CHARTERED 1927 IN NEW YORK

11104 SEP 11 69

SECTION 9
BLOCK 2350-1
LOT 1
COUNTY OR TOWN Bronx

Recorded At Request of
INTER-COUNTY Title Guaranty and Mortgage Company
RETURN BY MAIL TO

MAIL

Stanley M. Katz, Esq,
99 Park avenue
New York, N.Y. Zip No. 10016

RECORDED AT REQUEST OF THE TITLE GUARANTY COMPANY

RESERVE THIS SPACE FOR USE OF RECORDING OFFICE

SEP 11 AM 11:06

OFFICE OF CITY REGISTER Bronx County
Witness my hand and official seal

Victor M. Rivera

REC. FEE $
TAX PAID
RPT # 1995

APPENDIX L

Resumes

Ryan Manderbach, CHMM

Associate
Environmental Engineering & Site Assessments

15 years in the industry

Mr. Manderbach has experience in New York, New Jersey, Massachusetts, Maine, Rhode Island, New Hampshire, and Connecticut. His recent experience includes New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup, Voluntary Cleanup and Spill Programs, and New York City Office of Environmental Remediation (OER) E-designated site investigation, and remediation. He has managed and performed Phase I and II Environmental Site Assessments; Underground Storage Tank (UST) removals and closures; soil vapor intrusion investigations; and site investigations and remediation. He also has extensive experience with Hazard Ranking System (HRS) evaluations, site assessments, removal actions, and emergency response activities under the EPA Regions I and II Superfund program.

Selected Projects

- Brownfield Redevelopment, 520 West 41st Street, New York, NY
- Riverside Parcel 1, 3, 4 and 5, Mixed-Use Development, New York, NY
- Brownfield Redevelopment, 267-273 West 87th Street, New York, NY
- Brownfield Redevelopment, 225 33rd Street, Brooklyn, NY
- River Place Residential, SMP Implementation, New York, NY
- Mixed-Use Educational/Residential Development, New York, NY
- Public Safety Answering Center (PSAC) II, Bronx, NY
- American Copper Buildings (616 First Avenue), New York, NY
- Environmental Assessments at 430 East 92nd Street, New York, NY
- Environmental Assessments at 125th Street and Lenox, New York, NY
- Hotel at 70 Park Avenue, New York, NY
- Environmental Due Diligence at Mixed-Use Development, 85 Jay Street, Brooklyn, NY
- 346 Broadway Due Diligence, New York, NY
- Liberty Brass Site, 38-01 Queens Boulevard, Long Island City, NY
- Environmental Remediation, 42 West Street Residential, Brooklyn, NY
- Brownfield Redevelopment, 335 Bond Street, Brooklyn, NY
- Residences at 540 West 21st Street, New York, NY
- International Leadership Bronx Charter School, Bronx, NY
- President Street Properties, Brooklyn, NY
- Residential Development, 43-30 24th Street, Long Island City, NY
- Mixed-Use Condominium, 505-513 West 43rd Street, New York, NY
- 685 First Avenue, New York, NY
- Columbia University, Manhattanville Development, New York, NY
- The Shops at Atlas Park, Glendale, NY
- 536 West 41st Street, New York, NY
- Shore Parkway, Brooklyn, NY
- 100 West 125th Street, New York, NY
- 11 North Moore Street, New York, NY

Education

B.A., Environmental Analysis and Policy
Boston University

Professional Registration

Certified Hazardous Materials Manager (CHMM)

40 Hour HAZWOPER

Affiliations

New York Building Congress (NYBC), Young Professionals Committee

American Council of Engineering Companies of New York (ACEC NY) – Emerging Leaders Committee

- 290 West Street, New York, NY
- City University of New York (CUNY), John Jay College Expansion, New York, NY
- Queens West Development, Long Island City, NY
- United Nations Capital Master Plan, New York, NY
- Former Air Products and Chemicals, Inc. Facility, Middlesex, NJ
- Lower Manhattan Indoor Dust Test and Clean Program, New York, NY
- Former Buckbee-Mears Facility, Cortland, NY
- Old Landfill, Norton, MA
- Boulter Farm Area, Cumberland, RI
- Hollingsworth & Vose Co., Walpole, MA
- Chlor-Alkali Facility (Former), Berlin, NH
- Limerick Mill Complex, Limerick, ME
- Danielson Pike Chlorinated Solvent Sites, Scituate, RI
- Tiogue Lake Sediment Contamination Site, Coventry, RI
- Atlas Copco Sites, Holyoke, MA
- Fisherville Mill, Grafton MA
- Hurricane Katrina Federal Disaster Response, New Orleans, LA
- Hurricane Ike Federal Disaster Response, Pasadena, TX

BRIAN GOCHENAUR, QEP

SENIOR PROJECT MANAGER

ENVIRONMENTAL SCIENTIST

Mr. Gochenaur is an environmental project manager whose experience includes environmental due diligence, site investigation and remediation, fuel oil storage tank investigation and removal, soil vapor intrusion assessments, in-situ remedial technology, spill closure, vapor barrier and sub-slab depressurization system design and construction, emergency response, environmental and geotechnical site investigations, and health and safety monitoring. He has extensive experience with the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup, Voluntary Cleanup and Spill Programs and New York City Department of Environmental Protection (NYCDEP) "E" Designated and New York City Voluntary Cleanup Program (BCP) sites. His areas of expertise include Phase I Environmental Site Assessments, Phase II Site Investigations, and environmental consulting and oversight on large scale construction projects.

EDUCATION

B.S., Environmental Science
University of Florida

PROFESSIONAL REGISTRATION

Qualified Environmental Professional (QEP) certified by the Institute of Professional Environmental Practice

40-Hour OSHA (HAZWOPER)

SELECTED PROJECTS

- 440 Washington Street, E-Designated services, New York, NY
- 3514 Surf Avenue, Tall Residential and Retail Building, Brooklyn, NY
- ARO 242 West 53, Tall Residential Building, New York, NY
- NY Aquarium Shark Exhibit, Soil Characterization and Excavation Oversight, Coney Island Neighborhood, Brooklyn, NY
- 60 West Street, Site Investigation and Redevelopment, Brooklyn, NY
- 535 4th Avenue, BCP Auto Repair Cleanup and Redevelopment, Brooklyn, NY
- 1525 Bedford Avenue, BCP Gas Station Cleanup and Redevelopment, Brooklyn, NY
- 220 Eleventh Avenue, Residential Building, New York, NY
- 432 Rodney Street, Residential Building, Brooklyn, NY
- 563 Sackett Street, Brooklyn, NY
- 362 West 125th Street, Residential Building, New York, NY
- Bedford Armory Redevelopment, Brooklyn, NY
- 268 West Street, BCP Redevelopment of Former Commercial and Industrial Site, New York, NY
- 110 125th Street, Soil Excavation and Remediation, New York, NY
- Former Roseland Ballroom Redevelopment, Soil Characterization and Excavation Oversight, New York, NY
- 42 Crosby Street, "E" Designated Site Investigation and Remediation, New York, NY
- New York School Construction Authority, Various Locations, In-House Environmental Consulting, Five Boroughs of New York City
- EZ Serve Portfolio, GE Capital, Various Phase II Site Investigations, FL, GA, LA, and MS
- Beth Elohim Child Daycare Center, Lead Based Paint Abatement, Brooklyn, NY
- Price Battery, Environmental Protection Agency (EPA) Lead Fallout Superfund Site, Hamburg, PA

- Clark Portfolio, GE Capital, Various Phase II Locations, MI, IL, ID, and OH
- Tops Plaza Portfolio, Prudential Real Estate Investors, Various Phase II Locations, NY
- Cingular Wireless Portfolio, Cingular Wireless, Various Locations Phase I and II Locations, WA
- Queens Center Mall Expansion, Remedial Oversight, Elmhurst, NY
- Soka Gakkai International-USA, Cultural Center, Brooklyn, NY

JULIA LEUNG, PE

PROJECT ENGINEER

ENVIRONMENTAL ENGINEERING & WATER RESOURCES

Ms. Leung is an environmental engineer working in the New York Metro area. Her projects involve the investigation and assessment of environmental systems including physical/chemical processes, water chemistry, environmental system analysis, solid waste and water resources engineering, stormwater design and hydrology.

SELECTED PROJECTS

- Phase I ESA, Various Locations, NYC and Westchester County, NY
- Phase II ESI, 412 East 90th Street, New York, NY
- 420 Kent Avenue, Brooklyn, NY
- West and Watts Development, New York, NY
- 203 East 92nd Street, Mixed-Use Building, New York, NY
- BAM North Tower, Brooklyn, NY
- Phase II ESI, FedEx Distribution Facility (830 Fountain Avenue), Brooklyn, NY
- Waste Classification and Lead Delineation Investigation (261 Hudson Street), New York, NY
- Waste Classification Investigation (41-43 East 22nd Street), New York, NY
- Columbia University, Manhattanville Campus, New York, NY
- Riverside Building 5, New York, NY
- Condominium at 200 East 79th Street, New York, NY
- Mercedes Benz of Manhattan (536 West 41st Street), New York, NY
- Phase II ESI (627 Smith Street), Brooklyn, NY
- 340 Court Street, Brooklyn, NY

EDUCATION

M.E., Environmental Engineering
Cornell University

B.S., Biological Engineering (Environmental Studies Concentration)
Cornell University

PROFESSIONAL REGISTRATION

Professional Engineer (PE) in NY

10-Hour OSHA

Kyle Twombly

Senior Staff Scientist
Environmental Engineering

4 years in the industry

Mr. Twombly is a geologist with experience in New York City. His responsibilities include environmental and construction oversight, data and daily field report management, Phase II Environmental Site Investigations, waste characterizations, and remedial subsurface investigations involving soil, groundwater and soil vapor sampling.

Selected Projects

- Hudson Yards Redevelopment, environmental field oversight, New York, NY
- Sullivan Street Development, environmental field oversight, New York, NY
- 520 West 41st Street, groundwater sampling, New York, NY
- Greenpoint Landing, environmental and geotechnical field oversight, well gauging, Brooklyn, NY
- 601 Washington Street, environmental field oversight, New York, NY
- 521-539 4th Avenue, environmental field oversight, Brooklyn, NY
- 268 West Street, environmental field oversight, New York, NY
- Riverside Center Parcel 1, environmental field oversight, New York, NY
- 86 Fleet Street, Brooklyn, NY
- 416-420 Kent Avenue, environmental field oversight and waste characterization, Brooklyn, NY
- 551 Greenwich Street, remedial investigation including soil, groundwater and soil vapor sampling with report preparation, New York, NY
- 41 Kensico Drive, soil sampling, soil vapor sampling, remedial investigation report preparation, remedial action work plan report preparation, Mount Kisco, NY
- 335 Bond Street, well installation oversight, groundwater sampling, Brooklyn, NY
- Bush Terminal, waste characterization field coordination, Brooklyn, NY
- 450 Union Street, waste disposal oversight, well gauging, Brooklyn, NY
- Brooklyn Navy Yard Building 77, environmental field oversight, Brooklyn, NY
- 111 Varick Street, spill closure report preparation, New York, NY
- Horace Mann School, environmental and geotechnical field oversight, Bronx, NY
- Parcel B West, waste characterization, New York, NY
- 45-49 and 45-57 Davis Street, soil, groundwater and soil vapor sampling, Queens, NY
- 1120 Saint Johns Place, soil, groundwater and soil vapor sampling, Brooklyn, NY
- 225 3rd Street, well installation oversight, indoor air sampling, Brooklyn, NY

Education

B.S., Geoscience
University of Connecticut

Professional Registration

10-Hour OSHA

40-Hour OSHA HAZWOPER

Affiliations

Association of Environmental & Engineering Geologists

Engineers Without Borders

APPENDIX B

SOIL BORING LOGS

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Log of Boring **RB01/RMW01** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 12/27/18 / Date Finished: 12/27/18
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 30 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 6, Undisturbed 0, Core 0
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 14, Completion ▼ NA, 24 HR. ▼ 11.1
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	4-inch concrete slab	0						
	R1 (0-30") Black to brown medium SAND, trace silt, trace fine gravel, coal, slag, coal ash, concrete (dry) [FILL]	1	1	MACROCORE	30/60	NA	0.0 2.0 1.6 7.1 2.6	Sampled RB01_0-2 at 9:30
	R2 (0-24") Brown medium SAND, some silt, trace fine gravel, brick, coal ash, slag (dry-moist) [FILL]	5	2	MACROCORE	24/60	NA	0.4 0.5 1.3 1.0	
	R3a (0-8") Brown medium SAND, some silt, trace fine gravel, brick (moist) [FILL] R3b (8-26") Gray to black fine SAND, trace silt, trace fine gravel, coal (wet) [FILL]	10 11 12 13 14	3	MACROCORE	26/60	NA	179 330 1015 425	Sampled RB01_9-11 at 9:35 Petroleum like odors
		15						

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Log of Boring **RB01/RMW01** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		15						
		16						Sampled RB01_14-16 at 9:40
		17	4	MACROCORE	0/60	NA		
	R4 No recovery	18						
		19						
		20						
		21						
		22	5	MACROCORE	0/60	NA		
	R5 No recovery	23						
		24						
		25						
	R6a (0-24") Gray, silty CLAY (wet)	26					1.2	Sampled RB01_25-27 at 9:45
							0.3	
		27					0.0	
	R6b (24-51") Reddish-brown, fine SAND (wet)		6	MACROCORE	54/60	NA	0.0	
		28					0.0	
							0.0	
		29					0,0	End of boring at 30' bgs.
	R6c (51-54") Reddish-brown, medium SAND (wet)						0.0	MW01 installed at 20', 20-slot screen 5' to 20' screen
		30					0.0	
		31						
		32						
		33						

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Log of Boring **RB02** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 12/26/18 / Date Finished: 12/26/18
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 20 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 4 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First NA / Completion NA / 24 HR. NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Veronica Zuluaga
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	4-inch concrete slab	0						
	R1 (0-24") Unconsolidated, brown to dark gray, medium SAND, some fine gravel, coal, coal ash, brick, concrete, (dry), [FILL]	1	1	MACROCORE	24/60	NA	0.6	
		2					0.6	
		3					0.6	Background PID level: 0.6 ppm
		4						Sampled RB02_0-2 at 13:25
		5						
	R2 (0-32") Medium consolidated, brown to gray, fine SAND, some fine gravel, trace silt, brick, coal, wood, (dry to moist), [FILL]	6	2	MACROCORE	32/60	NA		
		7						Sampled RB02_7-9 at 13:30
		8					0.6	
		9					0.6	
		10					0.6	
		11					0.6	
	R3a (0-16') Medium consolidated, brown, fine SAND, trace silt, coal, slag, (dry), [FILL]	12	3	MACROCORE	43/60	NA		Sampled RB02_10-12 at 13:35
	R3b (16-43") Medium consolidated, brown to gray, fine SAND, some silt, wood, concrete [FILL]	13					0.7	
		14					0.7	
		15					0.7	
							0.7	
							0.7	
							0.7	Sampled RB02_13-15 at 13:40

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Log of Boring **RB02** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 (0-48") Very stiff, gray, silty CLAY, (moist)	15	4	MACROCORE	48/60	NA	0.5	
		16					0.5	
		17					0.5	
		18					0.5	
		19					0.5	
		20					0.5	End of boring at 20', Backfilled with cuttings/clean sand to surface grade.
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB03/RMW03** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 12/26/18 / Date Finished: 12/26/18
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 20 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 4, Undisturbed NA, Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 13.5, Completion ▼ 11.1, 24 HR. ▼ 11.3
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Veronica Zuluaga
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	4-inch concrete slab	0						
	R1 (0-36") Unconsolidated, dark brown, fine SAND, trace silt, trace fine gravel, coal, coal ash, concrete, (moist) [FILL]	1	1	MACROCORE	36/60	NA	2.2	Background PID level: 1.6 ppm
		2					2.4	
		3					2.6	Petroleum-like odor
		4					120	Sampled RB03_0-2 at 9:45
		5					161	
		6					2.9	Sampled RB03_2-3 at 9:50
		7					3.1	
	R2 (0-32") Unconsolidated, dark brown, fine SAND, trace silt, trace fine gravel, coal, concrete, (moist) [FILL]	8	2	MACROCORE	32/60	NA	3.1	
		9					3.7	
		10					2.6	
		11					1.7	
		12					1.5	
		13						Sampled RB03_10-12 at 9:55
	R3 (0-18") Medium consolidated, black, fine gravel, trace fine SAND, coal, coal slag (wet) [FILL]	14	3	MACROCORE	18/60	NA	28	
		15					34	Petroleum-like odor and staining
							4.4	
							3.4	

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Log of Boring **RB03/RMW03** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		15						
		16						Sampled RB03_17-18 at 10:00
	R4a (0-6") Unconsolidated, black, fine SAND, some fine gravel, coal, (wet) [FILL]	17	4	MACROCORE	36/60	NA	5.2	
	R4b (6-32") Medium consolidated, dark gray, silty fine SAND, trace clay, (wet) R4c (32-36") Medium consolidated, dark gray, fine SAND, some silt, trace fine gravel (wet)	18					5.9	
							8.2	
		19					7.2	Organic-like odor
							2.8	End of boring at 20' bgs, MW03 installed at 25', 20-slot screen from 10 to 25'.
		20					4.3	
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB04/RMW04** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 12/21/18 / Date Finished: 12/21/18
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 20 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 4 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 13.5 / Completion ▼ NA / 24 HR. ▼ 11.7
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	4-inch concrete slab	0						
	R1 (0-36") Brown to gray to tan fine SAND, some silt, brick, coal (moist) [FILL]	1	1	MACROCORE	36/60	NA	0.0	Sampled RB04_0-2 at 13:30
		2					0.0	
		3					0.0	
		4					0.0	
		5					0.0	
	R2 (0-48") Brown to orange fine SAND, trace silt, brick, coal, ash, slag (moist) [FILL]	6	2	MACROCORE	48/60	NA	0.0	
		7					0.0	
		8					0.0	
		9					0.0	Sampled RB04_8-10 at 13:40
		10					0.0	
		11					0.0	
		12	3	MACROCORE	20/60	NA	0.0	
	R3a (0-8") Brown fine SAND, trace silt, trace clay, brick (moist-wet) [FILL]	13					0.0	
	R3b (8-20") Gray to black fine SAND, some silt, trace clay, trace fine gravel, brick (wet) [FILL]	14					0.0	Sampled RB04_13-15 at 13:50
		15					0.0	

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Log of Boring **RB04/RMW04** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 (0-20") Gray to black fine SAND, some silt, trace clay, trace fine gravel, timber (wet) [FILL]	15	4	MACROCORE	20/60	NA		Sampled RB04_18-20 at 14:00
		16						
		17						
		18					0.0	
		19					0.0	
		20					0.0	End of boring at 20' bgs RMW04 installed 24', 20-slot screen from 9' to 24'
							0.0	
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB05/RMW05** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 12/21/18 / Date Finished: 12/21/18
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 21 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 5 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 12.3 / Completion ▼ NA / 24 HR. ▼ 12.2
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 4/5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	4-inch concrete slab	0						
	R1 (0-30") Black to brown to tan fine SAND, trace brick, asphalt, glass, concrete (moist) [FILL]	1	1	MACROCORE	30/48	NA	0.1	Sampled RB05_0-2 at 9:35
		2					0.1	
		3					0.1	
		4					0.1	
		5					0.1	
		6	2	MACROCORE	10/48	NA		
	R2 (0-10") Brown to tan fine SAND, concrete (moist) [FILL]	7					0.1	
		8					0.1	
		9	3	MACROCORE	20/48	NA		Sampled RB05_8-10 at 9:40
	R3 (0-20") Brown silty SAND, trace fine gravel, brick (moist) [FILL]	10						
		11					0.1	
		12 ▼					0.1	
		13	4	MACROCORE	20/48	NA	0.1	
	R4 (0-20") Brown to black fine SAND, some silt, trace clay, trace fine gravel, brick, wood (moist-wet) [FILL]	14					0.1	Sampled RB05_13-15 at 9:50
		15						

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Log of Boring **RB05/RMW05** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		15	4		20/48		0.1	
		16					0.4	
	R5 (0-38") Black to gray, fine SAND, some silt, trace clay, trace fine gravel, brick, coal, wood (wet) [FILL]	17	5	MACROCORE	38/60	NA		Switched to 5-foot sampler because shallower material caved in
		18					0.4	
		19					0.4	
		20					0.4	
		21					0.4	Sampled RB05_19-21 at 10:00
		22					0.4	
		23					0.4	End of boring at 21' bgs. MW05 installed at 23', 20-slot screen 8' to 23'
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB06** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 12/21/18 / Date Finished: 12/21/18
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 20 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 4, Undisturbed NA, Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 18.5, Completion ▼ NA, 24 HR. ▼ NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 4-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	4-inch concrete slab	0						
	R1 (0-38") Brown to tan fine SAND, some silt, brick, fine gravel, asphalt (dry) [FILL]	1	1	MACROCORE	38/48	NA	0.0	Sample RB06_0-2 at 12:30
		2					0.0	
		3					0.0	
		4					0.0	
		5					0.0	
	R2 (0-24") Brown to tan to black fine SAND, some silt, brick, fine gravel (moist) [FILL]	6	2	MACROCORE	24/48	NA		
		7					0.0	
		8					0.0	
		9					0.0	Sample RB06_8-10 at 12:40 Driller over-drilled 8-15 Driller mistake
		10						
		11	3	MACROCORE	36/84	NA		Sample RB06_10-12 at 12:50
	R3a (0-12") Brown to tan fine SAND, some silt, brick, fine gravel (moist) [FILL]	12						
	R3b (12-36") Gray soft CLAY (moist)	13					0.2	
		14					0.3 1.2	
		15					0.4 0.3	

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Log of Boring **RB06** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

MATERIAL SYMBOL	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 (0-20") Gray to black soft CLAY, trace fine sand (wet)	15	4	MACROCORE	20/60	NA		
		16						
		17						
		18						
		19					0.2	
		20					0.2 0.2	End of boring at 20' bgs, Backfilled with cuttings/clean sand to surface grade
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB07/RMW07** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 12/20/18 / Date Finished: 12/20/18
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 24 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 6 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 16 / Completion ▼ NA / 24 HR. ▼ 12.4
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Nick Turro
Sampler: 4-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	6-inch concrete slab	0						
	R1 (0-22") Black to brown medium SAND, trace brick (moist) [FILL]	1	1	MACROCORE	22/48	NA	0.0	Sampled RB07_0-2 at 13:00
		2					0.0	
		3					0.0	
		4					0.0	
		5	2	MACROCORE	24/48	NA		
		6					0.0	
	R2a (0-16") Brown coarse SAND, trace brick, trace medium sand, trace fine gravel (moist) [FILL]	7					0.0	Sampled RB07_6-8 at 13:30
	R2b (16-24") Brown medium SAND, some coarse sand, some silt, trace fine gravel (moist)	8					0.0	
		9						Sampled RB07_8-10 at 13:45
	R3 (0-24") Brown medium SAND, some coarse sand, some silt, trace fine gravel (moist)	10	3	MACROCORE	24/48	NA		
		11					0.0	
		12					0.0	
		13					0.0	
		14	4	MACROCORE	21/48	NA	0.0	
	R4a (0-8") Brown coarse SAND, some medium sand, some silt (moist)	15					0.0	

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Log of Boring **RB07/RMW07** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		15						
	R4b (8-11") Deep red coarse GRAVEL (moist)		4		21/48		0.0	
	R4c (11-14") Brown coarse SAND, some medium sand, some silt (moist)	16					0.0	
		17						
		18	5	MACROCORE	10/48	NA		
		19						
	R5 (0-10") Dark gray-black fine GRAVEL, some coarse sand, some medium sand (wet)						0.0	
		20					0.0	
		21						
		22	6	MACROCORE	22/48	NA		Petroleum-like odor
	R6a (0-22") Dark gray fine SAND, trace silt, trace clay (wet)						0.0	
		23					0.0	End of boring at 24' bgs. MW07 installed at 24', 20-slot screen 4' to 24'
							0.0	
	R6b (22-24") Dark gray-black fine GRAVEL, some coarse sand, some fine sand (wet)	24					0.0	
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB08** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 12/27/18 / Date Finished: 12/27/18
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 20 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 4 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 16.5 / Completion ▼ NA / 24 HR. ▼ NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	4-inch concrete slab	0						
	R1 (0-30") Brown to tan medium SAND, trace silt, trace fine gravel, brick, concrete, coal ash (dry) [FILL]	1	1	MACROCORE	30/60	NA	0.0	Sampled RB08_0-2 at 12:45
		2					0.0	
		3					0.0	
		4					0.0	
		5					0.0	
	R2a (0-30") Brown fine SAND, trace silt, trace fine gravel, brick, coal (moist) [FILL]	6	2	MACROCORE	30/60	NA	0.0	
		7					0.0	
		8					0.0	
		9					0.0	
		10					0.0	
		11	3	MACROCORE	22/60	NA		Sampled RB08_10-12 at 12:50
		12						
	R3a (0-16") Brown fine SAND, trace silt, brick, coal, (moist-wet) [FILL]	13					0.0	Sampled RB08_12-14 at 12:55
		14					0.0	
	R3b (16-22") Gray silty CLAY	15					0.0	

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Log of Boring **RB08** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 (0-44") Gray silty CLAY, trace fine sand (wet) ▽	15	4	MACROCORE	44/60	NA	0.0	Sampled RB08_14-16 at 13:00
		16					0.0	
		17					0.0	
		18					0.0	End of boring at 20' bgs. Backfilled with cuttings/clean sand to surface grade
		19					0.0	
		20					0.0	
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB09** Sheet 1 of 1

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/2/19 / Date Finished: 1/2/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 11.5 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 3 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First NA / Completion NA / 24 HR. NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	8-inch concrete slab	0						
	R1 (0-16") Brown to black medium SAND, some fine gravel, asphalt [FILL]	1					0.0	
		2					0.0	
		3	1	MACROCORE	16/60	NA	0.0	
		4						
		5						
	R2 (0-48") Brown to gray to tan to black medium SAND, trace brick, trace fine gravel, brick, slag [FILL]	6					0.0	
		7					0.0	
		8	2	MACROCORE	48/60	NA	0.0	
		9					0.0	
		10					0.0	
		11					0.0	
	R3 (0-20") Gray to brown medium SAND, trace fine gravel, brick, asphalt [FILL]	12	3	MACROCORE	18/18	NA	0.0	
		13					0.0	
		14					0.0	End of Boring at 11.5' (refusal) Backfilled with cuttings/clean sand to surface grade. Step out boring RB09a advanced ~5' east
		15						

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Log of Boring **RB09a/RMW09** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/2/19 / Date Finished: 1/2/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 32 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 6 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 18.5 / Completion ▼ NA / 24 HR. ▼ 19.4
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	6-inch concrete slab	0						
	R1 (0-30") Brown medium SAND, trace silt, trace fine gravel, asphalt (dry) [FILL]	1	1	MACROCORE	30/60	NA	0.0	Step-out ~5' east of RB09
		2					0.0	
		3					0.0	Sampled RB09_0-2 at 13:40
		4					0.0	
		5					0.0	
	R2a (0-18") Light brown fine SAND (dry) [FILL]	6	2	MACROCORE	30/60	NA		
		7						
		8					0.0	
	R2b (18-30") Black to gray medium SAND, some fine gravel, brick, concrete (dry) [FILL]	9					0.0	
		10					0.0	
		11					0.0	
	R3 (0-34") Brown medium SAND, trace silt, fine gravel, brick, coal, ash (moist) [FILL]	12	3	MACROCORE	34/60	NA	0.0	
		13					0.0	
		14					0.0	
		15					0.0	

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Log of Boring **RB09a/RMW09** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4a (0-6") Brown medium SAND, trace fine gravel, brick (moist) [FILL]	15	4	MACROCORE	32/60	NA	0.0	
		16					7.2	
		17					59.3	
	R4b (6-32") Gray medium SAND, trace silt (wet)	18					657	Petroleum-like odors and staining
		19					698	
		20					1145	Sampled RB09_19-21 at 13:45
	R5 (0-32") Gray to black medium SAND (wet)	21	5	MACROCORE	32/60	NA	1175	
		22					7913	
		23					1127	
		24					966	Petroleum-like odors and staining
		25					70.9	
	R6 (0-48") Gray to brown medium SAND (wet)	26	6	MACROCORE	48/60	NA	25.9	
		27					755	Petroleum-like odors and staining
		28					507	
		29					22.2	Sampled RB09_28-30 at 13:50
		30					12.4	
		31					9.4	
		32					7.6	
		33					0.0	
							0.0	End of boring at 32' bgs. MW09 installed at 27', 20-slot screen 17' to 22'

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Log of Boring **RB10/RMW10** Sheet 1 of 3

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/8/19 / Date Finished: 1/8/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 35 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 7, Undisturbed NA, Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 24, Completion ▼ NA, 24 HR. ▼ 19.2
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Julio Galarza
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	12-inch concrete slab	0						
	R1 (0-18") Brown to tan to gray fine SAND, trace medium sand, find gravel (dry) [FILL]	1					0.7	Sampled RB10_0-2 at 11:30
		2					0.7	
		3	1	MACROCORE	18/60	NA	0.5	
		4						
		5						
		6						
		7						
	R2 (0-24") Brown to tan fine SAND, trace medium sand, fine gravel, concrete, brick, coal (moist) [FILL]	8	2	MACROCORE	24/60	NA	0.4	Faint chemical like odor
		9					0.8	
		10					0.5	
		11					0.5	
		12						
	R3 (0-40") Brown fine SAND, fine gravel, brick, coal (moist) [FILL]	13	3	MACROCORE	40/60	NA	0.9	
		14					1.8	
		15					20.9	
							5.1	
							1.2	
							1.9	
							1.5	

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Log of Boring **RB10/RMW10** Sheet 2 of 3

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4a (0-28") Brown fine SAND, trace medium sand, fine gravel, brick, coal (moist) [FILL]	15						
		16					3.8	
							3.7	
		17					4.1	
			4	MACROCORE	48/60	NA	2.0	
		18					20.7	Petroleum like odors and staining
	R4b (28-48") Black fine SAND, fine gravel, brick, coal, wood (moist) [FILL]						110	
		19					686.4	
							106.1	Sampled RB10_18-20 at 11:35
		20					159.3	
		21						
		22						
			5	MACROCORE	12/60	NA		
		23						
		24					39.4	
	R5 (0-12") Black, fine SAND, trace medium sand, some fine gravel, brick, ceramic tile (wet) [FILL]						77.6	Petroleum like odors and staining
		25					140.8	
		26						
		27						
			6	MACROCORE	20/60	NA		
		28						
	R6 (0-20") Black fine SAND, trace medium sand, some fine gravel, brick, glass (wet) [FILL]						51.4	
		29					56.2	Petroleum like odors and staining
							208	
		30					12.1	
	R7a (0-8") Gray fine SAND (wet)						5.0	Petroleum like odors
		31					3.4	
							1.4	
		32	7	MACROCORE	54/60		1.4	
						NA	0.9	
		33					2.3	Sampled RB10_33-35 at 11:40
							1.7	

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Log of Boring **RB10/RMW10** Sheet 3 of 3

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

MATERIAL SYMBOL	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R7b (8-54") Reddish brown fine SAND (wet)	34	7		54/60		2.4	End of boring at 35' bgs. MW10 installed at 28', 20-slot screen 18' to 28'
		35					2.9	
		36					2.2	
		37						
		38						
		39						
		40						
		41						
		42						
		43						
		44						
		45						
		46						
		47						
		48						
		49						
		50						
		51						
		52						
		52.5						

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Log of Boring **RB11/RMW11** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/2/19 — Date Finished: 1/2/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 30 ft — Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 6 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 14.5 — Completion ▼ NA — 24 HR. ▼ 19.3
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	2-inch concrete slab	0						
	R1 (0-40") Brown to gray medium SAND, fine gravel, brick, asphalt (dry) [FILL]	1					13.2	
		2					9.0	
		3	1	MACROCORE	40/60	NA	12.6	Sampled RB11_0-2 at 10:30
		4					2.8	
		5					1.2	
		6					1.0	
	R2 (0-36") Brown to light brown medium SAND, trace silt, trace fine gravel, brick, coal (dry-moist) [FILL]	7						
		8	2	MACROCORE	36/60	NA	15.9	
		9					1.8	
		10					0.8	
		11					0.6	
	R3 (0-42") Brown to light brown medium SAND, trace silt, trace fine gravel, brick, coal (moist-wet) [FILL]	12					0.6	
		13					0.8	
		14	3	MACROCORE	42/60	NA	12.2	
	▽	15					18.9	
							2.2	
							5.2	
							4.3	
							5.0	
							3.7	

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Log of Boring **RB11/RMW11** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4a (0-6") Brown medium SAND, trace silt, trace fine gravel, coal (wet) [FILL]	15						
		16						
	R4b (6-48") Black to brown medium SAND, some fine sand, trace silt (wet)	17	4	MACROCORE	48/60	NA	2.3	
							33.6	
		18					740	
							661	Petroleum like odors
		19					1321	
							534	
		20					931	Sampled RB11_19-21 at 10:35
	R5 (0-48") Black to brown medium SAND (wet)	21						
							511	
		22	5	MACROCORE	48/60	NA	1052	
							1258	Petroleum like odors and staining
		23					208	
							40.0	
		24					16.4	
							28.6	
		25					32.1	
		26					302	
							704	Petroleum like odors and staining
		27					741	Sampled RB11_28-30 at 10:40
	R6 (0-30") Brown medium SAND, trace fine gravel (wet)		6	MACROCORE	50/60	NA	30.7	
		28					22.2	End of boring at 30' bgs. MW11 installed at 28', 20-slot screen 13' to 28'
							12.2	
		29					4.1	
							5.6	
		30					0.0	
		31						
		32						
		33						

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Log of Boring **RB12** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)		Project No.: 170487001	
Location: Bronx, NY		Elevation and Datum: NA	
Drilling Company: AARCO Environmental		Date Started: 12/26/18	Date Finished: 12/26/18
Drilling Equipment: Geoprobe 7822 DT		Completion Depth: 20 ft	Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe		Number of Samples: Disturbed 4	Undisturbed NA / Core NA
Casing Diameter (in): NA	Casing Depth (ft): NA	Water Level (ft.): First ▽ 13	Completion ▼ NA / 24 HR. ▼ NA
Casing Hammer: NA	Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon	
Sampler: 5-foot stainless steel macrocore sampler		Field Engineer: Veronica Zuluaga	
Sampler Hammer: NA	Weight (lbs): NA / Drop (in): NA		

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	4-inch concrete slab	0						
	R1 (0-20") Brown, medium SAND, some fine gravel, brick, concrete, coal (dry) [FILL]	1					3.2	
							1.4	Background PID level: 1.8 ppm
							0.9	Sampled RB12_0-2 at 11:55
		2	1	MACROCORE	20/60	NA		
		3						
		4						
		5						
		6						
		7	2	MACROCORE	30/60	NA	2.6	
	R2a (0-4") Brown, fine SAND, some silt, brick, coal (dry) [FILL]	8					3.7	
	R2b (4-14") Gray, fine SAND, coal slag, (dry) [FILL]						6.8	Sampled RB12_8-9 at 12:00
	R2c (14-30") Brown, fine SAND, some fine gravel (moist) [FILL]	9					180.4	Petroleum-like odors
							2.0	Sampled RB12_9-10 at 12:05
		10					0.6	
		11						Sampled RB12_10-12 at 12:10
		12	3	MACROCORE	30/60	NA		
	R3 (0-30") Brown, fine SAND, trace silt, brick, metal (wet) [FILL]	13 ▽						
		14					0.6	
							0.6	
		15					0.5	

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Log of Boring **RB12** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4a (0-4") Gray, fine SAND, trace silt (moist)	15						
	R4b (4-14") Gray, silty CLAY (moist)	16					0.5	
							0.5	
	R4c (14-36") Gray, silty fine SAND (moist)	17					0.5	
			4	MACROCORE	54/60	NA	0.5	
		18					0.5	
	R4d (36-54") Gray, silty CLAY, (moist)						0.5	
		19					0.8	
							0.6	End of boring at 20' bgs. Backfilled with cuttings/clean sand to surface grade.
		20					0.6	
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB13** Sheet 1 of 3

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/7/19 — Date Finished: 1/7/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 35 ft — Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 7 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 24 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Julio Galarza
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	12-inch concrete slab	0						
	R1 (0-28") Brown to tan fine SAND, brick, timber, fine gravel (moist) [FILL]	1					0.1	Sampled RB13_0-2 at 10:45
		2					0.1	
		3	1	MACROCORE	28/60	NA	0.8	
		4					0.3	
		5					0.4	
		6						
		7						
	R2 (0-28") Brown fine SAND, brick (moist) [FILL]	8	2	MACROCORE	28/60	NA		
		9					0.3	
		10					0.5	
		11					1.9	
		12					20.2	
	R3a (0-26") Brown fine SAND, trace fine gravel (moist)	13	3	MACROCORE	32/60	NA		
		14					1.4	
		15					1.2	
	R3b (26-32") Black fine SAND, trace medium sand. fine gravel (moist)						1.7	Petroleum like odors
							26.2	
							117	

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Log of Boring **RB13** Sheet 2 of 3

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 No Recovery	15–20	4	MACROCORE	0/60	NA		
	R5 (0-12") Brown to gray fine SAND, trace medium sand (moist-wet)	20–25	5	MACROCORE	12/60	NA	67.5 385.1	Petroleum like odors
	R6 (0-40") Brown fine SAND (wet)	25–30	6	MACROCORE	40/60	NA	38.7 17.1 8.9 12.0 14.1 20.3 17.7	Petroleum like odors
	R7 (0-60") Brown fine SAND (wet)	30–33	7	MACROCORE	60/60	NA	6.2 3.3 1.7 2.0 2.3	Sampled RB13_33-35 at 10:55

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Log of Boring **RB13** Sheet 3 of 3

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

MATERIAL SYMBOL	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		34	7		60/60		1.4	End of boring at 35' bgs. Backfilled with cuttings/clean sand to surface grade.
		35					0.7	
		36					1.0	
		37						
		38						
		39						
		40						
		41						
		42						
		43						
		44						
		45						
		46						
		47						
		48						
		49						
		50						
		51						
		52						
		52.5						

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Log of Boring **RB13a** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/7/19 — Date Finished: 1/7/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 25 ft — Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 5 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 19 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Julio Galarza
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	12-inch concrete slab	0						
	R1 (0-14") Brown fine SAND, brick, concrete (dry) [FILL]	1					8.8	
		2					0.1	
		3	1	MACROCORE	14/60	NA	0.0	
		4						
		5						
		6						
		7						
		8	2	MACROCORE	14/60	NA		
	R2 (0-14") Brown fine SAND (moist) [FILL]	9					0.0	
		10					0.0	
		11					0.0	
		12						
	R3 (0-24") Brown fine SAND, trace medium sand, trace fine gravel (moist)	13	3	MACROCORE	24/60	NA	0.5	
		14					0.4	
		15					0.3	
							0.4	
							3.5	

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Log of Boring **RB13a** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4a (0-18") Brown fine SAND, trace medium sand, trace fine gravel (moist)	15	4	MACROCORE	36/60	NA	1.1	
		16					2.4	
		17					17.1	
	R4b (18-36") Brown to gray fine SAND, peat (moist-wet)	18					48.3	Sampled RB13_18-20 at 11:00
		19 ▽					148	Petroleum like odors and staining
		20					831	
		21	5	MACROCORE	32/60	NA	75.7	Petroleum like odors and staining
	R5 (0-32") Gray to brown fine SAND (moist)	22					973	Sampled RB13_23-25 at 10:50
		23					1006	
		24					838	End of boring at 25' bgs. Backfilled with cuttings/clean sand to surface grade.
		25					73.7	
		26					35.1	
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB14/RMW14** Sheet 1 of 3

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)		Project No.: 170487001	
Location: Bronx, NY		Elevation and Datum: NA	
Drilling Company: AARCO Environmental		Date Started: 1/7/19	Date Finished: 1/7/19
Drilling Equipment: Geoprobe 7822 DT		Completion Depth: 35 ft	Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe		Number of Samples: Disturbed 7	Undisturbed NA / Core NA
Casing Diameter (in): NA	Casing Depth (ft): NA	Water Level (ft.): First ▽ 17.5	Completion ▼ NA / 24 HR. ▼ 19
Casing Hammer: NA	Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Julio Galarza	
Sampler: 5-foot stainless steel macrocore sampler		Field Engineer: Tyler Goodnough	
Sampler Hammer: NA	Weight (lbs): NA / Drop (in): NA		

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	12-inch concrete slab	0						
	R1 (0-28") Brown fine SAND, fine gravel (dry) [FILL]	1					0.0	Sampled RB14_0-2 at 12:20
		2					0.0	
		3	1	MACROCORE	28/60	NA	0.0	
		4					0.0	
		5						
		6						
	R2 (0-28") Brown fine SAND, fine gravel (dry) [FILL]	7					0.3	
		8	2	MACROCORE	28/60	NA	0.2	
		9					0.4	
		10					0.3	
		11					0.4	
		12					0.4	
		13	3	MACROCORE	22/60	NA	9.9	
	R3a (0-14") Brown to gray fine SAND, trace medium sand, slag, ash, fine gravel (moist) [FILL]	14					13.2	
		15					8.8	
	R3b (14-22") Brown fine SAND (moist)						10.0	
							24	

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Log of Boring **RB14/RMW14** Sheet 2 of 3

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 (0-32") Brown to gray fine SAND, trace fine gravel (moist-wet)	15	4	MACROCORE	32/60	NA		
		16						
		17						
		18					105.1	
							74.4	Petroleum-like odors and staining
		19					88.0	
							26.3	
		20					56.1	Sampled RB14_18-20 at 12:25
	R5 (0-38") Brown to gray fine SAND (wet)	21	5	MACROCORE	38/60	NA		
		22					505	Petroleum-like odors and staining
		23					572	
							428.1	
		24					120.2	Sampled RB14_23-25 at 12:30
							129.4	
		25					74.4	
	R6 (0-36") Brown to gray fine SAND, trace fine gravel (wet)	26	6	MACROCORE	36/60	NA		
		27					626	
		28					384	Petroleum-like odors and staining
							72.3	
		29					8.9	
							4.5	
		30					4.5	
	R7 (0-52") Brown to white fine SAND, trace medium sand (wet)	31	7	MACROCORE	52/60		28.7	Petroleum-like odor
							7.1	
		32					8.2	Sampled RB14_33-35 at 12:35
						NA	7.3	
		33					3.8	
							2.1	

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Log of Boring **RB14/RMW14** Sheet 3 of 3

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

MATERIAL SYMBOL	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		34	7		52/60		1.9	End of boring 35' bgs. MW14 installed at 27', 20-slot screen 17' to 27'
		35					0.9	
		36					0.9	
		37						
		38						
		39						
		40						
		41						
		42						
		43						
		44						
		45						
		46						
		47						
		48						
		49						
		50						
		51						
		52						
		52.5						

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Log of Boring **RB15** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/8/19 — Date Finished: 1/8/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 30 ft — Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 6 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 23 — Completion ▼ NA — 24 HR. ▼ NA
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Julio Galarza
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	12-inch concrete slab	0						
	R1 (0-25") Brown to tan fine SAND, trace medium sand, fine gravel, slag (dry) [FILL]	1					0.4	Sampled RB15_0-2 at 13:00
		2					0.7	
		3	1	MACROCORE	25/60	NA	0.6	
		4					0.4	
		5						
		6						
	R2 (0-28") Brown fine SAND, fine gravel (moist) [FILL]	7	2	MACROCORE	28/60	NA		
		8					0.5	
		9					0.6	
		10					0.6	
		11					0.4	
		12						
	R3 (0-34") Brown fine SAND, brick, coal ash, coal, fine gravel (moist) [FILL]	13	3	MACROCORE	34/60	NA	0.6	
		14					0.8	
		15					0.7	
							1.6	
							0.4	
							0.5	

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Log of Boring **RB15** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4a (0-24") Brown fine SAND, brick, fine gravel (moist) [FILL]	15	4	MACROCORE	30/60	NA	1.7	
		16					1.3	Sampled RB15_18-20 at 13:05
		17					1.4	
		18					2.7	
	R4b (24-30") Black to gray fine SAND, fine gravel (moist) [FILL]	19					6.0	Petroleum-like odors and staining
		20					11.2	
		21	5	MACROCORE	24/60	NA	375	
		22					1101	Sampled RB15_23-25 at 13:10
	R5a (0-12") Black to gray fine SAND, fine gravel (wet) [FILL]	23 ▽					563	
		24					102	
	R5b (12-24") Gray to brown fine SAND (wet)	25					18.8	Petroleum-like odors and staining
		26					19.1	
		27	6	MACROCORE	34/60	NA	9.9	Sampled RB15_28-30 at 13:15
	R6 (0-34") Brown fine SAND (wet)	28					6.1	Petroleum-like odors
		29					5.4	
		30					3.4	End of boring at 30' bgs. Backfilled with cuttings/clean sand to surface grade.
		31					3.3	
		32					5.6	
		33						

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Log of Boring **RB16/RMW16** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/8/19 / Date Finished: 1/8/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 25 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 5 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 17 / Completion ▼ NA / 24 HR. ▼ 18.9
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Julio Galarza
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	12-inch concrete slab	0						
	R1 (0-29") Brown fine SAND, concrete, fine gravel, wood ash (moist) [FILL]	1					0.3	Background PID 0.4
		2					1.1	
		3	1	MACROCORE	29/60	NA	0.5	Sampled RB16_0-2 at 10:40
		4					0.4	
		5					0.5	
	R2 (0-28") Brown to tan fine SAND (moist) [FILL]	6						
		7	2	MACROCORE	28/60	NA		
		8					0.3	
		9					0.3	
		10					0.3	
		11					0.3	
		12					0.4	
	R3a (0-8") Brown to tan fine SAND (moist) [FILL]	13	3	MACROCORE	30/60	NA		Sampled RB16_13-15 at 10:45
	R3b (8-30") Black to dark brown fine SAND, trace medium sand, fine gravel, coal ash, ceramic tile (moist) [FILL]	14					0.3	
		15					0.3	
							0.8	
							0.4	
							0.3	

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Log of Boring **RB16/RMW16** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 (0-32") Brown to black to reddish brown fine SAND, trace medium sand, fine gravel, coal ash, slag, ceramic tile (moist-wet) [FILL]	15	4	MACROCORE	32/60	NA		
		16						
		17						
		18					0.4	
		19					0.3	
		20					0.4	Sampled RB16_18-20 at 10:50
		21					0.4	
		22	5	MACROCORE	18/60	NA	0.3	
		23						
	R5 (0-18") Brown to gray fine SAND, trace fine gravel (wet)	24					0.4	
		25					0.4	End of boring at 25' bgs. MW16 installed at 27', 20-slot screen 17' to 27'
		26					0.4	
		27					0.3	
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB17/RMW17** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/4/19 — Date Finished: 1/4/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 25 ft — Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 5 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 22 — Completion ▼ NA — 24 HR. ▼ 20.1
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	2-inch concrete slab	0						
	R1 (0-40") Brown to gray fine SAND, trace medium sand, trace silt, slag, concrete, brick (dry) [FILL]	1	1	MACROCORE	40/60	NA	0.0	Sampled RB17_0-2 at 13:30
		2					0.0	
		3					0.0	
		4					0.0	
		5					0.0	Sampled RB17_4-6 at 13:40
	R2 (0-36") Gray to black fine SAND, trace medium sand, slag, concrete, glass (dry) [FILL]	6	2	MACROCORE	36/60	NA	0.0	
		7					0.0	
		8					0.0	
		9					0.0	Sampled RB17_8-10 at 13:35
		10					0.0	
	R3 (0-36") Brown fine SAND (moist)	11	3	MACROCORE	36/60	NA	0.0	
		12					0.0	
		13					0.0	
		14					0.0	
		15					0.0	

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Log of Boring **RB17/RMW17** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4a (0-14") Brown fine SAND, trace fine gravel (moist)	15	4	MACROCORE	38/60	NA	0.0	
		16					0.0	
		17					0.0	
	R4b (14-38") Gray slity CLAY (moist)	18					0.0	
		19					0.0	Sampled RB17_18-20 at 13:45
		20					0.0	
	R5a (0-8") Brown to gray fine SAND, trace medium sand, some fine gravel (wet)	21	5	MACROCORE	38/60	NA	0.0	
		22					0.0	
	R5b (8-30") Gray silty CLAY (wet)	23					0.0	
		24					0.0	End of boring at 25' bgs. MW17 installed at 28', 20-slot screen 18' to 28'
	R5c (30-38") Gray fine SAND (moist)	25					0.0	
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB18/RMW18** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/4/19 / Date Finished: 1/4/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 20 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 4 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 19 / Completion ▼ NA / 24 HR. ▼ 19.8
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	8-inch concrete slab	0					0.1	
	R1 (0-26") Brown fine SAND, trace silt, fine gravel, brick, plastic, slag (dry) [FILL]	1					9.3	Solvent like odor
							12.7	
		2					8.9	Sampled RB18_0-2 at 9:00
			1	MACROCORE	26/60	NA	3.5	
		3						
		4						
		5						
	R2a (0-16") Brown to tan, fine SAND, brick, slag, concrete (dry-moist) [FILL]	6					3.6	
		7					15.9	Solvent like odor
	R2b (16-48") Brown fine SAND, trace fine gravel (moist)		2	MACROCORE	48/60	NA	21.6	
		8					4.4	Sampled RB18_6-8 at 9:05
							2.2	
		9					0.6	
							0.8	
		10					1.4	
		11						
	R3 (0-36") Brown to gray fine SAND, trace fine gravel (moist)	12					2.5	
			3	MACROCORE	36/60	NA	1.9	
		13					0.9	
							1.5	
		14					1.2	
							0.0	
		15					0.0	

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Log of Boring **RB18/RMW18** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 (0-36") Brown to gray fine SAND, trace fine gravel (moist)	15	4	MACROCORE	36/60	NA	0.0	Sampled RB18_15-17 at 9:10
		16						
		17						Sampled RB18_18-20 at 9:15
		18					0.0	
		19					0.0	End of boring at 20' bgs. MW18 installed at 27', 20-slot screen 17' to 27'
		20					0.0	
		21					0.0	
		22					0.0	
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB19** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/3/19 / Date Finished: 1/3/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 25 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 5 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 19.5 / Completion ▼ NA / 24 HR. ▼ NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	8-inch concrete slab	0						
	R1 (0-26") Brown fine SAND, trace silt, concrete, coal (moist) [FILL]	1					0.0	Sampled RB19_0-2 at 14:00
		2					0.0	
		3	1	MACROCORE	26/60	NA	0.0	
		4						
	R2 (0-40") Tan to brown fine SAND, trace fine gravel (moist)	5						
		6						
		7					0.0	
		8	2	MACROCORE	40/60	NA	0.0	
		9					0.0	
		10					0.0	
	R3 (0-30") Brown to gray fine SAND, trace fine gravel (moist)	11					0.0	
		12					0.0	
		13	3	MACROCORE	30/60		0.0	
		14					0.0	
		15					0.0	

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Log of Boring **RB19** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 (0-36") Brown to gray fine SAND, some fine gravel (moist-wet)	15	4	MACROCORE	36/60	NA	0.0	
		16					0.0	
		17					0.0	
		18					0.0	
		19					0.0	
		20					0.0	
	R5a (0-38") Gray to black clayey SILT (wet)	21	5	MACROCORE	40/60	NA	8.8	Sampled RB19_20-22 at 14:05
		22					47.3	
		23					25.6	
		24					1.7	Sampled RB19_24-25 at 14:10
	R5b (38-40") Gray fine SAND (wet)	25					0.8	
		26					1.2	End of boring at 25' bgs. Backfilled with cuttings/clean sand to surface grade.
		27					0.7	
		28					0.2	
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB20** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/4/19 / Date Finished: 1/4/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 20 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 4 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 18 / Completion ▼ NA / 24 HR. ▼ NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	2-inch concrete slab	0						
	R1 (0-24") Brown to gray medium SAND, fine gravel, coal (dry) [FILL]	1	1	MACROCORE	24/60	NA	0.0	Sampled RB20_0-2 at 9:45
		2					0.0	
		3					0.0	
		4					0.0	
		5						
	R2 (0-32") Dark brown to red fine SAND, concrete, coal (dry) [FILL]	6	2	MACROCORE	32/60	NA	0.0	
		7					0.0	Sampled RB20_7-9 at 9:50
		8					0.0	
		9					0.0	
		10					0.0	
							3.0	
	R3a (0-34") Dark brown to red fine SAND, concrete (moist) [FILL]	11	3	MACROCORE	36/60	NA	0.0	
		12					0.0	
		13					2.2	
		14					0.0	Sampled RB20_13-15 at 9:55
		15					0.0	
							0.0	

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Log of Boring **RB20** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R3b (34-36") Brown fine SAND, trace fine gravel (moist)	15						
		16						
	R4 (0-40") Brown fine SAND, trace fine gravel (moist-wet)	17	4	MACROCORE	40/60	NA	0.0	
	▽	18					0.0	Sampled RB20_18-20 at 10:00
							0.0	
		19					0.0	End of boring at 20' bgs. Backfilled with cuttings/clean sand to surface grade.
							0.0	
		20					0.0	
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB21** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/3/19 / Date Finished: 1/3/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 20 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 4 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First NA / Completion NA / 24 HR. NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	8-inch concrete slab	0					0.0	
	R1a (0-30") Brown to tan to gray fine SAND, brick, fine gravel, coal ash (dry) [FILL]	1					0.0	Step-out ~5' west of RB21
		2					0.0	
			1	MACROCORE	36/60	NA	0.0	Sampled RB21_0-2 at 11:30
	R1b (30-36") Brown fine SAND, trace fine gravel (moist)	3					0.3	
							0.0	Sampled RB21_2-4 at 11:35
		4						
		5						
		6						
	R2 (0-32") Brown to gray fine SAND, trace fine gravel (moist)	7	2	MACROCORE	32/60	NA	0.0	
		8					0.0	
							0.0	
		9					0.0	
							0.0	
		10					0.0	
		11						
	R3 (0-42") Brown to gray fine SAND, trace fine gravel (moist)	12	3	MACROCORE	42/60	NA	0.0	
							0.0	
		13					0.0	
							0.0	
		14					0.0	
							0.0	
		15					0.0	

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Log of Boring **RB21** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 (0-30") Brown to gray fine SAND, some fine gravel (moist)	15–20	4	MACROCORE	30/60	NA	0.0 0.0 0.0 0.0 0.0 0.0	Sampled RB21_18-20 at 11:40 End of boring at 20' bgs. Backfilled with cuttings/clean sand to surface grade.

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Log of Boring **RB21a** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/3/19 / Date Finished: 1/3/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 17 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 4 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First NA / Completion NA / 24 HR. NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	8-inch concrete slab	0					0.0	
	R1 (0-34") Brown to black to tan fine SAND, fine gravel, brick, coal, slag (dry) [FILL]	1					0.0	
		2					0.0	
		3	1	MACROCORE	34/60	NA	0.0	
		4					0.3	
		5					0.0	
		6						
		7						
	R2 (0-22") Brown fine SAND, trace silt, trace fine gravel (dry)	8	2	MACROCORE	22/60	NA		
		9					0.0	
		10					0.0	
		11					0.0	
	R3 (0-50") Brown to gray fine SAND. trace fine sand, trace fine gravel (dry)	12					0.0	
		13	3	MACROCORE	50/60	NA	0.0	
		14					0.0	
		15					0.0	
							0.0	

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Log of Boring **RB21a** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 (0-20") Brown medium SAND, trace silt, some fine gravel (moist)	15	4	MACROCORE	20/24	NA	0.0	
		16					0.0	
							0.0	
		17					0.0	End of Boring at 17' (refusal) Backfilled with cuttings/clean sand to surface grade. Step out boring RB21a advanced ~5' west
		18						
		19						
		20						
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB22** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/3/19 / Date Finished: 1/3/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 25 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 3, Undisturbed NA, Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First NA, Completion NA, 24 HR. NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	8-inch concrete slab	0					0.0	
	R1 (0-26") Brown to tan to gray fine SAND, trace medium sand, wood ash (dry) [FILL]	1					0.0	Sampled RB22_0-2 at 13:00
		2					0.0	
		3	1	MACROCORE	26/60	NA	0.0	
		4					0.3	Sampled RB22_3-5 at 13:05
		5					0.0	
	R2 (0-44") Brown to gray to tan medium sand, trace fine gravel (moist)	6						
		7	2	MACROCORE	44/60	NA	0.0	
		8					0.0	
		9					0.0	
		10					0.0	
		11					0.0	
		12					0.0	
	R3 (0-18") Brown fine SAND, some fine gravel (moist)	13	3	MACROCORE	18/60	NA	0.0	
		14					0.0	
		15					0.0	

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Log of Boring **RB22** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

MATERIAL SYMBOL	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	R4 (0-12") Brown to gray fine SAND, some fine gravel (moist)	15	4	MACROCORE	12/60	NA	0.0	
		16					0.0	
		17					0.0	End of Boring at 17' (refusal) Backfilled with cuttings/clean sand to surface grade. Step out boring RB22a advanced ~5' west
		18						
		19						
		20						
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB22a/RMW22** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 1/3/10 — Date Finished: 1/3/19
Drilling Equipment: Geoprobe 7822 DT	Completion Depth: 25 ft — Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 2 — Undisturbed NA — Core NA
Casing Diameter (in): NA — Casing Depth (ft): NA	Water Level (ft.): First ▽ 21 — Completion ▼ NA — 24 HR. ▼ 20.1
Casing Hammer: NA — Weight (lbs): NA — Drop (in): NA	Drilling Foreman: Ron Dixon
Sampler: 5-foot stainless steel macrocore sampler	Field Engineer: Tyler Goodnough
Sampler Hammer: NA — Weight (lbs): NA — Drop (in): NA	

MATERIAL SYMBOL	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	Did not collect soil from 0-15', see RB22 soil boring log for soil classification	0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15						Step-out ~5' west of RB22

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Log of Boring **RB22a/RMW22** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		15						
		16						
		17	1	MACROCORE	12/60	NA		
		18						
	R1 (0-12") gray to brown fine SAND, some fine gravel (moist)	19					0.0	
							0.0	
		20					0.0	
		21						Sampled RB22_20-22 at 11:30
	R2 (0-40") Brown to black fine SAND, some fine gravel (wet)						0.0	
		22	2	MACROCORE	48/60	NA	0.0	
		23					0.0	
							0.0	
	R3b (40-48") Gray to black silty CLAY, trace fine sand (wet)	24					0.0	
							0.0	
		25					0.0	End of boring at 25' bgs. RMW22 installed at 27', 20-slot screen 17' to 27'
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

\\LANGAN.COM\DATA\NYC\DATA0\170487001\ENGINEERING DATA\ENVIRONMENTAL\REMEDIAL INVESTIGATION\BORING LOGS\RI BORING LOGS.GPJ ... 7/24/2019 7:49:04 PM ... Report: Log - LANGAN

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Log of Boring **RB23/RMW23** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 7/10/19 / Date Finished: 7/10/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 3 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 15 / Completion ▼ NA / 24 HR. ▼
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Adam Hutchinson
Sampler: 4-foot stainless steel macrocore sampler	Field Engineer: Patrick Stovall
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	3-inch concrete slab	0						
	R1 (0-18") brown to black medium SAND, trace fine gravel, glass, brick (dry) [FILL]	1	R1	MACROCORE	18/48	NA	0.0	Sampled RB23_0-2 at 13:55
		2					0.0	
		3					0.0	
	R2 (0-14") reddish-brown fine gravelly fine SAND (dry)	4						
		5						
		6	R2	MACROCORE	14/48	NA		
		7					0.0	
		8					0.0	
	R3 (0-30") reddish-brown fine gravelly fine SAND (dry)	9					0.0	
		10	R3	MACROCORE	30/48	NA	0.0	
		11					0.0	Sampled RB23_10-12 at 14:0
		12					0.0	
	R4a (0-30") gray fine gravelly, fine SAND (dry)	13					0.0	
		14	R4	MACROCORE	38/48	NA	0.0	Sampled RB23_13-15 at 14:10
	R4b (30-38") reddish-brown fine SAND, trace fine gravel (wet) ▽	15					0.0	

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Log of Boring **RB23/RMW23** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		15	R4		38/48		0.0	
							0.0	
		16					0.0	End of boring at 16' bgs. MW23 installed at 19', 20-slot screen 9' to 19'
		17						
		18						
		19						
		20						
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB24** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 7/10/19 / Date Finished: 7/10/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 3 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 15.5 / Completion ▼ NA / 24 HR. ▼ NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Adam Hutchinson
Sampler: 4-foot stainless steel macrocore sampler	Field Engineer: Patrick Stovall
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	3-inch concrete slab	0						
	R1 (0-24") brown to black medium SAND, trace fine gravel, ash, glass, concrete (dry)	1	R1	MACROCORE	24/48	NA	0.0	Sampled RB24_0-2 at 11:45
		2					0.0	
		3					0.0	
	R2 (0-34") reddish-brown fine SAND, trace silt, trace fine gravel (dry)	4	R2	MACROCORE	34/48	NA	0.0	slight chemical-like odor
		5					0.0	
		6					0.0	
		7					0.0	
	R3 (0-12") reddish brown fine SAND, trace silt, trace medium gravel (dry)	8	R3	MACROCORE	12/48	NA	0.0	Sampled RB24_8-10 at 11:55
		9						refusal on rock (boulder) offset boring 3 ft. south
		10						
		11					0.0	
	R4 (0-44") soft grey CLAY (moist)	12	R4	MACROCORE	44/48	NA	0.0	
		13					0.0	
		14					0.0	Sampled RB24_13-15 at 12:15
		15					0.0	

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Log of Boring **RB24** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

MATERIAL SYMBOL	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		15	R4		44/48		0.0	
							0.0	
		16					0.0	End of boring at 16' bgs. Backfilled with cuttings/clean sand to surface grade and patched borehole with concrete.
		17						
		18						
		19						
		20						
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB25/RMW25** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 7/11/19 / Date Finished: 7/11/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 3 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 12.5 / Completion ▼ NA / 24 HR. ▼
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Adam Hutchinson
Sampler: 4-foot stainless steel macrocore sampler	Field Engineer: Patrick Stovall
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	3-inch concrete slab	0						
	R1 (0-24") dark brown to black medium SAND, trace medium gravel, glass, brick (dry) [FILL]	1					0.0	Sampled RB25_0-2 at 11:10
		2	R1	MACROCORE	24/48	NA	0.0	
		3						
	R2 (0-32") reddish-brown fine SAND, trace fine gravel (dry)	4						
		5						
		6	R2	MACROCORE	32/48	NA	0.0	
		7					0.0	
	R3 (0-32") reddish-brown fine SAND, some silt (moist)	8					0.0	
		9						
		10	R3	MACROCORE	32/48	NA	0.0	Sampled RB25_9-11 at 11:20
		11					0.0	
	R4 (0-48") brown to reddish-brown silty fine SAND (wet) ▽	12					0.0	Sampled RB25_11-13 at 11:30
		13	R4	MACROCORE	48/48	NA	0.0	
		14					0.0	
		15						

\\LANGAN.COM\DATA\NYC\DATA0\170487001\ENGINEERING DATA\ENVIRONMENTAL\REMEDIAL INVESTIGATION\BORING LOGS\RI BORING LOGS.GPJ ... 7/24/2019 7:58:38 PM ... Report: Log - LANGAN

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Log of Boring **RB25/RMW25** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		15	R4		48/48		0.0	chemical-like odor
							0.0	
		16					0.0	End of boring at 16' bgs. RMW25 installed at 20', 20-slot screen 10' to 20'
		17						
		18						
		19						
		20						
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB26** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 7/10/19 / Date Finished: 7/10/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 3 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 15 / Completion ▼ NA / 24 HR. ▼ NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Adam Hutchinson
Sampler: 4-foot stainless steel macrocore sampler	Field Engineer: Patrick Stovall
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	3-inch concrete slab	0						
	R1 (0-20") dark brown to black medium SAND, trace medium gravel, ash, coal, brick (dry) [FILL]	1					0.0	Sampled RB26_0-2 at 12:45
		2	R1	MACROCORE	26/48	NA	0.0	
		3						
	R2a (0-10") black medium SAND, trace fine gravel, ash, coal, brick (dry) [FILL]	4						
	R2b (10-30") reddish-brown fine SAND, trace fine gravel (dry)	5					0.0	
		6	R2	MACROCORE	30/48	NA	0.0	
		7					0.0	
							0.0	
	R3 (0-30") reddish-brown fine gravelly, fine SAND (dry)	8						
		9					0.0	
		10	R3	MACROCORE	30/48	NA	0.0	
		11					0.0	Sampled RB26_10-12 at 13:00
							0.0	
	R4 (0-48") soft grey CLAY	12					0.0	
		13	R4	MACROCORE	48/48	NA	0.0	
		14					0.0	
		15					0.0	

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Log of Boring **RB26** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		15	R4		48/48		0.0	Sampled RB26_14-16 at 13:05
							0.0	
		16					0.0	End of boring at 16' bgs. Backfilled with cuttings/clean sand to surface grade and patched borehole with concrete.
		17						
		18						
		19						
		20						
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB27** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	Project No.: 170487001
Location: Bronx, NY	Elevation and Datum: NA
Drilling Company: AARCO Environmental	Date Started: 7/11/19 / Date Finished: 7/11/19
Drilling Equipment: Geoprobe 7730 DT	Completion Depth: 16 ft / Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe	Number of Samples: Disturbed 3 / Undisturbed NA / Core NA
Casing Diameter (in): NA / Casing Depth (ft): NA	Water Level (ft.): First ▽ 12 / Completion ▼ NA / 24 HR. ▼ NA
Casing Hammer: NA / Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Adam Hutchinson
Sampler: 4-foot stainless steel macrocore sampler	Field Engineer: Patrick Stovall
Sampler Hammer: NA / Weight (lbs): NA / Drop (in): NA	

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	3-inch concrete slab	0						
	R1 (0-12") brown to black medium SAND, trace fine gravel, slag, coal, brick, glass (dry) [FILL]	1	R1	MACROCORE	12/48	NA	0.0	collected RB27_0-2 at 12:35
		2					0.0	
		3						
	R2 (0-20") reddish-brown to black fine SAND, trace fine gravel, trace silt (dry) [FILL]	4	R2	MACROCORE	20/48	NA		
		5						
		6						
		7					0.0	
		8					0.0	
	R3 (0-32") reddish-brown silty SAND (moist)	9					0.0	
		10	R3	MACROCORE	32/48	NA	0.0	collected RB27_9-11 at 12:45
		11					0.0	
		12 ▽					0.0	
	R4 (0-48") reddish-brown silty SAND (wet)	13	R4	MACROCORE	48/48	NA	0.0	collected RB27_11-13 at 12:50
		14					0.0	
		15					0.0	

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Log of Boring **RB27** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		15	R4		48/48		0.0	
							0.0	
		16					0.0	End of boring at 16' bgs. Backfilled with cuttings/clean sand to surface grade and patched borehole with concrete.
		17						
		18						
		19						
		20						
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

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Log of Boring **RB28** Sheet 1 of 2

Project: Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)		Project No.: 170487001	
Location: Bronx, NY		Elevation and Datum: NA	
Drilling Company: AARCO Environmental		Date Started: 7/11/19	Date Finished: 7/11/19
Drilling Equipment: Geoprobe 7730 DT		Completion Depth: 16 ft	Rock Depth: NA
Size and Type of Bit: 2-inch direct push macrocore cutting shoe		Number of Samples: Disturbed 3	Undisturbed NA / Core NA
Casing Diameter (in): NA	Casing Depth (ft): NA	Water Level (ft.): First ▽ 14.5	Completion ▼ NA / 24 HR. ▼ NA
Casing Hammer: NA	Weight (lbs): NA / Drop (in): NA	Drilling Foreman: Adam Hutchinson	
Sampler: 4-foot stainless steel macrocore sampler		Field Engineer: Patrick Stovall	
Sampler Hammer: NA	Weight (lbs): NA / Drop (in): NA		

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	3-inch concrete	0						
	R1 (0-22") brown to black medium SAND, trace medium gravel, coal, brick, wood, concrete (dry) [FILL]	1	R1	MACROCORE	22/48	NA	0.0 14.9 16.3 0.0	collected RB28_0-2 at 13:55
	R2 (0-30") reddish-brown silty SAND (dry)	4	R2	MACROCORE	30/48	NA	0.0 3.2 0.0 0.0 0.0	collected RB28_6-8 at 14:00 collected SODUP06_071119
	R3 (0-24") brown to grey fine SAND, some medium gravel (dry) (decomposed rock)	8	R3	MACROCORE	24/48	NA	0.0 0.0 0.0 0.0 0.0	
	R4 (0-24") grey to black gravelly fine SAND (wet) ▽	12	R4	MACROCORE	24/48	NA	0.0 1.2	
		15						

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Log of Boring **RB28** Sheet 2 of 2

Project	Project No.
Gerard Ave & 146th Street (Block 2351, Lots 1, 3, 12 and 20)	170487001
Location	**Elevation and Datum**
Bronx, NY	NA

Material Symbol	Sample Description	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	PID Reading (ppm)	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		15	R4		24/48		1.3	collected RB28_14-16 at 14:15
							0.0	
		16					0.0	End of boring at 16' bgs. Backfilled with cuttings/clean sand to surface grade and patched borehole with concrete.
		17						
		18						
		19						
		20						
		21						
		22						
		23						
		24						
		25						
		26						
		27						
		28						
		29						
		30						
		31						
		32						
		33						

APPENDIX C

MONITORING WELL CONSTRUCTION LOGS

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW01

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 13.86 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		12/27/2018	12/27/2018
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Ron Dixon	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 20 feet bgs, insert 15 feet of 0.02-inch slotted PVC screen and 5 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

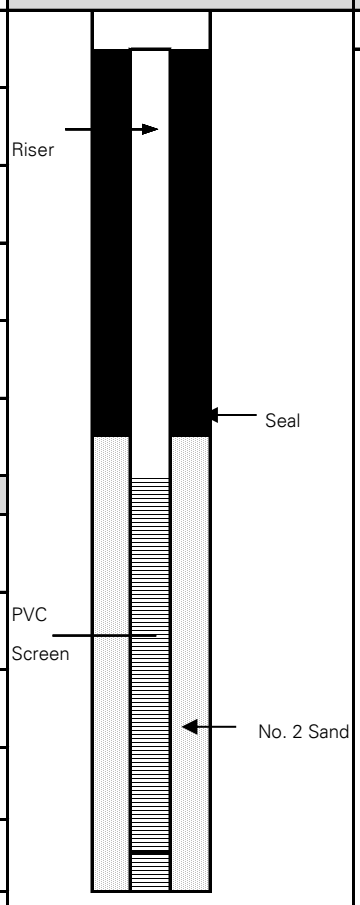
TOP OF CASING ELEVATION	DEPTH (ft)
13.66	0
TOP OF SEAL ELEVATION	**DEPTH (ft)**
12.66	1
TOP OF FILTER ELEVATION	**DEPTH (ft)**
10.66	3
TOP OF SCREEN ELEVATION	**DEPTH (ft)**
8.7	5.0
BOTTOM OF BORING ELEVATION	**DEPTH (ft)**
-6.34	20
SCREEN LENGTH	
	15'
SLOT SIZE	
No. 20 Slot; 0.020 Inches	

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER	
2.52	1/17/2019	11.14	ft
2.82	7/26/2019	10.84	ft

ELEVATION	DATE	DEPTH TO WATER

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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See boring log	
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	5.00
	20.00

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WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW03

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 14.2 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		12/26/2018	12/26/2018
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Ron Dixon	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 25 feet bgs, insert 15 feet of 0.02-inch slotted PVC screen and 10 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

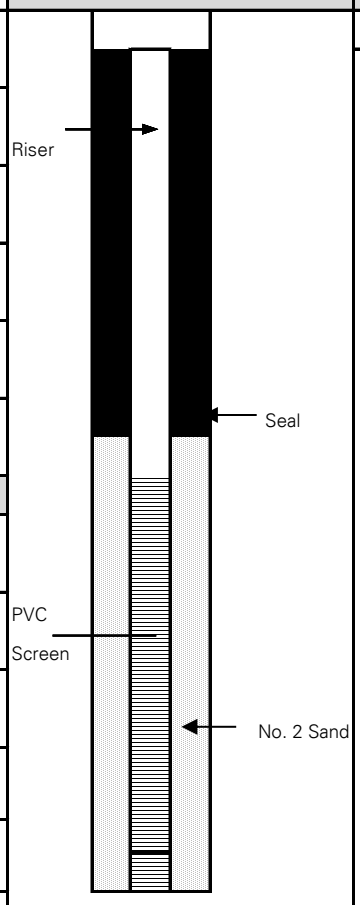
WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

TOP OF CASING ELEVATION	DEPTH (ft)
13.48	0
TOP OF SEAL ELEVATION	**DEPTH (ft)**
12.48	1
TOP OF FILTER ELEVATION	**DEPTH (ft)**
5.48	8
TOP OF SCREEN ELEVATION	**DEPTH (ft)**
3.5	10.0
BOTTOM OF BORING ELEVATION	**DEPTH (ft)**
-11.52	25
SCREEN LENGTH	
	15'
SLOT SIZE	
No. 20 Slot; 0.020 Inches	

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER	
2.14	1/17/2019	11.34	ft
2.54	7/26/2019	10.94	ft



WELL DETAILS	SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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	See boring log	
		8
		10.00
		25.00

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WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW04

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 13.97 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		12/21/2018	12/21/2018
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Ron Dixon	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 24 feet bgs, insert 15 feet of 0.02-inch slotted PVC screen and 9 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

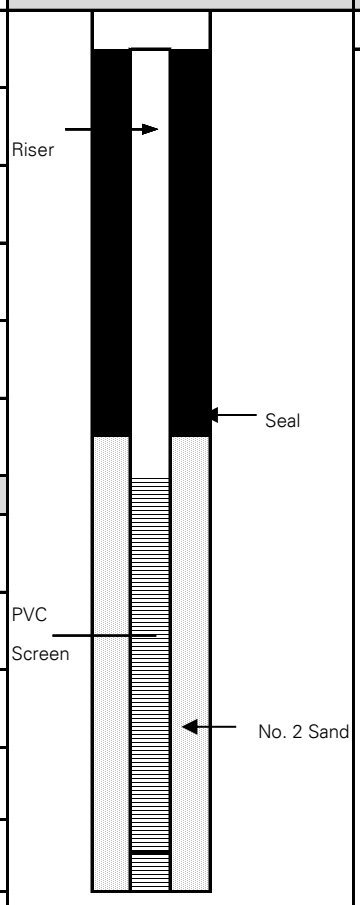
TOP OF CASING ELEVATION	DEPTH (ft)
13.74	0
TOP OF SEAL ELEVATION	**DEPTH (ft)**
12.74	1
TOP OF FILTER ELEVATION	**DEPTH (ft)**
6.74	7
TOP OF SCREEN ELEVATION	**DEPTH (ft)**
4.7	9.0
BOTTOM OF BORING ELEVATION	**DEPTH (ft)**
-10.26	24
SCREEN LENGTH	
	15'
SLOT SIZE	
No. 20 Slot; 0.020 Inches	

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER	
2	1/17/2019	11.74	ft
2.33	7/26/2019	11.41	ft

ELEVATION	DATE	DEPTH TO WATER

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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See boring log	7
	9.00
	24.00

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WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW05

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 14.26 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		12/21/2018	12/21/2018
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Ron Dixon	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 23 feet bgs, insert 15 feet of 0.02-inch slotted PVC screen and 8 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

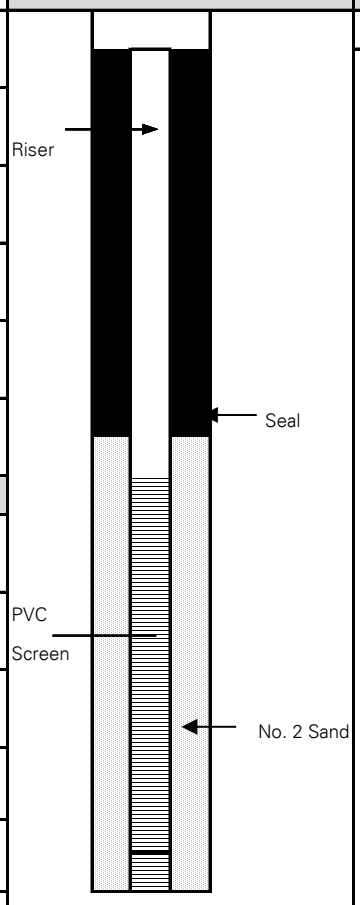
WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

TOP OF CASING ELEVATION	DEPTH (ft)
14.04	0
TOP OF SEAL ELEVATION	**DEPTH (ft)**
13.04	1
TOP OF FILTER ELEVATION	**DEPTH (ft)**
8.04	6
TOP OF SCREEN ELEVATION	**DEPTH (ft)**
6.0	8.0
BOTTOM OF BORING ELEVATION	**DEPTH (ft)**
-8.96	23
SCREEN LENGTH	
	15'
SLOT SIZE	
No. 20 Slot; 0.020 Inches	

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
1.83	1/17/2019	12.21 ft
2.44	7/26/2019	11.6 ft



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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See boring log	
	6
	8.00
	23.00

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WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW07

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 14.53 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		12/20/2018	12/20/2018
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Nick Turro	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 24 feet bgs, insert 20 feet of 0.02-inch slotted PVC screen and 4 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

WELL DEVELOPMENT DATA

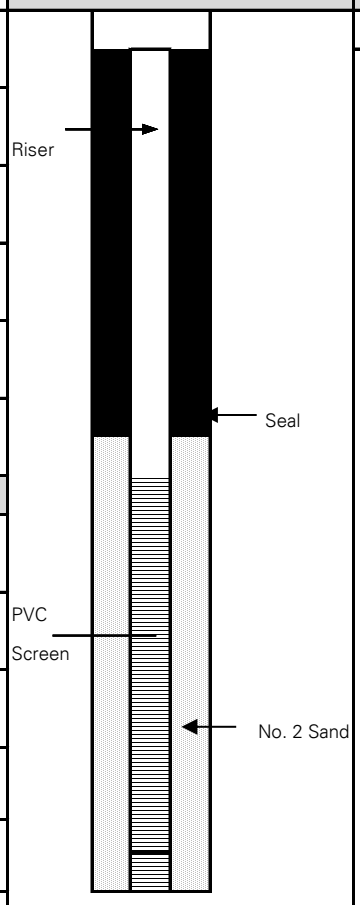
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

TOP OF CASING	**ELEVATION**	**DEPTH (ft)**
	14.34	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	13.34	1
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	12.34	2
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	10.3	4.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-9.66	24
SCREEN LENGTH		
		20'
SLOT SIZE		
		No. 20 Slot; 0.020 Inches

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER	
1.93	1/17/2019	12.41	ft
2.26	7/26/2019	12.08	ft

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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	2
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	24.00

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21 Penn Plaza, 360 West 31st Street, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW09

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 21.93 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		1/2/2019	1/2/2019
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Ron Dixon	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 28 feet bgs, insert 15 feet of 0.02-inch slotted PVC screen and 13 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

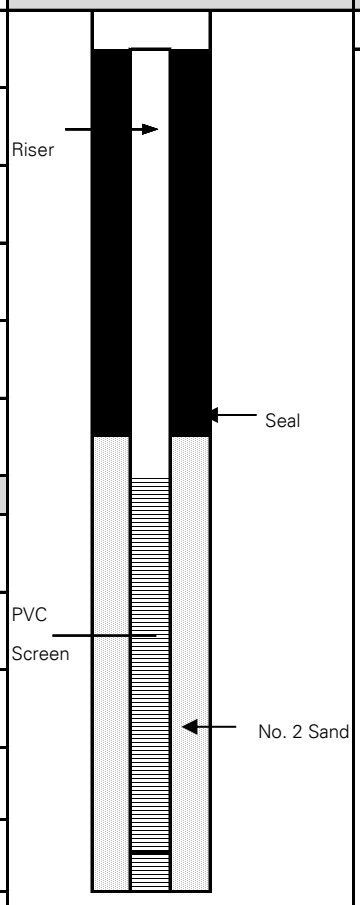
WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

	ELEVATION	DEPTH (ft)
TOP OF CASING	21.67	0
TOP OF SEAL	20.67	1
TOP OF FILTER	10.67	11
TOP OF SCREEN	8.7	13.0
BOTTOM OF BORING	-6.33	28
SCREEN LENGTH		15'
SLOT SIZE		No. 20 Slot; 0.020 Inches

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
2.23	1/17/2019	19.44 ft



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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	28.00

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21 Penn Plaza, 360 West 31st Street, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW10

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 21.89 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		1/8/2019	1/8/2019
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Julio Galarza	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 28 feet bgs, insert 10 feet of 0.02-inch slotted PVC screen and 18 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

WELL DEVELOPMENT DATA

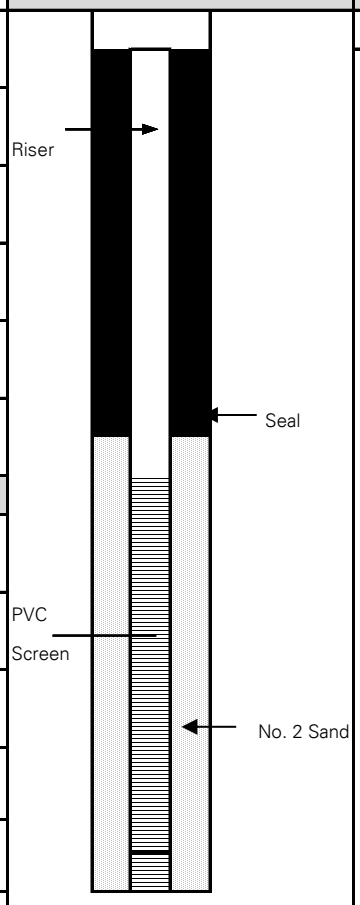
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

TOP OF CASING	ELEVATION	DEPTH (ft)
	21.5	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	20.5	1
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	5.5	16
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	3.5	18.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-6.5	28
SCREEN LENGTH		
		10'
SLOT SIZE		
	No. 20 Slot; 0.020 Inches	

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER	
2.34	1/17/2019	19.16	ft
2.88	7/26/2019	18.62	ft

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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	28.00

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21 Penn Plaza, 360 West 31st Street, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW11

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 22.01 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		1/2/2019	1/2/2019
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Ron Dixon	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 27 feet bgs, insert 10 feet of 0.02-inch slotted PVC screen and 17 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

WELL DEVELOPMENT DATA

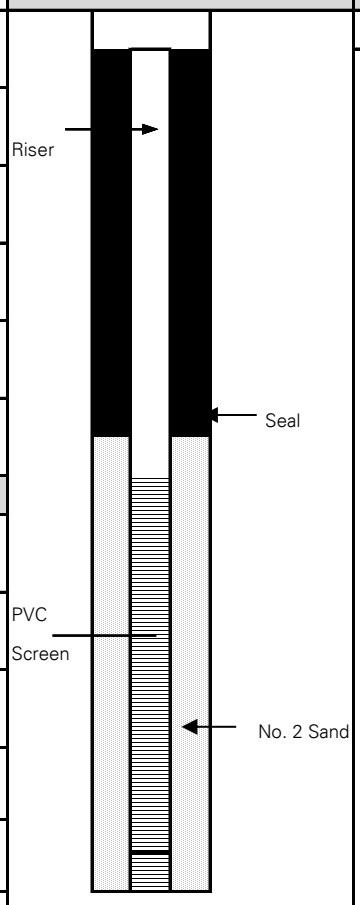
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

TOP OF CASING	ELEVATION	DEPTH (ft)
	21.61	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	20.61	1
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	10.61	11
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	8.6	13.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-6.39	28
SCREEN LENGTH		
		15'
SLOT SIZE		
	No. 20 Slot; 0.020 Inches	

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER	
2.35	1/17/2019	19.26	ft
2.93	7/26/2019	18.68	ft

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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	13.00
	28.00

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21 Penn Plaza, 360 West 31st Street, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW14

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 21.93 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		1/7/2019	1/7/2019
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Julio Galarza	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 27 feet bgs, insert 10 feet of 0.02-inch slotted PVC screen and 17 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

WELL DEVELOPMENT DATA

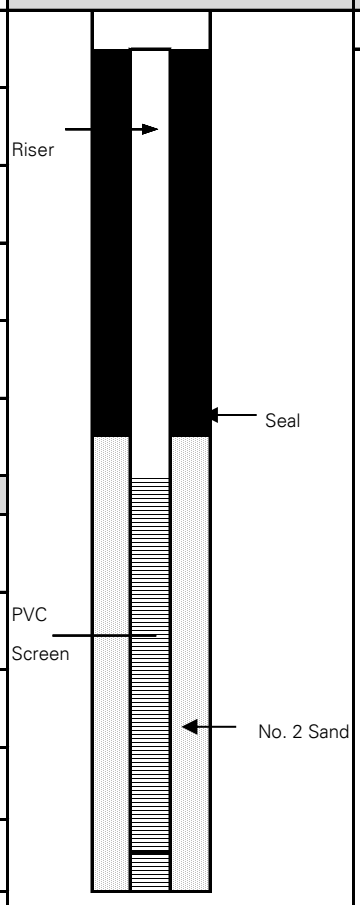
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

	ELEVATION	DEPTH (ft)
TOP OF CASING	21.36	0
TOP OF SEAL	20.36	1
TOP OF FILTER	6.36	15
TOP OF SCREEN	4.4	17.0
BOTTOM OF BORING	-5.64	27
SCREEN LENGTH		10'
SLOT SIZE		No. 20 Slot; 0.020 Inches

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER	
2.33	1/17/2019	19.03	ft
2.93	7/26/2019	18.43	ft

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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See boring log	
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	17.00
	27.00

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WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW16

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 21.85 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		1/8/2019	1/8/2019
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Julio Galarza	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 27 feet bgs, insert 10 feet of 0.02-inch slotted PVC screen and 17 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

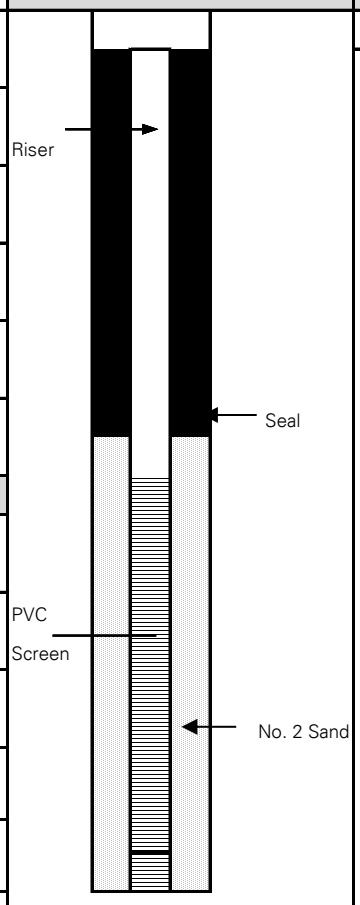
WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

TOP OF CASING	ELEVATION	DEPTH (ft)
	21.25	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	20.25	1
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	6.25	15
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	4.3	17.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-5.75	27
SCREEN LENGTH		
		10'
SLOT SIZE		
	No. 20 Slot; 0.020 Inches	

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER	
2.36	1/17/2019	18.89	ft
2.96	7/26/2019	18.29	ft



WELL DETAILS	SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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		17.00
		27.00

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21 Penn Plaza, 360 West 31st Street, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW17

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 22.15 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		1/4/2019	1/4/2019
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Ron Dixon	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 28 feet bgs, insert 10 feet of 0.02-inch slotted PVC screen and 18 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

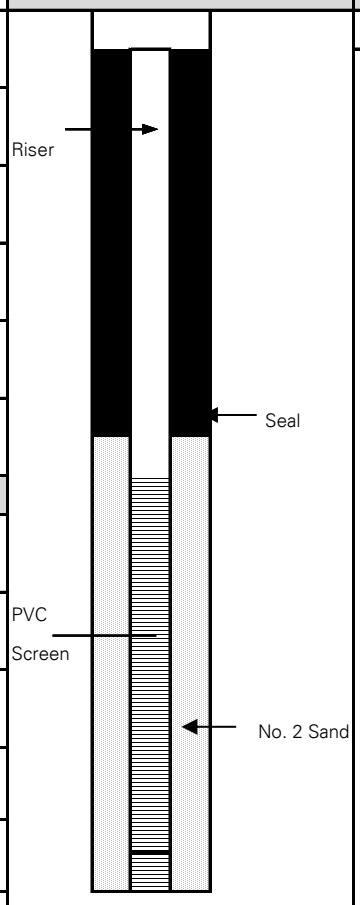
WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

TOP OF CASING	ELEVATION	DEPTH (ft)
	21.96	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	20.96	1
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	5.96	16
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	4.0	18.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-6.04	28
SCREEN LENGTH		
		10'
SLOT SIZE		
	No. 20 Slot; 0.020 Inches	

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
1.87	1/17/2019	20.09 ft
2.93	7/26/2019	19.03 ft



WELL DETAILS	SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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		18.00
		28.00

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21 Penn Plaza, 360 West 31st Street, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW18

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 22.25 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		1/8/2019	1/8/2019
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Julio Galarza	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 27 feet bgs, insert 10 feet of 0.02-inch slotted PVC screen and 17 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

WELL DEVELOPMENT DATA

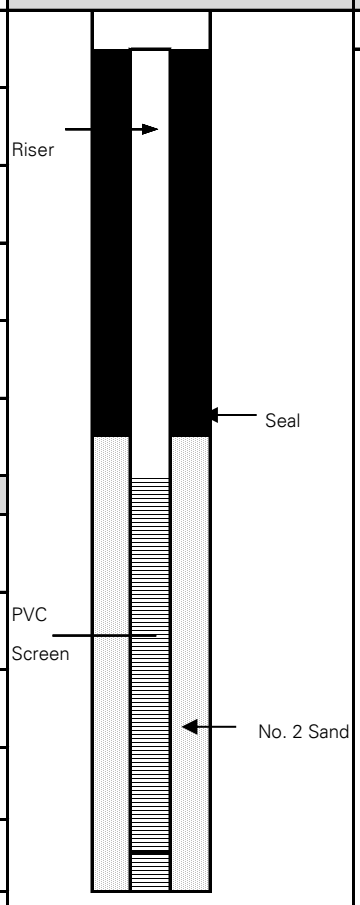
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

TOP OF CASING ELEVATION	DEPTH (ft)
22.07	0
TOP OF SEAL ELEVATION	**DEPTH (ft)**
21.07	1
TOP OF FILTER ELEVATION	**DEPTH (ft)**
7.07	15
TOP OF SCREEN ELEVATION	**DEPTH (ft)**
5.1	17.0
BOTTOM OF BORING ELEVATION	**DEPTH (ft)**
-4.93	27
SCREEN LENGTH	
	10'
SLOT SIZE	
No. 20 Slot; 0.020 Inches	

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER	
2.31	1/17/2019	19.76	ft
3.12	7/26/2019	18.95	ft

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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	15
	17.00
	27.00

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21 Penn Plaza, 360 West 31st Street, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW22

PROJECT		PROJECT NO.	
Gerard Ave + East 146th Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 22.44 feet NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services, Corp.		1/4/2019	1/4/2019
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7822 DT		Ron Dixon	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Tyler Goodnough	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
3.25"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	No. 2 Sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Advance 3.75-inch casing to 27 feet bgs, insert 10 feet of 0.02-inch slotted PVC screen and 17 feet of solid PVC riser, anulus filled with No. 2 filter sand to approximately 2 feet above the top of screen, bentonite seal to grade surface

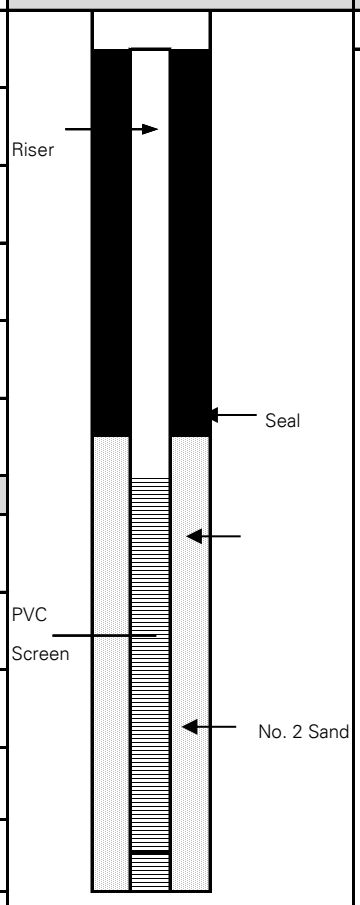
WELL DEVELOPMENT DATA

SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Driller	**MAX PUMP RATE**	N/A	Well pumped until purge water no longer appeared turbid
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	N/A	

TOP OF CASING	ELEVATION	DEPTH (ft)
	22.29	0
TOP OF SEAL	**ELEVATION**	**DEPTH (ft)**
	21.29	1
TOP OF FILTER	**ELEVATION**	**DEPTH (ft)**
	7.29	15
TOP OF SCREEN	**ELEVATION**	**DEPTH (ft)**
	5.3	17.0
BOTTOM OF BORING	**ELEVATION**	**DEPTH (ft)**
	-4.71	27
SCREEN LENGTH		
		10'
SLOT SIZE		
	No. 20 Slot; 0.020 Inches	

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER	
2.21	1/17/2019	20.08	ft
ELEVATION	**DATE**	**DEPTH TO WATER**	
2.53	7/26/2019	19.76	ft
ELEVATION	**DATE**	**DEPTH TO WATER**	
ELEVATION	**DATE**	**DEPTH TO WATER**	
ELEVATION	**DATE**	**DEPTH TO WATER**	
ELEVATION	**DATE**	**DEPTH TO WATER**	



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
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	15
	17.00
	27.00

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21 Penn Plaza, 360 West 31st Street, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW23

PROJECT		PROJECT NO.	
404 Exterior Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 15.79 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services Corp.		7/10/2019	7/10/2019
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7730 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Patrick Stovall	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
2-inches		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	filpro sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Geoprobe 7730 DT was used to advance the boring to approximately 19 feet bgs. A two-inch (2") PVC monitoring well was installed which consisted of 10' of 20 slot (0.020-inch) well screen, and a solid 2" PVC riser. Well screen was installed from approximately 9 to 19 feet bgs with riser from 9 feet bgs to surface. Wells were finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

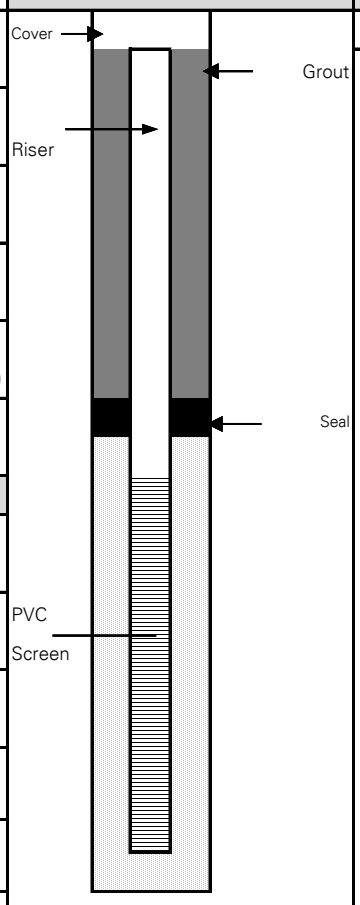
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	Well developed from 1:30 - 2:00 PM until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	15 gal	

	ELEVATION	DEPTH (ft)
TOP OF CASING	15.79	0
TOP OF SEAL	8.79	7
TOP OF FILTER	7.79	8
TOP OF SCREEN	6.8	9.0
BOTTOM OF BORING	-3.21	19
SCREEN LENGTH		10
SLOT SIZE		No. 20 Slot; 0.020 Inches

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
2.49	7/12/2019	13.3 ft
2.57	7/26/2019	13.22 ft

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
See Boring Log	0
	7
	8
	9
	19

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21 Penn Plaza, 360 West 31st Street, 8th Floor, New York

WELL CONSTRUCTION AND DEVELOPMENT SUMMARY

Well No. RMW25

PROJECT		PROJECT NO.	
404 Exterior Street		170487001	
LOCATION		**ELEVATION AND DATUM**	
Bronx, NY		el. 15.26 NAVD88	
DRILLING AGENCY		**DATE STARTED**	**DATE FINISHED**
AARCO Environmental Services Corp.		7/11/2019	7/11/2019
DRILLING EQUIPMENT		**DRILLER**	
Geoprobe® 7730 DT		Adam Hutchinson	
SIZE AND TYPE OF BIT		**INSPECTOR**	
2-inch Direct Push		Patrick Stovall	
BOREHOLE DIAMETER		**TYPE OF WELL (OVERBURDEN / BEDROCK)**	
2"		Overburden	
RISER MATERIAL	**DIAMETER**	**TYPE OF BACKFILL MATERIAL**	
PVC	2"	filpro sand	
TYPE OF SCREEN	**DIAMETER**	**TYPE OF WELL PACK**	**TYPE OF SEAL MATERIAL**
PVC No. 20 Slot	2"	No. 2 Sand	Bentonite

METHOD OF INSTALLATION

Geoprobe 7730 DT was used to advance the boring to approximately 20 feet bgs. A two-inch (2") PVC monitoring well was installed which consisted of 10' of 20 slot (0.020-inch) well screen, and a solid 2" PVC riser. Well screen was installed from approximately 10 to 20 feet bgs with riser from 10 feet bgs to surface. Wells were finished with a flush mounted road box and concrete pad.

WELL DEVELOPMENT DATA

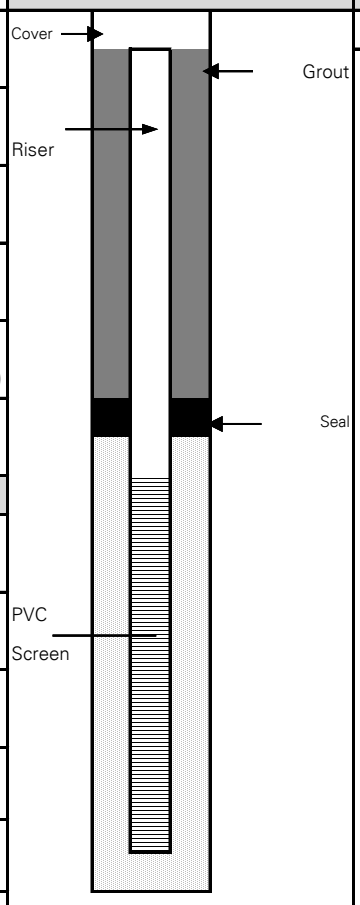
SURGE BLOCK DIAMETER	N/A	**TYPE PUMP**	Submersible	**DEVELOPMENT CONFIRMATION**
DRILLER OR LANGAN	Langan	**MAX PUMP RATE**	1 LPM	Well developed from 2:00 - 2:30 PM until purged groundwater was no longer turbid.
NUMBER OF SURGE CYCLES	N/A	**TOTAL VOLUME**	3 gal	

	ELEVATION	DEPTH (ft)
TOP OF CASING	15.26	0
TOP OF SEAL	7.26	8
TOP OF FILTER	6.26	9
TOP OF SCREEN	5.3	10.0
BOTTOM OF BORING	-4.74	20
SCREEN LENGTH		10
SLOT SIZE		No. 20 Slot; 0.020 Inches

GROUNDWATER ELEVATIONS

ELEVATION	DATE	DEPTH TO WATER
3.05	7/12/2019	12.21 ft
2.98	7/26/2019	12.28 ft

WELL DETAILS



SUMMARY SOIL CLASSIFICATION	DEPTH (FT)
See Boring Log	0
	8
	9
	10
	20

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APPENDIX D

GROUNDWATER SAMPLING LOGS

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**Gerard + E. 146th**	**Well No:**	**RMW01**	**Water Quality Device Model:**	**Horiba U-52**	**Weather:**	30s cloudy	**Sample(s):**	**RMW01_011619**
Project Number:	**170487003**	**Well Depth:**	20'	**Pine Number:**	**21202**	**Background PID (ppm):**	0.0		
Site Location:	**Bronx, NY**	**Well Diameter:**	2"	**Pump Make and Model:**	**Monsoon Pro**	**PID Beneath Inner Cap (ppm):**	0.1		
Sampling	**T. Goodnough**	**Well Screen**	5-20'	**Pine Number:**	**042076**	**Pump Intake Depth:**	16'	**Sample Date:**	1/16/2019
Personnel:		**Interval:**		**Tubing Diameter:**	**3/8" x 1/2"**	**Depth to Water Before Purge:**	11.08	**Sample Time:**	10:00

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
8:50	14.87	6.17	-9	5.56	650.0	0.00	11.20		1.2		**N/A**
8:55	16.13	5.82	-65	5.34	266.00	0.00	11.27	0.18	2.1		**N/A**
9:00	16.11	5.76	-71	5.28	200.00	0.00	11.31	0.1	2.6		**N**
9:05	16.15	5.55	-84	5.12	120.00	0.00	11.37	0.12	3.2		**N**
9:10	16.12	5.42	-93	4.99	45.90	0.00	11.39	0.11	3.75		**N**
9:15	16.19	5.37	-100	4.91	20.10	0.00	11.41	0.13	4.4	turbid brown,	**N**
9:20	16.20	5.35	-105	4.85	92.10	0.00	11.45	0.1	4.9	same sulfuric odor	**N**
9:25	16.21	5.33	-110	4.80	46.5	0.00	11.50	0.1	5.4	as RMW03	**N**
9:30	16.20	5.33	-114	4.79	23.3	0.00	11.52	0.08	5.8		**N**
9:35	16.31	5.33	-118	4.75	10.4	0.00	11.55	0.1	6.3		**N**
9:40	16.26	5.33	-120	4.72	4.4	0.00	11.56	0.08	6.7		**N**
9:45	16.21	5.33	-123	4.72	2.4	0.00	11.57	0.08	7.1		**N**
9:50	16.22	5.33	-124	4.72	2.0	0.00	11.57	0.1	7.6		**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**Gerard + E. 146th**	**Well No:**	**RMW03**	**Water Quality Device Model:**	**Horiba U-52**	**Weather:**	30s cloudy		**RMW03_011519**
Project Number:	**170487003**	**Well Depth:**	25'	**Pine Number:**	**21202**	**Background PID (ppm):**	0.0	**Sample(s):**	
Site Location:	**Bronx, NY**	**Well Diameter:**	2"	**Pump Make and Model:**	**Monsoon Pro**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	**T. Goodnough**	**Well Screen**	10-25'	**Pine Number:**	**042076**	**Pump Intake Depth:**	18'	**Sample Date:**	1/15/2019
Personnel:		**Interval:**		**Tubing Diameter:**	**3/8" x 1/2"**	**Depth to Water Before Purge:**	11.85	**Sample Time:**	15:30

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
2:18	15.20	5.99	-10	3.92	1000.0	0.00	12.22		2.25		**N/A**
2:23	15.95	5.98	-50	3.77	933.00	0.00	12.27	0.07	2.6		**N/A**
2:28	16.55	5.94	-77	3.60	640.00	0.00	12.36	0.08	3		**N**
2:33	16.85	5.88	-89	3.49	398.00	0.00	12.43	0.08	3.4		**N**
2:38	16.86	5.83	-100	3.42	255.00	0.00	12.54	0.08	3.8		**N**
2:43	16.88	5.81	-105	3.40	160.00	0.00	12.57	0.1	4.3	black turbid, strong petroleum/ sulfuric odor	**N**
2:48	16.85	5.88	-111	3.41	93.90	0.00	12.60	0.1	4.8		**N**
2:53	17.10	5.76	-116	3.38	75.2	0.00	12.62	0.06	5.1		**N**
2:58	17.40	5.73	-119	3.37	40.8	0.00	12.63	0.13	5.75		**N**
3:03	17.36	5.72	-121	3.36	33.4	0.00	12.65	0.1	6.25		**N**
3:08	17.31	5.71	-124	3.35	23.4	0.00	12.67	0.1	6.75		**N**
3:13	17.26	5.70	-126	3.34	21.6	0.00	12.68	6.35	7.25		**N**
3:18	17.24	5.70	-127	3.33	15.9	0.00	12.71	0.1	7.75		**N**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit
11. Well did not stabilize; sampled after 1 hour of purging.

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**Gerard + E. 146th**	**Well No:**	**RMW04**	**Water Quality Device Model:**	**Horiba U-52**	**Weather:**	30s cloudy	**Sample(s):**	**RMW04_011519**
Project Number:	**170487003**	**Well Depth:**	24'	**Pine Number:**	**21202**	**Background PID (ppm):**	0.0		
Site Location:	**Bronx, NY**	**Well Diameter:**	2"	**Pump Make and Model:**	**Monsoon Pro**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	**T. Goodnough**	**Well Screen**	9-24'	**Pine Number:**	**042076**	**Pump Intake Depth:**	18'	**Sample Date:**	1/15/2019
Personnel:		**Interval:**		**Tubing Diameter:**	**3/8" x 1/2"**	**Depth to Water Before Purge:**	11.65	**Sample Time:**	13:00

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
11:43	14.58	5.57	-58	2.89	1000.0	0.00	12.75		2	turbid brown, little odor	**N/A**
11:48	15.00	5.58	-75	2.79	1000.00	0.00	12.86	0.1	2.5		**N/A**
11:53	14.96	5.60	-80	2.72	1000.00	0.00	12.97	0.05	2.75		**N**
11:58	15.12	5.59	-84	2.69	1000.00	0.00	13.05	0.05	3		**N**
12:03	15.22	5.59	-87	2.66	1000.00	0.00	13.19	0.06	3.3		**Y**
12:08	16.19	5.55	-87	2.57	1000.00	0.31	13.37	0.12	3.9		**N**
12:13	15.96	5.53	-85	2.51	932.00	0.19	13.49	0.08	4.3		**N**
12:18	15.70	5.49	-84	2.48	1000.0	0.00	13.58	0.12	4.9		**N**
12:23	15.87	5.48	-84	2.44	1000.0	0.00	13.66	0.06	5.2		**Y**
12:28	15.80	5.47	-84	2.41	669.0	0.00	13.72	0.12	5.8		**N**
12:33	15.99	5.47	-84	2.39	492.0	0.20	13.80	0.1	6.3		**N**
12:38	15.94	5.47	-83	2.37	306.0	0.19	13.84	0.06	6.6		**N**
12:43	15.91	5.47	-83	2.36	227.0	0.11	13.89	0.06	6.9		**N**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit
11. Well stabilized; however, continued purging due to turbid water. Sample collected after 1 hour of purging.

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**Gerard + E. 146th**	**Well No:**	**RMW05**	**Water Quality Device Model:**	**Horiba U-52**	**Weather:**	30s cloudy	**Sample(s):**	**RMW05_011519**
Project Number:	**170487003**	**Well Depth:**	21'	**Pine Number:**	**21202**	**Background PID (ppm):**	0.1		
Site Location:	**Bronx, NY**	**Well Diameter:**	2'	**Pump Make and Model:**	**Monsoon Pro**	**PID Beneath Inner Cap (ppm):**	0.5		
Sampling	**T. Goodnough**	**Well Screen**	8-23'	**Pine Number:**	**042076**	**Pump Intake Depth:**	18'	**Sample Date:**	1/15/2019
Personnel:		**Interval:**		**Tubing Diameter:**	**3/8" x 1/2"**	**Depth to Water Before Purge:**	12.07	**Sample Time:**	1100

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
9:38	11.71	6.39	24	1.52	1000.0	0.00	12.13		0.75		**N/A**
9:43	16.70	6.39	-61	1.65	1000.00	0.00	12.15	0.11	1.3		**N/A**
9:48	15.96	6.30	-79	1.61	1000.00	0.00	12.17	0.1	1.8		**N**
9:53	15.69	6.26	-86	1.61	1000.00	0.00	12.18	0.04	2		**N**
9:58	14.84	6.20	-92	1.60	1000.00	0.00	12.19		2.2	turbid brown, sulfuric organic odor	**N**
10:03	16.97	6.09	-98	1.62	1000.00	0.00	12.21	0.24	3.4		**N**
10:08	16.17	6.03	-100	1.64	1000.00	0.00	12.22	0.04	3.6		**N**
10:13	16.40	6.00	-103	1.64	1000.0	0.00	12.23	0.04	3.8		**N**
10:18	16.33	5.98	-111	1.60	1000.0	0.00	12.25	0.08	4.2		**N**
10:23	17.42	5.86	-119	1.55	1000.0	0.00	12.27	0.16	5		**N**
10:28	17.08	5.92	-127	1.49	1000.0	0.00	12.30	0.1	5.5		**N**
10:33	16.85	5.87	-138	1.47	1000.0	0.00	12.31	0.1	6		**N**
10:38	16.89	5.85	-149	1.47	1000.0	0.00	12.31	0.1	6.5		**N**
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit
11. Well did not stabilize; sampled after 1 hour of purging.

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**Gerard + E. 146th**	**Well No:**	**RMW07**	**Water Quality Device Model:**	**Horiba U-52**	**Weather:**	30s cloudy		
Project Number:	**170487003**	**Well Depth:**	24'	**Pine Number:**	**21202**	**Background PID (ppm):**	0.0	**Sample(s):**	**RMW07_011619**
Site Location:	**Bronx, NY**	**Well Diameter:**	2"	**Pump Make and Model:**	**QED Sample Pro**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	**T. Goodnough**	**Well Screen**	4-24'	**Pine Number:**	**43733**	**Pump Intake Depth:**	19'	**Sample Date:**	1/16/2019
Personnel:		**Interval:**		**Tubing Diameter:**	**1/4" x 3/8"**	**Depth to Water Before Purge:**	N/A	**Sample Time:**	12:00

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
10:47	13.90	5.58	-10	1.10	1000.0	0.00	NA		0.7	light brown, no odor	**N/A**
10:52	14.59	5.44	-6	1.10	321.00	0.00	NA	0.14	1.4		**N/A**
10:57	14.52	5.40	-3	1.07	193.00	0.00	NA	0.07	1.75		**N**
11:02	14.62	5.35	1	1.05	85.70	0.00	NA	0.13	2.4		**N**
11:07	14.66	5.32	3	1.04	60.90	0.00	NA	0.1	2.9		**N**
11:12	14.60	5.30	6	1.03	40.60	0.00	NA	0.14	3.6		**N**
11:17	14.61	5.30	9	1.03	33.00	0.00	NA	0.12	4.2		**N**
11:22	14.62	5.29	10	1.02	28.8	0.00	NA	0.12	4.8		**N**
11:27	14.61	5.28	12	1.02	18.7	0.00	NA	0.12	5.4		**N**
11:32	14.59	5.27	14	1.02	17.9	0.00	NA	0.1	5.9		**N**
11:37	14.58	5.26	16	1.02	17.0	0.00	NA	0.1	6.4		**Y**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	Gerard + E. 146th	Well No:	RMW09	Water Quality Device Model:	Horiba U-52	Weather:	30s cloudy	Sample(s):	RMW09_011619
Project Number:	170487003	Well Depth:		Pine Number:	21202	Background PID (ppm):	0.1		
Site Location:	Bronx, NY	Well Diameter:		Pump Make and Model:	QED Sample Pro	PID Beneath Inner Cap (ppm):	414.4		
Sampling Personnel:	T. Goodnough	Well Screen Interval:		Pine Number:	43733	Pump Intake Depth:	24'	Sample Date:	1/16/2019
				Tubing Diameter:	1/4" x 3/8"	Depth to Water Before Purge:	N/A	Sample Time:	15:00

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
1:42	13.33	5.96	-71	1.65	1000.0	0.92	NA		0.25		**N/A**
1:47	14.38	5.81	-83	1.59	755.00	1.23	NA	0.05	0.5		**N/A**
1:52	14.82	5.48	-87	1.55	510.00	1.42	NA	0.05	0.75		**N**
1:57	14.98	5.33	-88	1.51	403.00	0.56	NA	0.05	1		**N**
2:02	15.11	5.20	-88	1.48	243.00	0.42	NA	0.05	1.25		**N**
2:07	15.16	5.14	-88	1.44	149.00	2.82	NA	0.05	1.5	turbid brown, petroleum-like odor	**N**
2:12	15.18	5.11	-87	1.43	120.00	0.29	NA	0.05	1.75		**N**
2:17	15.21	5.08	-87	1.42	113.0	0.29	NA	0.05	2		**N**
2:22	15.22	5.07	-86	1.41	92.6	0.39	NA	0.05	2.25		**N**
2:27	15.21	5.06	-86	1.41	70.6	0.38	NA	0.07	2.6		**N**
2:32	15.16	5.06	-85	1.40	72.7	0.72	NA	0.06	2.9		**N**
2:37	15.20	5.05	-85	1.40	36.6	0.59	NA	0.06	3.2		**N**
2:42	15.19	5.05	-85	1.40	27.5	0.47	NA	0.06	3.5		**N**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit
11. Well did not stabilize; sampled after 1 hour of purging.

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**Gerard + E. 146th**	**Well No:**	**RMW10**	**Water Quality Device Model:**	**Horiba U-52**	**Weather:**	30s cloudy		**RMW10_011719**
Project Number:	**170487003**	**Well Depth:**	28'	**Pine Number:**	**21058**	**Background PID (ppm):**	0	**Sample(s):**	
Site Location:	**Bronx, NY**	**Well Diameter:**	2"	**Pump Make and Model:**	**Monsoon Pro**	**PID Beneath Inner Cap (ppm):**	731.3		
Sampling	**T. Goodnough**	**Well Screen**	18-28'	**Pine Number:**	**042076**	**Pump Intake Depth:**	24'	**Sample Date:**	1/17/2019
Personnel:		**Interval:**		**Tubing Diameter:**	**3/8" x 1/2"**	**Depth to Water Before Purge:**	19.16	**Sample Time:**	15:25

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft 2.68	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
14:35	14.75	7.51	-34	1.03	1000.0	4.04	19.16		0	dark brown, odor observed	**N/A**
14:40	18.04	7.20	-63	1.01	0.00	4.94	19.16	0.1	0.5	slightly brown, odor	**N/A**
14:45	18.51	7.18	-67	1.02	0.00	4.57	19.16	0.1	1	slightly brown, odor	**N**
14:50	19.04	7.18	-72	1.03	812.00	2.63	19.16	0.1	1.5	clear, odor	**N**
14:55	19.22	7.18	-77	1.01	265.00	2.70	19.16	0.1	2		**N**
15:00	19.19	7.18	-80	1.00	436.00	2.49	19.16	0.1	2.5		**N**
15:05	19.53	7.18	83	0.99	257.00	2.20	19.16	0.1	3		**N**
15:10	19.03	7.20	-86	0.99	647.0	2.68	19.16	0.1	3.5		**N**
15:15	18.42	7.21	-90	0.99	87.8	3.02	19.16	0.1	4		**N**
15:20	19.18	7.21	-92	1.00	31.1	1.85	19.16	0.1	4.5		**N**
15:25	19.42	7.21	-94	1.01	80.5	1.53	19.16	0.1	5		**N**
15:30	19.31	7.21	-95	0.99	14.7	1.44	19.16	0.1	5.5		**N**
15:35	19.33	7.21	-96	1.00	12.2	1.40	19.16	0.1	6		**N**

Notes:
1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit
11. Well did not stabilize; sampled after 1 hour of purging.

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**Gerard + E. 146th**	**Well No:**	**RMW11**	**Water Quality Device Model:**	**Horiba U-52**	**Weather:**	30s cloudy		**RMW11_011719**
Project Number:	**170487003**	**Well Depth:**	27.81	**Pine Number:**	**21202**	**Background PID (ppm):**	0.1	**Sample(s):**	
Site Location:	**Bronx, NY**	**Well Diameter:**	2"	**Pump Make and Model:**	**Monsoon Pro**	**PID Beneath Inner Cap (ppm):**	26.2		
Sampling	**T. Goodnough**	**Well Screen**	13-28'	**Pine Number:**	**042076**	**Pump Intake Depth:**	24'	**Sample Date:**	1/17/2019
Personnel:		**Interval:**		**Tubing Diameter:**	**3/8" x 1/2"**	**Depth to Water Before Purge:**	19.26	**Sample Time:**	13:45

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
12:33	13.73	6.96	-33	0.39	961.0	0.04	20.12		1.6	own, moderate pet	**N/A**
12:38	14.63	7.10	-55	0.38	736.00	0.00	20.12	0.08	2		**N/A**
12:43	14.79	7.13	-64	0.37	445.00	0.00	20.12	0.12	2.6		**N**
12:48	14.84	7.15	-70	0.37	240.00	0.00	20.12	0.13	3.25		**N**
12:53	14.90	7.16	-73	0.37	67.00	0.00	20.12	0.13	3.9		**N**
12:58	14.93	7.20	-77	0.37	31.50	0.00	20.13	0.12	4.5		**N**
1:03	14.98	7.20	-79	0.37	23.90	0.00	20.13	0.12	5.1		**N**
1:08	14.98	7.19	-80	0.37	17.4	0.00	20.14	0.1	5.6		**N**
1:13	14.99	7.16	-81	0.37	14.2	0.00	20.15	0.1	6.1		**N**
1:18	14.95	7.13	-82	0.37	10.2	0.00	20.15	0.12	6.7		**N**
1:23	15.00	7.14	-83	0.37	8.0	0.00	20.15	0.1	7.2		**N**
1:28	15.02	7.14	-83	0.37	6.8	0.00	20.15	0.1	7.7		**N**
1:33	15.01	7.14	-83	0.37	5.2	0.00	20.17	0.1	8.2		**N**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit
11. Well did not stabilize; sampled after 1 hour of purging.

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	Gerard + E. 146th	Well No:	RMW14	Water Quality Device Model:	Horiba U-52	Weather:	30s cloudy	Sample(s):	RMW14_011719
Project Number:	170487003	Well Depth:	27.15	Pine Number:	21202	Background PID (ppm):	0.0		
Site Location:	Bronx, NY	Well Diameter:	2"	Pump Make and Model:	Monsoon Pro	PID Beneath Inner Cap (ppm):	35.9		
Sampling Personnel:	T. Goodnough	Well Screen Interval:	17-27'	Pine Number:	042076	Pump Intake Depth:	24'	Sample Date:	1/17/2019
				Tubing Diameter:	3/8" x 1/2"	Depth to Water Before Purge:	19.03	Sample Time:	12:00

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
10:42	11.43	7.13	-38	1.13	1000.0	1.61	19.48		0.8		**N/A**
10:47	12.68	7.13	-74	1.09	1000.00	0.53	19.49	0.08	1.2		**N/A**
10:52	14.15	7.05	-82	1.05	1000.00	0.00	19.50	0.06	1.5		**N**
10:57	15.24	7.05	-85	1.05	1000.00	0.00	19.50	0.18	2.4		**N**
11:02	15.29	7.16	-87	1.02	322.00	0.00	19.51	0.07	2.75		**N**
11:07	15.36	7.13	-88	0.99	187.00	0.00	19.52	0.11	3.3		**N**
11:12	15.38	7.08	-90	0.97	163.00	0.00	19.52	0.12	3.9		**N**
11:17	15.39	7.00	-91	0.98	126.0	0.00	19.52	0.12	4.5		**N**
11:22	15.36	6.98	-92	0.99	84.7	0.00	19.53	0.08	4.9		**N**
11:27	15.42	6.96	-93	1.00	33.0	0.00	19.55	0.12	5.5		**N**
11:32	15.51	6.91	-95	1.00	18.4	0.00	19.56	0.1	6		**N**
11:37	15.42	6.79	-96	0.99	27.4	0.00	19.58	0.12	6.6		**N**
11:42	15.40	6.77	-97	0.99	18.2	0.00	19.60	0.12	7.2		**N**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit
11. Well did not stabilize; sampled after 1 hour of purging.

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**Gerard + E. 146th**	**Well No:**	**RMW16**	**Water Quality Device Model:**	**Horiba U-52**	**Weather:**	30s cloudy		**RMW16_011719**
Project Number:	**170487003**	**Well Depth:**	27'	**Pine Number:**	**21058**	**Background PID (ppm):**	0	**Sample(s):**	
Site Location:	**Bronx, NY**	**Well Diameter:**	2"	**Pump Make and Model:**	**Monsoon Pro**	**PID Beneath Inner Cap (ppm):**	0.4		
Sampling	**T. Goodnough**	**Well Screen**	17-27'	**Pine Number:**	**042076**	**Pump Intake Depth:**	24'	**Sample Date:**	1/17/2019
Personnel:		**Interval:**		**Tubing Diameter:**	**3/8" x 1/2"**	**Depth to Water Before Purge:**	19.89	**Sample Time:**	13:15

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
12:10	15.75	6.15	192	2.08	1000.0	1.33	18.90		0	turbid brown	**N/A**
12:15	14.07	7.02	43	1.98	601.00	0.16	18.90	0.25	1.25		**N/A**
12:20	18.52	7.06	23	1.98	936.00	0.00	18.89	0.03	1.4		**N**
12:25	17.32	7.11	17	1.99	809.00	0.00	18.87	0.04	1.6		**N**
12:30	19.59	7.07	9	1.98	410.00	0.00	18.86	0.03	1.75	clear	**N**
12:35	19.44	7.06	5	1.96	135.00	0.00	18.85	0.25	3		**N**
12:40	18.43	7.06	3	1.98	120.00	0.00	18.85	0.14	3.7		**N**
12:45	19.02	7.06	0	1.96	49.8	0.00	18.84	0.1	4.2		**N**
12:50	19.63	7.06	-3	1.92	34.3	0.00	18.84	0.08	4.6		**N**
12:55	19.68	7.07	-5	1.92	15.3	0.00	18.84	0.08	5		**N**
13:00	19.58	7.07	-7	1.97	1.8	0.00	18.84	0.1	5.5		**N**
13:05	19.51	7.08	-9	1.97	0.0	0.00	18.84	0.08	5.9		**N**
13:10	19.55	7.08	-10	1.97	0.0	0.00	18.84	0.08	6.3		**Y**

Notes:
1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**Gerard + E. 146th**	**Well No:**	**RMW17**	**Water Quality Device Model:**	**Horiba U-52**	**Weather:**	30s cloudy	**Sample(s):**	**RMW17_011719**
Project Number:	**170487003**	**Well Depth:**	25.65	**Pine Number:**	**21202**	**Background PID (ppm):**	0.0		
Site Location:	**Bronx, NY**	**Well Diameter:**	2"	**Pump Make and Model:**	**Monsoon Pro**	**PID Beneath Inner Cap (ppm):**	0.0		
Sampling	**T. Goodnough**	**Well Screen**	18-28'	**Pine Number:**	**042076**	**Pump Intake Depth:**	24'	**Sample Date:**	1/17/2019
Personnel:		**Interval:**		**Tubing Diameter:**	**3/8" x 1/2"**	**Depth to Water Before Purge:**	20.09	**Sample Time:**	9:40

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
8:35	12.45	7.16	46	1.89	1000.0	0.00	23.20		0.75	urbid brown, no odo	**N/A**
8:40	14.38	7.24	51	1.84	887.00	0.00	23.16	0.09	1.2		**N/A**
8:45	14.79	7.23	23	1.82	455.00	0.00	23.09	0.06	1.5		**N**
8:50	15.02	7.21	6	1.79	235.00	0.00	23.05	0.06	1.8		**N**
8:55	14.88	7.15	-4	1.78	141.00	0.00	23.02	0.04	2		**N**
9:00	15.15	7.09	-14	1.74	60.10	0.00	23.00	0.08	2.4		**N**
9:05	15.45	7.05	-22	1.72	33.30	0.00	22.98	0.07	2.75		**N**
9:10	15.35	7.02	-27	1.70	36.0	0.00	22.98	0.07	3.1		**N**
9:15	15.44	6.97	-32	1.68	19.3	0.00	22.97	0.08	3.5		**N**
9:20	15.50	6.95	-35	1.67	14.2	0.00	22.97	0.08	3.9		**N**
9:25	15.30	6.92	-39	1.65	9.9	0.00	22.96	0.1	4.4		**N**
9:30	15.39	6.91	-41	1.64	6.8	0.00	22.96	0.06	4.7		**N**
9:35	15.36	6.92	-41	1.64	5.7	0.00	22.95	0.06	5.0		**N**

Notes:
1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**Gerard + E. 146th**	**Well No:**	**RMW18**	**Water Quality Device Model:**	**Horiba U-52**	**Weather:**	clear, 20s		**RMW18_011419**
Project Number:	**170487003**	**Well Depth:**	27.6	**Pine Number:**	**21202**	**Background PID (ppm):**	0.1	**Sample(s):**	
Site Location:	**Bronx, NY**	**Well Diameter:**	2-inch	**Pump Make and Model:**	**Monsoon Pro**	**PID Beneath Inner Cap (ppm):**	9.7		
Sampling	**T. Goodnough**	**Well Screen**	18-28'	**Pine Number:**	**042076**	**Pump Intake Depth:**	24'	**Sample Date:**	1/14/2019
Personnel:		**Interval:**		**Tubing Diameter:**	**3/8" x 1/2"**	**Depth to Water Before Purge:**	19.71	**Sample Time:**	12:27

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
13:27	14.63	9.64	-24	1.00	740.0	0.70	19.75		0.7	brown turbid no odo	**N/A**
13:32	14.73	9.75	-45	0.99	940.00	0.00	19.75	0.06	1		**N/A**
13:37	15.29	9.67	-57	0.97	504.00	0.00	19.75	0.08	1.4		**N**
13:42	15.49	9.59	-57	0.95	367.00	0.00	19.75	0.12	2		**N**
13:47	15.63	9.53	-60	0.95	187.00	0.00	19.75	0.07	2.35		**N**
13:52	15.60	9.50	-61	0.95	194.00	0.00	19.75	0.07	2.7	brown no odor	**N**
13:57	14.98	9.47	-60	0.96	93.70	0.00	19.75	0.06	3.0		**N**
14:02	14.24	9.58	-59	0.95	86.3	0.00	19.75	0.05	3.25		**N**
14:07	15.24	9.46	-59	0.94	69.9	0.00	19.75	0.05	3.5		**N**
14:12	14.96	9.45	-59	0.95	64.8	0.00	19.75	0.05	3.75		**N**
14:17	16.10	9.40	-58	0.95	72.6	0.00	19.78	0.15	4.5		**N**
14:22	15.76	9.39	-57	0.95	39.4	0.00	19.78	0.1	5.0		**N**
14:27	15.77	9.38	-58	0.95	33.8	0.00	19.78	0.09	5.45		**N**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	**Gerard + E. 146th**	**Well No:**	**RMW22**	**Water Quality Device Model:**	**Horiba U-52**	**Weather:**	Clear-20's		**RMW22_011419**
Project Number:	**170487003**	**Well Depth:**	27'	**Pine Number:**	**21202**	**Background PID (ppm):**	0.1	**Sample(s):**	
Site Location:	**Bronx, NY**	**Well Diameter:**	2-inch	**Pump Make and Model:**	**QED Sample Pro**	**PID Beneath Inner Cap (ppm):**	0.1		
Sampling	**T. Goodnough**	**Well Screen**	17-27'	**Pine Number:**	**43733**	**Pump Intake Depth:**	25'	**Sample Date:**	1/14/2019
Personnel:		**Interval:**		**Tubing Diameter:**	**1/4" x 3/8"**	**Depth to Water Before Purge:**	N/A	**Sample Time:**	12:22

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
11:22	12.20	9.57	159	0.50	830.0	0.64	N/A		0	turbid brown	**N/A**
11:27	13.10	9.53	38	0.48	670.00	0.48	N/A	0.2	1		**N/A**
11:32	13.36	9.77	-54	0.52	1000.00	1.13	N/A	0.12	1.6		**N**
11:37	13.46	9.91	-82	0.52	846.00	0.75	N/A	0.12	2.2		**N**
11:42	13.50	10.06	-94	0.52	678.00	0.78	N/A	0.16	3		**N**
11:47	12.76	10.09	-99	0.51	410.00	0.38	N/A	0.05	3.25		**N**
11:52	13.13	10.21	-102	0.52	369.00	1.12	N/A	0.05	3.5		**N**
11:57	13.27	10.17	-103	0.48	166.0	0.00	N/A	0.06	3.8		**N**
12:02	13.36	10.19	-102	0.47	167.0	0.00	N/A	0.1	4.3		**N**
12:07	13.40	10.18	-103	0.48	175.0	0.00	N/A	0.1	4.8		**Y**
12:12	13.41	10.17	-104	0.48	121.0	0.00	N/A	0.1	5.3		
12:17	13.41	10.16	-104	0.48	113.0	0.00	N/A	0.1	5.8		
12:22	13.41	10.15	-105	0.48	96.2	0.00	N/A	0.1	6.3		

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemans per centimeter
10. NTU = Nephelometric Turbidity Unit

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	404 Exterior Street	**Well No:**	RMW23	**Water Quality Device Model:**	Horiba U52	**Weather:**	Sunny, 70-80F		RMW23_071219
Project Number:	170487001	**Well Depth:**	19	**Pine Number:**	21054	**Background PID (ppm):**	0.0	**Sample(s):**	
Site Location:	Bronx, NY	**Well Diameter:**	2	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0		
Sampling	Patrick Stovall	**Well Screen**	9	**Pine Number:**	19943	**Pump Intake Depth:**	18.00	**Sample Date:**	7/12/2019
Personnel:		**Interval:**	19	**Tubing Diameter:**		**Depth to Water Before Purge:**	13.3	**Sample Time:**	13:05

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
12:15	18.41	7.25	4	0.783	171.0	0.44	13.30		0.5		**N/A**
12:20	17.63	7.22	-5	0.679	27.3	0.00	13.30	0.1	1		**N/A**
12:25	16.98	7.14	-11	0.689	15.1	0.00	13.30	0.1	1.5		**N**
12:30	16.95	7.08	-18	0.702	9.2	0.00	13.30	0.1	2		**N**
12:35	17.15	7.10	-23	0.707	6.7	0.00	13.30	0.05	2.25		**N**
12:40	17.06	7.10	-31	0.707	6.1	0.00	13.30	0.15	3		**N**
12:45	16.81	7.07	-32	0.711	5.4	0.00	13.30	0.1	3.5		**N**
12:50	16.88	7.07	-35	0.715	5.9	0.00	13.30	0.1	4		**N**
12:55	16.94	7.06	-36	0.709	5.8	0.00	13.30	0.05	4.25		**Y**
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
											N
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											N
											N
											N
											N
											N
											N
											N

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit

Project Information		Well Information		Equipment Information		Sampling Conditions		Sampling Information	
Project Name:	404 Exterior Street	**Well No:**	RMW25	**Water Quality Device Model:**	Horiba U52	**Weather:**	Sunny, 70-80F		RMW25_071219
Project Number:	170487001	**Well Depth:**	20	**Pine Number:**	21054	**Background PID (ppm):**	0.0	**Sample(s):**	
Site Location:	Bronx, NY	**Well Diameter:**	2	**Pump Make and Model:**	Peristaltic	**PID Beneath Inner Cap (ppm):**	0		
Sampling	Patrick Stovall	**Well Screen**	10-Jan	**Pine Number:**	19943	**Pump Intake Depth:**	16.00	**Sample Date:**	7/12/2019
Personnel:		**Interval:**	20	**Tubing Diameter:**		**Depth to Water Before Purge:**	12.21	**Sample Time:**	10:35

STABILIZATION = 3 successive readings within limits

TIME	TEMP °Celsius (+/- 3%)	PH (+/- 0.1)	ORP mV (+/- 10mV)	CONDUCTIVITY mS/cm (+/- 3%)	TURBIDITY ntu (+/- 10%) above 5 NTU	DO mg/l (+/- 10%) above 0.5 mg/l	DTW ft Drawdown < 0.33 ft	Flow Rate (gpm) <0.13 gpm)	Cumulative Discharge Volume (Gal)	NOTES color, odor etc.	Stabilized?
BEGIN PURGING											
9:25	20.58	6.52	199	0.649	132.0	0.49	13.20		0.25		**N/A**
9:30	18.86	6.69	70	0.615	125.0	0.04	13.20	0.05	0.5		**N/A**
9:35	16.72	6.72	2	0.637	200.0	0.08	14.05	0.05	0.75		**N**
9:40	16.64	6.75	-29	0.650	455.0	0.04	14.24	0.1	1.25		**N**
9:45	17.01	6.78	-47	0.661	458.0	0.04	14.24	0.07	1.6		**N**
9:50	16.82	6.79	-58	0.671	507.0	0.04	14.30	0.08	2		**N**
9:55	17.06	6.74	-62	0.676	325.0	0.02	14.10	0.05	2.25	light brown, no odor	**N**
10:00	16.96	6.77	-66	0.677	280.0	0.03	14.10	0.05	2.5		**N**
10:05	16.93	6.75	-66	0.681	184.0	0.00	14.20	0.05	2.75		**N**
10:10	16.44	6.66	-66	0.692	167.0	0.96	14.20	0.1	3.25		**N**
10:15	16.52	6.67	-65	0.687	135.0	0.00	14.25	0.05	3.5		**N**
10:20	16.68	6.71	-72	0.693	145.0	0.01	14.30	0.05	3.75		**N**
10:25	17.12	6.74	-76	0.699	109.0	0.07	14.30	0.1	4.25		**N**
10:30	16.01	6.67	-69	0.703	129.0	0.04	14.30	0.05	4.5		**N**

Notes:

1. Well depths and groundwater depths were measured in feet below the top of well casing.
2. Well and tubing diameters are measured in inches.
3. PID = Photoionization Detector
4. PPM = Parts per million
5. pH = Hydrogen ion concentration
6. ORP = Oxidation-reduction potential, measured in millivolts (mV)
7. DO = Dissolved Oxygen, measured in milligrams per liter (mg/L)
8. DTW = Depth to water
9. mS/cm = milli-Siemens per centimeter
10. NTU = Nephelometric Turbidity Unit
11. Well did not stabilize; sampled after 1 hour of purging.

APPENDIX E

SOIL VAPOR CONSTRUCTION AND SAMPLE LOGS

AIR SAMPLING LOG SHEET

Sample Number: RAA01_123118

PROJECT: Gerard Avenue and East 146th Street	**PROJECT NO.:** 170487001	
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** N/A	
SAMPLER: Tyler Goodnough	**SAMPLE DATE STARTED:** 12/31/2018	**DATE FINISHED:** 12/31/2018
INSPECTOR: Tyler Goodnough	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister	
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 40s Wind: N 5-10 mph Precipitation: None Pressure: N/A	

METHOD OF INSTALLATION AND SAMPLING:

Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. Maximum PID readings were detected at 0.2 parts per million. Sample consisted of 2.7-liter Summa canister fitted with a 2-hour flow control valve. The flow controller was zeroed and the valve opened to initiate the 2-hour sample collection. The sample and flow controller were checked each hour during sampling to ensure proper operation.

SAMPLE DETAILS

HEIGHT ABOVE GROUND (FT):	3
PID BEFORE SAMPLE (PPM):	0.2
SAMPLE START TIME:	9:00
SAMPLE STOP TIME:	11:00
TOTAL SAMPLE TIME (MIN):	125
REGULATOR FLOW RATE (L/MIN):	0.022
VOLUME OF SAMPLE (LITERS):	2.7
PID AFTER SAMPLE (PPM):	0.2
SAMPLE MOISTURE CONTENT:	N/A
CAN SERIAL NUMBER:	2078
REGULATOR SERIAL NUMBER:	972
CAN START VACUUM PRESS. (" HG):	-30.63
CAN STOP VACUUM PRESS. (" HG):	-5.42

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

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AIR SAMPLING LOG SHEET

Sample Number: RAA02

PROJECT: 404 Exterior Street	**PROJECT NO.:** 170487001	
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** N/A	
SAMPLER: Seth Sieger	**SAMPLE DATE STARTED:** 7/15/2019	**DATE FINISHED:** 7/15/2019
INSPECTOR: Seth Sieger	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister	
POTENTIAL SAMPLE INTERFERENCES: None	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):**	
	Temp:	75-85º F
	Wind:	N 0-5 mph
	Precipitation:	None
	Pressure:	29.90 in Hg

METHOD OF INSTALLATION AND SAMPLING:

Langan field screened the sample location with a MiniRAE 3000 photoionization detector prior to sampling. Sample consisted of 2.7 L Summa canister fitted with an 8-hour flow control valve. The flow controller was zeroed and valve opened to initiate the 8-hour sample collection. The sample and flow controller were checked each hour during sampling to ensure proper operation.

SAMPLE DETAILS

HEIGHT ABOVE GROUND (FT):	32"
PID BEFORE SAMPLE (PPM):	0.0
SAMPLE START TIME:	9:07
SAMPLE STOP TIME:	17:07
TOTAL SAMPLE TIME (MIN):	480
REGULATOR FLOW RATE (L/MIN):	0.006
VOLUME OF SAMPLE (LITERS):	2.7
PID AFTER SAMPLE (PPM):	0.0
SAMPLE MOISTURE CONTENT:	N/A
CAN SERIAL NUMBER:	202
REGULATOR SERIAL NUMBER:	1248
CAN START VACUUM PRESS. (" HG):	-30.1
CAN STOP VACUUM PRESS. (" HG):	-7.03

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

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SOIL VAPOR SAMPLING LOG SHEET

Sample Number: RSV01_123118

PROJECT: Gerard Avenue and East 146th Street		**PROJECT NO.:** 170487001	
LOCATION: Bronx, NY		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services, Corp.		**INSTALLATION DATE STARTED:** 12/26/2018	**DATE FINISHED:** 12/26/2018
INSTALLATION FOREMAN: Ron Dixon		**SAMPLE DATE STARTED:** 12/31/2018	**DATE FINISHED:** 12/31/2018
INSTALLATION EQUIPMENT: Geoprobe® 7822 DT		**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister	
INSPECTOR: Tyler Goodnough		**SAMPLER:** Tyler Goodnough	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 40s Wind: N 5-10 mph Precipitation: 0" Pressure: N/A	

METHOD OF INSTALLATION AND PURGING:
Advance Geoprobe 7730 DT to 8 feet below grade surface (bgs), install 2-inch soil vapor probe, backfill with No. 2 sand to 6 feet bgs, seal with hydrated bentonite to 5 feet bgs, backfill with No. 2 sand to 1 foot bgs, and seal to surface with hydrated bentonite. Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. Maximum PID readings were detected at 0.2 parts per million.

TUBING TYPE/DIAMETER: 1/4-Inch Teflon-lined Polyethylene Tubing		**TYPE OF MATERIAL ABOVE SEAL:** No. 2 Sand	
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: None		**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite	
BOREHOLE DIAMETER: 3-inch		**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand	

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.2	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	31.0%	2.7%
HELIUM TEST IN TUBE (PPM):	0.0%	0.0%
SAMPLE START TIME:	9:27	
SAMPLE STOP TIME:	11:29	
TOTAL SAMPLE TIME (MIN):	122	
REGULATOR FLOW RATE (L/MIN):	0.022	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0.2	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	2206	
REGULATOR SERIAL NUMBER:	575	
CAN START VACUUM PRESS. (" HG):	-29.47	
CAN STOP VACUUM PRESS. (" HG):	-5.69	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	5.00	
Top of Pack	6.00	
Probe Depth	8.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

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SOIL VAPOR SAMPLING LOG SHEET

Sample Number: RSV02_123118

PROJECT: Gerard Avenue and East 146th Street		**PROJECT NO.:** 170487001	
LOCATION: Bronx, NY		**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services, Corp.		**INSTALLATION DATE STARTED:** 12/27/2018	**DATE FINISHED:** 12/27/2018
INSTALLATION FOREMAN: Ron Dixon		**SAMPLE DATE STARTED:** 12/31/2018	**DATE FINISHED:** 12/31/2018
INSTALLATION EQUIPMENT: Geoprobe® 7730 DT		**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister	
INSPECTOR: Tyler Goodnough		**SAMPLER:** Tyler Goodnough	
POTENTIAL SAMPLE INTERFERENCES: N/A		**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 40s Wind: N 5-10 mph Precipitation: 0" Pressure: N/A	

METHOD OF INSTALLATION AND PURGING:

Advance Geoprobe 7730 DT to 9 feet below grade surface (bgs), install 2-inch soil vapor probe, backfill with No. 2 sand to 7 feet bgs, seal with hydrated bentonite to 6 feet bgs, backfill with No. 2 sand to 1 foot bgs, and seal to surface with hydrated bentonite. Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. Maximum PID readings were detected at 0.1 parts per million.

TUBING TYPE/DIAMETER: 1/4-Inch Teflon-lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** No. 2 Sand
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: None	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 3-inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.1	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	13.4%	13.1%
HELIUM TEST IN TUBE (PPM):	0.0%	0.0%
SAMPLE START TIME:	9:13	
SAMPLE STOP TIME:	11:17	
TOTAL SAMPLE TIME (MIN):	125	
REGULATOR FLOW RATE (L/MIN):	0.022	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0.1	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	2299	
REGULATOR SERIAL NUMBER:	138	
CAN START VACUUM PRESS. (" HG):	-30.8	
CAN STOP VACUUM PRESS. (" HG):	-4.84	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	6.00	
Top of Pack	7.00	
Probe Depth	9.00	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

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SUB-SLAB SOIL VAPOR SAMPLING LOG SHEET

Sample Number: RSSV01_123118

PROJECT: Gerard Avenue and East 146th Street	**PROJECT NO.:** 170487001
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** N/A
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services, Corp.	**INSTALLATION DATE STARTED:** 12/20/2018 — **DATE FINISHED:** 12/20/2018
INSTALLATION FOREMAN: Ron Dixon	**SAMPLE DATE STARTED:** 12/31/2018 — **DATE FINISHED:** 12/31/2018
INSTALLATION EQUIPMENT: Hammer Drill	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister
INSPECTOR: Tyler Goodnough	**SAMPLER:** Tyler Goodnough
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 40s; Wind: Indoors; Precipitation: Indoors; Pressure: N/A

METHOD OF INSTALLATION AND PURGING:
Advanced subslab vapor point to 2-inches below the bottom of the slab. A small amount of No. 2 sand was backfilled into the borehole to set the vapor tubing. No. 2 sand was backfilled around the tubing to 1 inch bgs, and the remainder of the borehole was sealed with bentonite. Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. Maximum PID readings were detected at 0.4 parts per million.

TUBING TYPE/DIAMETER: 1/4-Inch Teflon-lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** N/A
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: None	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 3/4-Inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.4	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	16.9%	13.4%
HELIUM TEST IN TUBE (PPM):	0.0%	0.0%
SAMPLE START TIME:	8:55	
SAMPLE STOP TIME:	10:55	
TOTAL SAMPLE TIME (MIN):	120	
REGULATOR FLOW RATE (L/MIN):	0.022	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0.3	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	2225	
REGULATOR SERIAL NUMBER:	934	
CAN START VACUUM PRESS. (" HG):	-29	
CAN STOP VACUUM PRESS. (" HG):	-4.3	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	DEPTH (FEET FROM SURFACE)	NOTES
SURFACE / SURFACE		
Top of Seal	0	
Top of Pack	5"	
Tube Depth	6"	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

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SUB-SLAB SOIL VAPOR SAMPLING LOG SHEET

Sample Number: RSSV02_123118

PROJECT: Gerard Avenue and East 146th Street	**PROJECT NO.:** 170487001
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** N/A
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services, Corp.	**INSTALLATION DATE STARTED:** 12/27/2018 — **DATE FINISHED:** 12/27/2018
INSTALLATION FOREMAN: Ron Dixon	**SAMPLE DATE STARTED:** 12/31/2018 — **DATE FINISHED:** 12/31/2018
INSTALLATION EQUIPMENT: Hammer Drill	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister
INSPECTOR: Tyler Goodnough	**SAMPLER:** Tyler Goodnough
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 40s; Wind: Indoors; Precipitation: Indoors; Pressure: N/A

METHOD OF INSTALLATION AND PURGING:
Advanced subslab vapor point to 2-inches below the bottom of the slab. A small amount of No. 2 sand was backfilled into the borehole to set the vapor tubing. No. 2 sand was backfilled around the tubing to 1 inch bgs, and the remainder of the borehole was sealed with bentonite. Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. Maximum PID readings were detected at 0.4 parts per million.

TUBING TYPE/DIAMETER: 1/4-Inch Teflon-lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** N/A
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: None	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 3/4-Inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.4	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	13.3%	14.1%
HELIUM TEST IN TUBE (PPM):	0.0%	0.0%
SAMPLE START TIME:	10:10	
SAMPLE STOP TIME:	12:10	
TOTAL SAMPLE TIME (MIN):	120	
REGULATOR FLOW RATE (L/MIN):	0.027	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0.2	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	2599	
REGULATOR SERIAL NUMBER:	1143	
CAN START VACUUM PRESS. (" HG):	-30.72	
CAN STOP VACUUM PRESS. (" HG):	-6.65	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	DEPTH (FEET FROM SURFACE)	NOTES
SURFACE / SURFACE		
Top of Seal	0	
Top of Pack	13"	
Tube Depth	14"	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

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SUB-SLAB SOIL VAPOR SAMPLING LOG SHEET

Sample Number: RSSV03_123118

PROJECT: Gerard Avenue and East 146th Street	**PROJECT NO.:** 170487001
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** N/A
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services, Corp.	**INSTALLATION DATE STARTED:** 12/27/2018 — **DATE FINISHED:** 12/27/2018
INSTALLATION FOREMAN: Ron Dixon	**SAMPLE DATE STARTED:** 12/31/2018 — **DATE FINISHED:** 12/31/2018
INSTALLATION EQUIPMENT: Hammer Drill	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister
INSPECTOR: Tyler Goodnough	**SAMPLER:** Tyler Goodnough
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 40s; Wind: Indoors; Precipitation: Indoors; Pressure: N/A

METHOD OF INSTALLATION AND PURGING:
Advanced subslab vapor point to 2-inches below the bottom of the slab. A small amount of No. 2 sand was backfilled into the borehole to set the vapor tubing. No. 2 sand was backfilled around the tubing to 1 inch bgs, and the remainder of the borehole was sealed with bentonite. Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. Maximum PID readings were detected at 0.4 parts per million.

TUBING TYPE/DIAMETER: 1/4-Inch Teflon-lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** N/A
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: None	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 3/4-Inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.4	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	20.2%	15.4%
HELIUM TEST IN TUBE (PPM):	0.0%	0.0%
SAMPLE START TIME:	10:25	
SAMPLE STOP TIME:	12:26	
TOTAL SAMPLE TIME (MIN):	121	
REGULATOR FLOW RATE (L/MIN):	0.022	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0.2	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	174	
REGULATOR SERIAL NUMBER:	387	
CAN START VACUUM PRESS. (" HG):	-30.8	
CAN STOP VACUUM PRESS. (" HG):	-5.99	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	DEPTH (FEET FROM SURFACE)	NOTES
SURFACE / SURFACE		
Top of Seal	0	
Top of Pack	13"	
Tube Depth	14"	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

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SUB-SLAB SOIL VAPOR SAMPLING LOG SHEET

Sample Number: RSSV04_123118

PROJECT: Gerard Avenue and East 146th Street	**PROJECT NO.:** 170487001
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** N/A
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services, Corp.	**INSTALLATION DATE STARTED:** 12/27/2018 — **DATE FINISHED:** 12/27/2018
INSTALLATION FOREMAN: Ron Dixon	**SAMPLE DATE STARTED:** 12/31/2018 — **DATE FINISHED:** 12/31/2018
INSTALLATION EQUIPMENT: Hammer Drill	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister
INSPECTOR: Tyler Goodnough	**SAMPLER:** Tyler Goodnough
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 40s; Wind: Indoors; Precipitation: Indoors; Pressure: N/A

METHOD OF INSTALLATION AND PURGING:
Advanced subslab vapor point to 2-inches below the bottom of the slab. A small amount of No. 2 sand was backfilled into the borehole to set the vapor tubing. No. 2 sand was backfilled around the tubing to 1 inch bgs, and the remainder of the borehole was sealed with bentonite. Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. Maximum PID readings were detected at 0.5 parts per million.

TUBING TYPE/DIAMETER: 1/4-Inch Teflon-lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** N/A
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: None	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 3/4-Inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.5	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	15.9%	12.9%
HELIUM TEST IN TUBE (PPM):	0.0%	0.0%
SAMPLE START TIME:	10:34	
SAMPLE STOP TIME:	12:38	
TOTAL SAMPLE TIME (MIN):	124	
REGULATOR FLOW RATE (L/MIN):	0.022	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0.3	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	2347	
REGULATOR SERIAL NUMBER:	401	
CAN START VACUUM PRESS. (" HG):	-29.9	
CAN STOP VACUUM PRESS. (" HG):	-6.23	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
SURFACE / SURFACE		
Top of Seal	0	
Top of Pack	13"	
Tube Depth	14"	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

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SUB-SLAB SOIL VAPOR SAMPLING LOG SHEET

Sample Number: RSSV05_010919

PROJECT: Gerard Avenue and East 146th Street	**PROJECT NO.:** 170487001
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** N/A
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services, Corp.	**INSTALLATION DATE STARTED:** 12/20/2018 — **DATE FINISHED:** 12/20/2018
INSTALLATION FOREMAN: Ron Dixon	**SAMPLE DATE STARTED:** 1/9/2019 — **DATE FINISHED:** 1/9/2019
INSTALLATION EQUIPMENT: Hammer Drill	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister
INSPECTOR: Tyler Goodnough	**SAMPLER:** Tyler Goodnough
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 40s; Wind: Indoors; Precipitation: Indoors; Pressure: N/A

METHOD OF INSTALLATION AND PURGING:
Advanced subslab vapor point to 2-inches below the bottom of the slab. A small amount of No. 2 sand was backfilled into the borehole to set the vapor tubing. No. 2 sand was backfilled around the tubing to 1 inch bgs, and the remainder of the borehole was sealed with bentonite. Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. Maximum PID readings were detected at 0.5 parts per million.

TUBING TYPE/DIAMETER: 1/4-Inch Teflon-lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** N/A
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: None	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 3/4-Inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.5	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	17.9%	15.2%
HELIUM TEST IN TUBE (PPM):	0.0%	0.0%
SAMPLE START TIME:	9:16	
SAMPLE STOP TIME:	11:59	
TOTAL SAMPLE TIME (MIN):	163	
REGULATOR FLOW RATE (L/MIN):	0.017	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0.2	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	353	
REGULATOR SERIAL NUMBER:	624	
CAN START VACUUM PRESS. (" HG):	-29.95	
CAN STOP VACUUM PRESS. (" HG):	-11.38	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	DEPTH (FEET FROM SURFACE)	NOTES
SURFACE		
Top of Seal	0	
Top of Pack	3"	
Tube Depth	4"	
SURFACE		

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

SUB-SLAB SOIL VAPOR SAMPLING LOG SHEET

Sample Number: RSSV06_010919

PROJECT: Gerard Avenue and East 146th Street	**PROJECT NO.:** 170487001
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** N/A
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services, Corp.	**INSTALLATION DATE STARTED:** 12/20/2018 — **DATE FINISHED:** 12/20/2018
INSTALLATION FOREMAN: Ron Dixon	**SAMPLE DATE STARTED:** 1/9/2019 — **DATE FINISHED:** 1/9/2019
INSTALLATION EQUIPMENT: Hammer Drill	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister
INSPECTOR: Tyler Goodnough	**SAMPLER:** Tyler Goodnough
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 40s; Wind: Indoors; Precipitation: Indoors; Pressure: N/A

METHOD OF INSTALLATION AND PURGING:
Advanced subslab vapor point to 2-inches below the bottom of the slab. A small amount of No. 2 sand was backfilled into the borehole to set the vapor tubing. No. 2 sand was backfilled around the tubing to 1 inch bgs, and the remainder of the borehole was sealed with bentonite. Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. Maximum PID readings were detected at 0.3 parts per million.

TUBING TYPE/DIAMETER: 1/4-Inch Teflon-lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** N/A
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: None	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 3/4-Inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.3	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	22.3%	24.3%
HELIUM TEST IN TUBE (PPM):	0.0%	0.0%
SAMPLE START TIME:	8:33	
SAMPLE STOP TIME:	10:35	
TOTAL SAMPLE TIME (MIN):	122	
REGULATOR FLOW RATE (L/MIN):	0.022	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0.2	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	207	
REGULATOR SERIAL NUMBER:	854	
CAN START VACUUM PRESS. (" HG):	-29.79	
CAN STOP VACUUM PRESS. (" HG):	-3.55	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	DEPTH (FEET FROM SURFACE)	NOTES
SURFACE / SURFACE		
Top of Seal	0	
Top of Pack	9"	
Tube Depth	10"	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

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SUB-SLAB SOIL VAPOR SAMPLING LOG SHEET

Sample Number: RSSV07_123118

PROJECT: Gerard Avenue and East 146th Street	**PROJECT NO.:** 170487001
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** N/A
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services, Corp.	**INSTALLATION DATE STARTED:** 12/20/2018 — **DATE FINISHED:** 12/20/2018
INSTALLATION FOREMAN: Ron Dixon	**SAMPLE DATE STARTED:** 12/31/2018 — **DATE FINISHED:** 12/31/2018
INSTALLATION EQUIPMENT: Hammer Drill	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister
INSPECTOR: Tyler Goodnough	**SAMPLER:** Tyler Goodnough
POTENTIAL SAMPLE INTERFERENCES: N/A	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 40s; Wind: Indoors; Precipitation: Indoors; Pressure: N/A

METHOD OF INSTALLATION AND PURGING:
Advanced subslab vapor point to 2-inches below the bottom of the slab. A small amount of No. 2 sand was backfilled into the borehole to set the vapor tubing. No. 2 sand was backfilled around the tubing to 1 inch bgs, and the remainder of the borehole was sealed with bentonite. Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. Maximum PID readings were detected at 0.2 parts per million.

TUBING TYPE/DIAMETER: 1/4-Inch Teflon-lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** N/A
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: None	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 3/4-Inch	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	1.00	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0.2	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	26.2%	17.4%
HELIUM TEST IN TUBE (PPM):	0.0%	0.0%
SAMPLE START TIME:	9:51	
SAMPLE STOP TIME:	11:53	
TOTAL SAMPLE TIME (MIN):	122	
REGULATOR FLOW RATE (L/MIN):	0.022	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0.1	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	2210	
REGULATOR SERIAL NUMBER:	507	
CAN START VACUUM PRESS. (" HG):	-30.33	
CAN STOP VACUUM PRESS. (" HG):	-6.41	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	DEPTH (FEET FROM SURFACE)	NOTES
SURFACE / SURFACE		
Top of Seal	0	
Top of Pack	9"	
Tube Depth	10"	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

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SUB-SLAB SOIL VAPOR SAMPLING LOG SHEET

Sample Number: RSSV08_071119

PROJECT: 404 Exterior Street	**PROJECT NO.:** 170487001	
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** N/A	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.	**INSTALLATION DATE STARTED:** 7/11/2019	**DATE FINISHED:** 7/11/2019
INSTALLATION FOREMAN: Adam Hutchinson	**SAMPLE DATE STARTED:** 7/15/2019	**DATE FINISHED:** 7/15/2019
INSTALLATION EQUIPMENT: Geoprobe® 7730 DT	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister	
INSPECTOR: Patrick Stovall	**SAMPLER:** Seth Sieger	
POTENTIAL SAMPLE INTERFERENCES: None	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 75-85º F Wind: N 0-5 mph Precipitation: None Pressure: 29.90 in Hg	

METHOD OF INSTALLATION AND PURGING:

AARCO advanced subslab vapor point to 3-inches below the top of the slab. A small amount of No. 2 sand was backfilled into the borehole to set the vapor tubing. No. 2 sand was backfilled around the tubing to 1 inch bgs, and the remainder of the borehole was sealed with bentonite. Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. PID reading was 0.0 ppm.

TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** None
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: None	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 5/8"	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	0.02	
PURGE FLOW RATE (ML/MIN):	200	
PID AFTER PURGE (PPM):	0	
HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	17.2%	16.4%
HELIUM TEST IN TUBE (PPM):	0.0	0.0
SAMPLE START TIME:	9:04	
SAMPLE STOP TIME:	17:04	
TOTAL SAMPLE TIME (MIN):	480	
REGULATOR FLOW RATE (L/MIN):	0.006	
VOLUME OF SAMPLE (LITERS):	2.7	
PID AFTER SAMPLE (PPM):	0	
SAMPLE MOISTURE CONTENT:	N/A	
CAN SERIAL NUMBER:	195	
REGULATOR SERIAL NUMBER:	396	
CAN START VACUUM PRESS. (" HG):	-29.94	
CAN STOP VACUUM PRESS. (" HG):	-17.88	

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)	**DEPTH (FEET FROM SURFACE)**	**NOTES**
Top of Seal	0.0	
Top of Pack		
Tube Depth	0.4	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

RSSV09 was adjacent to RB25

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SUB-SLAB SOIL VAPOR SAMPLING LOG SHEET

Sample Number: RSSV09_071119

PROJECT: 404 Exterior Street	**PROJECT NO.:** 170487001	
LOCATION: Bronx, NY	**SURFACE ELEVATION AND DATUM:** n/a	
DRILLING FIRM OR LANGAN INSTALLER: AARCO Environmental Services Corp.	**INSTALLATION DATE STARTED:** 7/11/2019	**DATE FINISHED:** 7/11/2019
INSTALLATION FOREMAN: Adam Hutchinson	**SAMPLE DATE STARTED:** 7/15/2019	**DATE FINISHED:** 7/15/2019
INSTALLATION EQUIPMENT: Geoprobe® 7730 DT	**TYPE OF SAMPLING DEVICE:** 2.7-Liter Summa Canister	
INSPECTOR: Patrick Stovall	**SAMPLER:** Seth Sieger	
POTENTIAL SAMPLE INTERFERENCES: None	**WEATHER CONDITIONS (PRECIP., TEMP., PRESS., WIND SPEED AND DIR.):** Temp: 75-85º F Wind: N 0-5 mph Precipitation: None Pressure: 29.90 in Hg	

METHOD OF INSTALLATION AND PURGING:

AARCO advanced subslab vapor point to 3-inches below the top of the slab. A small amount of No. 2 sand was backfilled into the borehole to set the vapor tubing. No. 2 sand was backfilled around the tubing to 1 inch bgs, and the remainder of the borehole was sealed with bentonite. Langan field screened the sample location with a MiniRAE 3000 photoionization detector (PID) prior to sampling. PID reading was 0.0 ppm.

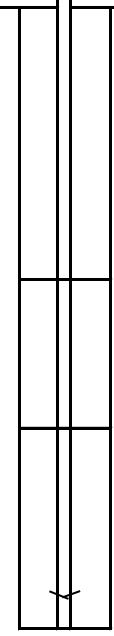
TUBING TYPE/DIAMETER: 3/16-inch ID, 1/4-inch OD Teflon-Lined Polyethylene Tubing	**TYPE OF MATERIAL ABOVE SEAL:** None
IMPLANT SCREEN TYPE/LENGTH/DIAMETER: None	**SEAL MATERIAL (Bentonite, Beeswax, Modeling Clay, etc.):** Bentonite
BOREHOLE DIAMETER: 5/8"	**FILTER PACK MATERIAL (Sand or Glass Beads):** No. 2 Sand

PURGE VOLUME (L):	0.02
PURGE FLOW RATE (ML/MIN):	200
PID AFTER PURGE (PPM):	0

HELIUM TESTS	Pre-sampling	Post-sampling
HELIUM TEST IN BUCKET(%):	15.8%	15.4%
HELIUM TEST IN TUBE (PPM):	0.0	0.0

SAMPLE START TIME:	9:01
SAMPLE STOP TIME:	17:01
TOTAL SAMPLE TIME (MIN):	480
REGULATOR FLOW RATE (L/MIN):	0.006
VOLUME OF SAMPLE (LITERS):	2.7
PID AFTER SAMPLE (PPM):	0
SAMPLE MOISTURE CONTENT:	N/A
CAN SERIAL NUMBER:	411
REGULATOR SERIAL NUMBER:	435
CAN START VACUUM PRESS. (" HG):	-30.01
CAN STOP VACUUM PRESS. (" HG):	-18.51

IMPLANT/PROBE DETAILS (SEAL, FILTER, ETC.)



	DEPTH (FEET FROM SURFACE)	**NOTES**
Top of Seal	0.0	
Top of Pack		
Tube Depth	0.416	

SAMPLE LOCATION SKETCH

See Sample Location Plan

NOTES

RSSV09 was adjacent to RB28

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APPENDIX F

DATA USABILITY SUMMARY REPORTS

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

2700 Kelly Road, Suite 200 Warrington, PA 18976 T: 215.491.6500 F: 215.491.6501
Mailing Address: P.O. Box 1569 Doylestown, PA 18901

To: Julia Leung, Langan Project Engineer

From: Emily Strake, Langan Senior Project Chemist

Date: February 13, 2019

Re: Data Usability Summary Report
For Gerard & 146th Street
Groundwater Samples Collected in January 2019
Langan Project No.: 170487003

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of groundwater samples collected in January 2019 by Langan Engineering and Environmental Services ("Langan") at the Gerard & 146th Street site ("the Site") in Bronx, NY. The samples were analyzed by Alpha Analytical Laboratories of Westborough, MA (NYSDOH ELAP registration # 11148) for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, herbicides, polychlorinated biphenyls (PCB), perfluorinated alkyl substances (PFAS), total and dissolved metals including mercury (Hg), hexavalent chromium, and total cyanide by the analytical methods listed below.

- VOCs by SW-846 Method 8260C
- SVOCs by SW-846 Methods 8270D and 8270D SIM
- Pesticides by SW-846 Method 8081B
- Herbicides by SW-846 Method 8151A
- PCBs by SW-846 Method 8082A
- PFAS by EPA Method 537M
- Total and Dissolved Metals by SW-846 Method 6020B
- Total and Dissolved Hg by SW-846 Method 7470A
- Hexavalent Chromium by SW-846 Method 7196A
- Total Cyanide by SW-846 Method 9012B

Table 1, below, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

TABLE 1: SAMPLE SUMMARY

SDG	*Lab Sample ID*	*Client Sample ID*	*Sample Date*	*Analytical Parameters*
L1901689	L1901689-01	RMW18_011419	01/14/19	VOCs, SVOCs, Pest/Herb, PCBs, PFAs, Metals, Hg, Cr(VI), CN
L1901689	L1901689-02	RMW22_011419	01/14/19	VOCs, SVOCs, Pest/Herb, PCBs, PFAs, Metals, Hg, Cr(VI), CN
L1901689	L1901689-03	GWFB01_011419	01/14/19	PFAs, 1,4-Dioxane
L1901689	L1901689-04	GWTB01_011419	01/14/19	VOCs
L1901865	L1901865-01	RMW03_011519	01/15/19	VOCs, SVOCs, Pest/Herb, PCBs, Metals, Hg, Cr (VI), CN
L1901865	L1901865-02	RMW04_011519	01/15/19	VOCs, SVOCs, Pest/Herb, PCBs, Metals, Hg, Cr (VI), CN
L1901865	L1901865-03	RMW05_011519	01/15/19	VOCs, SVOCs, Pest/Herb, PCBs, Metals, Hg, Cr (VI), CN
L1901865	L1901865-04	GWDUP01_011519	01/15/19	VOCs, SVOCs, Pest/Herb, PCBs, Metals, Hg, Cr (VI), CN
L1901865	L1901865-05	GWTB02_011519	01/15/19	VOCs
L1902070	L1902070-01	RMW01_011619	01/16/19	VOCs, SVOCs, Pest/Herb, PCBs, PFAs, Metals, Hg, Cr(VI), CN
L1902070	L1902070-02	RMW07_011619	01/16/19	VOCs, SVOCs, Pest/Herb, PCBs, PFAs, Metals, Hg, Cr(VI), CN
L1902070	L1902070-03	RMW09_11619	01/16/19	VOCs, SVOCs, Pest/Herb, PCBs, PFAs, Metals, Hg, Cr(VI), CN
L1902070	L1902070-04	GWFB02_011619	01/16/19	VOCs, SVOCs, Pest/Herb, PCBs, PFAs, Metals, Hg, Cr(VI), CN
L1902070	L1902070-05	GWTB03_011619	01/16/19	VOCs
L1902340	L1902340-01	RMW10_011719	01/17/19	VOCs, SVOCs, Pest/Herb, PCBs, Metals, Hg, Cr (VI), CN
L1902340	L1902340-02	RMW11_011719	01/17/19	VOCs, SVOCs, Pest/Herb, PCBs, Metals, Hg, Cr (VI), CN
L1902340	L1902340-03	RMW14_011719	01/17/19	VOCs, SVOCs, Pest/Herb, PCBs, Metals, Hg, Cr (VI), CN
L1902340	L1902340-04	RMW16_11719	01/17/19	VOCs, SVOCs, Pest/Herb, PCBs, Metals, Hg, Cr (VI), CN
L1902340	L1902340-05	RMW17_011719	01/17/19	VOCs, SVOCs, Pest/Herb, PCBs, Metals, Hg, Cr (VI), CN
L1902340	L1902340-06	GWTB04_011719	01/17/19	VOCs

Validation Overview

This data validation was performed in accordance with USEPA Region II Standard Operating Procedure (SOP) #HW-34A, "Trace Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-33A, "Low/Medium Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-35A, "Semivolatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-37A, "Polychlorinated Biphenyl (PCB) Aroclor Data Validation" (June 2015, Revision 0), USEPA Region II SOP #HW-36A, "Pesticide Data Validation" (October 2016, Revision 1), USEPA Region II SOP #HW-3b, "ICP-MS Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-3c, "Mercury and Cyanide Data Validation" (September 2016, Revision 1), the USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA-540-R-2017-002, January 2017), USEPA "National Functional Guidelines for Inorganic Superfund Methods Data Review" (EPA-540-R-2017-001, January 2017) and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. Items subject to review in this memorandum include holding times, sample preservation, instrument tuning, instrument calibration, laboratory blanks, laboratory control samples, system monitoring compounds, internal standard area counts, matrix spike/spike duplicate recoveries, target compound identification and quantification, chromatograms, overall system performance, serial dilutions, dual column performance, field duplicate, and trip blank sample results.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

- **R –** The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- **J –** The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- **UJ –** The analyte was not detected at a level greater than or equal to the reporting limit (RL); however, the reported RL is approximate and may be inaccurate or imprecise.
- **U –** The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.
- **NJ –** The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are not sufficiently valid and technically supportable to be used for data interpretation. Data that is otherwise qualified due to minor data quality anomalies are usable, as qualified.

TABLE 2: VALIDATOR-APPLIED QUALIFICATION:

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RMW18_011419	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW18_011419	6020B	7440-36-0	Antimony, Total	U (0.004)
RMW18_011419	8151A	93-76-5	2,4,5-T	UJ
RMW18_011419	8260C	75-35-4	1,1-Dichloroethene	UJ
RMW18_011419	8260C	123-91-1	1,4-Dioxane	UJ
RMW18_011419	8260C	108-10-1	4-Methyl-2-pentanone	UJ
RMW18_011419	8260C	74-83-9	Bromomethane	UJ
RMW18_011419	8260C	74-87-3	Chloromethane	UJ
RMW18_011419	8260C	75-71-8	Dichlorodifluoromethane	UJ
RMW18_011419	8260C	75-01-4	Vinyl chloride	UJ
RMW18_011419	8270D	95-94-3	1,2,4,5-Tetrachlorobenzene	UJ
RMW18_011419	8270D	100-02-7	4-Nitrophenol	UJ
RMW18_011419	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
RMW22_011419	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW22_011419	6020B	7440-36-0	Antimony, Total	U (0.004)
RMW22_011419	8151A	93-76-5	2,4,5-T	UJ
RMW22_011419	8260C	75-35-4	1,1-Dichloroethene	UJ
RMW22_011419	8260C	123-91-1	1,4-Dioxane	UJ
RMW22_011419	8260C	108-10-1	4-Methyl-2-pentanone	UJ
RMW22_011419	8260C	74-83-9	Bromomethane	UJ
RMW22_011419	8260C	74-87-3	Chloromethane	UJ
RMW22_011419	8260C	75-71-8	Dichlorodifluoromethane	UJ
RMW22_011419	8260C	75-01-4	Vinyl chloride	UJ
RMW22_011419	8270D	95-94-3	1,2,4,5-Tetrachlorobenzene	UJ
RMW22_011419	8270D	100-02-7	4-Nitrophenol	UJ
RMW22_011419	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
RMW22_011419	537(M)	27619-97-2	6:2FTS	U (1.8)
RMW22_011419	537(M)	1763-23-1	Perfluorooctanesulfonic Acid	J
GWFB01_011419	537(M)	27619-97-2	6:2FTS	U (1.77)
GWTB01_011419	8260C	75-35-4	1,1-Dichloroethene	UJ
GWTB01_011419	8260C	123-91-1	1,4-Dioxane	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
GWTB01_011419	8260C	108-10-1	4-Methyl-2-pentanone	UJ
GWTB01_011419	8260C	74-83-9	Bromomethane	UJ
GWTB01_011419	8260C	74-87-3	Chloromethane	UJ
GWTB01_011419	8260C	75-71-8	Dichlorodifluoromethane	UJ
GWTB01_011419	8260C	75-01-4	Vinyl chloride	UJ
RMW18_011419	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW18_011419	6020B	7440-36-0	Antimony, Total	U (0.004)
RMW18_011419	8151A	93-76-5	2,4,5-T	UJ
RMW18_011419	8260C	75-35-4	1,1-Dichloroethene	UJ
RMW18_011419	8260C	123-91-1	1,4-Dioxane	UJ
RMW18_011419	8260C	108-10-1	4-Methyl-2-pentanone	UJ
RMW18_011419	8260C	74-83-9	Bromomethane	UJ
RMW18_011419	8260C	74-87-3	Chloromethane	UJ
RMW18_011419	8260C	75-71-8	Dichlorodifluoromethane	UJ
RMW18_011419	8260C	75-01-4	Vinyl chloride	UJ
RMW18_011419	8270D	95-94-3	1,2,4,5-Tetrachlorobenzene	UJ
RMW18_011419	8270D	100-02-7	4-Nitrophenol	UJ
RMW18_011419	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
RMW22_011419	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW22_011419	6020B	7440-36-0	Antimony, Total	U (0.004)
RMW22_011419	8151A	93-76-5	2,4,5-T	UJ
RMW22_011419	8260C	75-35-4	1,1-Dichloroethene	UJ
RMW22_011419	8260C	123-91-1	1,4-Dioxane	UJ
RMW22_011419	8260C	108-10-1	4-Methyl-2-pentanone	UJ
RMW22_011419	8260C	74-83-9	Bromomethane	UJ
RMW22_011419	8260C	74-87-3	Chloromethane	UJ
RMW22_011419	8260C	75-71-8	Dichlorodifluoromethane	UJ
RMW22_011419	8260C	75-01-4	Vinyl chloride	UJ
RMW22_011419	8270D	95-94-3	1,2,4,5-Tetrachlorobenzene	UJ
RMW22_011419	8270D	100-02-7	4-Nitrophenol	UJ
RMW22_011419	8270D	77-47-4	Hexachlorocyclopentadiene	UJ
RMW22_011419	537(M)	27619-97-2	6:2FTS	U (1.8)
RMW22_011419	537(M)	1763-23-1	Perfluorooctanesulfonic Acid	J
GWFB01_011419	537(M)	27619-97-2	6:2FTS	U (1.77)
GWTB01_011419	8260C	75-35-4	1,1-Dichloroethene	UJ
GWTB01_011419	8260C	123-91-1	1,4-Dioxane	UJ
GWTB01_011419	8260C	108-10-1	4-Methyl-2-pentanone	UJ
GWTB01_011419	8260C	74-83-9	Bromomethane	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
GWTB01_011419	8260C	74-87-3	Chloromethane	UJ
GWTB01_011419	8260C	75-71-8	Dichlorodifluoromethane	UJ
GWTB01_011419	8260C	75-01-4	Vinyl chloride	UJ
RMW03_011519	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW03_011519	6020B	7440-36-0	Antimony, Total	U (0.004)
RMW03_011519	6020B	7440-47-3	Chromium, Dissolved	U (0.001)
RMW03_011519	6020B	7440-28-0	Thallium, Dissolved	U (0.0005)
RMW03_011519	8081B	8001-35-2	Toxaphene	UJ
RMW03_011519	8151A	93-76-5	2,4,5-T	UJ
RMW03_011519	8260C	108-10-1	4-Methyl-2-pentanone	UJ
RMW03_011519	8260C	74-83-9	Bromomethane	UJ
RMW03_011519	8260C	74-87-3	Chloromethane	UJ
RMW03_011519	8260C	75-71-8	Dichlorodifluoromethane	UJ
RMW03_011519	8260C	75-01-4	Vinyl chloride	UJ
RMW03_011519	8270D	105-67-9	2,4-Dimethylphenol	UJ
RMW03_011519	8270D	91-94-1	3,3'-Dichlorobenzidine	UJ
RMW03_011519	8270D	106-47-8	4-Chloroaniline	UJ
RMW03_011519	8270D	85-68-7	Butyl benzyl phthalate	UJ
RMW03_011519	8270D SIM	87-86-5	Pentachlorophenol	U (0.8)
RMW04_011519	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW04_011519	6020B	7440-36-0	Antimony, Total	U (0.004)
RMW04_011519	6020B	7440-47-3	Chromium, Dissolved	U (0.001)
RMW04_011519	6020B	7440-28-0	Thallium, Dissolved	U (0.0005)
RMW04_011519	6020B	7440-28-0	Thallium, Total	U (0.0005)
RMW04_011519	7470A	7439-97-6	Mercury, Dissolved	UJ
RMW04_011519	8260C	108-10-1	4-Methyl-2-pentanone	UJ
RMW04_011519	8260C	74-83-9	Bromomethane	UJ
RMW04_011519	8260C	74-87-3	Chloromethane	UJ
RMW04_011519	8260C	75-71-8	Dichlorodifluoromethane	UJ
RMW04_011519	8260C	75-01-4	Vinyl chloride	UJ
RMW04_011519	8270D	105-67-9	2,4-Dimethylphenol	UJ
RMW04_011519	8270D	91-94-1	3,3'-Dichlorobenzidine	UJ
RMW04_011519	8270D	106-47-8	4-Chloroaniline	UJ
RMW04_011519	8270D	85-68-7	Butyl benzyl phthalate	UJ
RMW05_011519	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW05_011519	6020B	7440-36-0	Antimony, Total	U (0.004)
RMW05_011519	8081B	8001-35-2	Toxaphene	UJ
RMW05_011519	8151A	93-76-5	2,4,5-T	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RMW05_011519	8260C	108-10-1	4-Methyl-2-pentanone	UJ
RMW05_011519	8260C	74-83-9	Bromomethane	UJ
RMW05_011519	8260C	74-87-3	Chloromethane	UJ
RMW05_011519	8260C	75-71-8	Dichlorodifluoromethane	UJ
RMW05_011519	8260C	75-01-4	Vinyl chloride	UJ
RMW05_011519	8270D	105-67-9	2,4-Dimethylphenol	UJ
RMW05_011519	8270D	91-94-1	3,3'-Dichlorobenzidine	UJ
RMW05_011519	8270D	106-47-8	4-Chloroaniline	UJ
RMW05_011519	8270D	85-68-7	Butyl benzyl phthalate	UJ
RMW05_011519	8270D SIM	87-86-5	Pentachlorophenol	U (0.8)
GWDUP01_011519	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
GWDUP01_011519	6020B	7440-47-3	Chromium, Dissolved	U (0.001)
GWDUP01_011519	8081B	8001-35-2	Toxaphene	UJ
GWDUP01_011519	8260C	108-10-1	4-Methyl-2-pentanone	UJ
GWDUP01_011519	8260C	74-83-9	Bromomethane	UJ
GWDUP01_011519	8260C	74-87-3	Chloromethane	UJ
GWDUP01_011519	8260C	75-71-8	Dichlorodifluoromethane	UJ
GWDUP01_011519	8260C	75-01-4	Vinyl chloride	UJ
GWDUP01_011519	8270D	105-67-9	2,4-Dimethylphenol	UJ
GWDUP01_011519	8270D	91-94-1	3,3'-Dichlorobenzidine	UJ
GWDUP01_011519	8270D	106-47-8	4-Chloroaniline	UJ
GWDUP01_011519	8270D	85-68-7	Butyl benzyl phthalate	UJ
GWDUP01_011519	8270D SIM	87-86-5	Pentachlorophenol	U (0.8)
GWTB02_011519	8260C	108-10-1	4-Methyl-2-pentanone	UJ
GWTB02_011519	8260C	74-83-9	Bromomethane	UJ
GWTB02_011519	8260C	74-87-3	Chloromethane	UJ
GWTB02_011519	8260C	75-71-8	Dichlorodifluoromethane	UJ
GWTB02_011519	8260C	75-01-4	Vinyl chloride	UJ
RMW03_011519	8270D SIM	91-57-6	2-Methylnaphthalene	UJ
GWDUP01_011519	8270D SIM	91-57-6	2-Methylnaphthalene	J
RMW03_011519	8270D SIM	50-32-8	Benzo(a)pyrene	J
GWDUP01_011519	8270D SIM	50-32-8	Benzo(a)pyrene	J
RMW03_011519	9012B	57-12-5	Cyanide, Total	J
GWDUP01_011519	9012B	57-12-5	Cyanide, Total	J
RMW01_011619	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW01_011619	6020B	7440-36-0	Antimony, Total	U (0.004)
RMW01_011619	6020B	7440-47-3	Chromium, Dissolved	U (0.001)
RMW01_011619	8260C	594-20-7	2,2-Dichloropropane	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RMW01_011619	8260C	74-83-9	Bromomethane	UJ
RMW01_011619	8260C	75-71-8	Dichlorodifluoromethane	UJ
RMW01_011619	8270D	95-95-4	2,4,5-Trichlorophenol	UJ
RMW01_011619	8270D	88-06-2	2,4,6-Trichlorophenol	UJ
RMW01_011619	8270D	105-67-9	2,4-Dimethylphenol	UJ
RMW01_011619	8270D	606-20-2	2,6-Dinitrotoluene	UJ
RMW01_011619	8270D	106-47-8	4-Chloroaniline	UJ
RMW01_011619	8270D	65-85-0	Benzoic Acid	UJ
RMW01_011619	8270D	131-11-3	Dimethyl phthalate	UJ
RMW07_011619	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW07_011619	6020B	7440-36-0	Antimony, Total	U (0.004)
RMW07_011619	6020B	7440-47-3	Chromium, Dissolved	U (0.001)
RMW07_011619	6020B	7439-89-6	Iron, Dissolved	U (0.05)
RMW07_011619	8260C	594-20-7	2,2-Dichloropropane	UJ
RMW07_011619	8260C	74-83-9	Bromomethane	UJ
RMW07_011619	8260C	75-71-8	Dichlorodifluoromethane	UJ
RMW07_011619	8270D	95-95-4	2,4,5-Trichlorophenol	UJ
RMW07_011619	8270D	88-06-2	2,4,6-Trichlorophenol	UJ
RMW07_011619	8270D	105-67-9	2,4-Dimethylphenol	UJ
RMW07_011619	8270D	606-20-2	2,6-Dinitrotoluene	UJ
RMW07_011619	8270D	106-47-8	4-Chloroaniline	UJ
RMW07_011619	8270D	65-85-0	Benzoic Acid	UJ
RMW07_011619	8270D	131-11-3	Dimethyl phthalate	UJ
RMW07_011619	537(M)	27619-97-2	6:2FTS	U (1.82)
RMW09_011619	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW09_011619	6020B	7440-36-0	Antimony, Total	U (0.004)
RMW09_011619	6020B	7440-47-3	Chromium, Dissolved	U (0.001)
RMW09_011619	8260C	123-91-1	1,4-Dioxane	UJ
RMW09_011619	8260C	74-83-9	Bromomethane	UJ
RMW09_011619	8260C	87-68-3	Hexachlorobutadiene	UJ
RMW09_011619	8270D	95-95-4	2,4,5-Trichlorophenol	UJ
RMW09_011619	8270D	88-06-2	2,4,6-Trichlorophenol	UJ
RMW09_011619	8270D	105-67-9	2,4-Dimethylphenol	UJ
RMW09_011619	8270D	606-20-2	2,6-Dinitrotoluene	UJ
RMW09_011619	8270D	106-47-8	4-Chloroaniline	UJ
RMW09_011619	8270D	65-85-0	Benzoic Acid	UJ
RMW09_011619	8270D	131-11-3	Dimethyl phthalate	UJ
RMW09_011619	537(M)	27619-97-2	6:2FTS	U (1.57)

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RMW09_011619	537(M)	2991-50-6	NEtFOSAA	U (2.07)
GWFB02_011619	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
GWFB02_011619	6020B	7440-47-3	Chromium, Dissolved	U (0.001)
GWFB02_011619	6020B	7439-89-6	Iron, Dissolved	U (0.05)
GWFB02_011619	6020B	7439-89-6	Iron, Total	U (0.05)
GWFB02_011619	8260C	75-35-4	1,1-Dichloroethene	UJ
GWFB02_011619	8260C	108-10-1	4-Methyl-2-pentanone	UJ
GWFB02_011619	8260C	74-83-9	Bromomethane	UJ
GWFB02_011619	8260C	74-87-3	Chloromethane	UJ
GWFB02_011619	8260C	75-71-8	Dichlorodifluoromethane	UJ
GWFB02_011619	8260C	75-01-4	Vinyl chloride	UJ
GWFB02_011619	8270D	95-95-4	2,4,5-Trichlorophenol	UJ
GWFB02_011619	8270D	88-06-2	2,4,6-Trichlorophenol	UJ
GWFB02_011619	8270D	105-67-9	2,4-Dimethylphenol	UJ
GWFB02_011619	8270D	606-20-2	2,6-Dinitrotoluene	UJ
GWFB02_011619	8270D	106-47-8	4-Chloroaniline	UJ
GWFB02_011619	8270D	65-85-0	Benzoic Acid	UJ
GWFB02_011619	8270D	131-11-3	Dimethyl phthalate	UJ
GWFB02_011619	537(M)	27619-97-2	6:2FTS	J
GWTB03_011619	8260C	75-35-4	1,1-Dichloroethene	UJ
GWTB03_011619	8260C	108-10-1	4-Methyl-2-pentanone	UJ
GWTB03_011619	8260C	74-83-9	Bromomethane	UJ
GWTB03_011619	8260C	74-87-3	Chloromethane	UJ
GWTB03_011619	8260C	75-71-8	Dichlorodifluoromethane	UJ
GWTB03_011619	8260C	75-01-4	Vinyl chloride	UJ
RMW10_011719	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW10_011719	8081B	8001-35-2	Toxaphene	UJ
RMW10_011719	8260C	95-93-2	1,2,4,5-Tetramethylbenzene	J
RMW10_011719	8260C	594-20-7	2,2-Dichloropropane	UJ
RMW10_011719	8270D SIM	208-96-8	Acenaphthylene	J
RMW11_011719	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW11_011719	8081B	8001-35-2	Toxaphene	UJ
RMW11_011719	8260C	95-93-2	1,2,4,5-Tetramethylbenzene	J
RMW11_011719	8260C	594-20-7	2,2-Dichloropropane	UJ
RMW11_011719	8270D SIM	208-96-8	Acenaphthylene	J
RMW14_011719	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW14_011719	8081B	8001-35-2	Toxaphene	UJ
RMW14_011719	8260C	95-93-2	1,2,4,5-Tetramethylbenzene	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RMW14_011719	8260C	594-20-7	2,2-Dichloropropane	UJ
RMW14_011719	8270D SIM	208-96-8	Acenaphthylene	J
RMW16_011719	6020B	7440-36-0	Antimony, Dissolved	U (0.004)
RMW16_011719	6020B	7440-36-0	Antimony, Total	U (0.004)
RMW16_011719	8081B	8001-35-2	Toxaphene	UJ
RMW16_011719	8260C	95-93-2	1,2,4,5-Tetramethylbenzene	UJ
RMW16_011719	8260C	594-20-7	2,2-Dichloropropane	UJ
RMW16_011719	8270D SIM	208-96-8	Acenaphthylene	UJ
RMW17_011719	8081B	8001-35-2	Toxaphene	UJ
RMW17_011719	8260C	95-93-2	1,2,4,5-Tetramethylbenzene	UJ
RMW17_011719	8260C	594-20-7	2,2-Dichloropropane	UJ
RMW17_011719	8270D SIM	208-96-8	Acenaphthylene	J
GWTB04_011719	8260C	95-93-2	1,2,4,5-Tetramethylbenzene	UJ
GWTB04_011719	8260C	594-20-7	2,2-Dichloropropane	UJ

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by SW-846 Method 8260C:

L1901689

The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) WG1198696-3/4 exhibited a percent recovery or relative percent difference (RPD) outside of the control limits for chloromethane (54% LCS/55% LCSD), bromomethane (29% LCSD; 39% RPD), and 4-methyl-2-pentanone (22% RPD). The associated results for samples RMW18_011419, RMW22_011419, and GWTB01_011419 are qualified as "UJ" based on potential low and indeterminate bias.

The initial calibration (ICAL) for instrument VOA122 exhibited an average RF below the control limit for 1,4-dioxane (0.001). The associated results for samples RMW18_011419, RMW22_011419, and GWTB01_011419 are qualified as "UJ" based on potential low bias.

The continuing calibration verification (CCV) for instrument VOA122 on 1/17/19 at 7:21 exhibited a percent difference above the control limit for dichlorodifluoromethane (43.6%), chloromethane (46.2%), vinyl chloride (25.6%), bromomethane (57%), and 1,1-dichloroethene (21.6%). The associated results for samples RMW18_011419, RMW22_011419, and GWTB01_011419 are qualified as "UJ" due to potential indeterminate bias. The chloromethane and bromomethane results were previously qualified based on the LCS/LCSD recoveries.

L1901865

The LCS/LCSD WG1198696-3/4 exhibited a percent difference below the control limit or an RPD above the control limit for chloromethane (54%/55%), bromomethane (29% LCSD; 39% RPD), and 4-methyl-2-pentanone (22% RPD). The associated results for samples RMW03_011519, RMW04_011519, RMW05_011519, GWDUP01_011519, and GWTB02_011519 are qualified as "UJ" based on potential low or indeterminate bias.

The CCV for instrument VOA122 exhibited a percent difference above the control limit for dichlorodifluoromethane (43.6%), chloromethane (46.2%), vinyl chloride (25.6%), bromomethane (57%), and 1,1-dichloroethene (21.6%). The associated results for samples RMW03_011519, RMW04_011519, RMW05_011519, GWDUP01_011519, and GWTB02_011519 are qualified as "UJ" based on potential low bias. The chloromethane and bromomethane results were previously qualified based on the LCS/LCSD recoveries.

L1902070

The LCS/LCSD WG1198696-3/4 exhibited a percent difference below the control limit or RPD above the control limit for chloromethane (54%/55%), bromomethane (29% LCSD; 39% RPD), and 4-methyl-2-pentanone (22% RPD). The associated results for samples GWFB02_011619 and GWTB03_011619 are qualified as "UJ" based on potential low or indeterminate bias.

The LCS/LCSD WG1198987-3/4 exhibited a percent difference below the control limit for 2,2-dichloropropane (62%). The associated results for samples RMW01_011619 and RMW07_011619 are qualified as "UJ" based on potential indeterminate bias.

The LCS/LCSD WG119885-3/4 exhibited a percent difference below the control limit for bromomethane (32%/36%) and a RPD above the control limit for 1,4-dioxane (36% RPD). The associated results for sample RMW09_011619 are qualified as "UJ" based on potential low and indeterminate bias, respectively.

The initial calibration verification (ICV) for instrument ELAINE exhibited a percent difference above the control limit for dichlorodifluoromethane (-47.4%). The associated results for samples

RMW01_011619 and RMW07_011619 are qualified as "UJ" based on potential indeterminate bias.

The CCV for instrument VOA122 on 1/17/19 at 7:21 exhibited a percent difference above the control limit for dichlorodifluoromethane (43.6%), chloromethane (46.2%), vinyl chloride (25.6%), bromomethane (57%), and 1,1-dichloroethene (21.6%). The associated results for samples GWFB02_011619 and GWTB03_011619 are qualified as "UJ" based on potential indeterminate bias. The associated chloromethane and bromomethane results were previously qualified based on LCS/LCSD recoveries.

The CCV for instrument ELAINE on 1/18/19 at 10:34 exhibited a percent difference for bromomethane (48.6%) and 2,2-dichloropropane (34.1%). The associated bromomethane results for samples RMW01_011619 and RMW07_011619 are qualified as "UJ" based on potential indeterminate bias. The 2,2-dichloropropane results were previously qualified based on the LCS/LCSD recoveries.

The CCV for instrument VOA122 on 1/21/18 at 8:17 exhibited a percent recovery above the control limit for 1,4-dioxane (34.6%) and hexachlorobutadiene (29.4%). The associated hexachlorobutadiene result for sample RMW09_011619 is qualified as "UJ" based on potential indeterminate bias. The 1,4-dioxane result was previously qualified based on the LCS/LCSD recoveries.

L1902340

The LCSD WG1199942-4 exhibited a percent recovery below the control limit for 1,2,4,5-tetramethylbenzene (60%). The associated results for samples RMW10_011719, RMW11_011719, RMW14_011719, RMW16_011719, RMW17_011719, and GWTB04_011719 are qualified as "J" or "UJ" based on potential low bias.

The CCV for instrument VOA108 on 1/22/2019 at 9:46 exhibited a percent difference above the control limit for 2,2-dichloropropane (27.2%). The associated results for samples RMW10_011719, RMW11_011719, RMW14_011719, RMW16_011719, RMW17_011719, and GWTB04_011719 are qualified as "UJ" based on potential indeterminate bias.

SVOCs by SW-846 Methods 8270D and 8270D SIM:

L1901689

The LCS/LCSD WG1197576-2/3 exhibited a percent recovery or RPD above the control limit for hexachlorocyclopentadiene (31% RPD), 1,2,4,5-tetrachlorobenzene (32% RPD), and 4-

nitrophenol (86%/89% LCS/LCSD). The associated results for samples RMW18_011419 and RMW22_011419 are qualified as "UJ" based on potential indeterminate bias.

L1901865

The LCS/LCSD WG1198362-2/3 exhibited a percent difference above the control limit for 3,3'-dichlorobenzidine (49% RPD), 4-chloroaniline (41% RPD), and 2,4-dimethylphenol (29% LCS, 92% RPD). The associated results for samples RMW03_011519, RMW04_011519, RMW05_011519, and GWDUP01_011519 are qualified as "UJ" based on potential indeterminate bias.

The CCV for instrument SV107 on 1/18/19 at 9:48 exhibited a percent difference above the control limit for benzyl butyl phthalate (-20.2%). The associated results for samples RMW03_011519, RMW04_011519, RMW05_011519, and GWDUP01_011519 are qualified as "UJ" based on potential indeterminate bias.

The method blank WG1168363-1 exhibited a detection of pentachlorophenol (0.18 ug/l). The associated result for samples RMW03_011519, RMW05_011519, and GWDUP01_011519 are qualified as "U" at the reporting limit due to potential high bias.

L1902070

The LCS/LCSD WG1198691-2/3 exhibited a percent difference or RPD outside of the control limits for 4-chloroaniline (38% RPD) and 2,4-dimethylphenol (10%/29% LCS/LCSD; 97% RPD). The associated results for samples RMW01_011619, RMW07_011619, RMW09_011619, and GWFB02_011619 are qualified as "UJ" based on potential indeterminate bias.

The CCV for instrument SV107 on 1/19/19 at 7:24 exhibited a percent difference above the control limit for benzoic acid (-21.2%), 2,4,6-trichlorophenol (-21.5%), 2,4,5-trichlorophenol (-25.7%), dimethyl phthalate (-25.8%), and 2,6-dinitrotoluene (-27.4%). The associated results for samples RMW01_011619, RMW07_011619, RMW09_011619, and GWFB02_011619 are qualified as "UJ" based on potential indeterminate bias.

L1902340

The CCV for instrument SV119 on 1/22/19 at 9:35 exhibited a percent difference above the control limit for acenaphthylene (-20.9%). The associated results for samples RMW10_011719, RMW11_011719, RMW14_011719, RMW16_011719, and RMW17_011719 are qualified as "J" or "UJ" based on potential indeterminate bias.

PFAS by EPA Method 537:

L1901689

The method blank WG1198461-1 exhibited a detection of 6:2FTS at a concentration of 1.28 ng/l. The associated detections for samples GWFB01_011419 and RMW22_011419 are qualified as "U" at the reporting limit due to potential high bias.

The field blank sample GWFB01_011419 exhibited a detection of 6:2FTS (1.05 ng/l) and perfluorooctanesulfonic acid (0.972 ng/l). The detections in the field blank sample are greater than 1/3 of the reporting limit, the associated perfluorooctanesulfonic acid result is qualified as "J" for sample RMW22_011419 due to potential high bias. The 6:2FTS result was previously qualified based on the method blank contamination.

L1902070

The method blank WG1198461-1 exhibited a detection of 6:2FTS at 1.28 ng/l. The associated results for samples RMW07_011619 and RMW09_011619 are qualified as "U" at the reporting limit and sample GWFB02_011619 is qualified as "J" due to potential high bias.

The field blank sample GWFB02_011619 exhibited a detection of 6:2FTS (2.08 ng/l), n-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA) (0.428 ng/l), and n- ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA) (0.6950 ng/l). The associated NEtFOSAA result for sample RMW09_011619 is qualified as "U" at the reporting limit due to potential high bias. The additional results were non-detects or were previously qualified based on the method blank contamination.

Herbicides by SW-846 Method 8151A:

L1901689

The CCV for instrument PEST17 on 1/18/19 at 16:03 exhibited a percent difference above the control limit for 2,4,5-T (-26.8%). The associated results for samples RMW18_011419 and RMW22_011419 are qualified as "UJ" based on potential indeterminate bias.

L1901865

The CCV for instrument PEST17 on 1/19/19 at 13:19 exhibited a percent difference above the control limit for 2,4,5-T (-25.8%). The associated results for samples RMW03_011519 and RMW05_011519 are qualified as "UJ" based on potential indeterminate bias.

Pesticides by SW-846 Method 8081B:

L1901865

The CCV for instrument PEST10 on 1/21/19 at 18:51 exhibited a percent difference above the control limit for toxaphene. The associated results for samples RMW03_011519, RMW05_011519, and GWDUP01_011519 are qualified as "UJ" based on potential indeterminate bias.

L1902340

The CCV for instrument PEST20 on 1/22/19 at 10:11 exhibited a percent difference above the control limit for toxaphene. The associated results for samples RMW10_011719, RMW11_011719, RMW14_011719, RMW16_011719, and RMW17_011719 are qualified as "UJ" based on potential indeterminate bias.

Metals by SW-846 Methods 6010D:

L1901689

The method blank sample WG1197826-1 exhibited a detection of dissolved antimony (0.00056 mg/l), dissolved iron (0.0443 mg/l), and dissolved manganese (0.00122 mg/l). The associated antimony results for samples RMW18_011419 and RMW22_011419 are qualified as "U" at the reporting limit due to potential high bias. The additional results were reported above the reporting limit and no qualification is necessary.

The method blank sample WG1197906-1 exhibited detections of antimony (0.00063 mg/l), chromium (0.00025 mg/l), and iron (0.0294 mg/l). The associated antimony results for samples RMW18_011419 and RMW22_011419 are qualified as "U" at the reporting limit due to potential high bias. The additional results were reported above the reporting limit and no qualification is necessary.

L1901865

The method blank WG1198261-1 exhibited a detection of dissolved chromium (0.0022 mg/l), dissolved iron (0.0328 mg/l), and dissolved sodium (0.0384 mg/l). The associated dissolved chromium results for samples RMW03_011519, RMW04_011519, and GWDUP01_011519 are qualified as "U" at the reporting limit due to potential high bias. The additional analytes were detected above the reporting limit in the associated samples; no qualification is necessary.

The method blank WG1198177-1 exhibited a detection of antimony (0.00045 mg/l), calcium (0.0394 mg/l), and sodium (0.0432 mg/l). The associated total antimony results for samples RMW03_011519, RMW04_011519, and RMW05_011519 are qualified as "U" at the reporting

limit due to potential high bias. The additional analytes were detected above the reporting limit in the associated samples; no qualification is necessary.

The continuing calibration blank (CCB) R1150350-12 exhibited detections of dissolved antimony (0.872 ug/l), dissolved iron (19.5 ug/l), dissolved sodium (38.3 ug/l) and dissolved thallium (0.145 ug/l). The associated dissolved antimony results for samples RMW03_011519, RMW04_011519, RMW05_011519, and GWDUP01_011519 and the associated dissolved thallium results for samples RMW03_011519 and RMW04_011519 are qualified as "U" at the reporting limit due to potential high bias. The additional results were above the associated reporting limits and no qualification is necessary.

The CCB R1150350-12 exhibited detections of total antimony (0.872 ug/l), total iron (19.5 ug/l), total sodium (38.3 ug/l) and total thallium (0.145 ug/l). The associated total thallium result for sample RMW04_011519 is qualified as "U" at the reporting limit due to potential high bias. The additional results were above the associated reporting limits and no qualification is necessary.

L1902070

The method blank WG1198536-1 exhibited detections of dissolved antimony (0.00054 mg/l), dissolved chromium (0.00037 mg/l), dissolved iron (0.0411 mg/L), dissolved sodium (0.0323 mg/l) and dissolved thallium (0.00015 mg/l). The associated detections below the reporting limit for samples RMW01_011619, RMW07_011619, RMW09_011619, and GWFB02_011619 are qualified as "U" at the reporting limit for dissolved metals; antimony, chromium, iron, and thallium.

The method blank WG1198566-1 exhibited detections of total antimony (0.0052 mg/l) and total iron (0.0360 mg/). The associated total antimony results for samples RMW01_011619, RMW07_011619, RMW09_011619 and the total thallium result for sample GWFB02_011619 are qualified as "U" at the reporting limit due to potential high bias.

L1902340

The method blank WG1198950-1 exhibited detections of total antimony (0.00048 mg/l) and total iron (0.0250 mg/l). The associated total antimony result for sample RMW16_011719 is qualified as "U" at the reporting limit due to potential high bias. The additional results were above the reporting limit for non-detects; no qualification is necessary.

The method blank WG1198915-1 exhibited detections of dissolved antimony (0.00059 mg/l), dissolved iron (0.0260 mg/l), and dissolved sodium (0.0319 mg/l). The associated dissolved antimony results for samples RMW10_011719, RMW11_011719, RMW14_011719, and

RMW16_011719 are qualified as "U" at the reporting limit due to potential high bias. The additional results were above the reporting limit for non-detects; no qualification is necessary.

Mercury by SW-846 Method 7470A:

L1901865

The matrix spike/matrix spike duplicate (MS/MSD) WG1198576-3/4 exhibited a percent recovery and RPD outside of the control limits for dissolved mercury (56% MSD; 39% RPD). The associated results for the parent sample, RMW04_011519 qualified as "UJ" based on potential low bias.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. The section below describes the other deficiencies that were identified.

VOCs by SW-846 Method 8260C:

L1901689

The ICV for instrument VOA1222 exhibited a percent difference above the control limit for bromomethane (-30.4%). The associated results were previously qualified based on the LCS/LCSD percent recovery.

L1901865

The MS/MSD WG1198696-6/7 exhibited a percent recovery above the control limit for chloromethane (51%/48%), bromomethane (12%/12%), and trans-1,4-dichloro-2-butene (66%/58%); no qualification is necessary.

The ICV for instrument VOA122 exhibited a percent difference above the control limit for bromomethane (-30.4%). The associated results were previously qualified based on the LCS/LCSD recoveries.

L1902070

The ICV for instrument VOA122 exhibited a percent difference above the control limit for bromomethane (-30.4%). The associated results were previously qualified based on the LCS/LCSD percent recoveries.

SVOCs by SW-846 Methods 8270D SIM:

L1901865

The MS/MSD WG1198362-4/5 exhibited a percent difference outside of the control limit for 3,3'-dichlorobenzidine (18%/19%); no qualification is necessary.

L1902070

The surrogate 2,4,6-tribromophenol was recovered above the control limit at 132% for sample RMW09_011619. The additional acid extractible surrogates were recovered within the appropriate range; no qualification is necessary.

Pesticides by SW-846 Method 8081B:

L1901865

The surrogates 2,4,5,6-tetrachloro-m-xylene and decachlorobiphenyl were not recovered (i.e. 0% recovery) for sample RMW05_011519. The sample was diluted by a factor of 50X; no qualification is necessary.

PFAS by EPA Method 537:

L1901689

The isotope dilution standard perfluoro(1,2-13C2)tetradecanoic acid was recovered above the control limit at 155% for sample GWFB01. The associated target analyte result for sample GWFB01 is a non-detect; no qualification is necessary.

L1902070

The isotope dilution standard 1H,1H,2H,2H-perfluoro(1,2-13C2)decanesulfonic acid (M2-8:FTS) was recovered above the control limit at 191% for sample RMW09_011619. The associated target analyte result for sample RMW09_011619 is a non-detect; no qualification is necessary.

Metals by SW-846 Methods 6010D:

L1901689

The MS WG1197826-1 (parent sample RMW18_011419) exhibited a percent recovery below the control limit for dissolved calcium (40%) and dissolved sodium (64%). The associated post digestion spike recoveries are within the acceptable ranges; no qualification is necessary.

The MS WG1197906-3 (parent sample RMW18_011419) exhibited a percent recovery below the control limit for total calcium (30%) and total iron (0%). The associated post digestion spike recoveries are within the acceptable range; no qualification is necessary.

L1901865

The MS/MSD WG1198261-3/4 exhibited a percent recovery above the control limit for dissolved calcium (320%/510%), dissolved iron (141%/185%), dissolved magnesium (161%/182%), dissolved potassium (137% MSD), and dissolved sodium (310%/370%). The sample concentration is greater than 4X the spike concentration added for calcium, iron, magnesium, and sodium; no qualification is necessary.

The MS/MSD WG1198177-3/4 exhibited a percent recovery above the control limit for calcium (250%/310%), iron (151%/161%), magnesium (152%/168%), and sodium (290%/310%). Parent sample -02; sample concentration greater than 4x the spike for calcium, iron, magnesium, and sodium. Calcium (130%) and sodium (136%) out of range for post digestion spike; no qualification is necessary.

L1902070

The MS WG1198536-3 (-01) percent recovery outside of the control limits for dissolved metals calcium (240%), magnesium (134%), selenium (35%), and sodium (270%). The sample concentration was greater than 4X the spike concentration for calcium, magnesium, and sodium. The post digestion spike was within the acceptable range for selenium; no qualification is necessary.

The MS WG1198566-3 exhibited a percent recovery above the control limit for total metals; iron (130%), magnesium (200%), and sodium (130%). The associated parent sample is not a site specific sample; no qualification is necessary.

The laboratory duplicate WG1198566-4 and associated parent sample exhibited a RPD above the control limit for total nickel (26%). The parent sample is not a site specific sample; no qualification is necessary.

L1902340

The MS WG1198950-3 exhibited a percent recovery below the control limit for the total metals calcium (0%), magnesium (0%), and sodium (0%). The sample concentration was greater than 4X the spike concentration and the associated parent sample was not a site specific sample; no qualification is necessary.

Mercury by SW-846 Method 7470A:

L1902070

The MS/MSD WG1198576-3/4 exhibited a percent recovery below the control limit (56% MSD) and an RPD above the control limit (39%). The associated parent sample was not a site specific sample; no qualification is necessary.

L1902340

The method blank WG1199430-1 exhibited a detection at a concentration of dissolved mercury 0.00008 mg/l. The associated results are non-detects; no qualifications are necessary

COMMENTS:

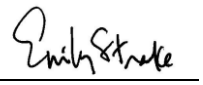
Field duplicate and parent sample pairs were collected and analyzed for all parameters. For results less than 5X the RL, analytes meet the precision criteria if the absolute difference is less than ±1X the RL. For results greater than 5X the RL, analytes meet the precision criteria if the RPD is less than or equal to 30% for groundwater. The following analytes did not meet the precision criteria:

- RMW03_011519 and GWDUP01_011519: 2-methylnaphthalene, benzo(a)pyrene, and total cyanide.

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:



Emily Strake, CEP
Senior Project Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

2700 Kelly Road, Suite 200 Warrington, PA 18976 T: 215.491.6500 F: 215.491.6501
Mailing Address: P.O. Box 1569 Doylestown, PA 18901

To: Julia Leung, Langan Project Engineer

From: Emily Strake, Langan Senior Project Chemist

Date: February 28, 2019

Re: Data Usability Summary Report
For Gerard & 146th Street
Groundwater Samples Collected in September 2017
Langan Project No.: 170487003

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of groundwater samples collected in September 2017 by Langan Engineering and Environmental Services ("Langan") at the Gerard & 146th Street site ("the Site") in Bronx, NY. The samples were analyzed by Alpha Analytical Laboratories of Westborough, MA (NYSDOH ELAP registration # 11148) for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCB), and total and dissolved metals including mercury (Hg) by the analytical methods listed below.

- VOCs by SW-846 Method 8260C
- SVOCs by SW-846 Methods 8270D and 8270C SIM
- PCBs by SW-846 Method 8082A
- Total and Dissolved Metals by SW-846 Method 6020A
- Total and Dissolved Hg by SW-846 Method 7470A

Table 1, below, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

TABLE 1: SAMPLE SUMMARY

SDG	*Lab Sample ID*	*Client Sample ID*	*Sample Date*	*Analytical Parameters*
L1731603	L1731603-01	FB02_090717	9/7/2017	VOCs, SVOCs, Metals, Hg
L1731603	L1731603-06	MW01_090717	9/7/2017	VOCs, SVOCs, Metals, Hg
L1731603	L1731603-07	TB03_090717	9/7/2017	VOCs
L1731603	L1731603-08	MW01_090717 (LAB FILTER)	9/7/2017	VOCs, SVOCs, Metals, Hg
L1731771	L1731771-01	MW08_090817	9/8/2017	VOCs, SVOCs, Metals, Hg, PCBs
L1731771	L1731771-02	MW06_090817	9/8/2017	VOCs, SVOCs, Metals, Hg, PCBs
L1731771	L1731771-03	FB03_090817	9/8/2017	VOCs, SVOCs, Metals, Hg, PCBs
L1731771	L1731771-04	TB03_090817	9/8/2017	VOCs

Validation Overview

This data validation was performed in accordance with USEPA Region II Standard Operating Procedure (SOP) #HW-34A, "Trace Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-33A, "Low/Medium Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-35A, "Semivolatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-37A, "Polychlorinated Biphenyl (PCB) Aroclor Data Validation" (June 2015, Revision 0), USEPA Region II SOP #HW-3b, "ICP-MS Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-3c, "Mercury and Cyanide Data Validation" (September 2016, Revision 1), the USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA-540-R-2017-002, January 2017), USEPA "National Functional Guidelines for Inorganic Superfund Methods Data Review" (EPA-540-R-2017-001, January 2017) and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. Items subject to review in this memorandum include holding times, sample preservation, instrument tuning, instrument calibration, laboratory blanks, laboratory control samples, system monitoring compounds, internal standard area counts, matrix spike/spike duplicate recoveries, target compound identification and quantification, chromatograms, overall system performance, serial dilutions, dual column performance, field duplicate, and trip blank sample results.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

R – The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

J – The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The analyte was not detected at a level greater than or equal to the reporting limit (RL); however, the reported RL is approximate and may be inaccurate or imprecise.

U – The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

NJ – The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are not sufficiently valid and technically supportable to be used for data interpretation. Data that is otherwise qualified due to minor data quality anomalies are usable, as qualified.

TABLE 2: VALIDATOR-APPLIED QUALIFICATION:

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
FB02_090717	8260C	75-35-4	1,1-DICHLOROETHENE	UJ
FB02_090717	8260C	87-61-6	1,2,3-TRICHLOROBENZENE	UJ
FB02_090717	8260C	96-18-4	1,2,3-TRICHLOROPROPANE	UJ
FB02_090717	8260C	123-91-1	1,4-DIOXANE	UJ
FB02_090717	8260C	591-78-6	2-HEXANONE	UJ
FB02_090717	8270D	88-75-5	2-NITROPHENOL	UJ
FB02_090717	6020A	7440-36-0	ANTIMONY, TOTAL	U (0.004)
FB02_090717	8270D	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	UJ
FB02_090717	8260C	74-83-9	BROMOMETHANE	UJ
FB02_090717	8260C	75-00-3	CHLOROETHANE	UJ
FB02_090717	6020A	7440-47-3	CHROMIUM, TOTAL	U (0.001)
FB02_090717	8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
FB02_090717	8260C	91-20-3	NAPHTHALENE	UJ
FB02_090717	8260C	127-18-4	TETRACHLOROETHENE	UJ
FB02_090717	8260C	156-60-5	TRANS-1,2-DICHLOROETHENE	UJ
FB02_090717	8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
MW01_090717	8260C	630-20-6	1,1,1,2-TETRACHLOROETHANE	UJ
MW01_090717	8260C	71-55-6	1,1,1-TRICHLOROETHANE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
MW01_090717	8260C	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	UJ
MW01_090717	8260C	594-20-7	2,2-DICHLOROPROPANE	UJ
MW01_090717	8270D	88-75-5	2-NITROPHENOL	UJ
MW01_090717	8260C	67-64-1	ACETONE	UJ
MW01_090717	6020A	7440-36-0	ANTIMONY, DISSOLVED	U (0.004)
MW01_090717	6020A	7440-36-0	ANTIMONY, TOTAL	U (0.004)
MW01_090717	8260C	75-27-4	BROMODICHLOROMETHANE	UJ
MW01_090717	8260C	75-25-2	BROMOFORM	UJ
MW01_090717	8260C	74-83-9	BROMOMETHANE	UJ
MW01_090717	8260C	56-23-5	CARBON TETRACHLORIDE	UJ
MW01_090717	6020A	7440-50-8	COPPER, DISSOLVED	J
MW01_090717	8260C	87-68-3	HEXACHLOROBUTADIENE	UJ
MW01_090717	8260C	1634-04-4	METHYL TERT BUTYL ETHER	UJ
MW01_090717	8260C	127-18-4	TETRACHLOROETHENE	J
MW01_090717	8260C	10061-02-6	TRANS-1,3-DICHLOROPROPENE	UJ
MW01_090717	8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
MW01_090717 (LAB FILTER)	6020A	7440-36-0	ANTIMONY, DISSOLVED	U (0.004)
TB03_090717	8260C	75-35-4	1,1-DICHLOROETHENE	UJ
TB03_090717	8260C	123-91-1	1,4-DIOXANE	UJ
TB03_090717	8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
FB03_090817	8260C	75-34-3	1,1-DICHLOROETHANE	UJ
FB03_090817	8260C	75-35-4	1,1-DICHLOROETHENE	UJ
FB03_090817	8260C	563-58-6	1,1-DICHLOROPROPENE	UJ
FB03_090817	8260C	87-61-6	1,2,3-TRICHLOROBENZENE	UJ
FB03_090817	8260C	123-91-1	1,4-DIOXANE	UJ
FB03_090817	6020A	7429-90-5	ALUMINUM, TOTAL	U (0.01)
FB03_090817	6020A	7440-36-0	ANTIMONY, DISSOLVED	U (0.004)
FB03_090817	6020A	7440-36-0	ANTIMONY, TOTAL	U (0.004)
FB03_090817	6020A	7440-39-3	BARIUM, TOTAL	U (0.003)
FB03_090817	8270DSIM	50-32-8	BENZO(A)PYRENE	UJ
FB03_090817	8270DSIM	205-99-2	BENZO(B)FLUORANTHENE	UJ
FB03_090817	8270D	65-85-0	BENZOIC ACID	UJ
FB03_090817	8260C	74-83-9	BROMOMETHANE	UJ
FB03_090817	6020A	7440-70-2	CALCIUM, DISSOLVED	J
FB03_090817	8260C	75-15-0	CARBON DISULFIDE	UJ
FB03_090817	8260C	74-87-3	CHLOROMETHANE	UJ
FB03_090817	6020A	7440-47-3	CHROMIUM, DISSOLVED	U (0.001)

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
FB03_090817	6020A	7440-47-3	CHROMIUM, TOTAL	U (0.001)
FB03_090817	8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
FB03_090817	8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
FB03_090817	8270DSIM	193-39-5	INDENO(1,2,3-CD)PYRENE	UJ
FB03_090817	8260C	91-20-3	NAPHTHALENE	UJ
FB03_090817	6020A	7440-02-0	NICKEL, TOTAL	U (0.002)
FB03_090817	8270DSIM	85-01-8	PHENANTHRENE	U (0.1)
FB03_090817	6020A	7440-23-5	SODIUM, TOTAL	UJ
FB03_090817	8260C	156-60-5	TRANS-1,2-DICHLOROETHENE	UJ
FB03_090817	8260C	75-01-4	VINYL CHLORIDE	UJ
MW06_090817	8260C	79-34-5	1,1,2,2-TETRACHLOROETHANE	UJ
MW06_090817	8260C	75-35-4	1,1-DICHLOROETHENE	UJ
MW06_090817	8260C	96-18-4	1,2,3-TRICHLOROPROPANE	UJ
MW06_090817	8260C	123-91-1	1,4-DIOXANE	UJ
MW06_090817	8260C	78-93-3	2-BUTANONE	UJ
MW06_090817	8260C	591-78-6	2-HEXANONE	UJ
MW06_090817	8270DSIM	83-32-9	ACENAPHTHENE	U (0.1)
MW06_090817	8260C	67-64-1	ACETONE	U (18)
MW06_090817	6020A	7440-36-0	ANTIMONY, DISSOLVED	U (0.004)
MW06_090817	6020A	7440-36-0	ANTIMONY, TOTAL	U (0.004)
MW06_090817	8270DSIM	50-32-8	BENZO(A)PYRENE	UJ
MW06_090817	8270DSIM	205-99-2	BENZO(B)FLUORANTHENE	J
MW06_090817	8270D	65-85-0	BENZOIC ACID	UJ
MW06_090817	6020A	7440-41-7	BERYLLIUM, TOTAL	U (0.00084)
MW06_090817	8260C	74-83-9	BROMOMETHANE	UJ
MW06_090817	6020A	7440-43-9	CADMIUM, TOTAL	U (0.0002)
MW06_090817	6020A	7440-70-2	CALCIUM, DISSOLVED	J
MW06_090817	6020A	7440-47-3	CHROMIUM, DISSOLVED	U (0.001)
MW06_090817	8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
MW06_090817	8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
MW06_090817	8270DSIM	193-39-5	INDENO(1,2,3-CD)PYRENE	UJ
MW06_090817	8260C	91-20-3	NAPHTHALENE	J
MW06_090817	6020A	7440-02-0	NICKEL, DISSOLVED	U (0.013)
MW06_090817	8270DSIM	85-01-8	PHENANTHRENE	U (0.1)
MW06_090817	6020A	7440-23-5	SODIUM, TOTAL	J
MW08_090817	8260C	75-34-3	1,1-DICHLOROETHANE	UJ
MW08_090817	8260C	75-35-4	1,1-DICHLOROETHENE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
MW08_090817	8260C	563-58-6	1,1-DICHLOROPROPENE	UJ
MW08_090817	8260C	87-61-6	1,2,3-TRICHLOROBENZENE	UJ
MW08_090817	8260C	123-91-1	1,4-DIOXANE	UJ
MW08_090817	8270DSIM	83-32-9	ACENAPHTHENE	U (0.31)
MW08_090817	6020A	7440-36-0	ANTIMONY, DISSOLVED	U (0.004)
MW08_090817	6020A	7440-36-0	ANTIMONY, TOTAL	U (0.004)
MW08_090817	6020A	7440-38-2	ARSENIC, TOTAL	U (0.00099)
MW08_090817	6020A	7440-39-3	BARIUM, TOTAL	U (0.01548)
MW08_090817	8270D	65-85-0	BENZOIC ACID	UJ
MW08_090817	8260C	74-83-9	BROMOMETHANE	UJ
MW08_090817	6020A	7440-70-2	CALCIUM, DISSOLVED	J
MW08_090817	8260C	75-15-0	CARBON DISULFIDE	UJ
MW08_090817	8260C	74-87-3	CHLOROMETHANE	UJ
MW08_090817	6020A	7440-47-3	CHROMIUM, DISSOLVED	U (0.001)
MW08_090817	6020A	7440-47-3	CHROMIUM, TOTAL	U (0.00496)
MW08_090817	6020A	7440-48-4	COBALT, TOTAL	U (0.001)
MW08_090817	6020A	7440-50-8	COPPER, DISSOLVED	U (0.0098)
MW08_090817	8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
MW08_090817	8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
MW08_090817	6020A	7439-96-5	MANGANESE, TOTAL	J
MW08_090817	8270DSIM	91-20-3	NAPHTHALENE	U (0.24)
MW08_090817	8260C	91-20-3	NAPHTHALENE	UJ
MW08_090817	6020A	7440-02-0	NICKEL, DISSOLVED	U (0.002)
MW08_090817	6020A	7440-02-0	NICKEL, TOTAL	U (0.00467)
MW08_090817	8270DSIM	85-01-8	PHENANTHRENE	U (0.15)
MW08_090817	6020A	7440-23-5	SODIUM, TOTAL	J
MW08_090817	8260C	156-60-5	TRANS-1,2-DICHLOROETHENE	UJ
MW08_090817	8260C	75-01-4	VINYL CHLORIDE	UJ
TB03_090817	8260C	75-34-3	1,1-DICHLOROETHANE	UJ
TB03_090817	8260C	75-35-4	1,1-DICHLOROETHENE	UJ
TB03_090817	8260C	563-58-6	1,1-DICHLOROPROPENE	UJ
TB03_090817	8260C	87-61-6	1,2,3-TRICHLOROBENZENE	UJ
TB03_090817	8260C	123-91-1	1,4-DIOXANE	UJ
TB03_090817	8260C	74-83-9	BROMOMETHANE	UJ
TB03_090817	8260C	75-15-0	CARBON DISULFIDE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
TB03_090817	8260C	74-87-3	CHLOROMETHANE	UJ
TB03_090817	8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
TB03_090817	8260C	91-20-3	NAPHTHALENE	UJ
TB03_090817	8260C	156-60-5	TRANS-1,2-DICHLOROETHENE	UJ
TB03_090817	8260C	75-01-4	VINYL CHLORIDE	UJ

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by SW-846 Method 8260C:

L1731603:

The lab control sample and duplicate (LCS/LCSD) for batch WG1041014 exhibited percent recoveries below the lower control limit (LCL) for 1,1,1-trichloroethane (66%, 66%), 2,2-dichloropropane (57%, 57%), and carbon tetrachloride (60%, 57%). The associated results in sample MW01_090717 are qualified as "UJ" based on potential low bias.

The LCS/LCSD for batch WG1041384 exhibited a relative percent difference (RPD) above the control limit for 1,4-dioxane (22%). The associated results in sample TB03_090717 are qualified as "UJ" based on potential indeterminate bias.

The continuing calibration verification (CCV) analyzed on 9/12/2017 at 9:43 exhibited a percent difference (%D) above the control limit for dichlorodifluoromethane (33.5%), bromomethane (20.4%), chloroethane (26.3%), trichlorofluoromethane (23.2%), 1,1-dichloroethene (23%), trans-1,2-dichloroethene (20.8%), 1,4-dioxane (-28.1%), tetrachloroethene (21.3%), 2-hexanone (-22%), 1,2,3-trichloropropane (-20.1%), naphthalene (-34%), and 1,2,3-trichlorobenzene (-25.5%). The associated results in sample FB02_090717 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/12/2017 at 14:25 exhibited %D's above the control limit for bromomethane (24.4%), trichlorofluoromethane (28.9%), acetone (23.5%), methyl tert-butyl ether (21.8%), 2,2-dichloropropane (43.3%), carbon tetrachloride (40.2%), 1,1,1-trichloroethane

(33.9%), bromodichloromethane (21%), tetrachloroethene (20.3%), trans-1,3-dichloropropene (26.5%), 1,1,1,2-tetrachloroethane (23%), bromoform (34%), 1,2-dibromo-3-chloropropane (34.6%), and hexachlorobutadiene (25.5%). The associated results in sample MW01_090717 are qualified as "J" or "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/13/2017 at 8:18 exhibited %D's above the control limit for dichlorodifluoromethane (23.9%) and 1,1-dichloroethene (22.4%). The associated results in sample TB03_090717 are qualified as "UJ" based on potential indeterminate bias.

L1731771:

The trip blank (TB) (TB03_090817) exhibited a detection of acetone (2.5 ug/l). The associated results in sample MW06_090817 are qualified as "U" at the sample concentration based on potential blank contamination.

The LCS/LCSD for batch WG1041560 exhibited percent recoveries below the LCL for carbon disulfide (45%, 47%) and chloromethane (25%, 24%). The associated results in samples MW08_090817, FB03_090817, and TB03_090817 are qualified as "UJ" based on potential low bias.

The LCS/LCSD for batch WG1041740 exhibited RPD's above the control limit for naphthalene (49%) and 1,4-dioxane (24%). The associated results in sample MW06_090817 are qualified as "J" or "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/13/2017 20:31 exhibited %D's above the control limit for dichlorodifluoromethane (48.3%), vinyl chloride (39%), bromomethane (45.3%), chloroethane (28.9%), 1,1-dichloroethene (31.4%), trans-1,2-dichloroethene (23.6%), 1,1-dichloroethane (23.1%), 1,1-dichloropropene (25.9%), 1,4-dioxane (-22.4%), and naphthalene (-27.2%), and 1,2,3-trichlorobenzene (-39.4%). The associated results in samples MW08_090817, FB03_090817, and TB03_090817 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/14/2017 at 7:15 exhibited %D's above the control limit for dichlorodifluoromethane (22.7%), bromomethane (54%), 1,1-dichloroethene (20.5%), 2-butanone (-20.5%), 2-hexanone (-22%), and 1,1,2,2-tetrachloroethane (-23.1%), and 1,2,3-trichloropropane (-25.1%). The associated results in sample MW06_090817 are qualified as "J" or "UJ" based on potential indeterminate bias.

SVOCs by SW-846 Methods 8270D and 8270C SIM:

L1731603:

The CCV analyzed on 9/15/2017 at 7:39 exhibited a %D above the control limit for bis(2-ethylhexyl)phthalate (-20.7%). The associated results in sample FB02_090717 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/12/2017 at 9:23 exhibited a %D above the control limit for 2-nitrophenol (-23.4%). The associated results in samples FB02_090717 and MW01_090717 are qualified as "UJ" based on potential indeterminate bias.

L1731771:

The method blank (MB) for batch WG1040341 exhibited detections of acenaphthene (0.04 ug/l) and phenanthrene (0.06 ug/l). The associated results in samples MW08_090817 and MW06_090817 are qualified as "U" at the higher of the sample concentration and the reporting limit based on potential blank contamination.

The field blank (FB) (FB03_090817) exhibited a detection of naphthalene (0.08 ug/l). The associated results in samples MW08_090817 and MW06_090817 are qualified as "U" at the higher of the sample concentration and the reporting limit based on potential blank contamination.

The LCS for batch WG1040338 exhibited a percent recovery below the LCL for hexachlorocyclopentadiene (39%). The associated results in samples MW08_090817, MW06_090817, and FB03_090817 are qualified as "UJ" based on potential low bias.

The LCS/LCSD for batch WG1040338 exhibited a RPD above the control limit for benzoic acid (44%). The associated results in samples MW08_090817, MW06_090817, and FB03_090817 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/14/2017 at 7:34 exhibited %D's above the control limit for benzo(b)fluoranthene (-23.7%), and benzo(a)pyrene (-21.2%), and indeno(1,2,3-cd)pyrene (-22%). The associated results in samples MW06_090817 and FB03_090817 are qualified as "J" or "UJ" based on potential indeterminate bias.

Metals by SW-846 Method 6020A:

L1731603:

The MB for batch WG1040748 exhibited a detection of antimony, total (0.00065 mg/l). The associated results in samples FB02_090717 and MW01_090717 are qualified as "U" at the reporting limit based on potential blank contamination.

The MB for batch WG1040748 exhibited a detection of chromium, total (0.00068 mg/l). The associated results in sample FB02_090717 are qualified as "U" at the reporting limit based on potential blank contamination.

The MB for batch WG1041736 exhibited a detection of antimony, dissolved (0.00052 mg/l). The associated results in sample MW01_090717 are qualified as "U" at the reporting limit based on potential blank contamination.

The MB for batch WG1043235 exhibited a detection of antimony, dissolved (0.00135 mg/l). The associated results in sample MW01_090717 (filtered) are qualified as "U" at the reporting limit based on potential blank contamination.

The FB (FB02_090717) exhibited a detection of antimony, total (0.00049 mg/l). The associated results in sample MW01_090717 are qualified as "U" at the reporting limit based on potential blank contamination.

The matrix spike (MS) for batch WG1041736 exhibited a percent recovery above the upper control limit (UCL) for copper, dissolved (172%). The associated results in sample MW01_090717 are qualified as "J" based on potential high bias.

L1731771:

The MB for batch WG1041626 exhibited detections of antimony, dissolved (0.00137 mg/l) and chromium, dissolved (0.0006 mg/l). The associated results in samples MW08_090817, MW06_090817, and FB03_090817 are qualified as "U" at the reporting limit based on potential blank contamination.

The MB for batch WG1041197 exhibited a detection of aluminum, total (0.00618 mg/l). The associated results in sample FB03_090817 are qualified as "U" at the reporting limit based on potential blank contamination.

The MB for batch WG1041197 exhibited a detection of antimony, total (0.00137 mg/l). The associated results in samples MW08_090817, MW06_090817, and FB03_090818 are qualified as "U" at the reporting limit based on potential blank contamination.

The MB for batch WG1041197 exhibited detections of arsenic, total (0.00021 mg/l) and cobalt, total (0.00059 mg/l). The associated results in sample MW08_090817 are qualified as "U" at the higher of the sample concentration and the reporting limit based on potential blank contamination.

The MB for batch WG1041197 exhibited detections of barium, total (0.00179 mg/l), and chromium, total (0.00087 mg/l), and nickel, total (0.00115 mg/l). The associated results in samples MW08_090817 and FB03_090817 are qualified as "U" at the higher of the sample concentration and the reporting limit based on potential blank contamination.

The MB for batch WG1041197 exhibited detections of beryllium, total (0.0004 mg/l) and cadmium, total (0.00017 mg/l). The associated results in sample MW06_090817 are qualified as "U" at the higher of the sample concentration and the reporting limit based on potential blank contamination.

The FB (FB03_090817) exhibited a detection of nickel, dissolved (0.00301 mg/l). The associated results in samples MW08_090817 and MW06_090817 are qualified as "U" at the higher of the sample concentration and the reporting limit based on potential blank contamination.

The FB (FB03_090817) exhibited a detection of copper, dissolved (0.00109 mg/l). The associated results in sample MW08_090817 are qualified as "U" at the sample concentration based on potential blank contamination.

The MS for batch WG1041197 exhibited a percent recovery below the LCL for sodium, total (51%). The associated results in samples MW08_090817, MW06_090817, and FB03_090817 are qualified as "J" or "UJ" based on potential low bias.

The serial dilution for sample MW08_090817 exhibited a %D above the control limit for manganese, total (22%). The associated result is qualified as "J" based on potential indeterminate bias.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. The section below describes the other deficiencies that were identified.

VOCs by SW-846 Method 8260C:

L1731771:

The LCS/LCSD for batch WG1041560 exhibited a percent recovery above the UCL for 1,2,3-trichlorobenzene (140%, 140%). The associated results are non-detections. No qualification is necessary.

SVOCs by SW-846 Methods 8270D and 8270C SIM:

L1731603:

The LCS/LCSD for batch WG1039521 exhibited a percent recovery above the UCL for p-chloro-m-cresol (100%, 113%). The associated results are non-detections. No qualification is necessary.

L1731771:

The FB (FB03_090817) exhibited detections of naphthalene (0.08 ug/l) and phenanthrene (0.02 ug/l). The associated results were previously qualified. No further action is necessary.

Metals by SW-846 Method 6020A:

L1731603:

The MB for batch WG1041736 exhibited a detection of chromium, dissolved (0.00045 mg/l). The associated results are >10X the contamination. No qualification is necessary.

The TB (TB03_090717) exhibited a detection of acetone (1.8 ug/l). The associated results are non-detections. No qualification is necessary.

The FB (FB02_090717) exhibited detections of aluminum, total (0.0283 mg/l), barium, total (0.00153 mg/l), calcium, total (0.457 mg/l), chromium, total (0.00098 mg/l), copper, total (0.0005 mg/l), iron, total (0.0545 mg/l), lead, total (0.00131 mg/l), magnesium, total (0.0754 mg/l), manganese, total (0.00095 mg/l), nickel, total (0.00148 mg/l), potassium, total (0.102 mg/l), sodium, total (0.176 mg/l), and zinc, total (0.02017 mg/l). The associated results are >10X the contamination. No qualification is necessary.

The MS for batch WG1041736 exhibited a percent recovery below the LCL for antimony, dissolved (37%). The associated results were previously qualified. No further action is necessary.

The MS for batch WG1041736 exhibited a percent recovery above the UCL for aluminum, dissolved (540%), iron, dissolved (700%), lead, dissolved (126%), magnesium, dissolved (193%), and manganese, dissolved (133%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS for batch WG1041736 exhibited a percent recovery below the LCL for calcium, dissolved (0%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS for batch WG1043235 exhibited a percent recovery below the LCL for calcium, dissolved (15%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L1731771:

The MB for batch WG1041197 exhibited detections of copper, total (0.00038 mg/l), and iron, total (0.0263 mg/l), and lead, total (0.00056 mg/l). The associated results are >10X the contamination. No qualification is necessary.

The MB for batch WG1041197 exhibited a detection of thallium, total (0.00019 mg/l). The associated results are non-detections. No qualification is necessary.

The FB (FB03_090817) exhibited detections of antimony, dissolved (0.00079 mg/l) and chromium, dissolved (0.00062 mg/l). The associated results were previously qualified. No further action is necessary.

The FB (FB03_090817) exhibited detections of barium, dissolved (0.00017 mg/l), calcium, dissolved (0.0555 mg/l), and manganese, dissolved (0.00107 mg/l), and sodium, dissolved (0.246 mg/l). The associated results are >10X the contamination. No qualification is necessary.

The FB (FB03_090817) exhibited detections of aluminum, total (0.00357 mg/l) and barium, total (0.0007 mg/l). The associated results are >10X the contamination. No qualification is necessary.

The FB (FB03_090817) exhibited detections of antimony, total (0.00086 mg/l), chromium, total (0.00078 mg/l), and nickel, total (0.0006 mg/l). The associated results were previously qualified. No further action is necessary.

Mercury by SW-846 Method 7470A:

L1731603:

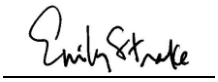
The continuing calibration blank (R1004799-4) exhibited a detection of mercury, dissolved (0.000172 mg/l). The associated results are non-detections. No qualification is necessary.

COMMENTS:

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:



Emily Strake, CEP
Senior Project Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

2700 Kelly Road, Suite 200 Warrington, PA 18976 T: 215.491.6500 F: 215.491.6501
Mailing Address: P.O. Box 1569 Doylestown, PA 18901

To: Tyler Goodnough, Langan Staff Scientist

From: Emily Strake, Langan Senior Project Chemist

Date: February 12, 2019

Re: Data Usability Summary Report
For Gerard & 146th Street
Soil Samples Collected in December 2018 and January 2019
Langan Project No.: 170487001

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in December 2018 and January 2019 by Langan Engineering and Environmental Services ("Langan") at the Gerard & 146th Street site ("the site"). The samples were analyzed by Alpha Analytical Laboratories, Inc. (NYSDOH NELAC registration # 11148) for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), herbicides, polychlorinated biphenyls (PCBs), pesticides, metals, mercury (Hg), toxicity characteristic leaching procedure (TCLP) for lead (Pb), cyanide (CN), and hexavalent chromium (CrVI), trivalent chromium (CrIII), and percent solids (%S) by the methods specified below.

- VOCs by SW-846 Method 8260C
- SVOCs by SW-846 Method 8270D and 8270C-SIM
- Herbicides by SW-846 Method 8151A
- PCBs by SW-846 Method 8082A
- Pesticides by SW-846 Method 8081B
- Metals by SW-846 Method 6010D
- Mercury by SW-846 Method 7471B
- TCLP Extraction by EPA Method 1311
- Cyanide by SW-846 Method 9012B
- Hexavalent Chromium by SW-846 Method 7196A
- Trivalent Chromium (calculated)
- Percent Solids by Standard Method 2540G

Table 1, below, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

TABLE 1: SAMPLE SUMMARY

SDG	*Lab Sample ID*	*Client Sample ID*	*Sample Date*	*Analytical Parameters*
L1852610	L1852610-01	RB07_0-2	12/20/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1852610	L1852610-02	RB07_8-10	12/20/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1852610	L1852610-03	RB07_10-12	12/20/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1852926	L1852926-01	RB05_0-2	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1852926	L1852926-02	RB05_8-10	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1852926	L1852926-03	RB05_13-15	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1852926	L1852926-04	RB05_19-21	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1852926	L1852926-05	RB06_0-2	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1904428	L1904428-01	RB06_0-2	12/21/2018	TCLP Pb
L1852926	L1852926-06	RB06_8-10	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1852926	L1852926-07	RB06_10-12	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1852926	L1852926-08	RB04_0-2	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII
L1852926	L1852926-09	RB04_8-10	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S

SDG	Lab Sample ID	Client Sample ID	Sample Date	Analytical Parameters
L1852926	L1852926-10	RB04_13-15	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1852926	L1852926-11	SODUP01_122118	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1852926	L1852926-12	SOTB01_122118	12/21/2018	VOCs
L1852926	L1852926-13	SOFB01_122118	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII
L1852926	L1852926-14	RB04_18-20	12/21/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853110	L1853110-01	RB03_17-18	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853111	L1853111-01	RB03_0-2	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853111	L1853111-02	RB03_2-3	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853111	L1853111-03	RB03_10-12	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853111	L1853111-04	RB12_0-2	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853111	L1853111-05	RB12_8-9	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853111	L1853111-06	RB12_9-10	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853111	L1853111-07	RB12_10-12	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853111	L1853111-08	RB02_0-2	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S

SDG	Lab Sample ID	Client Sample ID	Sample Date	Analytical Parameters
L1853111	L1853111-09	RB02_7-9	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853111	L1853111-10	RB02_10-12	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853111	L1853111-11	RB02_13-15	12/26/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853111	L1853111-12	SOTB02_122618	12/26/2018	VOCs
L1853234	L1853234-01	RB01_0-2	12/27/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853234	L1853234-02	RB01_14-15	12/27/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853234	L1853234-03	RB01_25-27	12/27/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853234	L1853234-04	RB08_0-2	12/27/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853234	L1853234-05	RB08_10-12	12/27/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853234	L1853234-06	RB08_12-14	12/27/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853234	L1853234-07	RB08_14-16	12/27/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853234	L1853234-08	SODUP02_122718	12/27/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853234	L1853234-09	RB01_9-11	12/27/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1853234	L1853234-10	SOTB03_122718	12/27/2018	VOCs
L1853234	L1853234-11	SOFB02_122718	12/27/2018	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII

SDG	Lab Sample ID	Client Sample ID	Sample Date	Analytical Parameters
L1900156	L1900156-01	RB09_0-2	1/2/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900156	L1900156-02	RB09_19-21	1/2/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900156	L1900156-03	RB09_28-30	1/2/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900156	L1900156-04	RB11_0-2	1/2/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900156	L1900156-05	RB11_19-21	1/2/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900156	L1900156-06	RB11_28-30	1/2/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900156	L1900156-07	SODUP03_010219	1/2/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900156	L1900156-08	SOTB04_010219	1/2/2019	VOCs
L1900324	L1900324-01	RB21_0-2	1/3/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1904428	L1904428-03	RB21_0-2	1/3/2019	TCLP Pb
L1900324	L1900324-02	RB21_2-4	1/3/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900324	L1900324-03	RB21_18-20	1/3/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900324	L1900324-04	RB22_0-2	1/3/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900324	L1900324-05	RB22_3-5	1/3/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900324	L1900324-06	RB19_0-2	1/3/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S

SDG	Lab Sample ID	Client Sample ID	Sample Date	Analytical Parameters
L1900324	L1900324-07	RB19_20-22	1/3/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900324	L1900324-08	RB19_24-25	1/3/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900324	L1900324-09	SOTB05_010319	1/3/2019	VOCs
L1900536	L1900536-01	RB17_0-2	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900536	L1900536-02	RB17_4-6	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900536	L1900536-03	RB17_8-10	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900536	L1900536-04	RB17_18-20	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900536	L1900536-05	RB18_0-2	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900536	L1900536-06	RB18_6-8	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900536	L1900536-07	RB18_15-17	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900536	L1900536-08	RB18_18-20	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900536	L1900536-09	RB20_0-2	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1904428	L1904428-02	RB20_13-15	1/4/2019	TCLP Pb
L1900536	L1900536-10	RB20_7-9	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900536	L1900536-11	RB20_13-15	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S

SDG	Lab Sample ID	Client Sample ID	Sample Date	Analytical Parameters
L1900536	L1900536-12	RB20_18-20	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900536	L1900536-13	RB22_20-22	1/4/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900536	L1900536-14	SOTB06_010419	1/4/2019	VOCs
L1900707	L1900707-01	RB13_0-2	1/7/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900707	L1900707-02	RB13_18-20	1/7/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900707	L1900707-03	RB13_22-24	1/7/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900707	L1900707-04	RB13_33-35	1/7/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900707	L1900707-05	RB14_0-2	1/7/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900707	L1900707-06	RB14_18-20	1/7/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900707	L1900707-07	RB14_23-25	1/7/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900707	L1900707-08	RB14_33-35	1/7/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900707	L1900707-09	SODUP04_010719	1/7/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900707	L1900707-10	SOTB06_010719	1/7/2019	VOCs
L1900707	L1900707-11	SOFB03_010719	1/7/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII
L1900879	L1900879-01	RB10_0-2	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S

SDG	Lab Sample ID	Client Sample ID	Sample Date	Analytical Parameters
L1900879	L1900879-02	RB10_18-20	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900879	L1900879-03	RB10_33-35	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900879	L1900879-04	RB15_0-2	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900879	L1900879-05	RB15_18-20	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900879	L1900879-06	RB15_23-25	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900879	L1900879-07	RB15_28-30	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900879	L1900879-08	RB16_0-2	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900879	L1900879-09	RB16_13-15	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900879	L1900879-10	RB16_18-20	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900879	L1900879-11	SODUP05_010819	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII, %S
L1900879	L1900879-12	SOFB04_010819	1/8/2019	VOCs, SVOCs, Herbicides, PCBs, Pesticides, Metals, Hg, CN, CrVI, CrIII
L1900879	L1900879-13	SOTB07_010819	1/8/2019	VOCs

Validation Overview

This data validation was performed in accordance with USEPA Region II Standard Operating Procedure (SOP) #HW-34A, "Trace Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-33A, "Low/Medium Volatile Data Validation" (September 2016,

Revision 1), USEPA Region II SOP #HW-35A, "Semivolatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-17, "Validating Chlorinated Herbicides" (December 2010, Revision 3.1), USEPA Region II SOP #HW-37A, "Polychlorinated Biphenyl (PCB) Aroclor Data Validation" (June 2015, Revision 0), USEPA Region II SOP #HW-36A, "Pesticide Data Validation" (October 2016, Revision 1), USEPA Region II SOP #HW-3a, "ICP-AES Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-3c, "Mercury and Cyanide Data Validation" (September 2016, Revision 1), the USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA-540-R-2017-002, January 2017), USEPA "National Functional Guidelines for Inorganic Superfund Methods Data Review" (EPA-540-R-2017-001, January 2017) and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. Items subject to review in this memorandum include holding times, sample preservation, sample extraction and digestion, instrument tuning, instrument calibration, laboratory blanks, laboratory control samples, system monitoring compounds, internal standard area counts, matrix spike/spike duplicate recoveries, target compound identification and quantification, chromatograms, overall system performance, serial dilutions, dual column performance, field duplicate, and field blank sample results.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

- **R –** The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- **J –** The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- **UJ –** The analyte was not detected at a level greater than or equal to the reporting limit (RL); however, the reported RL is approximate and may be inaccurate or imprecise.
- **U –** The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.
- **NJ –** The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on

the basis of the items specified for review. Data that is qualified as "R" are not sufficiently valid and technically supportable to be used for data interpretation. Data that is otherwise qualified due to minor data quality anomalies are usable, as qualified.

TABLE 2: VALIDATOR-APPLIED QUALIFICATION

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB13_0-2	SW8081B	8001-35-2	TOXAPHENE	UJ
RB13_0-2	SW8270D	106-47-8	4-CHLOROANILINE	UJ
RB13_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB13_0-2	SW8260C	107-06-2	1,2-DICHLOROETHANE	UJ
RB13_0-2	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB13_0-2	6010D	7782-49-2	SELENIUM, TOTAL	U (1.78)
RB13_18-20	SW8081B	8001-35-2	TOXAPHENE	UJ
RB13_18-20	SW8270D	106-47-8	4-CHLOROANILINE	UJ
RB13_18-20	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB13_18-20	SW8260C	107-06-2	1,2-DICHLOROETHANE	UJ
RB13_18-20	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB13_18-20	6010D	7782-49-2	SELENIUM, TOTAL	U (1.81)
RB13_22-24	SW8081B	8001-35-2	TOXAPHENE	UJ
RB13_22-24	SW8270D	51-28-5	2,4-DINITROPHENOL	UJ
RB13_22-24	SW8270D	106-47-8	4-CHLOROANILINE	UJ
RB13_22-24	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB13_22-24	SW8260C	107-06-2	1,2-DICHLOROETHANE	UJ
RB13_22-24	6010D	7439-95-4	MAGNESIUM, TOTAL	J
RB13_22-24	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB13_22-24	6010D	7439-96-5	MANGANESE, TOTAL	J
RB13_22-24	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB13_33-35	SW8081B	8001-35-2	TOXAPHENE	UJ
RB13_33-35	SW8260C	107-06-2	1,2-DICHLOROETHANE	UJ
RB13_33-35	SW8270D	106-47-8	4-CHLOROANILINE	UJ
RB13_33-35	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB13_33-35	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB13_33-35	6010D	7782-49-2	SELENIUM, TOTAL	U (1.7)

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB14_0-2	SW8260C	107-06-2	1,2-DICHLOROETHANE	UJ
RB14_0-2	SW8081B	8001-35-2	TOXAPHENE	UJ
RB14_0-2	SW8270D	106-47-8	4-CHLOROANILINE	UJ
RB14_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB14_0-2	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB14_0-2	6010D	7782-49-2	SELENIUM, TOTAL	U (1.83)
RB14_18-20	SW8260C	107-06-2	1,2-DICHLOROETHANE	UJ
RB14_18-20	SW8081B	8001-35-2	TOXAPHENE	UJ
RB14_18-20	SW8270D	106-47-8	4-CHLOROANILINE	UJ
RB14_18-20	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB14_18-20	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB14_23-25	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	J
RB14_23-25	SW8260C	107-06-2	1,2-DICHLOROETHANE	UJ
RB14_23-25	SW8260C	108-67-8	1,3,5-TRIMETHYLBENZENE	J
RB14_23-25	SW8260C	105-05-5	1,4-DIETHYLBENZENE	J
RB14_23-25	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB14_23-25	SW8270D	91-57-6	2-METHYLNAPHTHALENE	J
RB14_23-25	SW8270D	106-47-8	4-CHLOROANILINE	UJ
RB14_23-25	6010D	7439-96-5	MANGANESE, TOTAL	J
RB14_23-25	SW8270D	111-91-1	BIS(2-CHLOROETHOXY)METHANE	UJ
RB14_23-25	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB14_23-25	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB14_23-25	SW8270D	91-20-3	NAPHTHALENE	J
RB14_23-25	SW8081B	8001-35-2	TOXAPHENE	UJ
RB14_23-25	SW8260C	100-41-4	ETHYLBENZENE	J
RB14_23-25	SW8260C	98-82-8	ISOPROPYLBENZENE	J
RB14_23-25	SW8260C	91-20-3	NAPHTHALENE	J
RB14_23-25	SW8260C	104-51-8	N-BUTYLBENZENE	J
RB14_23-25	SW8260C	103-65-1	N-PROPYLBENZENE	J
RB14_23-25	SW8260C	99-87-6	P-ISOPROPYLTOLUENE	J
RB14_23-25	SW8260C	135-98-8	SEC-BUTYLBENZENE	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB14_33-35	SW8260C	107-06-2	1,2-DICHLOROETHANE	UJ
RB14_33-35	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB14_33-35	SW8081B	8001-35-2	TOXAPHENE	UJ
RB14_33-35	SW8270D	106-47-8	4-CHLOROANILINE	UJ
RB14_33-35	SW8270D	100-01-6	4-NITROANILINE	UJ
RB14_33-35	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
SODUP04_010719	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	J
SODUP04_010719	SW8260C	107-06-2	1,2-DICHLOROETHANE	UJ
SODUP04_010719	SW8260C	108-67-8	1,3,5-TRIMETHYLBENZENE	J
SODUP04_010719	SW8260C	105-05-5	1,4-DIETHYLBENZENE	J
SODUP04_010719	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SODUP04_010719	SW8270D	91-57-6	2-METHYLNAPHTHALENE	J
SODUP04_010719	SW8270D	106-47-8	4-CHLOROANILINE	UJ
SODUP04_010719	SW8270D	100-01-6	4-NITROANILINE	UJ
SODUP04_010719	6010D	7439-96-5	MANGANESE, TOTAL	J
SODUP04_010719	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
SODUP04_010719	SW8270D	91-20-3	NAPHTHALENE	J
SODUP04_010719	SW8081B	8001-35-2	TOXAPHENE	UJ
SODUP04_010719	SW8260C	100-41-4	ETHYLBENZENE	J
SODUP04_010719	SW8260C	98-82-8	ISOPROPYLBENZENE	J
SODUP04_010719	SW8260C	91-20-3	NAPHTHALENE	J
SODUP04_010719	SW8260C	104-51-8	N-BUTYLBENZENE	J
SODUP04_010719	SW8260C	103-65-1	N-PROPYLBENZENE	J
SODUP04_010719	SW8260C	99-87-6	P-ISOPROPYLTOLUENE	J
SODUP04_010719	SW8260C	135-98-8	SEC-BUTYLBENZENE	J
SOFB03_010719	SW8260C	87-61-6	1,2,3-TRICHLOROBENZENE	UJ
SOFB03_010719	SW8260C	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	UJ
SOFB03_010719	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOFB03_010719	SW8260C	78-93-3	2-BUTANONE	UJ
SOFB03_010719	SW8260C	591-78-6	2-HEXANONE	UJ
SOFB03_010719	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOFB03_010719	SW8260C	67-64-1	ACETONE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SOFB03_010719	SW8260C	74-83-9	BROMOMETHANE	UJ
SOFB03_010719	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
SOFB03_010719	SW8260C	91-20-3	NAPHTHALENE	UJ
SOFB03_010719	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
SOFB03_010719	SW8270D	121-14-2	2,4-DINITROTOLUENE	UJ
SOFB03_010719	SW8270DSIM	87-86-5	PENTACHLOROPHENOL	UJ
SOTB06_010719	SW8260C	87-61-6	1,2,3-TRICHLOROBENZENE	UJ
SOTB06_010719	SW8260C	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	UJ
SOTB06_010719	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOTB06_010719	SW8260C	78-93-3	2-BUTANONE	UJ
SOTB06_010719	SW8260C	591-78-6	2-HEXANONE	UJ
SOTB06_010719	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOTB06_010719	SW8260C	67-64-1	ACETONE	UJ
SOTB06_010719	SW8260C	74-83-9	BROMOMETHANE	UJ
SOTB06_010719	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
SOTB06_010719	SW8260C	91-20-3	NAPHTHALENE	UJ
SOTB06_010719	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
RB17_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB17_0-2	SW8270D	51-28-5	2,4-DINITROPHENOL	UJ
RB17_0-2	6010D	7440-38-2	ARSENIC, TOTAL	J
RB17_0-2	6010D	7440-39-3	BARIUM, TOTAL	J
RB17_0-2	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB17_0-2	SW8260C	74-83-9	BROMOMETHANE	UJ
RB17_0-2	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB17_0-2	6010D	7440-43-9	CADMIUM, TOTAL	J
RB17_0-2	6010D	7440-70-2	CALCIUM, TOTAL	J
RB17_0-2	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB17_0-2	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB17_0-2	6010D	7440-50-8	COPPER, TOTAL	J
RB17_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB17_0-2	SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	UJ
RB17_0-2	6010D	7439-89-6	IRON, TOTAL	J
RB17_0-2	6010D	7439-95-4	MAGNESIUM, TOTAL	J
RB17_0-2	SW8260C	104-51-8	N-BUTYLBENZENE	UJ
RB17_0-2	6010D	7440-02-0	NICKEL, TOTAL	J
RB17_0-2	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
RB17_0-2	SW8260C	99-87-6	P-ISOPROPYLTOLUENE	UJ
RB17_0-2	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB17_0-2	SW8260C	98-06-6	TERT-BUTYLBENZENE	UJ
RB17_18-20	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB17_18-20	SW8270D	51-28-5	2,4-DINITROPHENOL	UJ
RB17_18-20	6010D	7440-38-2	ARSENIC, TOTAL	J
RB17_18-20	6010D	7440-39-3	BARIUM, TOTAL	J
RB17_18-20	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB17_18-20	SW8260C	74-83-9	BROMOMETHANE	UJ
RB17_18-20	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB17_18-20	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB17_18-20	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB17_18-20	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB17_18-20	SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	UJ
RB17_18-20	SW8260C	104-51-8	N-BUTYLBENZENE	UJ
RB17_18-20	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
RB17_18-20	SW8260C	99-87-6	P-ISOPROPYLTOLUENE	UJ
RB17_18-20	SW8260C	98-06-6	TERT-BUTYLBENZENE	UJ
RB17_4-6	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB17_4-6	SW8081B	72-54-8	4,4'-DDD	UJ
RB17_4-6	SW8081B	72-55-9	4,4'-DDE	UJ
RB17_4-6	SW8081B	50-29-3	4,4'-DDT	UJ
RB17_4-6	SW8081B	309-00-2	ALDRIN	UJ
RB17_4-6	SW8081B	319-84-6	ALPHA-BHC	UJ
RB17_4-6	6010D	7440-38-2	ARSENIC, TOTAL	J
RB17_4-6	6010D	7440-39-3	BARIUM, TOTAL	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB17_4-6	SW8081B	319-85-7	BETA-BHC	UJ
RB17_4-6	SW8260C	74-83-9	BROMOMETHANE	UJ
RB17_4-6	SW8081B	57-74-9	CHLORDANE	UJ
RB17_4-6	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB17_4-6	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB17_4-6	SW8081B	5103-71-9	CIS-CHLORDANE	UJ
RB17_4-6	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB17_4-6	SW8081B	319-86-8	DELTA-BHC	UJ
RB17_4-6	SW8081B	60-57-1	DIELDRIN	UJ
RB17_4-6	SW8081B	959-98-8	ENDOSULFAN I	UJ
RB17_4-6	SW8081B	33213-65-9	ENDOSULFAN II	UJ
RB17_4-6	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
RB17_4-6	SW8081B	72-20-8	ENDRIN	UJ
RB17_4-6	SW8081B	7421-93-4	ENDRIN ALDEHYDE	UJ
RB17_4-6	SW8081B	53494-70-5	ENDRIN KETONE	UJ
RB17_4-6	SW8081B	76-44-8	HEPTACHLOR	UJ
RB17_4-6	SW8081B	1024-57-3	HEPTACHLOR EPOXIDE	UJ
RB17_4-6	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB17_4-6	SW8081B	58-89-9	LINDANE	UJ
RB17_4-6	SW8081B	72-43-5	METHOXYCHLOR	UJ
RB17_4-6	SW8260C	104-51-8	N-BUTYLBENZENE	UJ
RB17_4-6	SW8260C	99-87-6	P-ISOPROPYLTOLUENE	UJ
RB17_4-6	SW8260C	98-06-6	TERT-BUTYLBENZENE	UJ
RB17_4-6	SW8081B	8001-35-2	TOXAPHENE	UJ
RB17_4-6	SW8081B	5103-74-2	TRANS-CHLORDANE	UJ
RB17_8-10	6010D	7440-38-2	ARSENIC, TOTAL	J
RB17_8-10	6010D	7440-39-3	BARIUM, TOTAL	J
RB17_8-10	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB17_8-10	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB17_8-10	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB17_8-10	SW8260C	123-91-1	1,4-DIOXANE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB18_0-2	6010D	7440-38-2	ARSENIC, TOTAL	J
RB18_0-2	6010D	7440-39-3	BARIUM, TOTAL	J
RB18_0-2	SW8081B	5103-74-2	TRANS-CHLORDANE	J
RB18_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB18_0-2	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB18_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB18_15-17	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB18_15-17	SW8270D	51-28-5	2,4-DINITROPHENOL	UJ
RB18_15-17	6010D	7440-38-2	ARSENIC, TOTAL	UJ
RB18_15-17	6010D	7440-39-3	BARIUM, TOTAL	J
RB18_15-17	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB18_15-17	SW8260C	74-83-9	BROMOMETHANE	UJ
RB18_15-17	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB18_15-17	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB18_15-17	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB18_15-17	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB18_15-17	SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	UJ
RB18_15-17	SW8260C	104-51-8	N-BUTYLBENZENE	UJ
RB18_15-17	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
RB18_15-17	SW8260C	99-87-6	P-ISOPROPYLTOLUENE	UJ
RB18_15-17	SW8260C	98-06-6	TERT-BUTYLBENZENE	UJ
RB18_18-20	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB18_18-20	SW8270D	51-28-5	2,4-DINITROPHENOL	UJ
RB18_18-20	6010D	7440-38-2	ARSENIC, TOTAL	UJ
RB18_18-20	6010D	7440-39-3	BARIUM, TOTAL	J
RB18_18-20	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB18_18-20	SW8260C	74-83-9	BROMOMETHANE	UJ
RB18_18-20	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB18_18-20	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB18_18-20	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB18_18-20	SW9012B	57-12-5	CYANIDE, TOTAL	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB18_18-20	SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	UJ
RB18_18-20	SW8260C	104-51-8	N-BUTYLBENZENE	UJ
RB18_18-20	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
RB18_18-20	SW8260C	99-87-6	P-ISOPROPYLTOLUENE	UJ
RB18_18-20	SW8260C	98-06-6	TERT-BUTYLBENZENE	UJ
RB18_6-8	6010D	7440-38-2	ARSENIC, TOTAL	J
RB18_6-8	6010D	7440-39-3	BARIUM, TOTAL	J
RB18_6-8	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB18_6-8	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB18_6-8	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB20_0-2	6010D	7440-38-2	ARSENIC, TOTAL	J
RB20_0-2	6010D	7440-39-3	BARIUM, TOTAL	J
RB20_0-2	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB20_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB20_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB20_0-2	SW8260C	591-78-6	2-HEXANONE	UJ
RB20_0-2	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB20_0-2	SW8260C	67-64-1	ACETONE	J
RB20_0-2	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB20_0-2	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB20_0-2	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB20_13-15	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB20_13-15	SW8270D	51-28-5	2,4-DINITROPHENOL	UJ
RB20_13-15	6010D	7440-38-2	ARSENIC, TOTAL	J
RB20_13-15	6010D	7440-39-3	BARIUM, TOTAL	J
RB20_13-15	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB20_13-15	SW8260C	74-83-9	BROMOMETHANE	UJ
RB20_13-15	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB20_13-15	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB20_13-15	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB20_13-15	SW9012B	57-12-5	CYANIDE, TOTAL	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB20_13-15	SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	UJ
RB20_13-15	SW8260C	104-51-8	N-BUTYLBENZENE	UJ
RB20_13-15	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
RB20_13-15	SW8260C	99-87-6	P-ISOPROPYLTOLUENE	UJ
RB20_13-15	SW8260C	98-06-6	TERT-BUTYLBENZENE	UJ
RB20_18-20	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB20_18-20	SW8270D	51-28-5	2,4-DINITROPHENOL	UJ
RB20_18-20	6010D	7440-38-2	ARSENIC, TOTAL	J
RB20_18-20	6010D	7440-39-3	BARIUM, TOTAL	J
RB20_18-20	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB20_18-20	SW8260C	74-83-9	BROMOMETHANE	UJ
RB20_18-20	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB20_18-20	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB20_18-20	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB20_18-20	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB20_18-20	SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	UJ
RB20_18-20	SW8260C	104-51-8	N-BUTYLBENZENE	UJ
RB20_18-20	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
RB20_18-20	SW8260C	99-87-6	P-ISOPROPYLTOLUENE	UJ
RB20_18-20	SW8260C	98-06-6	TERT-BUTYLBENZENE	UJ
RB20_7-9	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB20_7-9	SW8270D	51-28-5	2,4-DINITROPHENOL	UJ
RB20_7-9	6010D	7440-38-2	ARSENIC, TOTAL	J
RB20_7-9	6010D	7440-39-3	BARIUM, TOTAL	J
RB20_7-9	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB20_7-9	SW8260C	74-83-9	BROMOMETHANE	UJ
RB20_7-9	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB20_7-9	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB20_7-9	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB20_7-9	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB20_7-9	SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB20_7-9	SW8260C	104-51-8	N-BUTYLBENZENE	UJ
RB20_7-9	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
RB20_7-9	SW8260C	99-87-6	P-ISOPROPYLTOLUENE	UJ
RB20_7-9	SW8260C	98-06-6	TERT-BUTYLBENZENE	UJ
RB22_20-22	6010D	7440-38-2	ARSENIC, TOTAL	J
RB22_20-22	6010D	7440-39-3	BARIUM, TOTAL	J
RB22_20-22	SW8270D	51-28-5	2,4-DINITROPHENOL	UJ
RB22_20-22	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB22_20-22	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB22_20-22	SW8260C	591-78-6	2-HEXANONE	UJ
RB22_20-22	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB22_20-22	SW8260C	67-64-1	ACETONE	UJ
RB22_20-22	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB22_20-22	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB22_20-22	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB22_20-22	SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	UJ
RB22_20-22	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
RB22_20-22	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB22_20-22	SW8260C	75-01-4	VINYL CHLORIDE	UJ
SOTB06_010419	SW8260C	87-61-6	1,2,3-TRICHLOROBENZENE	UJ
SOTB06_010419	SW8260C	120-82-1	1,2,4-TRICHLOROBENZENE	UJ
SOTB06_010419	SW8260C	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	UJ
SOTB06_010419	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOTB06_010419	SW8260C	78-93-3	2-BUTANONE	UJ
SOTB06_010419	SW8260C	591-78-6	2-HEXANONE	UJ
SOTB06_010419	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOTB06_010419	SW8260C	67-64-1	ACETONE	UJ
SOTB06_010419	SW8260C	74-83-9	BROMOMETHANE	UJ
SOTB06_010419	SW8260C	91-20-3	NAPHTHALENE	UJ
RB19_0-2	6010D	7440-36-0	ANTIMONY, TOTAL	UJ
RB19_0-2	6010D	7440-38-2	ARSENIC, TOTAL	J

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RB19_0-2	SW8260C	96-18-4	1,2,3-TRICHLOROPROPANE	UJ
RB19_0-2	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB19_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB19_0-2	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB19_0-2	SW8260C	622-96-8	4-ETHYLTOLUENE	UJ
RB19_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB19_0-2	SW7471B	7439-97-6	MERCURY, TOTAL	J
RB19_0-2	SW8260C	74-83-9	BROMOMETHANE	UJ
RB19_0-2	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB19_0-2	SW8081B	8001-35-2	TOXAPHENE	UJ
RB19_0-2	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB19_0-2	6010D	7440-28-0	THALLIUM, TOTAL	UJ
RB19_0-2	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB19_0-2	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB19_20-22	6010D	7440-36-0	ANTIMONY, TOTAL	UJ
RB19_20-22	6010D	7440-38-2	ARSENIC, TOTAL	J
RB19_20-22	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB19_20-22	SW7471B	7439-97-6	MERCURY, TOTAL	J
RB19_20-22	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB19_20-22	SW8081B	8001-35-2	TOXAPHENE	UJ
RB19_20-22	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB19_20-22	6010D	7440-28-0	THALLIUM, TOTAL	UJ
RB19_24-25	6010D	7440-36-0	ANTIMONY, TOTAL	UJ
RB19_24-25	6010D	7440-38-2	ARSENIC, TOTAL	J
RB19_24-25	SW8260C	96-18-4	1,2,3-TRICHLOROPROPANE	UJ
RB19_24-25	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB19_24-25	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB19_24-25	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB19_24-25	SW8260C	622-96-8	4-ETHYLTOLUENE	UJ
RB19_24-25	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB19_24-25	SW8260C	74-83-9	BROMOMETHANE	UJ
RB19_24-25	SW7471B	7439-97-6	MERCURY, TOTAL	J

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RB19_24-25	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB19_24-25	SW8081B	8001-35-2	TOXAPHENE	UJ
RB19_24-25	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB19_24-25	6010D	7440-28-0	THALLIUM, TOTAL	UJ
RB19_24-25	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB19_24-25	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB21_0-2	6010D	7440-36-0	ANTIMONY, TOTAL	J
RB21_0-2	SW7471B	7439-97-6	MERCURY, TOTAL	J
RB21_0-2	6010D	7440-38-2	ARSENIC, TOTAL	J
RB21_0-2	SW8260C	96-18-4	1,2,3-TRICHLOROPROPANE	UJ
RB21_0-2	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB21_0-2	SW8081B	33213-65-9	ENDOSULFAN II	J
RB21_0-2	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB21_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB21_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB21_0-2	SW8260C	622-96-8	4-ETHYLTOLUENE	UJ
RB21_0-2	SW8081B	8001-35-2	TOXAPHENE	UJ
RB21_0-2	SW8260C	74-83-9	BROMOMETHANE	UJ
RB21_0-2	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB21_0-2	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB21_0-2	6010D	7440-28-0	THALLIUM, TOTAL	UJ
RB21_0-2	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB21_0-2	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB21_18-20	6010D	7440-36-0	ANTIMONY, TOTAL	UJ
RB21_18-20	6010D	7440-38-2	ARSENIC, TOTAL	J
RB21_18-20	SW8260C	96-18-4	1,2,3-TRICHLOROPROPANE	UJ
RB21_18-20	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB21_18-20	SW7471B	7439-97-6	MERCURY, TOTAL	UJ
RB21_18-20	SW8081B	33213-65-9	ENDOSULFAN II	J
RB21_18-20	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB21_18-20	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB21_18-20	SW8260C	622-96-8	4-ETHYLTOLUENE	UJ

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RB21_18-20	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB21_18-20	SW8260C	74-83-9	BROMOMETHANE	UJ
RB21_18-20	SW8081B	8001-35-2	TOXAPHENE	UJ
RB21_18-20	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB21_18-20	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB21_18-20	6010D	7440-28-0	THALLIUM, TOTAL	UJ
RB21_18-20	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB21_18-20	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB21_2-4	6010D	7440-36-0	ANTIMONY, TOTAL	UJ
RB21_2-4	6010D	7440-38-2	ARSENIC, TOTAL	J
RB21_2-4	SW7471B	7439-97-6	MERCURY, TOTAL	J
RB21_2-4	SW8260C	96-18-4	1,2,3-TRICHLOROPROPANE	UJ
RB21_2-4	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB21_2-4	SW8270D	88-75-5	2-NITROPHENOL	UJ
RB21_2-4	SW8270D	534-52-1	4,6-DINITRO-O-CRESOL	UJ
RB21_2-4	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB21_2-4	SW8270D	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	UJ
RB21_2-4	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB21_2-4	SW8270D	84-74-2	DI-N-BUTYLPHTHALATE	UJ
RB21_2-4	SW8270D	117-84-0	DI-N-OCTYLPHTHALATE	UJ
RB21_2-4	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB21_2-4	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB21_2-4	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB21_2-4	SW8260C	622-96-8	4-ETHYLTOLUENE	UJ
RB21_2-4	SW8260C	74-83-9	BROMOMETHANE	UJ
RB21_2-4	SW8081B	8001-35-2	TOXAPHENE	UJ
RB21_2-4	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB21_2-4	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB21_2-4	6010D	7440-28-0	THALLIUM, TOTAL	UJ
RB21_2-4	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB21_2-4	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB22_0-2	6010D	7440-36-0	ANTIMONY, TOTAL	UJ

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RB22_0-2	6010D	7440-38-2	ARSENIC, TOTAL	J
RB22_0-2	SW8260C	96-18-4	1,2,3-TRICHLOROPROPANE	UJ
RB22_0-2	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB22_0-2	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB22_0-2	SW7471B	7439-97-6	MERCURY, TOTAL	J
RB22_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB22_0-2	SW8260C	622-96-8	4-ETHYLTOLUENE	UJ
RB22_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB22_0-2	SW8260C	74-83-9	BROMOMETHANE	UJ
RB22_0-2	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB22_0-2	SW8081B	8001-35-2	TOXAPHENE	UJ
RB22_0-2	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB22_0-2	6010D	7440-28-0	THALLIUM, TOTAL	UJ
RB22_0-2	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB22_0-2	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB22_3-5	6010D	7440-36-0	ANTIMONY, TOTAL	UJ
RB22_3-5	6010D	7440-38-2	ARSENIC, TOTAL	J
RB22_3-5	SW8260C	96-18-4	1,2,3-TRICHLOROPROPANE	UJ
RB22_3-5	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB22_3-5	SW8081B	72-55-9	4,4'-DDE	J
RB22_3-5	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB22_3-5	6010D	7440-47-3	CHROMIUM, TOTAL	J
RB22_3-5	SW7471B	7439-97-6	MERCURY, TOTAL	J
RB22_3-5	SW8260C	622-96-8	4-ETHYLTOLUENE	UJ
RB22_3-5	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB22_3-5	SW8260C	74-83-9	BROMOMETHANE	U (2.1)
RB22_3-5	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB22_3-5	SW8081B	8001-35-2	TOXAPHENE	UJ
RB22_3-5	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB22_3-5	6010D	7440-28-0	THALLIUM, TOTAL	UJ
RB22_3-5	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB22_3-5	SW8260C	75-01-4	VINYL CHLORIDE	UJ

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SOTB05_010319	SW8260C	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	UJ
SOTB05_010319	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOTB05_010319	SW8260C	78-93-3	2-BUTANONE	UJ
SOTB05_010319	SW8260C	591-78-6	2-HEXANONE	UJ
SOTB05_010319	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOTB05_010319	SW8260C	67-64-1	ACETONE	UJ
SOTB05_010319	SW8260C	74-83-9	BROMOMETHANE	UJ
SOTB05_010319	SW8260C	108-05-4	VINYL ACETATE	UJ
RB09_0-2	SW8081B	72-54-8	4,4'-DDD	UJ
RB09_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB09_0-2	SW8081B	72-55-9	4,4'-DDE	UJ
RB09_0-2	SW8081B	50-29-3	4,4'-DDT	UJ
RB09_0-2	SW8081B	309-00-2	ALDRIN	UJ
RB09_0-2	SW8081B	319-84-6	ALPHA-BHC	UJ
RB09_0-2	SW8081B	319-85-7	BETA-BHC	UJ
RB09_0-2	SW8081B	57-74-9	CHLORDANE	UJ
RB09_0-2	SW8081B	5103-71-9	CIS-CHLORDANE	UJ
RB09_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB09_0-2	SW8081B	319-86-8	DELTA-BHC	UJ
RB09_0-2	SW8081B	60-57-1	DIELDRIN	UJ
RB09_0-2	SW8081B	959-98-8	ENDOSULFAN I	UJ
RB09_0-2	SW8081B	33213-65-9	ENDOSULFAN II	UJ
RB09_0-2	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
RB09_0-2	SW8081B	72-20-8	ENDRIN	UJ
RB09_0-2	6010D	7782-49-2	SELENIUM, TOTAL	U (1.64)
RB09_0-2	SW8081B	7421-93-4	ENDRIN ALDEHYDE	UJ
RB09_0-2	SW8081B	53494-70-5	ENDRIN KETONE	UJ
RB09_0-2	SW8081B	76-44-8	HEPTACHLOR	UJ
RB09_0-2	SW8081B	1024-57-3	HEPTACHLOR EPOXIDE	UJ
RB09_0-2	SW8081B	58-89-9	LINDANE	UJ
RB09_0-2	SW8081B	72-43-5	METHOXYCHLOR	UJ
RB09_0-2	SW8081B	8001-35-2	TOXAPHENE	UJ

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RB09_0-2	SW8081B	5103-74-2	TRANS-CHLORDANE	UJ
RB09_19-21	6010D	7440-39-3	BARIUM, TOTAL	J
RB09_19-21	SW8081B	72-54-8	4,4'-DDD	UJ
RB09_19-21	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	J
RB09_19-21	SW8081B	72-55-9	4,4'-DDE	UJ
RB09_19-21	6010D	7439-92-1	LEAD, TOTAL	J
RB09_19-21	SW8081B	50-29-3	4,4'-DDT	UJ
RB09_19-21	SW8081B	309-00-2	ALDRIN	UJ
RB09_19-21	SW8081B	319-84-6	ALPHA-BHC	UJ
RB09_19-21	SW8081B	319-85-7	BETA-BHC	UJ
RB09_19-21	SW8081B	57-74-9	CHLORDANE	UJ
RB09_19-21	SW8260C	105-05-5	1,4-DIETHYLBENZENE	J
RB09_19-21	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB09_19-21	SW8081B	5103-71-9	CIS-CHLORDANE	UJ
RB09_19-21	SW8081B	319-86-8	DELTA-BHC	UJ
RB09_19-21	SW8260C	71-43-2	BENZENE	J
RB09_19-21	6010D	7782-49-2	SELENIUM, TOTAL	U (1.83)
RB09_19-21	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB09_19-21	SW8081B	60-57-1	DIELDRIN	UJ
RB09_19-21	SW8081B	959-98-8	ENDOSULFAN I	UJ
RB09_19-21	SW8081B	33213-65-9	ENDOSULFAN II	UJ
RB09_19-21	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
RB09_19-21	SW8081B	72-20-8	ENDRIN	UJ
RB09_19-21	SW8270D	91-57-6	2-METHYLNAPHTHALENE	J
RB09_19-21	SW8270D	206-44-0	FLUORANTHENE	J
RB09_19-21	SW8270D	91-20-3	NAPHTHALENE	J
RB09_19-21	SW8270D	85-01-8	PHENANTHRENE	J
RB09_19-21	SW8270D	129-00-0	PYRENE	J
RB09_19-21	SW8081B	7421-93-4	ENDRIN ALDEHYDE	UJ
RB09_19-21	SW8081B	53494-70-5	ENDRIN KETONE	UJ
RB09_19-21	SW8081B	76-44-8	HEPTACHLOR	UJ
RB09_19-21	SW8081B	1024-57-3	HEPTACHLOR EPOXIDE	UJ

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RB09_19-21	SW8081B	58-89-9	LINDANE	UJ
RB09_19-21	SW8081B	72-43-5	METHOXYCHLOR	UJ
RB09_19-21	SW8081B	8001-35-2	TOXAPHENE	UJ
RB09_19-21	SW8081B	5103-74-2	TRANS-CHLORDANE	UJ
RB09_19-21	SW8260C	98-82-8	ISOPROPYLBENZENE	J
RB09_19-21	SW8260C	104-51-8	N-BUTYLBENZENE	J
RB09_19-21	SW8260C	103-65-1	N-PROPYLBENZENE	J
RB09_19-21	SW8260C	135-98-8	SEC-BUTYLBENZENE	J
RB09_28-30	SW8081B	72-54-8	4,4'-DDD	UJ
RB09_28-30	SW8081B	72-55-9	4,4'-DDE	UJ
RB09_28-30	SW8081B	50-29-3	4,4'-DDT	UJ
RB09_28-30	SW8081B	309-00-2	ALDRIN	UJ
RB09_28-30	SW8081B	319-84-6	ALPHA-BHC	UJ
RB09_28-30	SW8081B	319-85-7	BETA-BHC	UJ
RB09_28-30	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB09_28-30	SW8081B	57-74-9	CHLORDANE	UJ
RB09_28-30	SW8081B	5103-71-9	CIS-CHLORDANE	UJ
RB09_28-30	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB09_28-30	SW8081B	319-86-8	DELTA-BHC	UJ
RB09_28-30	SW8081B	60-57-1	DIELDRIN	UJ
RB09_28-30	SW8081B	959-98-8	ENDOSULFAN I	UJ
RB09_28-30	SW8081B	33213-65-9	ENDOSULFAN II	UJ
RB09_28-30	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
RB09_28-30	SW8081B	72-20-8	ENDRIN	UJ
RB09_28-30	6010D	7782-49-2	SELENIUM, TOTAL	U (1.89)
RB09_28-30	SW8081B	7421-93-4	ENDRIN ALDEHYDE	UJ
RB09_28-30	SW8081B	53494-70-5	ENDRIN KETONE	UJ
RB09_28-30	SW8081B	76-44-8	HEPTACHLOR	UJ
RB09_28-30	SW8081B	1024-57-3	HEPTACHLOR EPOXIDE	UJ
RB09_28-30	SW8081B	58-89-9	LINDANE	UJ
RB09_28-30	SW8081B	72-43-5	METHOXYCHLOR	UJ
RB09_28-30	SW8081B	8001-35-2	TOXAPHENE	UJ

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RB09_28-30	SW8081B	5103-74-2	TRANS-CHLORDANE	UJ
RB11_0-2	SW8081B	72-54-8	4,4'-DDD	J
RB11_0-2	SW8081B	72-55-9	4,4'-DDE	UJ
RB11_0-2	SW8081B	50-29-3	4,4'-DDT	J
RB11_0-2	SW8081B	309-00-2	ALDRIN	UJ
RB11_0-2	SW8081B	319-84-6	ALPHA-BHC	UJ
RB11_0-2	SW8081B	319-85-7	BETA-BHC	UJ
RB11_0-2	SW8081B	57-74-9	CHLORDANE	UJ
RB11_0-2	SW8081B	5103-71-9	CIS-CHLORDANE	UJ
RB11_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB11_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB11_0-2	SW8081B	319-86-8	DELTA-BHC	UJ
RB11_0-2	SW8081B	60-57-1	DIELDRIN	J
RB11_0-2	SW8081B	959-98-8	ENDOSULFAN I	UJ
RB11_0-2	SW8081B	33213-65-9	ENDOSULFAN II	UJ
RB11_0-2	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
RB11_0-2	SW8081B	72-20-8	ENDRIN	UJ
RB11_0-2	6010D	7782-49-2	SELENIUM, TOTAL	U (1.69)
RB11_0-2	SW8081B	7421-93-4	ENDRIN ALDEHYDE	UJ
RB11_0-2	SW8081B	53494-70-5	ENDRIN KETONE	UJ
RB11_0-2	SW8081B	76-44-8	HEPTACHLOR	UJ
RB11_0-2	SW8081B	1024-57-3	HEPTACHLOR EPOXIDE	UJ
RB11_0-2	SW8081B	58-89-9	LINDANE	UJ
RB11_0-2	SW8081B	72-43-5	METHOXYCHLOR	UJ
RB11_0-2	SW8081B	8001-35-2	TOXAPHENE	UJ
RB11_0-2	SW8081B	5103-74-2	TRANS-CHLORDANE	J
RB11_19-21	SW8081B	72-54-8	4,4'-DDD	UJ
RB11_19-21	SW8081B	72-55-9	4,4'-DDE	UJ
RB11_19-21	SW8081B	50-29-3	4,4'-DDT	UJ
RB11_19-21	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB11_19-21	SW8081B	309-00-2	ALDRIN	UJ
RB11_19-21	SW8081B	319-84-6	ALPHA-BHC	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB11_19-21	SW8081B	319-85-7	BETA-BHC	UJ
RB11_19-21	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB11_19-21	SW8081B	57-74-9	CHLORDANE	UJ
RB11_19-21	SW8081B	5103-71-9	CIS-CHLORDANE	UJ
RB11_19-21	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB11_19-21	SW8081B	319-86-8	DELTA-BHC	UJ
RB11_19-21	SW8081B	60-57-1	DIELDRIN	UJ
RB11_19-21	SW8081B	959-98-8	ENDOSULFAN I	UJ
RB11_19-21	SW8081B	33213-65-9	ENDOSULFAN II	UJ
RB11_19-21	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
RB11_19-21	SW8081B	72-20-8	ENDRIN	UJ
RB11_19-21	SW8081B	7421-93-4	ENDRIN ALDEHYDE	UJ
RB11_19-21	SW8081B	53494-70-5	ENDRIN KETONE	UJ
RB11_19-21	SW8081B	76-44-8	HEPTACHLOR	UJ
RB11_19-21	SW8081B	1024-57-3	HEPTACHLOR EPOXIDE	UJ
RB11_19-21	SW8081B	58-89-9	LINDANE	UJ
RB11_19-21	SW8081B	72-43-5	METHOXYCHLOR	UJ
RB11_19-21	6010D	7782-49-2	SELENIUM, TOTAL	U (1.84)
RB11_19-21	SW8081B	8001-35-2	TOXAPHENE	UJ
RB11_19-21	SW8081B	5103-74-2	TRANS-CHLORDANE	UJ
RB11_28-30	SW8081B	72-54-8	4,4'-DDD	UJ
RB11_28-30	SW8081B	72-55-9	4,4'-DDE	UJ
RB11_28-30	SW8081B	50-29-3	4,4'-DDT	UJ
RB11_28-30	SW8081B	309-00-2	ALDRIN	UJ
RB11_28-30	SW8081B	319-84-6	ALPHA-BHC	UJ
RB11_28-30	SW8081B	319-85-7	BETA-BHC	UJ
RB11_28-30	SW8081B	57-74-9	CHLORDANE	UJ
RB11_28-30	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB11_28-30	SW8081B	5103-71-9	CIS-CHLORDANE	UJ
RB11_28-30	SW8081B	319-86-8	DELTA-BHC	UJ
RB11_28-30	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB11_28-30	SW8081B	60-57-1	DIELDRIN	UJ

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RB11_28-30	SW8081B	959-98-8	ENDOSULFAN I	UJ
RB11_28-30	SW8081B	33213-65-9	ENDOSULFAN II	UJ
RB11_28-30	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
RB11_28-30	SW8081B	72-20-8	ENDRIN	UJ
RB11_28-30	SW8081B	7421-93-4	ENDRIN ALDEHYDE	UJ
RB11_28-30	SW8081B	53494-70-5	ENDRIN KETONE	UJ
RB11_28-30	SW8081B	76-44-8	HEPTACHLOR	UJ
RB11_28-30	SW8081B	1024-57-3	HEPTACHLOR EPOXIDE	UJ
RB11_28-30	SW8081B	58-89-9	LINDANE	UJ
RB11_28-30	SW8081B	72-43-5	METHOXYCHLOR	UJ
RB11_28-30	SW8081B	8001-35-2	TOXAPHENE	UJ
RB11_28-30	SW8081B	5103-74-2	TRANS-CHLORDANE	UJ
SODUP03_010219	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	J
SODUP03_010219	SW8151A	93-76-5	2,4,5-T	UJ
SODUP03_010219	SW8151A	93-72-1	2,4,5-TP (SILVEX)	UJ
SODUP03_010219	SW8151A	94-75-7	2,4-D	UJ
SODUP03_010219	SW8270D	91-57-6	2-METHYLNAPHTHALENE	J
SODUP03_010219	SW8081B	72-54-8	4,4'-DDD	UJ
SODUP03_010219	SW8081B	72-55-9	4,4'-DDE	UJ
SODUP03_010219	SW8081B	50-29-3	4,4'-DDT	UJ
SODUP03_010219	SW8260C	105-05-5	1,4-DIETHYLBENZENE	J
SODUP03_010219	SW8260C	123-91-1	1,4-DIOXANE	UJ
SODUP03_010219	SW8081B	309-00-2	ALDRIN	UJ
SODUP03_010219	SW8081B	319-84-6	ALPHA-BHC	UJ
SODUP03_010219	6010D	7440-39-3	BARIUM, TOTAL	J
SODUP03_010219	SW8081B	319-85-7	BETA-BHC	UJ
SODUP03_010219	SW8270D	92-52-4	BIPHENYL	J
SODUP03_010219	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
SODUP03_010219	SW8081B	57-74-9	CHLORDANE	UJ
SODUP03_010219	SW8081B	5103-71-9	CIS-CHLORDANE	UJ
SODUP03_010219	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
SODUP03_010219	SW8081B	319-86-8	DELTA-BHC	UJ

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SODUP03_010219	SW8081B	60-57-1	DIELDRIN	UJ
SODUP03_010219	SW8081B	959-98-8	ENDOSULFAN I	UJ
SODUP03_010219	SW8081B	33213-65-9	ENDOSULFAN II	UJ
SODUP03_010219	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
SODUP03_010219	SW8081B	72-20-8	ENDRIN	UJ
SODUP03_010219	SW8081B	7421-93-4	ENDRIN ALDEHYDE	UJ
SODUP03_010219	SW8081B	53494-70-5	ENDRIN KETONE	UJ
SODUP03_010219	SW8270D	206-44-0	FLUORANTHENE	J
SODUP03_010219	SW8081B	76-44-8	HEPTACHLOR	UJ
SODUP03_010219	SW8081B	1024-57-3	HEPTACHLOR EPOXIDE	UJ
SODUP03_010219	SW8260C	71-43-2	BENZENE	J
SODUP03_010219	6010D	7439-92-1	LEAD, TOTAL	J
SODUP03_010219	SW8081B	58-89-9	LINDANE	UJ
SODUP03_010219	SW8081B	72-43-5	METHOXYCHLOR	UJ
SODUP03_010219	SW8270D	91-20-3	NAPHTHALENE	J
SODUP03_010219	SW8270D	85-01-8	PHENANTHRENE	J
SODUP03_010219	SW8270D	129-00-0	PYRENE	J
SODUP03_010219	6010D	7782-49-2	SELENIUM, TOTAL	U (1.86)
SODUP03_010219	SW8081B	8001-35-2	TOXAPHENE	UJ
SODUP03_010219	SW8081B	5103-74-2	TRANS-CHLORDANE	UJ
SODUP03_010219	SW8260C	98-82-8	ISOPROPYLBENZENE	J
SODUP03_010219	SW8260C	104-51-8	N-BUTYLBENZENE	J
SODUP03_010219	SW8260C	103-65-1	N-PROPYLBENZENE	J
SODUP03_010219	SW8260C	135-98-8	SEC-BUTYLBENZENE	J
SOTB04_010219	SW8260C	74-83-9	BROMOMETHANE	UJ
SOTB04_010219	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOTB04_010219	SW8260C	594-20-7	2,2-DICHLOROPROPANE	UJ
SOTB04_010219	SW8260C	78-93-3	2-BUTANONE	UJ
SOTB04_010219	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOTB04_010219	SW8260C	67-64-1	ACETONE	J
SOTB04_010219	SW8260C	74-87-3	CHLOROMETHANE	UJ
SOTB04_010219	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SOTB04_010219	SW8260C	108-05-4	VINYL ACETATE	UJ
RB01_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB01_0-2	SW8260C	591-78-6	2-HEXANONE	UJ
RB01_0-2	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB01_0-2	6010D	7440-70-2	CALCIUM, TOTAL	J
RB01_0-2	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB01_0-2	6010D	7440-50-8	COPPER, TOTAL	J
RB01_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB01_0-2	SW8081B	33213-65-9	ENDOSULFAN II	J
RB01_0-2	6010D	7439-92-1	LEAD, TOTAL	J
RB01_0-2	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB01_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB01_0-2	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
RB01_0-2	6010D	7440-66-6	ZINC, TOTAL	J
RB01_0-2	SW8260C	74-83-9	BROMOMETHANE	UJ
RB01_0-2	SW8260C	75-00-3	CHLOROETHANE	UJ
RB01_0-2	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB01_0-2	SW8260C	60-29-7	ETHYL ETHER	UJ
RB01_0-2	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
RB01_14-15	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB01_14-15	SW8270D	88-74-4	2-NITROANILINE	UJ
RB01_14-15	SW8270D	88-75-5	2-NITROPHENOL	UJ
RB01_14-15	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB01_14-15	6010D	7440-70-2	CALCIUM, TOTAL	J
RB01_14-15	6010D	7440-50-8	COPPER, TOTAL	J
RB01_14-15	6010D	7439-92-1	LEAD, TOTAL	J
RB01_14-15	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
RB01_14-15	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB01_14-15	6010D	7440-66-6	ZINC, TOTAL	J
RB01_25-27	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB01_25-27	SW8260C	591-78-6	2-HEXANONE	UJ
RB01_25-27	SW8081B	50-29-3	4,4'-DDT	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB01_25-27	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB01_25-27	6010D	7440-70-2	CALCIUM, TOTAL	J
RB01_25-27	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB01_25-27	6010D	7440-50-8	COPPER, TOTAL	J
RB01_25-27	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB01_25-27	6010D	7439-92-1	LEAD, TOTAL	J
RB01_25-27	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB01_25-27	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
RB01_25-27	6010D	7440-66-6	ZINC, TOTAL	J
RB01_9-11	SW8270D	88-74-4	2-NITROANILINE	UJ
RB01_9-11	SW8270D	88-75-5	2-NITROPHENOL	UJ
RB01_9-11	6010D	7440-70-2	CALCIUM, TOTAL	J
RB01_9-11	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB01_9-11	6010D	7440-50-8	COPPER, TOTAL	J
RB01_9-11	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB01_9-11	6010D	7439-92-1	LEAD, TOTAL	J
RB01_9-11	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB01_9-11	SW8151A	93-76-5	2,4,5-T	UJ
RB01_9-11	SW8151A	93-72-1	2,4,5-TP (SILVEX)	UJ
RB01_9-11	SW8151A	94-75-7	2,4-D	UJ
RB01_9-11	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
RB01_9-11	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB01_9-11	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB01_9-11	6010D	7440-66-6	ZINC, TOTAL	J
RB08_0-2	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB08_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB08_0-2	6010D	7440-70-2	CALCIUM, TOTAL	J
RB08_0-2	SW8081B	72-55-9	4,4'-DDE	J
RB08_0-2	SW8081B	50-29-3	4,4'-DDT	J
RB08_0-2	SW8081B	5103-71-9	CIS-CHLORDANE	J
RB08_0-2	6010D	7440-50-8	COPPER, TOTAL	J
RB08_0-2	6010D	7439-92-1	LEAD, TOTAL	J

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RB08_0-2	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB08_0-2	6010D	7440-66-6	ZINC, TOTAL	J
RB08_10-12	6010D	7440-70-2	CALCIUM, TOTAL	J
RB08_10-12	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB08_10-12	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB08_10-12	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB08_10-12	6010D	7440-50-8	COPPER, TOTAL	J
RB08_10-12	6010D	7439-92-1	LEAD, TOTAL	J
RB08_10-12	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB08_10-12	6010D	7440-66-6	ZINC, TOTAL	J
RB08_10-12	SW8260C	74-83-9	BROMOMETHANE	UJ
RB08_10-12	SW8260C	75-00-3	CHLOROETHANE	UJ
RB08_10-12	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB08_10-12	SW8260C	60-29-7	ETHYL ETHER	UJ
RB08_10-12	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
RB08_12-14	6010D	7440-70-2	CALCIUM, TOTAL	J
RB08_12-14	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB08_12-14	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB08_12-14	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB08_12-14	6010D	7440-50-8	COPPER, TOTAL	J
RB08_12-14	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB08_12-14	6010D	7439-92-1	LEAD, TOTAL	J
RB08_12-14	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB08_12-14	6010D	7440-66-6	ZINC, TOTAL	J
RB08_14-16	6010D	7440-70-2	CALCIUM, TOTAL	J
RB08_14-16	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB08_14-16	SW7471B	7439-97-6	MERCURY, TOTAL	J
RB08_14-16	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB08_14-16	SW8260C	67-64-1	ACETONE	J
RB08_14-16	6010D	7440-50-8	COPPER, TOTAL	J
RB08_14-16	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB08_14-16	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB08_14-16	6010D	7439-92-1	LEAD, TOTAL	J
RB08_14-16	6010D	9/7/7440	POTASSIUM, TOTAL	J
RB08_14-16	6010D	7440-66-6	ZINC, TOTAL	J
SODUP02_122718	6010D	7440-70-2	CALCIUM, TOTAL	J
SODUP02_122718	SW8260C	123-91-1	1,4-DIOXANE	UJ
SODUP02_122718	SW8260C	67-64-1	ACETONE	J
SODUP02_122718	6010D	7440-50-8	COPPER, TOTAL	J
SODUP02_122718	SW7471B	7439-97-6	MERCURY, TOTAL	J
SODUP02_122718	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
SODUP02_122718	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
SODUP02_122718	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
SODUP02_122718	6010D	7439-92-1	LEAD, TOTAL	J
SODUP02_122718	6010D	9/7/7440	POTASSIUM, TOTAL	J
SODUP02_122718	6010D	7440-66-6	ZINC, TOTAL	J
SOFB02_122718	6010D	7440-50-8	COPPER, TOTAL	U (0.01)
SOFB02_122718	SW8270D	105-67-9	2,4-DIMETHYLPHENOL	UJ
SOFB02_122718	SW8270DSIM	91-58-7	2-CHLORONAPHTHALENE	UJ
SOFB02_122718	SW8270DSIM	91-57-6	2-METHYLNAPHTHALENE	UJ
SOFB02_122718	SW8270D	91-94-1	3,3'-DICHLOROBENZIDINE	UJ
SOFB02_122718	SW8270D	106-47-8	4-CHLOROANILINE	UJ
SOFB02_122718	SW8270DSIM	83-32-9	ACENAPHTHENE	UJ
SOFB02_122718	SW8270DSIM	208-96-8	ACENAPHTHYLENE	UJ
SOFB02_122718	SW8270DSIM	120-12-7	ANTHRACENE	UJ
SOFB02_122718	SW8270DSIM	56-55-3	BENZO(A)ANTHRACENE	UJ
SOFB02_122718	SW8270DSIM	50-32-8	BENZO(A)PYRENE	UJ
SOFB02_122718	SW8270DSIM	205-99-2	BENZO(B)FLUORANTHENE	UJ
SOFB02_122718	SW8270DSIM	191-24-2	BENZO(GHI)PERYLENE	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SOFB02_122718	SW8270DSIM	207-08-9	BENZO(K)FLUORANTHENE	UJ
SOFB02_122718	SW8270D	65-85-0	BENZOIC ACID	UJ
SOFB02_122718	SW8270DSIM	218-01-9	CHRYSENE	UJ
SOFB02_122718	SW8270DSIM	53-70-3	DIBENZO(A,H)ANTHRACENE	J
SOFB02_122718	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
SOFB02_122718	SW8270DSIM	206-44-0	FLUORANTHENE	UJ
SOFB02_122718	SW8270DSIM	86-73-7	FLUORENE	UJ
SOFB02_122718	SW8270DSIM	118-74-1	HEXACHLOROBENZENE	UJ
SOFB02_122718	SW8270DSIM	87-68-3	HEXACHLOROBUTADIENE	UJ
SOFB02_122718	SW8270DSIM	67-72-1	HEXACHLOROETHANE	UJ
SOFB02_122718	SW8270DSIM	193-39-5	INDENO(1,2,3-CD)PYRENE	J
SOFB02_122718	SW8270DSIM	91-20-3	NAPHTHALENE	UJ
SOFB02_122718	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOFB02_122718	SW8270DSIM	87-86-5	PENTACHLOROPHENOL	UJ
SOFB02_122718	SW8270DSIM	85-01-8	PHENANTHRENE	UJ
SOFB02_122718	SW8270DSIM	129-00-0	PYRENE	UJ
SOFB02_122718	SW8260C	78-93-3	2-BUTANONE	UJ
SOFB02_122718	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOFB02_122718	SW8260C	67-64-1	ACETONE	U (5)
SOFB02_122718	SW8260C	74-83-9	BROMOMETHANE	UJ
SOFB02_122718	SW8260C	74-87-3	CHLOROMETHANE	UJ
SOFB02_122718	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
SOFB02_122718	SW8260C	108-05-4	VINYL ACETATE	UJ
SOTB03_122718	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOTB03_122718	SW8260C	78-93-3	2-BUTANONE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SOTB03_122718	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOTB03_122718	SW8260C	67-64-1	ACETONE	J
SOTB03_122718	SW8260C	74-83-9	BROMOMETHANE	UJ
SOTB03_122718	SW8260C	74-87-3	CHLOROMETHANE	UJ
SOTB03_122718	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
SOTB03_122718	SW8260C	108-05-4	VINYL ACETATE	UJ
WG1193824-1	SW8081B	50-29-3	4,4'-DDT	J
RB02_0-2	SW8260C	75-35-4	1,1-DICHLOROETHENE	UJ
RB02_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB02_0-2	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB02_0-2	SW8260C	74-83-9	BROMOMETHANE	UJ
RB02_0-2	SW8260C	75-15-0	CARBON DISULFIDE	UJ
RB02_0-2	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB02_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB02_0-2	SW8081B	8001-35-2	TOXAPHENE	UJ
RB02_10-12	SW8260C	75-35-4	1,1-DICHLOROETHENE	UJ
RB02_10-12	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB02_10-12	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB02_10-12	SW8260C	74-83-9	BROMOMETHANE	UJ
RB02_10-12	SW8260C	75-15-0	CARBON DISULFIDE	UJ
RB02_10-12	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB02_10-12	SW8081B	33213-65-9	ENDOSULFAN II	J
RB02_10-12	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
RB02_10-12	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB02_13-15	SW8260C	75-35-4	1,1-DICHLOROETHENE	UJ
RB02_13-15	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB02_13-15	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB02_13-15	SW8260C	74-83-9	BROMOMETHANE	UJ
RB02_13-15	SW8260C	75-15-0	CARBON DISULFIDE	UJ
RB02_13-15	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB02_13-15	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
RB02_13-15	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB02_13-15	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB02_7-9	SW8260C	75-35-4	1,1-DICHLOROETHENE	UJ
RB02_7-9	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB02_7-9	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB02_7-9	SW8260C	74-83-9	BROMOMETHANE	UJ
RB02_7-9	SW8260C	75-15-0	CARBON DISULFIDE	UJ
RB02_7-9	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB02_7-9	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB03_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB03_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB03_0-2	SW8081B	33213-65-9	ENDOSULFAN II	J
RB03_0-2	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB03_0-2	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB03_0-2	SW8260C	74-83-9	BROMOMETHANE	UJ
RB03_0-2	SW8260C	75-00-3	CHLOROETHANE	UJ
RB03_0-2	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB03_0-2	SW8081B	5103-74-2	TRANS-CHLORDANE	J
RB03_0-2	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
RB03_0-2	SW8260C	108-05-4	VINYL ACETATE	UJ
RB03_0-2	SW8081B	8001-35-2	TOXAPHENE	UJ
RB03_0-2	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB03_10-12	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB03_10-12	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB03_10-12	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB03_10-12	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB03_10-12	SW8260C	74-83-9	BROMOMETHANE	UJ
RB03_10-12	SW8260C	75-00-3	CHLOROETHANE	UJ
RB03_10-12	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB03_10-12	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
RB03_10-12	SW8260C	108-05-4	VINYL ACETATE	UJ
RB03_10-12	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB03_2-3	SW8260C	75-35-4	1,1-DICHLOROETHENE	UJ

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RB03_2-3	SW8260C	75-35-4	1,1-DICHLOROETHENE	UJ
RB03_2-3	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB03_2-3	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB03_2-3	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB03_2-3	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB03_2-3	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB03_2-3	SW8260C	74-83-9	BROMOMETHANE	UJ
RB03_2-3	SW8260C	74-83-9	BROMOMETHANE	UJ
RB03_2-3	SW8260C	75-15-0	CARBON DISULFIDE	UJ
RB03_2-3	SW8260C	75-15-0	CARBON DISULFIDE	UJ
RB03_2-3	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB03_2-3	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB03_2-3	SW8081B	8001-35-2	TOXAPHENE	UJ
RB12_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB12_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB12_0-2	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB12_0-2	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB12_0-2	SW8260C	74-83-9	BROMOMETHANE	UJ
RB12_0-2	SW8260C	75-00-3	CHLOROETHANE	UJ
RB12_0-2	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB12_0-2	SW8081B	33213-65-9	ENDOSULFAN II	J
RB12_0-2	SW8081B	5103-74-2	TRANS-CHLORDANE	J
RB12_0-2	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
RB12_0-2	SW8260C	108-05-4	VINYL ACETATE	UJ
RB12_0-2	SW8081B	8001-35-2	TOXAPHENE	UJ
RB12_0-2	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB12_10-12	SW8260C	75-35-4	1,1-DICHLOROETHENE	UJ
RB12_10-12	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB12_10-12	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB12_10-12	SW8260C	74-83-9	BROMOMETHANE	UJ
RB12_10-12	SW8260C	75-15-0	CARBON DISULFIDE	UJ
RB12_10-12	SW9012B	57-12-5	CYANIDE, TOTAL	UJ

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RB12_10-12	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB12_10-12	SW8081B	8001-35-2	TOXAPHENE	UJ
RB12_8-9	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB12_8-9	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB12_8-9	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB12_8-9	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB12_8-9	SW8260C	74-83-9	BROMOMETHANE	UJ
RB12_8-9	SW8260C	75-00-3	CHLOROETHANE	UJ
RB12_8-9	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB12_8-9	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
RB12_8-9	SW8082A	11096-82-5	AROCLOR 1260	J
RB12_8-9	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB12_9-10	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB12_9-10	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB12_9-10	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB12_9-10	SW8260C	74-83-9	BROMOMETHANE	UJ
RB12_9-10	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB12_9-10	SW8260C	75-00-3	CHLOROETHANE	UJ
RB12_9-10	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB12_9-10	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
RB12_9-10	SW8260C	108-05-4	VINYL ACETATE	UJ
RB12_9-10	SW8081B	8001-35-2	TOXAPHENE	UJ
RB12_9-10	SW8081B	72-20-8	ENDRIN	J
RB12_9-10	SW8081B	5103-74-2	TRANS-CHLORDANE	J
RB12_9-10	SW8260C	75-01-4	VINYL CHLORIDE	UJ
SOTB02_122618	SW8260C	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	UJ
SOTB02_122618	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOTB02_122618	SW8260C	78-93-3	2-BUTANONE	UJ
SOTB02_122618	SW8260C	591-78-6	2-HEXANONE	UJ
SOTB02_122618	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOTB02_122618	SW8260C	67-64-1	ACETONE	UJ
SOTB02_122618	SW8260C	74-83-9	BROMOMETHANE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB03_17-18	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB03_17-18	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB03_17-18	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB03_17-18	SW8260C	74-83-9	BROMOMETHANE	UJ
RB03_17-18	SW8260C	75-00-3	CHLOROETHANE	UJ
RB03_17-18	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB03_17-18	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB03_17-18	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB03_17-18	SW8270D	108-95-2	PHENOL	UJ
RB03_17-18	SW8081B	8001-35-2	TOXAPHENE	UJ
RB03_17-18	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
RB03_17-18	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB04_0-2	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB04_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB04_0-2	SW8260C	78-93-3	2-BUTANONE	UJ
RB04_0-2	SW8260C	591-78-6	2-HEXANONE	UJ
RB04_0-2	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB04_0-2	SW8260C	67-64-1	ACETONE	UJ
RB04_0-2	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB04_0-2	SW8081B	57-74-9	CHLORDANE	UJ
RB04_0-2	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB04_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB04_0-2	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB04_0-2	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB04_0-2	SW8260C	91-20-3	NAPHTHALENE	UJ
RB04_0-2	SW8260C	100-42-5	STYRENE	UJ
RB04_13-15	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB04_13-15	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB04_13-15	SW8260C	78-93-3	2-BUTANONE	UJ
RB04_13-15	SW8260C	591-78-6	2-HEXANONE	UJ
RB04_13-15	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ

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RB04_13-15	SW8260C	67-64-1	ACETONE	J
RB04_13-15	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB04_13-15	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB04_13-15	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB04_13-15	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB04_13-15	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB04_13-15	SW8260C	91-20-3	NAPHTHALENE	UJ
RB04_13-15	SW8260C	100-42-5	STYRENE	UJ
RB04_18-20	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB04_18-20	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB04_18-20	SW8260C	74-83-9	BROMOMETHANE	UJ
RB04_18-20	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB04_18-20	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB04_18-20	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB04_8-10	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB04_8-10	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB04_8-10	SW8260C	78-93-3	2-BUTANONE	UJ
RB04_8-10	SW8260C	591-78-6	2-HEXANONE	UJ
RB04_8-10	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB04_8-10	SW8260C	67-64-1	ACETONE	UJ
RB04_8-10	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB04_8-10	SW8081B	57-74-9	CHLORDANE	UJ
RB04_8-10	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB04_8-10	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB04_8-10	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB04_8-10	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB04_8-10	6010D	7439-92-1	LEAD, TOTAL	J
RB04_8-10	SW7471B	7439-97-6	MERCURY, TOTAL	J
RB04_8-10	SW8260C	91-20-3	NAPHTHALENE	UJ

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RB04_8-10	SW8260C	100-42-5	STYRENE	UJ
RB04_8-10	6010D	7440-66-6	ZINC, TOTAL	J
RB05_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB05_0-2	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB05_0-2	SW8260C	74-83-9	BROMOMETHANE	UJ
RB05_0-2	SW8081B	57-74-9	CHLORDANE	UJ
RB05_0-2	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB05_0-2	6010D	7439-89-6	IRON, TOTAL	J
RB05_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB05_0-2	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB05_0-2	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB05_13-15	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB05_13-15	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB05_13-15	SW8260C	78-93-3	2-BUTANONE	UJ
RB05_13-15	SW8260C	591-78-6	2-HEXANONE	UJ
RB05_13-15	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB05_13-15	SW8260C	67-64-1	ACETONE	J
RB05_13-15	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB05_13-15	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB05_13-15	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB05_13-15	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB05_13-15	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB05_13-15	SW8260C	91-20-3	NAPHTHALENE	UJ
RB05_13-15	SW8260C	100-42-5	STYRENE	UJ
RB05_19-21	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB05_19-21	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB05_19-21	SW8260C	78-93-3	2-BUTANONE	UJ
RB05_19-21	SW8260C	591-78-6	2-HEXANONE	UJ
RB05_19-21	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB05_19-21	SW8260C	67-64-1	ACETONE	J

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RB05_19-21	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB05_19-21	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB05_19-21	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB05_19-21	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB05_19-21	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB05_19-21	SW8260C	91-20-3	NAPHTHALENE	UJ
RB05_19-21	SW8260C	100-42-5	STYRENE	UJ
RB05_8-10	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB05_8-10	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB05_8-10	SW8260C	78-93-3	2-BUTANONE	UJ
RB05_8-10	SW8260C	591-78-6	2-HEXANONE	UJ
RB05_8-10	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB05_8-10	SW8260C	67-64-1	ACETONE	UJ
RB05_8-10	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB05_8-10	SW8081B	57-74-9	CHLORDANE	UJ
RB05_8-10	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB05_8-10	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB05_8-10	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB05_8-10	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB05_8-10	SW8260C	91-20-3	NAPHTHALENE	UJ
RB05_8-10	SW8260C	100-42-5	STYRENE	UJ
RB06_0-2	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB06_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB06_0-2	SW8260C	78-93-3	2-BUTANONE	UJ
RB06_0-2	SW8260C	591-78-6	2-HEXANONE	UJ
RB06_0-2	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB06_0-2	SW8260C	67-64-1	ACETONE	UJ
RB06_0-2	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB06_0-2	SW8081B	57-74-9	CHLORDANE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB06_0-2	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	J
RB06_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB06_0-2	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB06_0-2	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB06_0-2	SW8260C	91-20-3	NAPHTHALENE	UJ
RB06_0-2	SW8260C	100-42-5	STYRENE	UJ
RB06_10-12	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB06_10-12	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB06_10-12	SW8260C	78-93-3	2-BUTANONE	UJ
RB06_10-12	SW8260C	591-78-6	2-HEXANONE	UJ
RB06_10-12	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB06_10-12	SW8260C	67-64-1	ACETONE	J
RB06_10-12	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB06_10-12	SW8081B	57-74-9	CHLORDANE	UJ
RB06_10-12	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB06_10-12	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB06_10-12	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB06_10-12	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB06_10-12	SW8260C	91-20-3	NAPHTHALENE	UJ
RB06_10-12	SW8260C	100-42-5	STYRENE	UJ
RB06_8-10	SW8260C	95-93-2	1,2,4,5-TETRAMETHYLBENZENE	UJ
RB06_8-10	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB06_8-10	SW8260C	78-93-3	2-BUTANONE	UJ
RB06_8-10	SW8260C	591-78-6	2-HEXANONE	UJ
RB06_8-10	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB06_8-10	SW8260C	67-64-1	ACETONE	J
RB06_8-10	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
RB06_8-10	SW8081B	57-74-9	CHLORDANE	UJ
RB06_8-10	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	J
RB06_8-10	SW9012B	57-12-5	CYANIDE, TOTAL	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB06_8-10	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB06_8-10	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
RB06_8-10	SW8260C	91-20-3	NAPHTHALENE	UJ
RB06_8-10	SW8260C	100-42-5	STYRENE	UJ
SODUP01_122118	SW8260C	123-91-1	1,4-DIOXANE	UJ
SODUP01_122118	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
SODUP01_122118	SW8260C	74-83-9	BROMOMETHANE	UJ
SODUP01_122118	SW8081B	57-74-9	CHLORDANE	UJ
SODUP01_122118	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
SODUP01_122118	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
SODUP01_122118	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
SODUP01_122118	6010D	7439-92-1	LEAD, TOTAL	J
SODUP01_122118	SW7471B	7439-97-6	MERCURY, TOTAL	J
SODUP01_122118	6010D	7440-66-6	ZINC, TOTAL	J
SOFB01_122118	SW8260C	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	UJ
SOFB01_122118	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOFB01_122118	SW8270D	105-67-9	2,4-DIMETHYLPHENOL	UJ
SOFB01_122118	SW8260C	78-93-3	2-BUTANONE	UJ
SOFB01_122118	SW8260C	591-78-6	2-HEXANONE	UJ
SOFB01_122118	SW8270D	91-94-1	3,3'-DICHLOROBENZIDINE	UJ
SOFB01_122118	SW8081B	72-54-8	4,4'-DDD	UJ
SOFB01_122118	SW8081B	72-55-9	4,4'-DDE	UJ
SOFB01_122118	SW8081B	50-29-3	4,4'-DDT	UJ
SOFB01_122118	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOFB01_122118	SW8260C	67-64-1	ACETONE	UJ
SOFB01_122118	SW8081B	309-00-2	ALDRIN	UJ
SOFB01_122118	SW8081B	319-84-6	ALPHA-BHC	UJ
SOFB01_122118	SW8081B	319-85-7	BETA-BHC	UJ
SOFB01_122118	SW8260C	74-83-9	BROMOMETHANE	UJ
SOFB01_122118	SW8081B	57-74-9	CHLORDANE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SOFB01_122118	SW8081B	5103-71-9	CIS-CHLORDANE	UJ
SOFB01_122118	6010D	7440-50-8	COPPER, TOTAL	U (0.01)
SOFB01_122118	SW8081B	319-86-8	DELTA-BHC	UJ
SOFB01_122118	SW8081B	60-57-1	DIELDRIN	UJ
SOFB01_122118	SW8081B	959-98-8	ENDOSULFAN I	UJ
SOFB01_122118	SW8081B	33213-65-9	ENDOSULFAN II	UJ
SOFB01_122118	SW8081B	1031-07-8	ENDOSULFAN SULFATE	UJ
SOFB01_122118	SW8081B	72-20-8	ENDRIN	UJ
SOFB01_122118	SW8081B	7421-93-4	ENDRIN ALDEHYDE	UJ
SOFB01_122118	SW8081B	53494-70-5	ENDRIN KETONE	UJ
SOFB01_122118	SW8081B	76-44-8	HEPTACHLOR	UJ
SOFB01_122118	SW8081B	1024-57-3	HEPTACHLOR EPOXIDE	UJ
SOFB01_122118	SW8081B	58-89-9	LINDANE	UJ
SOFB01_122118	SW8081B	72-43-5	METHOXYCHLOR	UJ
SOFB01_122118	SW8081B	8001-35-2	TOXAPHENE	UJ
SOFB01_122118	SW8081B	5103-74-2	TRANS-CHLORDANE	UJ
SOTB01_122118	SW8260C	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	UJ
SOTB01_122118	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOTB01_122118	SW8260C	78-93-3	2-BUTANONE	UJ
SOTB01_122118	SW8260C	591-78-6	2-HEXANONE	UJ
SOTB01_122118	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOTB01_122118	SW8260C	67-64-1	ACETONE	UJ
SOTB01_122118	SW8260C	74-83-9	BROMOMETHANE	UJ
RB07_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB07_0-2	SW8081B	5103-71-9	CIS-CHLORDANE	J
RB07_0-2	SW8081B	60-57-1	DIELDRIN	J
RB07_0-2	SW8081B	1031-07-8	ENDOSULFAN SULFATE	J
RB07_0-2	SW8270D	106-47-8	4-CHLOROANILINE	UJ
RB07_0-2	6010D	7440-39-3	BARIUM, TOTAL	J
RB07_0-2	SW8260C	74-83-9	BROMOMETHANE	UJ
RB07_0-2	SW8260C	75-15-0	CARBON DISULFIDE	UJ
RB07_0-2	SW8260C	74-87-3	CHLOROMETHANE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB07_0-2	SW8081B	5103-74-2	TRANS-CHLORDANE	J
RB07_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB07_0-2	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB07_0-2	6010D	7439-92-1	LEAD, TOTAL	J
RB07_0-2	SW7471B	7439-97-6	MERCURY, TOTAL	U (0.15)
RB07_0-2	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB07_0-2	6010D	7440-66-6	ZINC, TOTAL	J
RB07_10-12	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB07_10-12	6010D	7440-39-3	BARIUM, TOTAL	J
RB07_10-12	SW8270D	65-85-0	BENZOIC ACID	UJ
RB07_10-12	SW8260C	74-83-9	BROMOMETHANE	UJ
RB07_10-12	SW8260C	75-15-0	CARBON DISULFIDE	UJ
RB07_10-12	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB07_10-12	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB07_10-12	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB07_10-12	SW8081B	72-54-8	4,4'-DDD	J
RB07_10-12	6010D	7439-92-1	LEAD, TOTAL	J
RB07_10-12	SW8081B	72-55-9	4,4'-DDE	J
RB07_10-12	SW8081B	50-29-3	4,4'-DDT	J
RB07_10-12	SW8081B	5103-74-2	TRANS-CHLORDANE	J
RB07_10-12	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB07_8-10	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB07_8-10	SW8270D	106-47-8	4-CHLOROANILINE	UJ
RB07_8-10	6010D	7440-39-3	BARIUM, TOTAL	J
RB07_8-10	SW8260C	74-83-9	BROMOMETHANE	UJ
RB07_8-10	SW8260C	75-15-0	CARBON DISULFIDE	UJ
RB07_8-10	SW8260C	74-87-3	CHLOROMETHANE	UJ
RB07_8-10	SW8081B	5103-71-9	CIS-CHLORDANE	J
RB07_8-10	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB07_8-10	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
RB07_8-10	SW8081B	5103-74-2	TRANS-CHLORDANE	J
RB07_8-10	6010D	7439-92-1	LEAD, TOTAL	J

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB07_8-10	SW7471B	7439-97-6	MERCURY, TOTAL	U (0.171)
RB07_8-10	SW8260C	75-01-4	VINYL CHLORIDE	UJ
RB10_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB10_0-2	SW8260C	78-93-3	2-BUTANONE	UJ
RB10_0-2	SW8260C	591-78-6	2-HEXANONE	UJ
RB10_0-2	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB10_0-2	SW8260C	67-64-1	ACETONE	UJ
RB10_0-2	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB10_0-2	SW8260C	108-05-4	VINYL ACETATE	UJ
RB10_0-2	6010D	7440-36-0	ANTIMONY, TOTAL	U (4.27)
RB10_0-2	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB10_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB10_0-2	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB10_18-20	6010D	7440-36-0	ANTIMONY, TOTAL	U (5.45)
RB10_18-20	SW8270D	205-99-2	BENZO(B)FLUORANTHENE	J
RB10_18-20	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	J
RB10_18-20	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB10_18-20	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB10_18-20	SW8260C	591-78-6	2-HEXANONE	UJ
RB10_18-20	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB10_18-20	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB10_33-35	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB10_33-35	SW8260C	78-93-3	2-BUTANONE	UJ
RB10_33-35	SW8260C	591-78-6	2-HEXANONE	UJ
RB10_33-35	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB10_33-35	SW8260C	67-64-1	ACETONE	UJ
RB10_33-35	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB10_33-35	SW8260C	108-05-4	VINYL ACETATE	UJ
RB10_33-35	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	J
RB10_33-35	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB15_0-2	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	J
RB15_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB15_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB15_0-2	SW8260C	591-78-6	2-HEXANONE	UJ
RB15_0-2	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB15_0-2	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB15_18-20	SW8270D	51-28-5	2,4-DINITROPHENOL	UJ
RB15_18-20	SW8151A	93-76-5	2,4,5-T	UJ
RB15_18-20	6010D	7440-36-0	ANTIMONY, TOTAL	U (3.99)
RB15_18-20	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB15_18-20	SW8270D	65-85-0	BENZOIC ACID	UJ
RB15_18-20	SW9012B	57-12-5	CYANIDE, TOTAL	J
RB15_18-20	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB15_18-20	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB15_18-20	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
RB15_23-25	SW8151A	93-76-5	2,4,5-T	UJ
RB15_23-25	SW8270D	91-57-6	2-METHYLNAPHTHALENE	J
RB15_23-25	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB15_23-25	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB15_23-25	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB15_23-25	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB15_23-25	SW8260C	71-43-2	BENZENE	J
RB15_23-25	SW8270D	91-20-3	NAPHTHALENE	J
RB15_23-25	SW8260C	103-65-1	N-PROPYLBENZENE	J
RB15_28-30	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	J
RB15_28-30	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB15_28-30	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB15_28-30	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB16_0-2	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB16_0-2	SW8260C	78-93-3	2-BUTANONE	UJ
RB16_0-2	SW8260C	591-78-6	2-HEXANONE	UJ
RB16_0-2	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB16_0-2	SW8260C	67-64-1	ACETONE	UJ
RB16_0-2	SW8260C	107-13-1	ACRYLONITRILE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RB16_0-2	SW8151A	93-76-5	2,4,5-T	UJ
RB16_0-2	SW8260C	108-05-4	VINYL ACETATE	UJ
RB16_0-2	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB16_0-2	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB16_13-15	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB16_13-15	SW8260C	78-93-3	2-BUTANONE	UJ
RB16_13-15	SW8260C	591-78-6	2-HEXANONE	UJ
RB16_13-15	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB16_13-15	SW8260C	67-64-1	ACETONE	UJ
RB16_13-15	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB16_13-15	SW8151A	93-76-5	2,4,5-T	UJ
RB16_13-15	SW8260C	108-05-4	VINYL ACETATE	UJ
RB16_13-15	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB16_13-15	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB16_13-15	SW8270D	85-68-7	BUTYL BENZYL PHTHALATE	UJ
RB16_18-20	SW8260C	123-91-1	1,4-DIOXANE	UJ
RB16_18-20	SW8260C	78-93-3	2-BUTANONE	UJ
RB16_18-20	SW8260C	591-78-6	2-HEXANONE	UJ
RB16_18-20	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
RB16_18-20	SW8260C	67-64-1	ACETONE	UJ
RB16_18-20	SW8260C	107-13-1	ACRYLONITRILE	UJ
RB16_18-20	SW8151A	93-76-5	2,4,5-T	UJ
RB16_18-20	SW8260C	108-05-4	VINYL ACETATE	UJ
RB16_18-20	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
RB16_18-20	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
RB16_18-20	SW8270D	108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	UJ
SODUP05_010819	SW8151A	93-76-5	2,4,5-T	UJ
SODUP05_010819	SW8270D	91-57-6	2-METHYLNAPHTHALENE	J
SODUP05_010819	SW7196A	18540-29-9	CHROMIUM, HEXAVALENT	UJ
SODUP05_010819	SW9012B	57-12-5	CYANIDE, TOTAL	UJ
SODUP05_010819	SW8260C	123-91-1	1,4-DIOXANE	UJ
SODUP05_010819	SW8260C	591-78-6	2-HEXANONE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SODUP05_010819	SW8260C	107-13-1	ACRYLONITRILE	UJ
SODUP05_010819	SW8260C	71-43-2	BENZENE	J
SODUP05_010819	SW8270D	91-20-3	NAPHTHALENE	J
SODUP05_010819	SW8260C	103-65-1	N-PROPYLBENZENE	J
SOFB04_010819	SW8270D	100-02-7	4-NITROPHENOL	UJ
SOFB04_010819	SW8270D	208-96-8	ACENAPHTHYLENE	UJ
SOFB04_010819	SW8270D	131-11-3	DIMETHYL PHTHALATE	UJ
SOFB04_010819	SW8081B	8001-35-2	TOXAPHENE	UJ
SOFB04_010819	SW8270D	59-50-7	P-CHLORO-M-CRESOL	UJ
SOFB04_010819	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOFB04_010819	SW8260C	78-93-3	2-BUTANONE	UJ
SOFB04_010819	SW8260C	591-78-6	2-HEXANONE	UJ
SOFB04_010819	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOFB04_010819	SW8260C	67-64-1	ACETONE	UJ
SOFB04_010819	SW8260C	107-13-1	ACRYLONITRILE	UJ
SOFB04_010819	SW8260C	74-83-9	BROMOMETHANE	UJ
SOFB04_010819	SW8260C	74-87-3	CHLOROMETHANE	UJ
SOFB04_010819	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
SOFB04_010819	SW8260C	87-68-3	HEXACHLOROBUTADIENE	UJ
SOTB07_010819	SW8260C	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	UJ
SOTB07_010819	SW8260C	123-91-1	1,4-DIOXANE	UJ
SOTB07_010819	SW8260C	78-93-3	2-BUTANONE	UJ
SOTB07_010819	SW8260C	591-78-6	2-HEXANONE	UJ
SOTB07_010819	SW8260C	108-10-1	4-METHYL-2-PENTANONE	UJ
SOTB07_010819	SW8260C	67-64-1	ACETONE	UJ
SOTB07_010819	SW8260C	107-13-1	ACRYLONITRILE	UJ
SOTB07_010819	SW8260C	74-83-9	BROMOMETHANE	UJ
SOTB07_010819	SW8260C	74-87-3	CHLOROMETHANE	UJ
SOTB07_010819	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by SW-846 Method 8260C

L1852610

The initial calibration (ICAL) for instrument VOA110 exhibited a response factor (RF) below the control limit for 1,4-dioxane (0.005). The associated results in sample RB07_0-2, RB07_8-10, and RB07_10-12 are qualified as "UJ" based on potential indeterminate bias.

The continuing calibration verification (CCV) analyzed on 12/28/2018 at 7:57 exhibited a percent difference (%D) above the control limit for dichlorodifluoromethane (-38.1%), chloromethane (-34.3%), vinyl chloride (-29.2%), bromomethane (-58.3%), and carbon disulfide (20.5%). The associated results in sample RB07_0-2, RB07_8-10, and RB07_10-12 are qualified as "UJ" based on potential indeterminate bias.

L1852926

The lab control sample and lab control sample duplicate (LCS/LCSD) for batch WG1194240 exhibited a percent recovery below the lower control limit (LCL) for 2-butanone (59%, 54%) and 2-hexanone (60%, 64%). The associated results in sample RB05_8-10, RB05_13-15, RB05_19-21, RB06_0-2, RB06_8-10, RB06_10-12, RB04_0-2, RB04_8-10, RB04_13-15, and SOFB01_122118 are qualified as "UJ" based on potential low bias.

The ICAL for instrument VOA100 exhibited a RF below the control limit for 1,4-dioxane (0.002) and 4-methyl-2-pentanone (0.089). The associated results in sample RB05_8-10, RB05_13-15, RB05_19-21, RB06_0-2, RB06_8-10, RB06_10-12, RB04_0-2, RB04_8-10, and RB04_13-15 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA101 exhibited a RF below the control limit for acetone (0.024), 2-butanone (0.041), 1,4-dioxane (0.001), 4-methyl-2-pentanone (0.045), 2-hexanone (0.078), and 1,2-dibromo-3-chloropropane (0.046). The associated results in sample SOTB01_122118 and SOFB01_122118 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument CHARLIE exhibited a RF below the control limit for 1,4-dioxane (0.004). The associated results in sample RB05_0-2, SODUP01_122118, and RB04_18-20 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/2/2019 at 8:29 exhibited a %D above the control limit for bromomethane (52.8%). The associated results in sample SOTB01_122118 and SOFB01_122118 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/2/2019 at 12:33 exhibited a %D above the control limit for dichlorodifluoromethane (20.2%), acetone (28.3%), 2-butanone (40.9%), 2-hexanone (39.8%), styrene (20.5%), 1,2,4,5-tetramethylbenzene (22.3%), and naphthalene (20.2%). The associated results in sample RB05_8-10, RB05_13-15, RB05_19-21, RB06_0-2, RB06_8-10, RB06_10-12, RB04_0-2, RB04_8-10, and RB04_13-15 are qualified as "J" or "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/3/2019 at 6:48 exhibited a %D above the control limit for dichlorodifluoromethane (40.6%) and bromomethane (31.4%). The associated results in sample RB05_0-2, SODUP01_122118, and RB04_18-20 are qualified as "UJ" based on potential indeterminate bias.

L1853110

The LCSD for batch WG1194817 exhibited a percent recovery below the LCL for bromomethane (56%). The associated results in sample RB03_17-18 are qualified as "UJ" based on potential low bias.

The ICAL for instrument VOA117 exhibited a RF below the control limit for acrylonitrile (0.05), 1,4-dioxane (0.001), and 4-methyl-2-pentanone (0.074). The associated results in sample RB03_17-18 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/4/2019 at 6:13 exhibited a %D above the control limit for chloromethane (28.4%), vinyl chloride (29.9%), bromomethane (42.8%), chloroethane (43.9%), and trichlorofluoromethane (25.5%). The associated results in sample RB03_17-18 are qualified as "UJ" based on potential indeterminate bias.

L1853111

The LCS/LCSD for batch WG1194605 exhibited a percent recovery below the LCL for bromomethane (42%, 46%), chloroethane (48%, 48%), trichlorofluoromethane (63%, 64%), vinyl acetate (53%, 64%), and vinyl chloride (63%, 63%). The associated results in sample

RB03_0-2, RB03_10-12, RB12_0-2, and RB12_9-10 are qualified as "UJ" based on potential low bias.

The LCSD for batch WG1194817 exhibited a percent recovery below the LCL for bromomethane (56%). The associated results in sample RB12_8-9 are qualified as "UJ" based on potential low bias.

The field duplicate and parent sample (SODUP02_122718 and RB08_14-16) exhibited a relative percent difference (RPD) above the control limit for acetone (98%). The associated results are qualified as "J" based on potential indeterminate bias.

The ICAL for instrument VOA117 exhibited a RF below the control limit for acrylonitrile (0.05), 1,4-dioxane (0.001), and 4-methyl-2-pentanone (0.074). The associated results in sample RB03_0-2, RB03_10-12, RB12_0-2, RB12_8-9, and RB12_9-10 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA101 exhibited a RF below the control limit for acetone (0.024), 2-butanone (0.041), 1,4-dioxane (0.001), 4-methyl-2-pentanone (0.045), 2-hexanone (0.078), and 1,2-dibromo-3-chloropropane (0.046). The associated results in sample SOTB02_122618 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument CHARLIE exhibited a RF below the control limit for 1,4-dioxane (0.004). The associated results in sample RB03_2-3, RB12_10-12, RB02_0-2, RB02_7-9, RB02_10-12, and RB02_13-15 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/2/2019 at 8:29 exhibited a %D above the control limit for bromomethane (52.8%). The associated results in sample SOTB02_122618 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/3/2019 at 16:38 exhibited a %D above the control limit for chloromethane (29.4%), vinyl chloride (36.6%), bromomethane (58.3%), chloroethane (52%), trichlorofluoromethane (36.6%), and vinyl acetate (47%). The associated results in sample RB03_0-2, RB03_10-12, RB12_0-2, and RB12_9-10 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/3/2019 at 17:43 exhibited a %D above the control limit for dichlorodifluoromethane (40.3%), bromomethane (27.5%), 1,1-dichloroethene (22.6%), carbon disulfide (21.8%), and acrylonitrile (21.1%). The associated results in sample RB03_2-3, RB12_10-12, RB02_0-2, RB02_7-9, RB02_10-12, and RB02_13-15 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/4/2019 at 6:13 exhibited a %D above the control limit for chloromethane (28.4%), vinyl chloride (29.9%), bromomethane (42.8%), chloroethane (43.9%), trichlorofluoromethane (25.5%), and acrylonitrile (26%). The associated results in sample RB12_8-9 are qualified as "UJ" based on potential indeterminate bias.

L1853234

The trip blank (TB) (SOTB03_122718) exhibited a detection of acetone (1.6 ug/l). The associated results in sample SOFB02_122718 are qualified as "U" at the reporting limit based on potential blank contamination.

The ICAL for instrument ELAINE exhibited a RF below the control limit for acetone (0.053), 2-butanone (0.072), 1,4-dioxane (0.001), and 4-methyl-2-pentanone (0.076). The associated results in sample SOTB03_122718 and SOFB02_122718 are qualified as "J" or "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA123 exhibited a RF below the control limit for 1,4-dioxane (0.004). The associated results in sample RB01_0-2 and RB01_25-27 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument CHARLIE exhibited a RF below the control limit for 1,4-dioxane (0.004). The associated results in sample RB01_0-2 and RB08_10-12 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA123 exhibited a RF below the control limit for 1,4-dioxane (0.003). The associated results in sample RB08_12-14, RB08_14-16, SODUP02_122718, and RB01_9-11 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/2/2019 at 6:28 exhibited a %D above the control limit for trichlorofluoromethane (-34.1%), 4-methyl-2-pentanone (22.5%), and 2-hexanone (29.9%). The associated results in sample RB01_0-2 and RB01_25-27 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/2/2019 at 18:08 exhibited a %D above the control limit for dichlorodifluoromethane (40.6%), bromomethane (35.8%), chloroethane (28.5%), and trichlorofluoromethane (26.5%). The associated results in sample RB01_0-2 and RB08_10-12 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/3/2019 at 8:32 exhibited a %D above the control limit for dichlorodifluoromethane (43.5%), chloromethane (30.9%), bromomethane (50.9%), and vinyl

acetate (-27.1%). The associated results in sample SOTB03_122718 and SOFB02_122718 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/4/2019 at 12:27 exhibited a %D above the control limit for dichlorodifluoromethane (-23.2%). The associated results in sample RB08_12-14, RB08_14-16, SODUP02_122718, and RB01_9-11 are qualified as "UJ" based on potential indeterminate bias.

L1900156

The field duplicate and parent sample (SODUP03_010219 and RB09_19-21) exhibited a RPD above the control limit for 1,2,4,5-tetramethylbenzene (72%), 1,4-diethylbenzene (70%), benzene (78%), isopropylbenzene (74%), n-butylbenzene (64%), n-propylbenzene (71%), and sec-butylbenzene (68%). The associated results are qualified as "J" based on potential indeterminate bias.

The ICAL for instrument ELAINE exhibited a RF below the control limit for acetone (0.053), 2-butanone (0.072), 1,4-dioxane (0.001), and 4-methyl-2-pentanone (0.076). The associated results in sample SOTB04_010219 are qualified as "J" or "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA123 exhibited a RF below the control limit for 1,4-dioxane (0.003). The associated results in sample RB09_0-2, RB09_19-21, RB09_28-30, RB11_0-2, RB11_19-21, RB11_28-30, and SODUP03_010219 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/3/2019 at 8:32 exhibited a %D above the control limit for dichlorodifluoromethane (43.5%), chloromethane (30.9%), bromomethane (50.9%), vinyl acetate (-27.1%), and 2,2-dichloropropane (32.7%). The associated results in sample SOTB04_010219 are qualified as "UJ" based on potential indeterminate bias.

L1900324

The method blank (MB) for batch WG1195498 exhibited a detection of bromomethane (0.96 ug/kg). The associated results in sample RB22_3-5 are qualified as "U" at the reporting limit based on potential blank contamination.

The ICAL for instrument VOA110 exhibited a RF below the control limit for 1,4-dioxane (0.005). The associated results in sample RB21_0-2, RB21_2-4, RB21_18-20, RB22_0-2, RB22_3-5, RB19_0-2, and RB19_24-25 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA101 exhibited a RF below the control limit for acetone (0.024), 2-butanone (0.041), 1,4-dioxane (0.001), 4-methyl-2-pentanone (0.045), 2-hexanone (0.078), and

1,2-dibromo-3-chloropropane (0.046). The associated results in sample SOTB05_010319 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA123 exhibited a RF below the control limit for 1,4-dioxane (0.003). The associated results in sample RB19_20-22 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/6/2019 at 10:13 exhibited a %D above the control limit for bromomethane (52.8) and vinyl acetate (-24). The associated results in sample SOTB05_010319 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/7/2019 at 12:47 exhibited a %D above the control limit for dichlorodifluoromethane (-45.3), chloromethane (-48.5), vinyl chloride (-38), bromomethane (-61.7), 4-ethyltoluene (20.6), 1,2,3-trichloropropane (20.4), and 1,2,4,5-tetramethylbenzene (20.3). The associated results in sample RB21_0-2, RB21_2-4, RB21_18-20, RB22_0-2, RB22_3-5, RB19_0-2, and RB19_24-25 are qualified as "UJ" based on potential indeterminate bias.

L1900536

The LCS/LCSD for batch WG1195525 exhibited a percent recovery below the LCL for 1,2,3-trichlorobenzene (66%, 69%) and naphthalene (64%, 68%). The associated results in sample SOTB06_010419 are qualified as "UJ" based on potential low bias.

The LCSD for batch WG1196289 exhibited a percent recovery below the LCL for 2-hexanone (68%). The associated results in sample RB20_0-2 and RB22_20-22 are qualified as "UJ" based on potential low bias.

The ICAL for instrument VOA100 exhibited a RF below the control limit for 1,4-dioxane (0.002) and 4-methyl-2-pentanone (0.089). The associated results in sample RB20_0-2 and RB22_20-22 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA101 exhibited a RF below the control limit for acetone (0.024), 2-butanone (0.041), 1,4-dioxane (0.001), 4-methyl-2-pentanone (0.045), 2-hexanone (0.078), and 1,2-dibromo-3-chloropropane (0.046). The associated results in sample SOTB06_010419 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA123 exhibited a RF below the control limit for 1,4-dioxane (0.003). The associated results in sample RB17_8-10, RB18_0-2, and RB18_6-8 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/7/2019 at 7:48 exhibited a %D above the control limit for bromomethane (34.9%), 1,2,4-trichlorobenzene (22.1%), naphthalene (36%), and 1,2,3-trichlorobenzene (33.9%). The associated results in sample SOTB06_010419 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/9/2019 at 14:20 exhibited a %D above the control limit for chloromethane (-31.3%), bromomethane (-29%), 1,4-dioxane (21.2%), tert-butylbenzene (-20.1%), p-isopropyltoluene (-22.6%), and n-butylbenzene (-23.2%). The associated results in sample RB17_0-2, RB17_4-6, RB17_18-20, RB18_15-17, RB18_18-20, RB20_7-9, RB20_13-15, and RB20_18-20 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/9/2019 at 17:55 exhibited a %D above the control limit for dichlorodifluoromethane (-37.1%), vinyl chloride (-23.4%), acetone (32.6%), and 2-hexanone (28%). The associated results in sample RB20_0-2 and RB22_20-22 are qualified as "J" or "UJ" based on potential indeterminate bias.

L1900707

The LCSD for batch WG1195621 exhibited a percent recovery below the LCL for 4-chloroaniline (39%). The associated results in sample RB13_0-2, RB13_18-20, RB13_22-24, RB13_33-35, RB14_0-2, RB14_18-20, RB14_23-25, RB14_33-35, and SODUP04_010719 are qualified as "UJ" based on potential low bias.

The ICAL for instrument VOA101 exhibited a RF below the control limit for acetone (0.024), 2-butanone (0.041), 1,4-dioxane (0.001), 4-methyl-2-pentanone (0.045), 2-hexanone (0.078), and 1,2-dibromo-3-chloropropane (0.046). The associated results in sample SOTB06_010719 and SOFB03_010719 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA111 exhibited a RF below the control limit for 4-methyl-2-pentanone (0.087). The associated results in sample RB13_0-2, RB13_18-20, RB13_22-24, RB13_33-35, RB14_0-2, RB14_18-20, RB14_23-25, RB14_33-35, and SODUP04_010719 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/8/2019 at 7:13 exhibited a %D above the control limit for dichlorodifluoromethane (27.9%), bromomethane (46.2%), trichlorofluoromethane (20.3%), freon-113 (21.5%), naphthalene (20.1%), and 1,2,3-trichlorobenzene (22.2%). The associated results in sample SOTB06_010719 and SOFB03_010719 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/10/2019 at 6:46 exhibited a %D above the control limit for 1,2-dichloroethane (21.4%). The associated results in sample RB13_0-2, RB13_18-20, RB13_22-24, RB13_33-35, RB14_0-2, RB14_18-20, RB14_23-25, RB14_33-35, and SODUP04_010719 are qualified as "UJ" based on potential indeterminate bias.

L1900879

The LCS/LCSD for batch WG1195687 exhibited a RPD above the control limit for hexachlorobutadiene (33%). The associated results in sample SOFB04_010819 are qualified as "UJ" based on potential indeterminate bias.

The LCS/LCSD for batch WG1196485 exhibited a percent recovery below the LCL for bromomethane (37%, 37%) and 1,4-dioxane (30%). The associated results in sample SOFB04_010819 are qualified as "UJ" based on potential low bias.

The LCS/LCSD for batch WG1196736 exhibited a percent recovery below the LCL for 2-butanone (60%, 58%) and 2-hexanone (69%, 64%). The associated results in sample RB10_0-2, RB10_33-35, RB16_0-2, RB16_13-15, and RB16_18-20 are qualified as "UJ" based on potential low bias.

The field duplicate and parent sample (SODUP05_010819 and RB15_23-25) exhibited a RPD above the control limit for benzene (74%) and n-propylbenzene (65%). The associated results are qualified as "J" based on potential indeterminate bias.

The ICAL for instrument VOA105 exhibited a RF below the control limit for acetone (0.02), acrylonitrile (0.026), 2-butanone (0.031), 1,4-dioxane (0.001), 4-methyl-2-pentanone (0.035), 2-hexanone (0.054), and 1,2-dibromo-3-chloropropane (0.033). The associated results in sample SOTB07_010819 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA122 exhibited a RF below the control limit for acrylonitrile (0.043), 2-butanone (0.057), 1,4-dioxane (0.001), and 4-methyl-2-pentanone (0.065). The associated results in sample SOFB04_010819 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA100 exhibited a RF below the control limit for 1,4-dioxane (0.002) and 4-methyl-2-pentanone (0.089). The associated results in sample RB10_0-2, RB10_33-35, RB16_0-2, RB16_13-15, and RB16_18-20 are qualified as "UJ" based on potential indeterminate bias.

The ICAL for instrument VOA117 exhibited a RF below the control limit for acrylonitrile (0.037) and 1,4-dioxane (0.002). The associated results in sample RB10_18-20, RB15_0-2, RB15_18-20,

RB15_23-25, SODUP05_010819, and RB15_28-30 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/9/2019 at 9:26 exhibited a %D above the control limit for dichlorodifluoromethane (35.7%), chloromethane (26.3%), and bromomethane (26.4%). The associated results in sample SOTB07_010819 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/10/2019 at 10:27 exhibited a %D above the control limit for dichlorodifluoromethane (38.2%), chloromethane (35%), bromomethane (63.1%), acetone (38.3%), 2-hexanone (23.6%), and hexachlorobutadiene (34.6%). The associated results in sample SOFB04_010819 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/10/2019 at 17:55 exhibited a %D above the control limit for 2-hexanone (20.3%). The associated results in sample RB10_18-20, RB15_0-2, and SODUP05_010819 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/10/2019 at 18:23 exhibited a %D above the control limit for acetone (26%), acrylonitrile (24%), vinyl acetate (20.1%), 2-butanone (40.5%), and 2-hexanone (31.1%). The associated results in sample RB10_0-2, RB10_33-35, RB16_0-2, RB16_13-15, and RB16_18-20 are qualified as "UJ" based on potential indeterminate bias.

SVOCs by SW-846 Method 8270D and 8270C-SIM:

L1852610

The LCS/LCSD for batch WG1192476 exhibited a RPD above the control limit for benzoic acid (65%). The associated results in sample RB07_10-12 are qualified as "UJ" based on potential indeterminate bias.

The LCS for batch WG1193985 exhibited a percent recovery below the LCL for 4-chloroaniline (35%). The associated results in sample RB07_0-2 and RB07_8-10 are qualified as "UJ" based on potential low bias.

L1852926

The LCS/LCSD for batch WG1192882 exhibited a RPD above the control limit for 3,3'-dichlorobenzidine (39%). The associated results in sample SOFB01_122118 are qualified as "UJ" based on potential indeterminate bias.

The LCS/LCSD for batch WG1192882 exhibited a percent recovery below the LCL for 2,4-dimethylphenol (29%). The associated results in sample SOFB01_122118 are qualified as "UJ" based on potential low bias.

The CCV analyzed on 12/29/2018 at 22:30 exhibited a %D above the control limit for bis(2-chloroisopropyl)ether (21.5%) and hexachlorocyclopentadiene (21.6%). The associated results in sample RB05_0-2, RB05_8-10, RB05_13-15, RB05_19-21, RB06_0-2, RB06_8-10, RB06_10-12, RB04_0-2, RB04_8-10, RB04_13-15, SODUP01_122118, and RB04_18-20 are qualified as "UJ" based on potential indeterminate bias.

L1853110

The LCSD for batch WG1193175 exhibited a percent recovery below the LCL for phenol (93%). The associated results in sample RB03_17-18 are qualified as "UJ" based on potential low bias.

L1853234

The LCSD for batch WG1193790 exhibited a percent recovery below the LCL for 2,4-dimethylphenol (29%), 3,3'-dichlorobenzidine (35%), and 4-chloroaniline (38%). The associated results in sample SOFB02_122718 are qualified as "UJ" based on potential low bias.

The LCSD for batch WG1194326 exhibited a percent recovery below the LCL for ethyl ether (65%). The associated results in sample RB01_0-2 and RB08_10-12 are qualified as "UJ" based on potential low bias.

The sample SOFB02_122718 was extracted outside of the holding time by 1 day. The associated results are qualified as "J" or "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/3/2019 at 22:17 exhibited a %D above the control limit for benzoic acid (21.1%). The associated results in sample SOFB02_122718 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/6/2019 at 19:32 exhibited a %D above the control limit for 2-nitrophenol (-34.3%), 2-nitroaniline (-23.2%), and pentachlorophenol (-23.4%). The associated results in sample RB01_14-15 and RB01_9-11 are qualified as "UJ" based on potential indeterminate bias.

L1900156

The LCS/LCSD for batch WG1194535 exhibited a percent recovery above the upper control limit (UCL) for biphenyl (106%, 110%). The associated results in sample SODUP03_010219 are qualified as "J" based on potential high bias.

The field duplicate and parent sample (SODUP03_010219 and RB09_19-21) exhibited a RPD above the control limit for 2-methylnaphthalene (86%), fluoranthene (68%), naphthalene (107%), phenanthrene (70%), and pyrene (69%). The associated results are qualified as "J" based on potential indeterminate bias.

The CCV analyzed on 1/8/2019 at 6:45 exhibited a %D above the control limit for bis(2-chloroisopropyl)ether (21). The associated results in sample SODUP03_010219 and RB11_19-21 are qualified as "UJ" based on potential indeterminate bias.

L1900324

The CCV analyzed on 1/5/2019 at 10:06 exhibited a %D above the control limit for bis(2-chloroisopropyl)ether (21.9%), 2-nitrophenol (-28.1%), 4,6-dinitro-o-cresol (-23%), di-n-butylphthalate (-20.6%), butyl benzyl phthalate (-35%), bis(2-ethylhexyl)phthalate (-22.4%), and di-n-octylphthalate (-22.4%). The associated results in sample RB21_2-4 are qualified as "UJ" based on potential indeterminate bias.

L1900536

The CCV analyzed on 1/7/2019 at 7:21 exhibited a %D above the control limit for bis(2-chloroisopropyl)ether (20.3%), 2,4-dinitrophenol (-31.6%), pentachlorophenol (-20.9%), butyl benzyl phthalate (-26.5%), and di-n-octylphthalate (-34.2%). The associated results in sample RB17_0-2, RB17_18-20, RB18_15-17, RB18_18-20, RB20_7-9, RB20_13-15, RB20_18-20, and RB22_20-22 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/7/2019 at 13:14 exhibited a %D above the control limit for hexachlorocyclopentadiene (20.5%). The associated results in sample RB17_4-6, RB17_8-10, RB20_0-2 are qualified as "UJ" based on potential indeterminate bias.

L1900707

The CCV analyzed on 1/9/2019 at 14:05 exhibited a %D above the control limit for 2,4-dinitrotoluene (-42.7%). The associated results in sample SOFB03_010719 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/10/2019 at 12:11 exhibited a %D above the control limit for 2,4-dinitrophenol (26.9%). The associated results in sample RB13_22-24 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/11/2019 at 7:37 exhibited a %D above the control limit for 4-nitroaniline (23.1%). The associated results in sample RB14_33-35 and SODUP04_010719 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/11/2019 at 17:01 exhibited a %D above the control limit for bis(2-chloroisopropyl)ether (21.5%) and bis(2-chloroethoxy)methane (20.6%). The associated results in sample RB14_23-25 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/9/2019 at 11:44 exhibited a %D above the control limit for pentachlorophenol (23.2%). The associated results in sample SOFB03_010719 are qualified as "UJ" based on potential indeterminate bias.

L1900879

The field duplicate and parent sample (SODUP05_010819 and RB15_23-25) exhibited a RPD above the control limit for 2-methylnaphthalene (173%) and naphthalene (183%). The associated results are qualified as "J" based on potential indeterminate bias.

The CCV analyzed on 1/11/2019 at 7:54 exhibited a %D above the control limit for butyl benzyl phthalate (-35.2%). The associated results in sample RB10_0-2, RB10_18-20, RB15_0-2, and RB16_13-15 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/11/2019 at 11:59 exhibited a %D above the control limit for bis(2-chloroisopropyl)ether (22.7%). The associated results in sample RB16_18-20 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/13/2019 at 12:54 exhibited a %D above the control limit for benzoic acid (20.9%), 2,4-dinitrophenol (21.9%), pentachlorophenol (26.9%), and pentachlorophenol (26.9%). The associated results in sample RB15_18-20 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/14/2019 at 14:26 exhibited a %D above the control limit for p-chloro-m-cresol (-23.1%), dimethyl phthalate (-25.1%), acenaphthylene (-21.3%), and 4-nitrophenol (-32.7%). The associated results in sample SOFB04_010819 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/14/2019 at 18:09 exhibited a %D above the control limit for benzo(b)fluoranthene (20.3%). The associated results in sample RB10_18-20 are qualified as "J" based on potential indeterminate bias.

Herbicides by SW-846 Method 8151A

L1853111

The sample RB01_9-11 exhibited a percent recovery below the LCL for the surrogate DCAA (11%). The associated results are qualified as "UJ" based on potential low bias.

L1900156

The sample SODUP03_010219 exhibited a percent recovery below the LCL for the surrogate DCAA (0%, (0%). The associated results are qualified as "UJ" based on potential low bias.

L1900879

The CCV analyzed on 1/15/2019 at 12:43 exhibited a %D above the control limit for 2,4,5-t (-15.3%). The associated results in sample RB15_18-20, RB15_23-25, RB16_0-2, RB16_13-15, RB16_18-20, and SODUP05_010819 are qualified as "UJ" based on potential indeterminate bias.

PCBs by SW-846 Method 8082A

L1852926

The sample RB04_0-2 exhibited a dual column imprecision for Aroclor 1260. The associated results are qualified as "J" based on potential indeterminate bias.

L1853111

The sample RB12_8-9 exhibited a dual column imprecision for Aroclor 1260. The associated results are qualified as "J" based on potential indeterminate bias.

Pesticides by SW-846 Method 8081B

L1852610

The sample RB07_0-2 exhibited a dual column imprecision for cis-chlordane, dieldrin, endosulfan sulfate, and trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB07_8-10 exhibited a dual column imprecision for cis-chlordane and trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB07_10-12 exhibited a dual column imprecision for 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, and trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

L1852926

The sample SOFB01_122118 exhibited a percent recovery below the LCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (17%, 17%), decachlorobiphenyl (13%, 13%). The associated results are qualified as "UJ" based on potential low bias.

The sample RB05_0-2 exhibited a dual column imprecision for cis-chlordane and trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB05_8-10 exhibited a dual column imprecision for trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB06_0-2 exhibited a dual column imprecision for 4,4'-DDD, cis-chlordane, heptachlor epoxide, and trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB06_8-10 exhibited a dual column imprecision for cis-chlordane and trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB04_0-2 exhibited a dual column imprecision for 4,4'-DDD, heptachlor epoxide, and trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

The CCV analyzed on 12/28/2018 at 10:43 exhibited a %D above the control limit for chlordane. The associated results in sample RB05_0-2, RB05_8-10, RB06_0-2, RB06_8-10, RB06_10-12, RB04_0-2, RB04_8-10, and SODUP01_122118 are qualified as "UJ" based on potential indeterminate bias.

L1853111

The CCV analyzed on 1/4/2019 at 9:09 exhibited a %D above the control limit for toxaphene. The associated results in sample RB03_17-18 are qualified as "UJ" based on potential indeterminate bias.

L1853111

The sample RB02_10-12 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (254%). The associated results are qualified as "J" based on potential high bias.

The sample RB03_0-2 exhibited a dual column imprecision for endosulfan II and trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB12_0-2 exhibited a dual column imprecision for endosulfan II and trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB12_9-10 exhibited a dual column imprecision for endrin and trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB01_0-2 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (183%). The associated results are qualified as "J" based on potential high bias.

The sample RB01_25-27 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (1270%). The associated results are qualified as "J" based on potential high bias.

The sample RB01_0-2 exhibited a dual column imprecision for endosulfan II. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB08_0-2 exhibited a dual column imprecision for 4,4'-DDE, 4,4'-DDT, and cis-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

The CCV analyzed on 12/30/2018 at 15:29 exhibited a %D above the control limit for toxaphene. The associated results in sample RB03_0-2, RB03_2-3, RB12_0-2, RB12_9-10, RB12_10-12, and RB02_0-2 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/2/2019 at 9:37 exhibited a %D above the control limit for endosulfan sulfate (30.6%). The associated results in sample RB02_10-12 and RB02_13-15 are qualified as "UJ" based on potential indeterminate bias.

L1853234

The CCV analyzed on 1/2/2019 at 9:37 exhibited a %D above the control limit for endosulfan sulfate (30.6%). The associated results in sample SOFB02_122718 are qualified as "UJ" based on potential indeterminate bias.

L1900156

The LCS/LCSD for batch WG1194454 exhibited a RPD above the control limit for 4,4'-DDD (46%), 4,4'-DDE (37%), 4,4'-DDT (46%), aldrin (43%), alpha-BHC (49%), beta-BHC (36%), delta-BHC (44%), dieldrin (46%), endosulfan I (41%), endosulfan II (44%), endosulfan sulfate (36%), endrin (43%), endrin aldehyde (45%), endrin ketone (42%), heptachlor (44%), heptachlor epoxide (42%), lindane (44%), methoxychlor (47%), cis-chlordane (33%), and trans-chlordane (50%). The associated results in sample RB09_0-2, RB09_19-21, RB09_28-30, RB11_0-2, RB11_19-21,

RB11_28-30, and SODUP03_010219 are qualified as "J" or "UJ" based on potential indeterminate bias.

L1900324

The sample RB21_0-2 exhibited a dual column imprecision for endosulfan II. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB21_18-20 exhibited a dual column imprecision for endosulfan II. The associated results are qualified as "J" based on potential indeterminate bias.

The sample RB22_3-5 exhibited a dual column imprecision for 4,4'-DDE. The associated results are qualified as "J" based on potential indeterminate bias.

L1900536

The sample RB17_4-6 exhibited a percent recovery below the LCL for the surrogate decachlorobiphenyl (29%). The associated results are qualified as "UJ" based on potential low bias.

The sample RB18_0-2 exhibited a dual column imprecision for trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

L1900707

The CCV analyzed on 1/10/2019 at 10:14 exhibited a %D above the control limit for toxaphene. The associated results in sample RB13_0-2, RB13_18-20, RB13_22-24, RB13_33-35, RB14_0-2, RB14_18-20, RB14_33-35, and SODUP04_010719 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 1/14/2019 at 16:33 exhibited a %D above the control limit for toxaphene. The associated results in sample RB14_23-25 are qualified as "UJ" based on potential indeterminate bias.

L1900879

The CCV analyzed on 1/10/2019 at 10:14 exhibited a %D above the control limit for toxaphene. The associated results in sample SOFB04_010819 are qualified as "UJ" based on potential indeterminate bias.

Metals by SW-846 Method 6010D

L1852610

The laboratory duplicate and parent sample (RB07_0-2) exhibited a RPD above the control limit for zinc, total (28%). The associated results are qualified as "J" based on potential indeterminate bias.

The matrix spike (MS) for batch WG1192853 exhibited a percent recovery below the LCL for barium, total (18%) and lead, total (11%). The associated results in sample RB07_0-2, RB07_8-10, and RB07_10-12 are qualified as "J" based on potential low bias.

L1852926

The MB for batch WG1194043 exhibited a detection of copper, total (0.004 mg/l). The associated results in sample SOFB01_122118 are qualified as "U" at the reporting limit based on potential blank contamination.

The laboratory duplicate and parent sample (RB05_0-2) exhibited a RPD above the control limit for iron, total (22%). The associated results are qualified as "J" based on potential indeterminate bias.

The field duplicate and parent sample (SODUP01_122118 and RB04_8-10) exhibited a RPD above the control limit for lead, total (76%). The associated results are qualified as "J" based on potential indeterminate bias.

L1853111

The MS and matrix spike duplicate (MSD) for batch WG1193639 exhibited a percent recovery below the LCL for calcium, total (59%, 43%), lead, total (68%, 64%), potassium, total (126%), copper, total (71%), and zinc, total (72%). The associated results in sample RB01_0-2, RB01_14-15, RB01_25-27, RB08_0-2, RB08_10-12, RB08_12-14, RB08_14-16, SODUP02_122718, and RB01_9-11 are qualified as "J" based on potential low bias.

The field duplicate and parent sample (SODUP02_122718 and RB08_14-16) exhibited a RPD above the control limit for calcium, total (66%). The associated results are qualified as "J" based on potential indeterminate bias.

L1853234

The MB for batch WG1194043 exhibited a detection of copper, total (0.004 mg/l). The associated results in sample SOFB02_122718 are qualified as "U" at the reporting limit based on potential blank contamination.

L1900156

The MB for batch WG1194304 exhibited a detection of selenium, total (0.128 mg/kg). The associated results in sample RB09_0-2, RB09_19-21, RB09_28-30, RB11_0-2, RB11_19-21, and SODUP03_010219 are qualified as "U" at the reporting limit based on potential blank contamination.

The field duplicate and parent sample (SODUP03_010219 and RB09_19-21) exhibited a RPD above the control limit for barium, total (74%) and lead, total (111%). The associated results are qualified as "J" based on potential indeterminate bias.

L1900324

The MS/MSD for batch WG1194873 exhibited a RPD above the control limit for arsenic, total (34%). The associated results in sample RB21_0-2, RB21_2-4, RB21_18-20, RB22_0-2, RB22_3-5, RB19_0-2, RB19_20-22, and RB19_24-25 are qualified as "J" based on potential indeterminate bias.

The MS/MSD for batch WG1194873 exhibited a percent recovery below the LCL for antimony, total (74%), chromium, total (74%), thallium, total (70%, 69%). The associated results in sample RB21_0-2, RB21_2-4, RB21_18-20, RB22_0-2, RB22_3-5, RB19_0-2, RB19_20-22, and RB19_24-25 are qualified as "J" or "UJ" based on potential low bias.

The MS/MSD for batch WG1194873 exhibited a percent recovery above the UCL for potassium, total (138%). The associated results in sample RB21_0-2, RB21_2-4, RB21_18-20, RB22_0-2, RB22_3-5, RB19_0-2, RB19_20-22, and RB19_24-25 are qualified as "J" based on potential high bias.

L1900536

The MS for batch WG1195822 exhibited a percent recovery below the LCL for arsenic, total (72%), barium, total (73%), and chromium, total (72%). The associated results in sample RB17_0-2, RB17_4-6, RB17_8-10, RB17_18-20, RB18_0-2, RB18_6-8, RB18_15-17, RB18_18-20, RB20_0-2, RB20_7-9, RB20_13-15, RB20_18-20, and RB22_20-22 are qualified as "J" or "UJ" based on potential low bias.

The laboratory duplicate and parent sample (RB17_0-2) exhibited a RPD above the control limit for arsenic, total (79%), cadmium, total (27%), calcium, total (37%), chromium, total (30%), copper, total (133%), iron, total (51%), magnesium, total (34%), nickel, total (25%), and potassium, total (24%). The associated results are qualified as "J" based on potential indeterminate bias.

L1900707

The MB for batch WG1195823 exhibited a detection of selenium, total (0.128 mg/kg). The associated results in sample RB13_0-2, RB13_18-20, RB13_33-35, and RB14_0-2 are qualified as "U" at the reporting limit based on potential blank contamination.

The MSD for batch WG1196431 exhibited a percent recovery above the UCL for magnesium, total (163%), manganese, total (151%), and potassium, total (126%). The associated results in sample RB13_22-24 are qualified as "J" based on potential high bias.

L1900879

The MB for batch WG1196160 exhibited a detection of antimony, total (0.152 mg/kg). The associated results in sample RB10_0-2, RB10_18-20, and RB15_18-20 are qualified as "U" at the reporting limit based on potential blank contamination.

Mercury by SW-846 Method 7471B

L1852610

The MB for batch WG1192315 exhibited a detection of mercury, total (0.019 mg/kg). The associated results in sample RB07_0-2 and RB07_8-10 are qualified as "U" at the sample concentration based on potential blank contamination.

L1852926

The field duplicate and parent sample (SODUP01_122118 and RB04_8-10) exhibited a RPD above the control limit for mercury, total (79%). The associated results are qualified as "J" based on potential indeterminate bias.

L1853111

The field duplicate and parent sample (SODUP02_122718 and RB08_14-16) exhibited a RPD above the control limit for mercury, total (168%). The associated results are qualified as "J" based on potential indeterminate bias.

Cyanide by SW-846 Method 9012B

L1852610

The LCS/LCSD for batch WG1192409 exhibited a percent recovery below the LCL for cyanide, total (71%, 77%). The associated results in sample RB07_0-2, RB07_8-10, and RB07_10-12 are qualified as "UJ" based on potential low bias.

L1852926

The LCS/LCSD for batch WG1192428 exhibited a percent recovery below the LCL for cyanide, total (73%, 78%). The associated results in sample RB05_0-2, RB05_8-10, RB05_13-15, RB05_19-21, RB06_0-2, RB06_8-10, RB06_10-12, and RB04_0-2 are qualified as "J" or "UJ" based on potential low bias.

The LCSD for batch WG1192704 exhibited a percent recovery below the LCL for cyanide, total (72%). The associated results in sample RB04_8-10, RB04_13-15, SODUP01_122118, and RB04_18-20 are qualified as "J" or "UJ" based on potential low bias.

L1853110

The LCS/LCSD for batch WG1193398 exhibited a percent recovery below the LCL for cyanide, total (65%, 65%). The associated results in sample RB03_17-18 are qualified as "UJ" based on potential low bias.

L1853111

The LCS for batch WG1193065 exhibited a percent recovery below the LCL for cyanide, total (66%). The associated results in sample RB03_0-2, RB03_2-3, RB03_10-12, RB12_0-2, RB12_8-9, and RB12_9-10 are qualified as "J" or "UJ" based on potential low bias.

The LCS for batch WG1193067 exhibited a percent recovery below the LCL for cyanide, total (65%). The associated results in sample RB12_10-12, RB02_0-2, RB02_7-9, RB02_10-12, and RB02_13-15 are qualified as "J" or "UJ" based on potential low bias.

L1853234

The LCSD for batch WG1193512 exhibited a percent recovery below the LCL for cyanide, total (73%). The associated results in sample RB01_0-2, RB01_14-15, RB01_25-27, RB08_0-2, RB08_10-12, RB08_12-14, RB08_14-16, SODUP02_122718, and RB01_9-11 are qualified as "J" or "UJ" based on potential low bias.

L1900156

The LCS/LCSD for batch WG1194383 exhibited a percent recovery below the LCL for cyanide, total (68%, 72%). The associated results in sample RB09_0-2, RB09_19-21, RB09_28-30, RB11_0-2, RB11_19-21, RB11_28-30, and SODUP03_010219 are qualified as "UJ" based on potential low bias.

L1900324

The LCS/LCSD for batch WG1194787 exhibited a percent recovery below the LCL for cyanide, total (48%, 46%). The associated results in sample RB21_0-2, RB21_2-4, RB21_18-20, RB22_0-2, RB22_3-5, RB19_0-2, RB19_20-22, and RB19_24-25 are qualified as "J" or "UJ" based on potential low bias.

L1900536

The LCS for batch WG1195200 exhibited a percent recovery below the LCL for cyanide, total (79%). The associated results in sample RB17_0-2, RB17_4-6, RB17_8-10, and RB17_18-20 are qualified as "UJ" based on potential low bias.

The LCS/LCSD for batch WG1195222 exhibited a percent recovery below the LCL for cyanide, total (68%, 67%). The associated results in sample RB18_0-2, RB18_6-8, RB18_15-17, RB18_18-20, RB20_0-2, RB20_7-9, RB20_13-15, and RB22_20-22 are qualified as "J" or "UJ" based on potential low bias.

The LCS/LCSD for batch WG1195616 exhibited a percent recovery below the LCL for cyanide, total (60%, 62%). The associated results in sample RB20_18-20 are qualified as "UJ" based on potential low bias.

L1900707

The LCS/LCSD for batch WG1195617 exhibited a percent recovery below the LCL for cyanide, total (60%, 62%). The associated results in sample RB13_0-2, RB13_18-20, RB13_22-24, RB13_33-35, RB14_0-2, RB14_18-20, RB14_23-25, RB14_33-35, and SODUP04_010719 are qualified as "UJ" based on potential low bias.

L1900879

The LCS/LCSD for batch WG1196013 exhibited a percent recovery below the LCL for cyanide, total (50%, 75%). The associated results in sample RB10_0-2, RB10_18-20, RB10_33-35, RB15_0-2, RB15_18-20, RB15_23-25, RB16_0-2, RB16_13-15, RB16_18-20, and SODUP05_010819 are qualified as "J" or "UJ" based on potential low bias.

The LCS/LCSD for batch WG1196064 exhibited a RPD above the control limit for cyanide, total (39%). The associated results in sample RB15_28-30 are qualified as "UJ" based on potential indeterminate bias.

Hexavalent Chromium by SW-846 Method 7196A

L1852926

The MS for batch WG1192810 exhibited a percent recovery below the LCL for chromium, hexavalent (0%). The associated results in sample RB05_0-2, RB05_8-10, RB05_13-15, RB05_19-21, RB06_0-2, RB06_8-10, RB06_10-12, RB04_0-2, RB04_8-10, and RB04_13-15 are qualified as "J" or "UJ" based on potential low bias.

L1853110

The MS for batch WG1193256 exhibited a percent recovery below the LCL for chromium, hexavalent (0%). The associated results in sample RB03_17-18 are qualified as "UJ" based on potential low bias.

L1853111

The MS for batch WG1193259 exhibited a percent recovery below the LCL for chromium, hexavalent (59%). The associated results in sample RB02_13-15 are qualified as "UJ" based on potential low bias.

The MS/MSD for batch WG1193635 exhibited a RPD above the control limit for chromium, hexavalent (3.3%). The associated results in sample RB01_0-2, RB01_14-15, RB01_25-27, RB08_0-2, RB08_10-12, RB08_12-14, RB08_14-16, SODUP02_122718, and RB01_9-11 are qualified as "UJ" based on potential indeterminate bias.

L1900879

The LCS for batch WG1196213 exhibited a percent recovery below the LCL for chromium, hexavalent (79%). The associated results in sample RB10_0-2, RB10_18-20, RB10_33-35, RB15_0-2, RB15_18-20, RB15_23-25, RB16_0-2, RB16_13-15, RB16_18-20, and SODUP05_010819 are qualified as "J" or "UJ" based on potential low bias.

The LCS for batch WG1196215 exhibited a percent recovery below the LCL for chromium, hexavalent (79%). The associated results in sample RB15_28-30 are qualified as "J" based on potential low bias.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. The section below describes the other deficiencies that were identified.

VOCs by SW-846 Method 8260C

L1852610

The MB for batch WG1193693 exhibited a detection of bromomethane (0.95 ug/kg). The associated results are non-detections. No qualification is necessary.

The LCS/LCSD for batch WG1193693 exhibited a percent recovery above the UCL for bromomethane (158%, 153%) and chloromethane (134%). The associated results are non-detections. No qualification is necessary.

L1853111

The sample RB03_0-2 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (158%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

The sample RB03_2-3 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (133%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

The sample RB03_2-3 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (141%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

The sample RB12_8-9 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (146%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

The sample RB01_14-15 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (146%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

L1853234

The MB for batch WG1195020 exhibited a detection of bromomethane (0.9 ug/kg). The associated results are non-detections. No qualification is necessary.

The MB for batch WG1195021 exhibited a detection of bromomethane (45 ug/kg). The associated results are non-detections. No qualification is necessary.

The MB for batch WG1195241 exhibited a detection of bromomethane (0.62 ug/kg). The associated results are non-detections. No qualification is necessary.

The LCS/LCSD for batch WG1194582 exhibited a percent recovery above the UCL for 2-butanone (140%, 140%). The associated results are non-detections. No qualification is necessary.

The MS/MSD for batch WG1194141 exhibited a percent recovery below the LCL for 1,1,1,2-tetrachloroethane (51%, 51%), 1,1,2,2-tetrachloroethane (44%, 45%), 1,1,2-trichloroethane (55%, 56%), 1,2,3-trichlorobenzene (18%, 23%), 1,2,3-trichloropropane (48%, 49%), 1,2,4,5-tetramethylbenzene (32%, 35%), 1,2,4-trichlorobenzene (20%, 24%), 1,2,4-trimethylbenzene (44%, 42%), 1,2-dibromo-3-chloropropane (41%, 42%), 1,2-dibromoethane (46%, 46%), 1,2-dichlorobenzene (34%, 35%), 1,2-dichloroethane (59%, 61%), 1,2-dichloropropane (63%, 66%), 1,3,5-trimethylbenzene (48%, 45%), 1,3-dichlorobenzene (34%, 35%), 1,3-dichloropropane (52%, 53%), 1,4-dichlorobenzene (32%, 32%), 1,4-dioxane (57%, 54%), 2-butanone (62%, 61%), 2-hexanone (42%, 43%), 4-methyl-2-pentanone (48%, 49%), acetone (43%), acrylonitrile (47%, 47%), bromobenzene (41%, 41%), bromochloromethane (69%, 69%), bromodichloromethane (59%, 61%), bromoform (43%, 42%), carbon tetrachloride (62%), chlorobenzene (49%, 48%), dibromochloromethane (48%, 48%), dibromomethane (59%, 60%), ethylbenzene (54%, 52%), hexachlorobutadiene (28%, 32%), isopropylbenzene (53%, 52%), methylene chloride (65%, 69%), naphthalene (20%, 26%), styrene (27%, 30%), tetrachloroethene (61%, 64%), toluene (60%, 60%), trichloroethene (66%), vinyl acetate (19%, 21%), cis-1,2-dichloroethene (64%), cis-1,3-dichloropropene (43%, 44%), n-butylbenzene (38%, 36%), n-propylbenzene (48%, 45%), o-chlorotoluene (49%, 47%), o-xylene (53%, 50%), p-chlorotoluene (39%, 38%), 1,4-diethylbenzene (38%, 35%), 4-ethyltoluene (45%, 41%), p-isopropyltoluene (44%, 41%), p/m-xylene (53%, 50%), sec-butylbenzene (44%, 43%), tert-butylbenzene (49%, 48%), trans-1,2-dichloroethene (64%), trans-1,3-dichloropropene (36%, 37%), and trans-1,4-dichloro-2-butene (17%, 15%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

L1900156

The MB for batch WG1195272 exhibited a detection of bromomethane (39 ug/kg). The associated results are non-detections. No qualification is necessary.

The MB for batch WG1195274 exhibited a detection of bromomethane (0.77 ug/kg). The associated results are non-detections. No qualification is necessary.

The TB (SOTB04_010219) exhibited a detection of acetone (2.1 ug/l). The associated results are non-detections. No qualification is necessary.

The LCS/LCSD for batch WG1194582 exhibited a percent recovery above the UCL for 2-butanone (140%, 140%). The associated results are non-detections. No qualification is necessary.

The sample RB11_19-21 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (165%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

The sample SODUP03_010219 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (146%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

L1900324

The MB for batch WG1195747 exhibited a detection of bromomethane (33 ug/kg). The associated results are non-detections. No qualification is necessary.

The LCS/LCSD for batch WG1195498 exhibited a percent recovery above the UCL for bromomethane (162%, 164%), chloromethane (149%, 149%), and vinyl chloride (138%, 138%). The associated results are non-detections. No qualification is necessary.

The MS/MSD for batch WG1195498 exhibited a RPD above the control limit for 1,2,3-trichlorobenzene (48%), 1,2,4,5-tetramethylbenzene (66%), 1,2,4-trichlorobenzene (49%), 1,2,4-trimethylbenzene (53%), 1,2-dichlorobenzene (43%), 1,3,5-trimethylbenzene (49%), 1,3-dichlorobenzene (51%), 1,4-dichlorobenzene (68%), bromobenzene (37%), chlorobenzene (31%), ethylbenzene (35%), hexachlorobutadiene (40%), isopropylbenzene (44%), styrene (36%), n-butylbenzene (68%), n-propylbenzene (56%), o-chlorotoluene (47%), o-xylene (32%), p-chlorotoluene (54%), 1,4-diethylbenzene (68%), 4-ethyltoluene (57%), p-isopropyltoluene (62%), p/m-xylene (37%), sec-butylbenzene (54%), and tert-butylbenzene (46%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

The MS/MSD for batch WG1195498 exhibited a percent recovery below the LCL for 1,1,2,2-tetrachloroethane (67%), 1,1-dichloroethene (57%, 58%), 1,2,3-trichloropropane (66%), carbon disulfide (54%), naphthalene (45%, 59%), and vinyl acetate (46%, 40%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

The MS/MSD for batch WG1195498 exhibited a percent recovery above the UCL for bromomethane (161%), chloroethane (179%, 180%), chloromethane (166%, 176%), and dichlorodifluoromethane (179%, 186%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

L1900536

The LCS for batch WG1196197 exhibited a percent recovery above the UCL for chloromethane (131%). The associated results are non-detections. No qualification is necessary.

The sample RB18_6-8 exhibited a percent recovery below the LCL for the surrogate 2,4,6-tribromophenol (0%) and 2,4,6-tribromophenol (0%). The other two acid extractable surrogates were recovered within the control limits. No qualification is necessary.

L1900707

The MB for batch WG1196396 exhibited a detection of bromomethane (0.91 ug/kg). The associated results are non-detections. No qualification is necessary.

The MB for batch WG1196507 exhibited a detection of bromomethane (46 ug/kg). The associated results are non-detections. No qualification is necessary.

The MS/MSD for batch WG1195621 exhibited a percent recovery above the UCL for 1,2,4,5-tetrachlorobenzene (120%), 1,2,4-trichlorobenzene (110%), biphenyl (120%, 110%), bis(2-chloroethoxy)methane (120%), hexachloroethane (180%, 180%), n-nitrosodi-n-propylamine (130%, 130%), and p-chloro-m-cresol (120%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

The MS/MSD for batch WG1196507 exhibited a percent recovery above the UCL for 1,1,2-trichloroethane (347%, 294%), 4-methyl-2-pentanone (137%, 132%), and acrylonitrile (148%, 137%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

The MS/MSD for batch WG1196507 exhibited a percent recovery below the LCL for 1,2,4,5-tetramethylbenzene (58%, 39%), 1,3,5-trimethylbenzene (61%), 1,4-dichlorobenzene (68%), hexachlorobutadiene (62%, 56%), isopropylbenzene (62%), n-butylbenzene (55%, 37%), n-propylbenzene (55%, 24%), 1,4-diethylbenzene (69%, 53%), 4-ethyltoluene (58%), p-isopropyltoluene (60%), and sec-butylbenzene (62%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

The MS/MSD for batch WG1196507 exhibited a RPD above the control limit for 2-butanone (62%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

The sample RB13_22-24 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (146%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

The sample RB14_18-20 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (149%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

The sample RB14_23-25 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (131%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

The sample SODUP04_010719 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (147%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

L1900879

The MS/MSD for batch WG1196736 exhibited a percent recovery below the LCL for 1,2,3-trichlorobenzene (68%, 62%), 1,2,4,5-tetramethylbenzene (61%), 1,2,4-trichlorobenzene (67%, 60%), 1,2,4-trimethylbenzene (69%), 1,3-dichlorobenzene (69%), 1,4-dichlorobenzene (65%), 2-butanone (66%, 65%), 2-hexanone (63%, 61%), 4-methyl-2-pentanone (69%), hexachlorobutadiene (51%), naphthalene (69%, 66%), n-butylbenzene (59%), p-chlorotoluene (67%), 1,4-diethylbenzene (59%), 4-ethyltoluene (69%), p-isopropyltoluene (66%), and trans-1,4-dichloro-2-butene (68%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

SVOCs by SW-846 Method 8270D and 8270C-SIM

L1852926

The MB for batch WG1192883 exhibited a detection of anthracene (0.01 ug/l). The associated results are non-detections. No qualification is necessary.

L1853111

The MS/MSD for batch WG1193399 exhibited a percent recovery below the LCL for 2,4-dinitrophenol (0%), 4,6-dinitro-o-cresol (9.2%, 6.4%), and benzoic acid (0%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

L1853234

The MB for batch WG1194717 exhibited a detection of 2-methylnaphthalene (0.07 ug/l), acenaphthene (0.02 ug/l), and naphthalene (0.22 ug/l). The associated results are non-detections. No qualification is necessary.

L1900156

The LCS/LCSD for batch WG1194535 exhibited a percent recovery above the UCL for phenol (94%, 98%) and p-chloro-m-cresol (110%, 117%). The associated results are non-detections. No qualification is necessary.

L1900324

The MS/MSD for batch WG1194798 exhibited a percent recovery below the LCL for benzoic acid (0%) and hexachlorocyclopentadiene (20%, 22%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

L1900536

The LCS/LCSD for batch WG1195147 exhibited a percent recovery above the UCL for 2,4-dinitrophenol (135%), benzoic acid (122%, 125%), and pentachlorophenol (112%). The associated results are non-detections. No qualification is necessary.

The LCS for batch WG1196046 exhibited a percent recovery above the UCL for o-chlorotoluene (132%). The associated results are non-detections. No qualification is necessary.

The sample RB18_6-8 exhibited a percent recovery below the LCL for the surrogate 2-fluorophenol (6%) and 2-fluorophenol (11%). The other two acid extractable surrogates were recovered within the control limits. No qualification is necessary.

L1900707

The MB for batch WG1195689 exhibited a detection of benzo(k)fluoranthene (0.01 ug/l), chrysene (0.01 ug/l), fluoranthene (0.02 ug/l), phenanthrene (0.03 ug/l), and pyrene (0.02 ug/l). The associated results are non-detections. No qualification is necessary.

The MS/MSD for batch WG1195621 exhibited a percent recovery below the LCL for 2,4-dinitrophenol (0%), 2-methylnaphthalene (0%), 4,6-dinitro-o-cresol (0%), acetophenone (0%), benzoic acid (0%), naphthalene (0%), nitrobenzene (39%), and phenol (96%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

The sample RB13_22-24 exhibited a percent recovery above the UCL for the surrogate nitrobenzene-d5 (239%). The other two base/neutral surrogates were recovered within the control limits. No qualification is necessary.

The sample RB14_23-25 exhibited a percent recovery above the UCL for the surrogate nitrobenzene-d5 (268%). The other two base/neutral surrogates were recovered within the control limits. No qualification is necessary.

L1900879

The LCS for batch WG1196086 exhibited a percent recovery above the UCL for 1,4-dioxane (170%). The associated results are non-detections. No qualification is necessary.

The MS/MSD for batch WG1196039-4 exhibited a percent recovery below the LCL for benzoic acid (0%) and 4-chloroaniline (39%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

Herbicides by SW-846 Method 8151A

L1852926

The sample RB04_13-15 exhibited a percent recovery above the UCL for the surrogate DCAA (159%). The associated results are non-detections. No qualification is necessary.

L1853111

The sample RB03_10-12 exhibited a percent recovery above the UCL for the surrogate DCAA (199%). The associated results are non-detections. No qualification is necessary.

The sample RB02_7-9 exhibited a percent recovery below the LCL for the surrogate DCAA (0%, 0%). The sample was diluted >10X. No qualification is necessary.

L1900156

The sample RB09_19-21 exhibited a percent recovery above the UCL for the surrogate DCAA (187%). The associated results are non-detections. No qualification is necessary.

PCBs by SW-846 Method 8082A

L1900707

The MS/MSD for batch WG1195268 exhibited a percent recovery below the LCL for Aroclor 1016 (37.1%, 37.6%) and Aroclor 1260 (39.7%, 38.4%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

Pesticides by SW-846 Method 8081B

L1852926

The MB for batch WG1193824 exhibited a detection of 4,4'-DDT (0.025 ug/l). The associated results are non-detections. No qualification is necessary.

The sample RB05_13-15 exhibited a percent recovery below the LCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (0%, 1%), decachlorobiphenyl (2%, 3%). The sample was diluted >10X. No qualification is necessary.

The sample RB05_19-21 exhibited a percent recovery below the LCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (4%, 5%), decachlorobiphenyl (6%, 7%). The sample was diluted >10X. No qualification is necessary.

The sample RB04_13-15 exhibited a percent recovery below the LCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (8%, 9%), decachlorobiphenyl (10%, 11%). The sample was diluted >10X. No qualification is necessary.

The sample RB04_18-20 exhibited a percent recovery below the LCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (0%, 1%), decachlorobiphenyl (2%, 3%). The sample was diluted >10X. No qualification is necessary.

L1853110

The sample RB03_17-18 exhibited a percent recovery below the LCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (1%, 2%), decachlorobiphenyl (3%, 4%). The sample was diluted >10X. No qualification is necessary.

L1853111

The sample RB03_10-12 exhibited a percent recovery below the LCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (0%, 0%), decachlorobiphenyl (0%, 0%). The sample was diluted >10X. No qualification is necessary.

The sample RB12_8-9 exhibited a percent recovery below the LCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (0%, 0%), decachlorobiphenyl (0%, 0%). The sample was diluted >10X. No qualification is necessary.

The sample RB12_10-12 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (322%). The associated results are non-detections. No qualification is necessary.

The sample RB02_13-15 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (3520%). The associated results are non-detections. No qualification is necessary.

The sample RB01_14-15 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (7680%) and decachlorobiphenyl (242%). The sample was diluted >10X. No qualification is necessary.

The sample RB08_14-16 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (1610%). The associated results are non-detections. No qualification is necessary.

The sample SODUP02_122718 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (1270%). The associated results are non-detections. No qualification is necessary.

The sample RB01_9-11 exhibited a percent recovery below the LCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (0%, 0%), decachlorobiphenyl (0%, 0%). The sample was diluted >10X. No qualification is necessary.

L1853234

The MB for batch WG1193824 exhibited a detection of 4,4'-DDT (0.025 ug/l). The associated results are non-detections. No qualification is necessary.

L1900156

The sample RB09_19-21 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (204%). The associated results are non-detections. No qualification is necessary.

The sample RB11_19-21 exhibited a percent recovery below the LCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (0%, 0%), decachlorobiphenyl (0%, 0%). The sample was diluted >10X. No qualification is necessary.

The sample SODUP03_010219 exhibited a percent recovery below the LCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (0%, 0%), decachlorobiphenyl (0%, 0%). The sample was diluted >10X. No qualification is necessary.

L1900324

The sample RB19_20-22 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (1650%). The associated results are non-detections. No qualification is necessary.

The sample RB19_24-25 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (5140%). The associated results are non-detections. No qualification is necessary.

L1900536

The sample RB17_18-20 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (334%). The associated results are non-detections. No qualification is necessary.

The sample RB18_6-8 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (284%, 173%), and decachlorobiphenyl (218%). The associated results are non-detections. No qualification is necessary.

The sample RB20_0-2 exhibited a percent recovery below the LCL for the surrogate decachlorobiphenyl (27%). The other column surrogates were recovered within the control limits. No qualification is necessary.

L1900707

The sample RB13_22-24 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (642%). The associated results are non-detections. No qualification is necessary.

The sample RB14_23-25 exhibited a percent recovery above the UCL for the surrogate decachlorobiphenyl (155%). The associated results are non-detections. No qualification is necessary.

The sample RB14_23-25 exhibited a percent recovery above the UCL for the surrogate 2,4,5,6-tetrachloro-m-xylene (152%) and decachlorobiphenyl (160%). The associated results are non-detections. No qualification is necessary.

Metals by SW-846 Method 6010D

L1852610

The MB for batch WG1192853 exhibited a detection of iron, total (0.428 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The MS for batch WG1192853 exhibited a percent recovery above the UCL for calcium, total (1380%), and iron, total (686%), magnesium, total (127%), and manganese, total (190%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L1852926

The MB for batch WG1193229 exhibited a detection of iron, total (0.672 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The field blank (FB) (SOFB01_122118) exhibited a detection of barium, total (0.002 mg/l) and copper, total (0.003 mg/l). The associated results are non-detections. No qualification is necessary.

The MS for batch WG1193229 exhibited a percent recovery below the LCL for aluminum, total (23%), iron, total (0%), and magnesium, total (72%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS for batch WG1193229 exhibited a percent recovery above the UCL for barium, total (320%), calcium, total (988%), lead, total (1700%), manganese, total (163%), and zinc, total (474%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L1853110

The MB for batch WG1193639 exhibited a detection of sodium, total (1.49 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

L1853111

The MB for batch WG1193234 exhibited a detection of chromium, total (0.144 mg/kg), iron, total (1.26 mg/kg), manganese, total (0.088 mg/kg), and sodium, total (1.42 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The MS/MSD for batch WG1193639 exhibited a percent recovery above the UCL for aluminum, total (566%, 304%) and iron, total (1510%, 836%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS/MSD for batch WG1193639 exhibited a percent recovery below the LCL for manganese, total (56%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L1853234

The MB for batch WG1193639 exhibited a detection of sodium, total (1.49 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The FB (SOFB02_122718) exhibited a detection of barium, total (0.002 mg/l), chromium, total (0.003 mg/l), copper, total (0.005 mg/l), acetone (1.6 ug/l), benzo(ghi)perylene (0.04 ug/l), dibenzo(a,h)anthracene (0.03 ug/l), and indeno(1,2,3-cd)pyrene (0.03 ug/l). The associated results are non-detections. No qualification is necessary.

L1900156

The MB for batch WG1194304 exhibited a detection of aluminum, total (1.4 mg/kg), iron, total (1.63 mg/kg), magnesium, total (1.31 mg/kg), and manganese, total (0.152 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

L1900324

The MS/MSD for batch WG1194873 exhibited a RPD above the control limit for iron, total (55%) and magnesium, total (31%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS/MSD for batch WG1194873 exhibited a percent recovery below the LCL for aluminum, total (0%), copper, total (63%), lead, total (22%), zinc, total (60%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS/MSD for batch WG1194873 exhibited a percent recovery above the UCL for calcium, total (2580%, 2410%) and manganese, total (200%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L1900536

The MB for batch WG1195822 exhibited a detection of copper, total (0.268 mg/kg) and iron, total (0.488 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The MS for batch WG1195822 exhibited a percent recovery below the LCL for aluminum, total (18%), calcium, total (0%), iron, total (0%), lead, total (0%), magnesium, total (59%), and zinc,

total (0%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS for batch WG1195822 exhibited a percent recovery above the UCL for copper, total (743%) and manganese, total (158%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L1900707

The MB for batch WG1195823 exhibited a detection of sodium, total (1.64 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The MS/MSD for batch WG1196431 exhibited a RPD above the control limit for aluminum, total (39%) and iron, total (25%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

L1900879

The MB for batch WG1196160 exhibited a detection of iron, total (1.26 mg/kg), manganese, total (0.396 mg/kg), and nickel, total (0.32 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The FB (SOFB04_010819) exhibited a detection of barium, total (0.002 mg/l) and calcium, total (0.058 mg/l). The associated results are non-detections. No qualification is necessary.

The MS/MSD for batch WG1196160 exhibited a percent recovery above the UCL for aluminum, total (214%, 190%) and iron, total (53%, 349%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS/MSD for batch WG1196160 exhibited a percent recovery above the UCL for aluminum, total (197%, 296%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS/MSD for batch WG1196160 exhibited a percent recovery below the LCL for iron, total (0%), manganese, total (0%), and thallium, total (73%, 73%). The associated results in the parent sample are >4X the spiked amount. No qualification is necessary.

The MS/MSD for batch WG1196736 exhibited a percent recovery above the UCL for chloroethane (152%) and vinyl chloride (142%, 138%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

The MS/MSD for batch WG1196778-12 exhibited a RPD above the control limit for 1,1,1,2-tetrachloroethane (34%), 1,1,1-trichloroethane (31%), 1,1,2,2-tetrachloroethane (37%), 1,1-dichloropropene (33%), 1,2,3-trichlorobenzene (49%), 1,2,3-trichloropropane (38%), 1,2,4,5-tetramethylbenzene (48%), 1,2,4-trichlorobenzene (68%), 1,2,4-trimethylbenzene (51%), 1,2-dibromo-3-chloropropane (40%), 1,2-dibromoethane (38%), 1,2-dichlorobenzene (47%), 1,2-dichloroethane (37%), 1,2-dichloropropane (34%), 1,3,5-trimethylbenzene (50%), 1,3-dichlorobenzene (50%), 1,3-dichloropropane (35%), 1,4-dichlorobenzene (50%), 1,4-dioxane (64%), 2,2-dichloropropane (31%), 2-butanone (37%), 2-hexanone (40%), 4-methyl-2-pentanone (40%), acetone (47%), acrylonitrile (38%), benzene (33%), bromobenzene (41%), bromochloromethane (35%), bromodichloromethane (36%), bromoform (37%), carbon disulfide (31%), carbon tetrachloride (32%), chlorobenzene (39%), chloroethane (31%), chloroform (32%), dibromochloromethane (36%), dibromomethane (38%), ethyl ether (35%), ethylbenzene (42%), hexachlorobutadiene (62%), isopropylbenzene (34%), methyl tert butyl ether (36%), methylene chloride (32%), naphthalene (44%), styrene (43%), tetrachloroethene (38%), toluene (34%), trichloroethene (35%), vinyl acetate (38%), cis-1,2-dichloroethene (31%), cis-1,3-dichloropropene (37%), n-butylbenzene (62%), n-propylbenzene (40%), o-chlorotoluene (47%), o-xylene (42%), p-chlorotoluene (50%), 1,4-diethylbenzene (67%), 4-ethyltoluene (54%), p-isopropyltoluene (58%), p/m-xylene (44%), sec-butylbenzene (54%), tert-butylbenzene (50%), trans-1,2-dichloroethene (31%), trans-1,3-dichloropropene (35%), and trans-1,4-dichloro-2-butene (39%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

Cyanide by SW-846 Method 9012B

L1900879

The MS/MSD for batch WG1196064-5 exhibited a RPD above the control limit for cyanide, total (39%). Organic results are not qualified on the basis of MS/MSDs alone. No qualification is necessary.

COMMENTS:

Field duplicate and parent sample pairs were collected and analyzed for all parameters. For results less than 5X the RL, analytes meet the precision criteria if the absolute difference is less than ±2X the RL. For results greater than 5X the RL, analytes meet the precision criteria if the RPD is less than or equal to 50% for soil. The following analytes did not meet the precision criteria:

- SODUP01_122118, parent RB04_8-10: lead, zinc, mercury
- SODUP02_122718, parent RB08_14-16 acetone, calcium, mercury

- SODUP03_010219, parent RB09_19-21: 1,2,4,5-tetramethylbenzene, 1,4-diethylbenzene, 2-methylnaphthalene, barium, benzene, fluoranthene, isopropylbenzene, lead, naphthalene, n-butylbenzene, n-propylbenzene, phenanthrene, pyrene, sec-butylbenzene
- SODUP04_010719, parent RB14_23-25: 1,2,4,5-tetramethylbenzene, 1,3,5-trimethylbenzene, 1,4-diethylbenzene, 2-methylnaphthalene, ethylbenzene, isopropylbenzene, manganese, naphthalene, n-butylbenzene, n-propylbenzene, p-isopropyltoluene, sec-butylbenzene
- SODUP05_010819, parent RB15_23-25: 2-methylnaphthalene, benzene, naphthalene, n-propylbenzene

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Senior Project Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

2700 Kelly Road, Suite 200 Warrington, PA 18976 T: 215.491.6500 F: 215.491.6501
Mailing Address: P.O. Box 1569 Doylestown, PA 18901

To: Julia Leung, Langan Project Engineer

From: Emily Strake, Langan Senior Project Chemist

Date: February 28, 2019

Re: Data Usability Summary Report
For Gerard & 146th Street
Soil Samples Collected in September 2017
Langan Project No.: 170487001

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil samples collected in September 2017 by Langan Engineering and Environmental Services ("Langan") at the Gerard & 146th Street site ("the site"). The samples were analyzed by Alpha Analytical Laboratories, Inc. (NYSDOH NELAC registration # 11148) for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, metals, mercury (Hg), and percent solids (%S) by the methods specified below.

- VOCs by SW-846 Method 8260C
- SVOCs by SW-846 Method 8270D and 8270C-SIM
- PCBs by SW-846 Method 8082A
- Pesticides by SW-846 Method 8081B
- Metals by SW-846 Method 6010C
- Mercury by SW-846 Method 7471B
- Percent Solids by Standard Method 2540G

Table 1, below, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

TABLE 1: SAMPLE SUMMARY

SDG	*Lab Sample ID*	*Client Sample ID*	*Sample Date*	*Analytical Parameters*
L1731144	L1731144-01	SB09_0-2	9/5/2017	VOCs, SVOCs, Metals, Hg, %S
L1731144	L1731144-02	SOTB01_090517	9/5/2017	VOCs
L1731335	L1731335-01	SB04_6-7	9/5/2017	VOCs, SVOCs, Metals, Hg, %S
L1731335	L1731335-02	SB08_23-24	9/5/2017	VOCs, SVOCs, Metals, Hg, %S
L1731335	L1731335-03	SB08_0-2	9/5/2017	VOCs, SVOCs, Metals, Hg, %S
L1731335	L1731335-04	SB07_0-2	9/5/2017	VOCs, SVOCs, PCBs, Pesticides, Metals, Hg, %S
L1731335	L1731335-05	FB01_090617	9/6/2017	VOCs, SVOCs, Metals, Hg
L1731335	L1731335-06	TB02_090617	9/6/2017	VOCs
L1731335	L1731335-07	SB06_23-23.5	9/6/2017	VOCs, SVOCs, Metals, Hg, %S
L1731335	L1731335-08	SB06_11-12	9/6/2017	VOCs, SVOCs, Metals, Hg, %S
L1731335	L1731335-09	SB05_6-7	9/6/2017	VOCs, SVOCs, PCBs, Pesticides, Metals, Hg, %S
L1731603	L1731603-01	FB02_090717	9/7/2017	VOCs, SVOCs, PCBs, Pesticides, Metals, Hg
L1731603	L1731603-02	SB01_11.5-12	9/7/2017	VOCs, SVOCs, Metals, Hg, %S
L1731603	L1731603-03	SB02_6-7	9/7/2017	VOCs, SVOCs, PCBs, Pesticides, Metals, Hg, %S
L1731603	L1731603-04	SB03_18-19	9/7/2017	VOCs, SVOCs, Metals, Hg, %S
L1731603	L1731603-05	SB04_6-7	9/7/2017	Metals, Hg, %S
L1731603	L1731603-07	TB03_090717	9/7/2017	VOCs
L1734010	L1734010-01	SB11_19.5-20	9/22/2017	VOCs, %S
L1734010	L1734010-02	SB12_18-19	9/22/2017	VOCs, %S
L1734010	L1734010-03	SB13_18-19	9/22/2017	VOCs, %S

Validation Overview

This data validation was performed in accordance with USEPA Region II Standard Operating Procedure (SOP) #HW-34A, "Trace Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-33A, "Low/Medium Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-35A, "Semivolatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-37A, "Polychlorinated Biphenyl (PCB) Aroclor Data Validation" (June 2015, Revision 0), USEPA Region II SOP #HW-36A, "Pesticide Data Validation"

(October 2016, Revision 1), USEPA Region II SOP #HW-3a, "ICP-AES Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-3c, "Mercury and Cyanide Data Validation" (September 2016, Revision 1), the USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA-540-R-2017-002, January 2017), USEPA "National Functional Guidelines for Inorganic Superfund Methods Data Review" (EPA-540-R-2017-001, January 2017) and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. Items subject to review in this memorandum include holding times, sample preservation, sample extraction and digestion, instrument tuning, instrument calibration, laboratory blanks, laboratory control samples, system monitoring compounds, internal standard area counts, matrix spike/spike duplicate recoveries, target compound identification and quantification, chromatograms, overall system performance, serial dilutions, dual column performance, field duplicate, and field blank sample results.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

R – The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

J – The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.

UJ – The analyte was not detected at a level greater than or equal to the reporting limit (RL); however, the reported RL is approximate and may be inaccurate or imprecise.

U – The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.

NJ – The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are not sufficiently valid and technically supportable to be used for data interpretation. Data that is otherwise qualified due to minor data quality anomalies are usable, as qualified.

TABLE 2: VALIDATOR-APPLIED QUALIFICATION

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
FB01_090617	SW8260C	87-61-6	1,2,3-TRICHLOROBENZENE	UJ
FB01_090617	SW8260C	123-91-1	1,4-DIOXANE	UJ
FB01_090617	SW8260C	594-20-7	2,2-DICHLOROPROPANE	UJ
FB01_090617	SW8270D	95-95-4	2,4,5-TRICHLOROPHENOL	UJ
FB01_090617	SW8260C	75-15-0	CARBON DISULFIDE	UJ
FB01_090617	SW8260C	74-87-3	CHLOROMETHANE	UJ
FB01_090617	6020A	7440-47-3	CHROMIUM, TOTAL	U (0.001)
FB01_090617	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
FB01_090617	SW8260C	91-20-3	NAPHTHALENE	UJ
FB01_090617	SW8270D	59-50-7	P-CHLORO-M-CRESOL	UJ
FB01_090617	6020A	7440-23-5	SODIUM, TOTAL	U (0.245)
SB04_6-7	SW8260C	75-34-3	1,1-DICHLOROETHANE	UJ
SB04_6-7	SW8260C	563-58-6	1,1-DICHLOROPROPENE	UJ
SB04_6-7	SW8260C	594-20-7	2,2-DICHLOROPROPANE	UJ
SB04_6-7	SW8270D	105-67-9	2,4-DIMETHYLPHENOL	UJ
SB04_6-7	SW8270D	121-14-2	2,4-DINITROTOLUENE	UJ
SB04_6-7	SW8270D	99-09-2	3-NITROANILINE	UJ
SB04_6-7	SW8270D	100-01-6	4-NITROANILINE	UJ
SB04_6-7	SW8270D	65-85-0	BENZOIC ACID	UJ
SB04_6-7	SW8270D	84-74-2	DI-N-BUTYLPHTHALATE	UJ
SB04_6-7	SW8260C	60-29-7	ETHYL ETHER	UJ
SB04_6-7	SW8260C	1634-04-4	METHYL TERT BUTYL ETHER	UJ
SB04_6-7	SW8260C	75-01-4	VINYL CHLORIDE	UJ
SB05_6-7	SW8260C	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	UJ
SB05_6-7	SW8270D	91-94-1	3,3'-DICHLOROBENZIDINE	UJ
SB05_6-7	SW8270D	65-85-0	BENZOIC ACID	UJ
SB05_6-7	SW8260C	75-00-3	CHLOROETHANE	UJ
SB05_6-7	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
SB05_6-7	SW8260C	1634-04-4	METHYL TERT BUTYL ETHER	UJ
SB05_6-7	SW8260C	91-20-3	NAPHTHALENE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB05_6-7	SW8260C	108-05-4	VINYL ACETATE	UJ
SB06_23-23.5	SW8260C	79-34-5	1,1,2,2-TETRACHLOROETHANE	UJ
SB06_23-23.5	SW8270D	105-67-9	2,4-DIMETHYLPHENOL	UJ
SB06_23-23.5	SW8270D	121-14-2	2,4-DINITROTOLUENE	UJ
SB06_23-23.5	SW8270D	99-09-2	3-NITROANILINE	UJ
SB06_23-23.5	SW8270D	100-01-6	4-NITROANILINE	UJ
SB06_23-23.5	SW8270D	100-02-7	4-NITROPHENOL	UJ
SB06_23-23.5	SW8270D	65-85-0	BENZOIC ACID	UJ
SB06_23-23.5	SW8270D	84-74-2	DI-N-BUTYLPHTHALATE	UJ
SB06_23-23.5	SW8270D	77-47-4	HEXACHLOROCYCLOPENTADIENE	UJ
SB06_23-23.5	SW8260C	104-51-8	N-BUTYLBENZENE	J
SB06_23-23.5	SW8270D	87-86-5	PENTACHLOROPHENOL	UJ
SB06_23-23.5	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
SB07_0-2	SW8260C	75-34-3	1,1-DICHLOROETHANE	UJ
SB07_0-2	SW8260C	563-58-6	1,1-DICHLOROPROPENE	UJ
SB07_0-2	SW8260C	594-20-7	2,2-DICHLOROPROPANE	UJ
SB07_0-2	SW8270D	105-67-9	2,4-DIMETHYLPHENOL	UJ
SB07_0-2	SW8270D	121-14-2	2,4-DINITROTOLUENE	UJ
SB07_0-2	SW8270D	99-09-2	3-NITROANILINE	UJ
SB07_0-2	SW8270D	100-01-6	4-NITROANILINE	UJ
SB07_0-2	SW8270D	65-85-0	BENZOIC ACID	UJ
SB07_0-2	SW8270D	84-74-2	DI-N-BUTYLPHTHALATE	UJ
SB07_0-2	SW8081B	33213-65-9	ENDOSULFAN II	J
SB07_0-2	SW8260C	60-29-7	ETHYL ETHER	UJ
SB07_0-2	SW8260C	1634-04-4	METHYL TERT BUTYL ETHER	J
SB07_0-2	SW8260C	75-01-4	VINYL CHLORIDE	UJ
SB08_23-24	SW8260C	79-34-5	1,1,2,2-TETRACHLOROETHANE	UJ
SB08_23-24	SW8270D	105-67-9	2,4-DIMETHYLPHENOL	UJ
SB08_23-24	SW8270D	121-14-2	2,4-DINITROTOLUENE	UJ
SB08_23-24	SW8270D	99-09-2	3-NITROANILINE	UJ
SB08_23-24	SW8270D	100-01-6	4-NITROANILINE	UJ
SB08_23-24	SW8270D	65-85-0	BENZOIC ACID	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
SB08_23-24	SW8270D	84-74-2	DI-N-BUTYLPHTHALATE	UJ
SB08_23-24	SW8260C	104-51-8	N-BUTYLBENZENE	J
SB08_23-24	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
TB02_090617	SW8260C	79-34-5	1,1,2,2-TETRACHLOROETHANE	UJ
TB02_090617	SW8260C	75-35-4	1,1-DICHLOROETHENE	UJ
TB02_090617	SW8260C	95-63-6	1,2,4-TRIMETHYLBENZENE	UJ
TB02_090617	SW8260C	123-91-1	1,4-DIOXANE	R
TB02_090617	SW8260C	78-93-3	2-BUTANONE	R
TB02_090617	SW8260C	591-78-6	2-HEXANONE	R
TB02_090617	SW8260C	108-10-1	4-METHYL-2-PENTANONE	R
TB02_090617	SW8260C	67-64-1	ACETONE	R
TB02_090617	SW8260C	107-13-1	ACRYLONITRILE	R
TB02_090617	SW8260C	74-83-9	BROMOMETHANE	UJ
TB02_090617	SW8260C	75-15-0	CARBON DISULFIDE	UJ
TB02_090617	SW8260C	74-87-3	CHLOROMETHANE	UJ
TB02_090617	SW8260C	100-42-5	STYRENE	UJ
TB02_090617	SW8260C	98-06-6	TERT-BUTYLBENZENE	UJ
TB02_090617	SW8260C	156-60-5	TRANS-1,2-DICHLOROETHENE	UJ
TB02_090617	SW8260C	110-57-6	TRANS-1,4-DICHLORO-2-BUTENE	UJ
TB02_090617	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
SB09_0-2	SW8270D	92-52-4	BIPHENYL	UJ
SOTB01_090517	SW8260C	123-91-1	1,4-DIOXANE	UJ
FB02_090717	SW8260C	75-35-4	1,1-DICHLOROETHENE	UJ
FB02_090717	SW8260C	87-61-6	1,2,3-TRICHLOROBENZENE	UJ
FB02_090717	SW8260C	96-18-4	1,2,3-TRICHLOROPROPANE	UJ
FB02_090717	SW8260C	123-91-1	1,4-DIOXANE	UJ
FB02_090717	SW8260C	591-78-6	2-HEXANONE	UJ
FB02_090717	SW8270D	88-75-5	2-NITROPHENOL	UJ
FB02_090717	6020A	7440-36-0	ANTIMONY, TOTAL	U (0.004)
FB02_090717	SW8270D	117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	UJ
FB02_090717	SW8260C	74-83-9	BROMOMETHANE	UJ
FB02_090717	SW8260C	75-00-3	CHLOROETHANE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
FB02_090717	6020A	7440-47-3	CHROMIUM, TOTAL	U (0.001)
FB02_090717	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
FB02_090717	SW8260C	91-20-3	NAPHTHALENE	UJ
FB02_090717	SW8260C	127-18-4	TETRACHLOROETHENE	UJ
FB02_090717	SW8260C	156-60-5	TRANS-1,2-DICHLOROETHENE	UJ
FB02_090717	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
MW01_090717	SW8260C	630-20-6	1,1,1,2-TETRACHLOROETHANE	UJ
MW01_090717	SW8260C	71-55-6	1,1,1-TRICHLOROETHANE	UJ
MW01_090717	SW8260C	96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	UJ
MW01_090717	SW8260C	594-20-7	2,2-DICHLOROPROPANE	UJ
MW01_090717	SW8270D	88-75-5	2-NITROPHENOL	UJ
MW01_090717	SW8260C	67-64-1	ACETONE	UJ
MW01_090717	6020A	7440-36-0	ANTIMONY, DISSOLVED	U (0.004)
MW01_090717	6020A	7440-36-0	ANTIMONY, TOTAL	U (0.004)
MW01_090717	SW8260C	75-27-4	BROMODICHLOROMETHANE	UJ
MW01_090717	SW8260C	75-25-2	BROMOFORM	UJ
MW01_090717	SW8260C	74-83-9	BROMOMETHANE	UJ
MW01_090717	SW8260C	56-23-5	CARBON TETRACHLORIDE	UJ
MW01_090717	6020A	7440-50-8	COPPER, DISSOLVED	J
MW01_090717	SW8260C	87-68-3	HEXACHLOROBUTADIENE	UJ
MW01_090717	SW8260C	1634-04-4	METHYL TERT BUTYL ETHER	UJ
MW01_090717	SW8260C	127-18-4	TETRACHLOROETHENE	J
MW01_090717	SW8260C	10061-02-6	TRANS-1,3-DICHLOROPROPENE	UJ
MW01_090717	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
MW01_090717 (LAB FILTER)	6020A	7440-36-0	ANTIMONY, DISSOLVED	U (0.004)
SB02_6-7	SW8081B	72-55-9	4,4'-DDE	J
SB02_6-7	SW8081B	57-74-9	CHLORDANE	J
SB02_6-7	SW8081B	76-44-8	HEPTACHLOR	J
SB02_6-7	SW8081B	5103-74-2	TRANS-CHLORDANE	J
SB03_18-19	SW8260C	67-64-1	ACETONE	J
TB03_090717	SW8260C	75-35-4	1,1-DICHLOROETHENE	UJ

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
TB03_090717	SW8260C	123-91-1	1,4-DIOXANE	UJ
TB03_090717	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
SB11_19.5-20	SW8260C	75-34-3	1,1-DICHLOROETHANE	UJ
SB11_19.5-20	SW8260C	78-87-5	1,2-DICHLOROPROPANE	UJ
SB11_19.5-20	SW8260C	594-20-7	2,2-DICHLOROPROPANE	UJ
SB11_19.5-20	SW8260C	591-78-6	2-HEXANONE	UJ
SB11_19.5-20	SW8260C	74-97-5	BROMOCHLOROMETHANE	UJ
SB11_19.5-20	SW8260C	74-83-9	BROMOMETHANE	U (140)
SB11_19.5-20	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
SB11_19.5-20	SW8260C	60-29-7	ETHYL ETHER	UJ
SB11_19.5-20	SW8260C	1634-04-4	METHYL TERT BUTYL ETHER	UJ
SB11_19.5-20	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
SB12_18-19	SW8260C	75-34-3	1,1-DICHLOROETHANE	UJ
SB12_18-19	SW8260C	78-87-5	1,2-DICHLOROPROPANE	UJ
SB12_18-19	SW8260C	594-20-7	2,2-DICHLOROPROPANE	UJ
SB12_18-19	SW8260C	591-78-6	2-HEXANONE	UJ
SB12_18-19	SW8260C	74-97-5	BROMOCHLOROMETHANE	UJ
SB12_18-19	SW8260C	74-83-9	BROMOMETHANE	U (170)
SB12_18-19	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
SB12_18-19	SW8260C	60-29-7	ETHYL ETHER	UJ
SB12_18-19	SW8260C	1634-04-4	METHYL TERT BUTYL ETHER	J
SB12_18-19	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ
SB13_18-19	SW8260C	75-34-3	1,1-DICHLOROETHANE	UJ
SB13_18-19	SW8260C	78-87-5	1,2-DICHLOROPROPANE	UJ
SB13_18-19	SW8260C	594-20-7	2,2-DICHLOROPROPANE	UJ
SB13_18-19	SW8260C	591-78-6	2-HEXANONE	UJ
SB13_18-19	SW8260C	74-97-5	BROMOCHLOROMETHANE	UJ
SB13_18-19	SW8260C	75-71-8	DICHLORODIFLUOROMETHANE	UJ
SB13_18-19	SW8260C	60-29-7	ETHYL ETHER	UJ
SB13_18-19	SW8260C	1634-04-4	METHYL TERT BUTYL ETHER	UJ
SB13_18-19	SW8260C	75-69-4	TRICHLOROFLUOROMETHANE	UJ

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. The section below describes the major deficiencies that were identified.

VOCs by SW-846 Method 8260C:

L1731335:

The initial calibration for VOA122 exhibited response factors below the minimum response factor for 1,4-dioxane (0.000), 2-butanone (0.046), 2-hexanone (0.086), 4-methyl-2-pentanone (0.059), acetone (0.031), and acrylonitrile (0.044). The associated results in sample TB02_090617 are rejected.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by SW-846 Method 8260C:

L1731144:

The continuing calibration verification (CCV) analyzed on 9/9/2017 at 11:40 exhibited a percent difference (%D) above the control limit for 1,4-dioxane (-36.8%). The associated results in sample SOTB01_090517 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/12/2017 at 7:34 exhibited %Ds above the control limit for vinyl chloride (-23.8%), ethyl ether (-21.7%), methyl tert butyl ether (-31.2%), 1,1-dichloroethane (-20.6%), ethyl tert-butyl ether (-67.8%), and 2,2-dichloropropane (-22.6%), and 1,1-dichloropropene (-21.2%). The associated results in sample SB09_0-2 are qualified as "UJ" based on potential indeterminate bias.

L1731335:

The laboratory control sample (LCS) for batch WG1040719 exhibited a percent recovery above the upper control limit (UCL) for methyl tert butyl ether (131%). The associated results in sample SB07_0-2 are qualified as "J" based on potential high bias.

The lab control sample and duplicate (LCS/LCSD) for batch WG1040944 exhibited a percent recovery below the lower control limit (LCL) for chloromethane (35%, 36%). The associated results in sample FB01_090617 are qualified as "UJ" based on potential low bias.

The LCS/LCSD for batch WG1041054 exhibited a percent recovery below the LCL for styrene (65%, 65%). The associated results in sample TB02_090617 are qualified as "UJ" based on potential low bias.

The CCV analyzed on 9/12/2017 at 7:09 exhibited %Ds above the control limit for trichlorofluoromethane (-22%), and 1,1,2,2-tetrachloroethane (-22.1%), and n-butylbenzene (-21.9%). The associated results in samples SB08_23-24 and SB06_23-23.5 are qualified as "J" or "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/12/2017 at 7:34 exhibited %Ds above the control limit for vinyl chloride (-23.8%), ethyl ether (-21.7%), methyl tert butyl ether (-31.2%), 1,1-dichloroethane (-20.6%), and 2,2-dichloropropane (-22.6%), and 1,1-dichloropropene (-21.2%). The associated results in samples SB04_6-7 and SB07_0-2 are qualified as "J" or "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/12/2017 at 7:44 exhibited %Ds above the control limit for dichlorodifluoromethane (29.7%), chloromethane (64.7%), carbon disulfide (36.3%), 2,2-dichloropropane (-44.2%), 1,4-dioxane (-24.5%), and naphthalene (-22.1%), and 1,2,3-trichlorobenzene (-44.7%). The associated results in sample FB01_090617 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/12/2017 at 18:39 exhibited %Ds above the control limit for chloromethane (28.9%), bromomethane (32.1%), trichlorofluoromethane (21.6%), 1,1-dichloroethene (25.5%), carbon disulfide (21.3%), trans-1,2-dichloroethene (20.7%), styrene (36.7%), 1,1,2,2-tetrachloroethane (-20.7%), trans-1,4-dichloro-2-butene (-20.5%), and tert-butylbenzene (-27.1%), and 1,2,4-trimethylbenzene (-28.8%). The associated results in sample TB02_090617 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/13/2017 at 8:10 exhibited %Ds above the control limit for chloroethane (-32.5%), methyl tert-butyl ether (-85.5%), vinyl acetate (-22%), and 1,2-dibromo-3-chloropropane (25.2%), and naphthalene (23.1%). The associated results in sample SB05_6-7 are qualified as "UJ" based on potential indeterminate bias.

L1731603:

The LCS/LCSD for batch WG1041384 exhibited a relative percent difference (RPD) above the control limit for 1,4-dioxane (22%). The associated result in sample TB03_090717 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/12/2017 at 9:43 exhibited %Ds above the control limit for dichlorodifluoromethane (33.5%), bromomethane (20.4%), chloroethane (26.3%), trichlorofluoromethane (23.2%), 1,1-dichloroethene (23%), trans-1,2-dichloroethene (20.8%), 1,4-dioxane (-28.1%), tetrachloroethene (21.3%), 2-hexanone (-22%), 1,2,3-trichloropropane (-20.1%), naphthalene (-34%), and 1,2,3-trichlorobenzene (-25.5%). The associated results in sample FB02_090717 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/13/2017 at 7:18 exhibited a %D above the control limit for acetone (-22%). The associated result in sample SB03_18-19 are qualified as "J" based on potential indeterminate bias.

The CCV analyzed on 9/13/2017 at 8:18 exhibited %Ds above the control limit for dichlorodifluoromethane (23.9%) and 1,1-dichloroethene (22.4%). The associated results in sample TB03_090717 are qualified as "UJ" based on potential indeterminate bias.

L1734010:

The method blank (MB) for batch WG1047112 exhibited a detection of bromomethane (80 ug/kg). The associated results in samples SB11_19.5-20 and SB12_18-19 are qualified as "U" at the reporting limit based on potential blank contamination.

The CCV analyzed on 9/28/2017 at 18:59 exhibited %Ds above the control limit for dichlorodifluoromethane (20.1%), trichlorofluoromethane (-22.7%), ethyl ether (-26.8%), methyl tert-butyl ether (-22.4%), 1,1-dichloroethane (-22.6%), 2,2-dichloropropane (-20.7%), bromochloromethane (-20.4%), and 1,2-dichloropropane (-20.4%), and 2-hexanone (24.3%). The associated results in samples SB11_19.5-20, SB12_18-19, and SB13_18-19 are qualified as "J" or "UJ" based on potential indeterminate bias.

SVOCs by SW-846 Method 8270D and 8270C-SIM:

L1731144:

The LCSD for batch WG1038824 exhibited a percent recovery below the LCL for biphenyl (53%). The associated results in sample SB09_0-2 are qualified as "UJ" based on potential low bias.

The CCV analyzed on 9/10/2017 at 11:48 exhibited a %D above the control limit for hexachlorocyclopentadiene (22.4%). The associated results in sample SB09_0-2 are qualified as "UJ" based on potential indeterminate bias.

L1731335:

The LCS/LCSD for batch WG1039349 exhibited a percent recovery below the LCL for benzoic acid (0%). The associated results in samples SB04_6-7, SB08_23-24, SB07_0-2, SB06_23-23.5, and SB05_6-7 are qualified as "UJ" based on potential low bias.

The CCV analyzed on 9/11/2017 at 7:21 exhibited %Ds above the control limit for p-chloro-m-cresol (-22.2%) and 2,4,5-trichlorophenol (-23.6%). The associated results in sample FB01_090617 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/11/2017 at 7:22 exhibited %Ds above the control limit for 2,4-dimethylphenol (-20.1%), 3-nitroaniline (-22%), 2,4-dintrotoluene (-20.7%), and 4-nitrophenol (-23.3%), and di-n-butylphthalate (-21.9%). The associated results in samples SB04_6-7, SB08_23-24, SB07_0-2, and SB06_23-23.5 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/11/2017 at 20:04 exhibited a %D above the control limit for hexachlorocyclopentadiene (20.9%). The associated results in sample SB05_6-7 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/11/2017 at 21:05 exhibited a %D above the control limit for 3,3'-dimethylbenzidine (-24.8%). The associated results in sample SB05_6-7 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/13/2017 at 12:34 exhibited %Ds above the control limit for benzoic acid (-20.6%), hexachlorocyclopentadiene (27.4%), and 4-nitrophenol (-36.9%), and pentachlorophenol (34.5%). The associated results in sample SB06_23-23.5 are qualified as "UJ" based on potential indeterminate bias.

L1731603:

The CCV analyzed on 9/15/2017 at 7:39 exhibited a %D above the control limit for bis(2-ethylhexyl)phthalate (-20.7%). The associated result in sample FB02_090717 are qualified as "UJ" based on potential indeterminate bias.

The CCV analyzed on 9/12/2017 at 9:23 exhibited a %D above the control limit for 2-nitrophenol (-23.4%). The associated result in sample FB02_090717 are qualified as "UJ" based on potential indeterminate bias.

Pesticides by SW-846 Method 8081B:

L1731335:

The sample SB07_0-2 exhibited a dual column RPD above the control limit for endosulfan II. The associated result is qualified as "J" based on potential indeterminate bias.

L1731603:

The sample SB02_6-7 exhibited dual column RPDs above the control limit for 4,4'-DDE, chlordane, heptachlor, and trans-chlordane. The associated results are qualified as "J" based on potential indeterminate bias.

Metals by SW-846 Method 6010C:

L1731335:

The MB for batch WG1040374 exhibited a detection of chromium, total (0.00025 mg/l). The associated results in sample FB01_090617 are qualified as "U" at the reporting limit based on potential blank contamination.

The continuing calibration blank (R1001572-20) exhibited a detection of sodium (44.9 ug/l). The associated result in sample FB01_090617 is qualified as "U" at the sample concentration based on potential blank contamination.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. The section below describes the other deficiencies that were identified.

VOCs by SW-846 Method 8260C:

L1731144:

The LCS for batch WG1040719 exhibited a percent recovery above the UCL for methyl tert butyl ether (131%). The associated results are non-detections. No qualification is necessary.

The MB for batch WG1040719 exhibited detections of bromomethane (1.7 ug/kg) and methylene chloride (1.7 ug/kg). The associated results are non-detections. No qualification is necessary.

L1731335:

The MB for batch WG1040719 exhibited detections of bromomethane (1.7 ug/kg) and methylene chloride (1.7 ug/kg). The associated results are non-detections. No qualification is necessary.

The LCS/LCSD for batch WG1040944 exhibited percent recoveries above the UCL for 1,2,3-trichlorobenzene (140%, 140%) and 2,2-dichloropropane (140%, 140%). The associated results are non-detections. No qualification is necessary.

The LCS/LCSD for batch WG1041231 exhibited a percent recovery above the UCL for methyl tert butyl ether (185%, 188%). The associated results are non-detections. No qualification is necessary.

L1731603:

The sample SB01_11.5-12 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (146%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

The trip blank (TB) (TB03_090717) exhibited a detection of acetone (1.8 ug/l). The associated results are non-detections. No qualification is necessary.

L1734010:

The sample SB11_19.5-20 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (134%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

The sample SB13_18-19 exhibited a percent recovery above the UCL for the surrogate 4-bromofluorobenzene (132%). The other three volatile surrogates were recovered within the control limits. No qualification is necessary.

SVOCs by SW-846 Method 8270D and 8270C-SIM:

L1731144:

The sample SB09_0-2 exhibited a percent recovery below the LCL for the surrogate 2-fluorophenol (22%). The other two acid extractable surrogates were recovered within the control limits. No qualification is necessary.

L1731335:

The LCS/LCSD for batch WG1039521 exhibited a percent recovery above the UCL for p-chloro-m-cresol (100%, 113%). The associated results are non-detections. No qualification is necessary.

L1731603:

The LCS/LCSD for batch WG1039521 exhibited a percent recovery above the UCL for p-chloro-m-cresol (100%, 113%). The associated results are non-detections. No qualification is necessary.

The LCS/LCSD for batch WG1039560 exhibited percent recoveries above the UCL for 4-nitrophenol (133%, 123%) and p-chloro-m-cresol (106%). The associated results are non-detections. No qualification is necessary.

Pesticides by SW-846 Method 8081B:

L1731335:

The LCS for batch WG1039570 exhibited a percent recovery above the UCL for delta-bhc (159%). The associated results are non-detections. No qualification is necessary.

The CCV analyzed on 9/11/2017 at 16:25 exhibited %Ds above the control limit on the secondary column for endrin aldehyde (21%) and methoxychlor (21.9%). The associated results in sample FB01_090617 are reported from the primary column. No qualification is necessary.

L1731603:

The LCSD for batch WG1041362 exhibited a percent recovery above the UCL for methoxychlor (154%). The associated results are non-detections. No qualification is necessary.

Metals by SW-846 Method 6010C:

L1731144:

The MB for batch WG1039090 exhibited a detection of copper, total (0.216 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

L1731335:

The MB for batch WG1039483 exhibited detections of manganese, total (1.59 mg/kg) and sodium, total (1.37 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The field blank (FB) (FB01_090617) exhibited detections of barium, total (0.00045 mg/l), calcium, total (0.0492 mg/l), and chromium, total (0.00056 mg/l), and sodium, total (0.245 mg/l). The associated results are non-detections. No qualification is necessary.

L1731603:

The MB for batch WG1039885 exhibited detections of calcium, total (1.54 mg/kg) and sodium, total (2.85 mg/kg). The associated results are >10X the contamination. No qualification is necessary.

The FB (FB02_090717) exhibited detections of aluminum, total (0.0283 mg/l), barium, total (0.00153 mg/l), calcium, total (0.457 mg/l), chromium, total (0.00098 mg/l), copper, total (0.0005

mg/l), iron, total (0.0545 mg/l), lead, total (0.00131 mg/l), magnesium, total (0.0754 mg/l), manganese, total (0.00095 mg/l), nickel, total (0.00148 mg/l), potassium, total (0.102 mg/l), sodium, total (0.176 mg/l), and zinc, total (0.02017 mg/l). The associated results are non-detections. No qualification is necessary.

COMMENTS:

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Senior Project Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

2700 Kelly Road, Suite 200 Warrington, PA 18976 T: 215.491.6500 F: 215.491.6501
Mailing Address: P.O. Box 1569 Doylestown, PA 18901

To: Julia Leung, Langan Project Engineer

From: Emily Strake, Langan Senior Project Chemist

Date: January 23, 2019

Re: Data Usability Summary Report
For Gerard & 146th Street
Soil Vapor Samples Collected in December 2018 and January 2019
Langan Project No.: 170487003

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil vapor samples collected in December 2018 and January 2019 by Langan Engineering and Environmental Services ("Langan") at the Gerard & 146th Street site ("the site"). The samples were analyzed by Alpha Analytical Laboratories, Inc. (NYSDOH NELAC registration # 11148) for volatile organic compounds (VOCs) by the methods specified below.

- VOCs by USEPA Method TO-15

Table 1, below, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

TABLE 1: SAMPLE SUMMARY

SDG	*Lab Sample ID*	*Client Sample ID*	*Sample Date*	*Analytical Parameters*
L1900163	L1900163-01	RAA01	12/31/2018	VOCs
L1900163	L1900163-02	RSV01	12/31/2018	VOCs
L1900163	L1900163-03	RSV02	12/31/2018	VOCs
L1900163	L1900163-04	RSSV01	12/31/2018	VOCs
L1900163	L1900163-05	RSSV02	12/31/2018	VOCs
L1900163	L1900163-06	RSSV03	12/31/2018	VOCs
L1900163	L1900163-07	RSSV04	12/31/2018	VOCs
L1900163	L1900163-08	RSSV07	12/31/2018	VOCs
L1900997	L1900997-01	RSSV05	1/9/2019	VOCs
L1900997	L1900997-02	RSSV06	1/9/2019	VOCs

Validation Overview

This data validation was performed in accordance with USEPA Region II Standard Operating Procedure (SOP) #HW-34A, "Trace Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-33A, "Low/Medium Volatile Data Validation" (September 2016, Revision 1), the USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA-540-R-2017-002, January 2017 and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. Items subject to review in this memorandum include holding times, sample preservation, instrument tuning, instrument calibration, laboratory blanks, laboratory control samples, system monitoring compounds, internal standard area counts, target compound identification and quantification, chromatograms, and overall system performance.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

- **R –** The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- **J –** The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- **UJ –** The analyte was not detected at a level greater than or equal to the reporting limit (RL); however, the reported RL is approximate and may be inaccurate or imprecise.
- **U –** The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.
- **NJ –** The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are not sufficiently valid and technically supportable to be used for data interpretation. Data that is otherwise qualified due to minor data quality anomalies are usable, as qualified.

TABLE 2: VALIDATOR-APPLIED QUALIFICATION

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
RAA01	TO-15	120-82-1	1,2,4-TRICHLOROBENZENE	UJ
RSV01	TO-16	120-82-2	1,2,4-TRICHLOROBENZENE	UJ
RSV02	TO-17	120-82-3	1,2,4-TRICHLOROBENZENE	UJ
RSSV01	TO-18	120-82-4	1,2,4-TRICHLOROBENZENE	UJ
RSSV02	TO-19	120-82-5	1,2,4-TRICHLOROBENZENE	UJ
RSSV03	TO-20	120-82-6	1,2,4-TRICHLOROBENZENE	UJ
RSSV04	TO-21	120-82-7	1,2,4-TRICHLOROBENZENE	UJ
RSSV07	TO-22	120-82-8	1,2,4-TRICHLOROBENZENE	UJ
RSSV05	TO-23	120-82-9	1,2,4-TRICHLOROBENZENE	UJ
RSSV06	TO-24	120-82-10	1,2,4-TRICHLOROBENZENE	UJ

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. The section below describes the minor deficiencies that were identified.

VOCs by USEPA Method TO-15:

L1900997:

The initial calibration (ICAL) for instrument AIRLAB17 exhibited a relative standard deviation (RSD) above the control limit for 1,2,4-trichlorobenzene (31.1%). The associated results in sample RSSV05 and RSSV06 are qualified as "UJ" based on potential indeterminate bias.

L1900163:

The ICAL for instrument AIRLAB17 exhibited a RSD above the control limit for 1,2,4-trichlorobenzene (31.1%). The associated results in sample RAA01, RSV01, RSV02, RSSV01, RSSV02, RSSV03, RSSV04, and RSSV07 are qualified as "UJ" based on potential indeterminate bias.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. No other deficiencies were identified.

COMMENTS:

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Senior Project Chemist

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

Technical Memorandum

2700 Kelly Road, Suite 200 Warrington, PA 18976 T: 215.491.6500 F: 215.491.6501
Mailing Address: P.O. Box 1569 Doylestown, PA 18901

To: Julia Leung, Langan Project Engineer

From: Emily Strake, Langan Senior Project Chemist

Date: February 28, 2019

Re: Data Usability Summary Report
For Gerard & 146th Street
Soil Vapor Samples Collected in September 2017
Langan Project No.: 170487003

This memorandum presents the findings of an analytical data validation of the data generated from the analysis of soil vapor samples collected in September 2017 by Langan Engineering and Environmental Services ("Langan") at the Gerard & 146th Street site ("the site"). The samples were analyzed by Alpha Analytical Laboratories, Inc. (NYSDOH NELAC registration # 11148) for volatile organic compounds (VOCs) by the methods specified below.

- VOCs by USEPA Method TO-15

Table 1, below, summarizes the laboratory and client sample identification numbers, sample collection dates, and analytical parameters subject to review.

TABLE 1: SAMPLE SUMMARY

SDG	*Lab Sample ID*	*Client Sample ID*	*Sample Date*	*Analytical Parameters*
L1731370	L1731370-01	SV06_090617	9/6/2017	VOCs
L1731370	L1731370-02	SV08_090617	9/6/2017	VOCs
L1731622	L1731622-01	RSV02	9/7/2017	VOCs
L1731622	L1731622-02	RSSV01	9/7/2017	VOCs

Validation Overview

This data validation was performed in accordance with USEPA Region II Standard Operating Procedure (SOP) #HW-34A, "Trace Volatile Data Validation" (September 2016, Revision 1), USEPA Region II SOP #HW-33A, "Low/Medium Volatile Data Validation" (September 2016, Revision 1), the USEPA Contract Laboratory Program "National Functional Guidelines for Organic Superfund Methods Data Review" (EPA-540-R-2017-002, January 2017 and the specifics of the methods employed.

Validation includes review of the analytical data to verify that data are easily traceable and sufficiently complete to permit logical reconstruction by a qualified individual other than the originator. Items subject to review in this memorandum include holding times, sample preservation, instrument tuning, instrument calibration, laboratory blanks, laboratory control samples, system monitoring compounds, internal standard area counts, target compound identification and quantification, chromatograms, and overall system performance.

As a result of the review process, the following qualifiers may be assigned to the data in accordance with the USEPA's guidelines and best professional judgment:

- **R –** The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
- **J –** The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample.
- **UJ –** The analyte was not detected at a level greater than or equal to the reporting limit (RL); however, the reported RL is approximate and may be inaccurate or imprecise.
- **U –** The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the RL or the sample concentration for results impacted by blank contamination.
- **NJ –** The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

If any validation qualifiers are assigned these qualifiers should supersede any laboratory-applied qualifiers. Data that is not qualified as a result of this data validation is considered acceptable on the basis of the items specified for review. Data that is qualified as "R" are not sufficiently valid and technically supportable to be used for data interpretation. Data that is otherwise qualified due to minor data quality anomalies are usable, as qualified.

TABLE 2: VALIDATOR-APPLIED QUALIFICATION

Client Sample ID	*Analysis*	*CAS #*	*Analyte*	*Validator Qualifier*
No qualification necessary.				

MAJOR DEFICIENCIES:

Major deficiencies include those that grossly impact data quality and necessitate the rejection of results. No major deficiencies were identified.

MINOR DEFICIENCIES:

Minor deficiencies include anomalies that directly impact data quality and necessitate qualification, but do not result in unusable data. No minor deficiencies were identified.

OTHER DEFICIENCIES:

Other deficiencies include anomalies that do not directly impact data quality and do not necessitate qualification. No other deficiencies were identified.

COMMENTS:

On the basis of this evaluation, the laboratory appears to have followed the specified analytical methods with the exception of errors discussed above. If a given fraction is not mentioned above, that means that all specified criteria were met for that parameter. All of the data packages met ASP Category B requirements.

All data are considered usable, as qualified. In addition, completeness, defined as the percentage of analytical results that are judged to be valid, is 100%.

Signed:

Emily Strake, CEP
Senior Project Chemist

APPENDIX G

LABORATORY DATA REPORTS

ANALYTICAL REPORT

Lab Number:	L1900163
Client:	Langan Engineering & Environmental 21 Penn Plaza 360 W. 31st Street, 8th Floor New York, NY 10001-2727
ATTN:	Julia Leung
Phone:	(212) 479-5400
Project Name:	GERARD AVE & E. 146 STREET
Project Number:	170487001
Report Date:	01/09/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900163
Report Date: 01/09/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1900163-01	RAA01	AIR	BRONX, NY	12/31/18 11:05	01/02/19
L1900163-02	RSV01	SOIL_VAPOR	BRONX, NY	12/31/18 11:29	01/02/19
L1900163-03	RSV02	SOIL_VAPOR	BRONX, NY	12/31/18 11:17	01/02/19
L1900163-04	RSSV01	SOIL_VAPOR	BRONX, NY	12/31/18 10:55	01/02/19
L1900163-05	RSSV02	SOIL_VAPOR	BRONX, NY	12/31/18 12:10	01/02/19
L1900163-06	RSSV03	SOIL_VAPOR	BRONX, NY	12/31/18 12:26	01/02/19
L1900163-07	RSSV04	SOIL_VAPOR	BRONX, NY	12/31/18 12:38	01/02/19
L1900163-08	RSSV07	SOIL_VAPOR	BRONX, NY	12/31/18 11:53	01/02/19

Project Name:	GERARD AVE & E. 146 STREET	**Lab Number:**	L1900163
Project Number:	170487001	**Report Date:**	01/09/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name:	GERARD AVE & E. 146 STREET	**Lab Number:**	L1900163
Project Number:	170487001	**Report Date:**	01/09/19

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on December 19, 2018. The canister certification results are provided as an addendum.

L1900163-01 through -04: results for Acetone should be considered estimated due to co-elution with a non-target peak.

L1900163-02: The sample has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

L1900163-06 results for Acetone should be considered estimated due to co-elution with a non-target peak.

L1900163-07: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 01/09/19

AIR

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-01
Client ID: RAA01
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:05
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 01/08/19 17:53
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.698	0.200	--	3.45	0.989	--		1
Chloromethane	0.567	0.200	--	1.17	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	0.212	0.200	--	0.469	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	15.0	5.00	--	28.3	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	4.82	1.00	--	11.4	2.38	--		1
Trichlorofluoromethane	0.365	0.200	--	2.05	1.12	--		1
Isopropanol	1.80	0.500	--	4.42	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-01
Client ID: RAA01
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:05
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.454	0.200	--	1.60	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.642	0.200	--	2.05	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	0.223	0.200	--	1.04	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	1.11	0.200	--	4.18	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-01
Client ID: RAA01
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:05
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	0.447	0.400	--	1.94	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	92		60-140
Bromochloromethane	76		60-140
chlorobenzene-d5	94		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-02 D
Client ID: RSV01
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:29
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 01/08/19 20:25
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.510	0.500	--	2.52	2.47	--		2.5
Chloromethane	ND	0.500	--	ND	1.03	--		2.5
Freon-114	ND	0.500	--	ND	3.49	--		2.5
Vinyl chloride	ND	0.500	--	ND	1.28	--		2.5
1,3-Butadiene	ND	0.500	--	ND	1.11	--		2.5
Bromomethane	ND	0.500	--	ND	1.94	--		2.5
Chloroethane	ND	0.500	--	ND	1.32	--		2.5
Ethanol	ND	12.5	--	ND	23.6	--		2.5
Vinyl bromide	ND	0.500	--	ND	2.19	--		2.5
Acetone	ND	2.50	--	ND	5.94	--		2.5
Trichlorofluoromethane	ND	0.500	--	ND	2.81	--		2.5
Isopropanol	ND	1.25	--	ND	3.07	--		2.5
1,1-Dichloroethene	ND	0.500	--	ND	1.98	--		2.5
Tertiary butyl Alcohol	ND	1.25	--	ND	3.79	--		2.5
Methylene chloride	ND	1.25	--	ND	4.34	--		2.5
3-Chloropropene	ND	0.500	--	ND	1.57	--		2.5
Carbon disulfide	1.02	0.500	--	3.18	1.56	--		2.5
Freon-113	ND	0.500	--	ND	3.83	--		2.5
trans-1,2-Dichloroethene	ND	0.500	--	ND	1.98	--		2.5
1,1-Dichloroethane	ND	0.500	--	ND	2.02	--		2.5
Methyl tert butyl ether	ND	0.500	--	ND	1.80	--		2.5
2-Butanone	2.12	1.25	--	6.25	3.69	--		2.5
cis-1,2-Dichloroethene	ND	0.500	--	ND	1.98	--		2.5

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-02 D
Client ID: RSV01
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:29
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	1.25	--	ND	4.50	--		2.5
Chloroform	ND	0.500	--	ND	2.44	--		2.5
Tetrahydrofuran	ND	1.25	--	ND	3.69	--		2.5
1,2-Dichloroethane	ND	0.500	--	ND	2.02	--		2.5
n-Hexane	1.25	0.500	--	4.41	1.76	--		2.5
1,1,1-Trichloroethane	ND	0.500	--	ND	2.73	--		2.5
Benzene	1.09	0.500	--	3.48	1.60	--		2.5
Carbon tetrachloride	ND	0.500	--	ND	3.15	--		2.5
Cyclohexane	ND	0.500	--	ND	1.72	--		2.5
1,2-Dichloropropane	ND	0.500	--	ND	2.31	--		2.5
Bromodichloromethane	ND	0.500	--	ND	3.35	--		2.5
1,4-Dioxane	ND	0.500	--	ND	1.80	--		2.5
Trichloroethene	ND	0.500	--	ND	2.69	--		2.5
2,2,4-Trimethylpentane	ND	0.500	--	ND	2.34	--		2.5
Heptane	1.36	0.500	--	5.57	2.05	--		2.5
cis-1,3-Dichloropropene	ND	0.500	--	ND	2.27	--		2.5
4-Methyl-2-pentanone	ND	1.25	--	ND	5.12	--		2.5
trans-1,3-Dichloropropene	ND	0.500	--	ND	2.27	--		2.5
1,1,2-Trichloroethane	ND	0.500	--	ND	2.73	--		2.5
Toluene	107	0.500	--	403	1.88	--		2.5
2-Hexanone	1.81	0.500	--	7.42	2.05	--		2.5
Dibromochloromethane	ND	0.500	--	ND	4.26	--		2.5
1,2-Dibromoethane	ND	0.500	--	ND	3.84	--		2.5
Tetrachloroethene	4.36	0.500	--	29.6	3.39	--		2.5
Chlorobenzene	ND	0.500	--	ND	2.30	--		2.5
Ethylbenzene	4.22	0.500	--	18.3	2.17	--		2.5

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-02 D
Client ID: RSV01
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:29
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	16.5	1.00	--	71.7	4.34	--		2.5
Bromoform	ND	0.500	--	ND	5.17	--		2.5
Styrene	ND	0.500	--	ND	2.13	--		2.5
1,1,2,2-Tetrachloroethane	ND	0.500	--	ND	3.43	--		2.5
o-Xylene	5.84	0.500	--	25.4	2.17	--		2.5
4-Ethyltoluene	1.36	0.500	--	6.69	2.46	--		2.5
1,3,5-Trimethylbenzene	1.07	0.500	--	5.26	2.46	--		2.5
1,2,4-Trimethylbenzene	4.04	0.500	--	19.9	2.46	--		2.5
Benzyl chloride	ND	0.500	--	ND	2.59	--		2.5
1,3-Dichlorobenzene	ND	0.500	--	ND	3.01	--		2.5
1,4-Dichlorobenzene	ND	0.500	--	ND	3.01	--		2.5
1,2-Dichlorobenzene	ND	0.500	--	ND	3.01	--		2.5
1,2,4-Trichlorobenzene	ND	0.500	--	ND	3.71	--		2.5
Hexachlorobutadiene	ND	0.500	--	ND	5.33	--		2.5

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	89		60-140
Bromochloromethane	91		60-140
chlorobenzene-d5	98		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-03
Client ID: RSV02
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:17
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 01/08/19 21:03
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.507	0.200	--	2.51	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	5.57	1.00	--	13.2	2.38	--		1
Trichlorofluoromethane	0.230	0.200	--	1.29	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	2.12	0.200	--	6.60	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	22.1	0.500	--	65.2	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-03
Client ID: RSV02
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:17
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	0.687	0.200	--	3.35	0.977	--		1
Tetrahydrofuran	0.907	0.500	--	2.68	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	1.94	0.200	--	6.84	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.923	0.200	--	2.95	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	0.358	0.200	--	1.23	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	0.428	0.200	--	2.00	0.934	--		1
Heptane	1.52	0.200	--	6.23	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	23.8	0.200	--	89.7	0.754	--		1
2-Hexanone	3.60	0.200	--	14.8	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	4.34	0.200	--	29.4	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	4.16	0.200	--	18.1	0.869	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-03
Client ID: RSV02
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:17
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	16.5	0.400	--	71.7	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	5.78	0.200	--	25.1	0.869	--		1
4-Ethyltoluene	1.40	0.200	--	6.88	0.983	--		1
1,3,5-Trimethylbenzene	1.03	0.200	--	5.06	0.983	--		1
1,2,4-Trimethylbenzene	4.13	0.200	--	20.3	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	95		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	100		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-04
Client ID: RSSV01
Sample Location: BRONX, NY

Date Collected: 12/31/18 10:55
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 01/08/19 21:42
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.547	0.200	--	2.70	0.989	--		1
Chloromethane	0.234	0.200	--	0.483	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	1.86	1.00	--	4.42	2.38	--		1
Trichlorofluoromethane	0.919	0.200	--	5.16	1.12	--		1
Isopropanol	0.658	0.500	--	1.62	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-04
Client ID: RSSV01
Sample Location: BRONX, NY

Date Collected: 12/31/18 10:55
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.319	0.200	--	1.02	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	0.740	0.200	--	2.79	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	8.42	0.200	--	57.1	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.866	0.200	--	3.76	0.869	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-04
Client ID: RSSV01
Sample Location: BRONX, NY

Date Collected: 12/31/18 10:55
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	4.00	0.400	--	17.4	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	1.32	0.200	--	5.73	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	0.207	0.200	--	1.02	0.983	--		1
1,2,4-Trimethylbenzene	0.716	0.200	--	3.52	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	94		60-140
Bromochloromethane	95		60-140
chlorobenzene-d5	104		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-05
Client ID: RSSV02
Sample Location: BRONX, NY

Date Collected: 12/31/18 12:10
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 01/08/19 22:20
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.530	0.200	--	2.62	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	7.87	1.00	--	18.7	2.38	--		1
Trichlorofluoromethane	0.417	0.200	--	2.34	1.12	--		1
Isopropanol	0.949	0.500	--	2.33	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	1.16	0.500	--	3.42	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-05
Client ID: RSSV02
Sample Location: BRONX, NY

Date Collected: 12/31/18 12:10
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.502	0.200	--	1.77	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	0.479	0.200	--	1.65	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	3.91	0.200	--	16.0	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	1.31	0.200	--	4.94	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	1.51	0.200	--	6.56	0.869	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-05
Client ID: RSSV02
Sample Location: BRONX, NY

Date Collected: 12/31/18 12:10
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	4.97	0.400	--	21.6	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	2.42	0.200	--	10.5	0.869	--		1
4-Ethyltoluene	0.521	0.200	--	2.56	0.983	--		1
1,3,5-Trimethylbenzene	0.746	0.200	--	3.67	0.983	--		1
1,2,4-Trimethylbenzene	1.75	0.200	--	8.60	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	86		60-140
Bromochloromethane	85		60-140
chlorobenzene-d5	97		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-06
Client ID: RSSV03
Sample Location: BRONX, NY

Date Collected: 12/31/18 12:26
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 01/08/19 22:58
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.544	0.200	--	2.69	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	5.19	1.00	--	12.3	2.38	--		1
Trichlorofluoromethane	0.403	0.200	--	2.26	1.12	--		1
Isopropanol	0.533	0.500	--	1.31	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	0.787	0.500	--	2.73	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	0.427	0.200	--	1.33	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	4.97	0.500	--	14.7	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-06
Client ID: RSSV03
Sample Location: BRONX, NY

Date Collected: 12/31/18 12:26
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	0.631	0.200	--	3.08	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	0.604	0.200	--	2.44	0.809	--		1
n-Hexane	2.99	0.200	--	10.5	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	9.48	0.200	--	30.3	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	0.407	0.200	--	1.40	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	0.226	0.200	--	1.06	0.934	--		1
Heptane	2.24	0.200	--	9.18	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	17.2	0.200	--	64.8	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	8.28	0.200	--	56.1	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	2.13	0.200	--	9.25	0.869	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-06
Client ID: RSSV03
Sample Location: BRONX, NY

Date Collected: 12/31/18 12:26
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	10.4	0.400	--	45.2	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	3.72	0.200	--	16.2	0.869	--		1
4-Ethyltoluene	1.02	0.200	--	5.01	0.983	--		1
1,3,5-Trimethylbenzene	0.882	0.200	--	4.34	0.983	--		1
1,2,4-Trimethylbenzene	3.52	0.200	--	17.3	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	107		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-07 D
Client ID: RSSV04
Sample Location: BRONX, NY

Date Collected: 12/31/18 12:38
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 01/09/19 09:05
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	1.00	--	ND	4.94	--		5
Chloromethane	ND	1.00	--	ND	2.07	--		5
Freon-114	ND	1.00	--	ND	6.99	--		5
Vinyl chloride	ND	1.00	--	ND	2.56	--		5
1,3-Butadiene	ND	1.00	--	ND	2.21	--		5
Bromomethane	ND	1.00	--	ND	3.88	--		5
Chloroethane	ND	1.00	--	ND	2.64	--		5
Ethanol	ND	25.0	--	ND	47.1	--		5
Vinyl bromide	ND	1.00	--	ND	4.37	--		5
Acetone	36.3	5.00	--	86.2	11.9	--		5
Trichlorofluoromethane	ND	1.00	--	ND	5.62	--		5
Isopropanol	ND	2.50	--	ND	6.15	--		5
1,1-Dichloroethene	ND	1.00	--	ND	3.96	--		5
Tertiary butyl Alcohol	ND	2.50	--	ND	7.58	--		5
Methylene chloride	ND	2.50	--	ND	8.69	--		5
3-Chloropropene	ND	1.00	--	ND	3.13	--		5
Carbon disulfide	1.76	1.00	--	5.48	3.11	--		5
Freon-113	ND	1.00	--	ND	7.66	--		5
trans-1,2-Dichloroethene	ND	1.00	--	ND	3.96	--		5
1,1-Dichloroethane	ND	1.00	--	ND	4.05	--		5
Methyl tert butyl ether	ND	1.00	--	ND	3.61	--		5
2-Butanone	6.14	2.50	--	18.1	7.37	--		5
cis-1,2-Dichloroethene	ND	1.00	--	ND	3.96	--		5

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-07 D
Client ID: RSSV04
Sample Location: BRONX, NY

Date Collected: 12/31/18 12:38
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	2.50	--	ND	9.01	--		5
Chloroform	2.14	1.00	--	10.5	4.88	--		5
Tetrahydrofuran	ND	2.50	--	ND	7.37	--		5
1,2-Dichloroethane	ND	1.00	--	ND	4.05	--		5
n-Hexane	3.17	1.00	--	11.2	3.52	--		5
1,1,1-Trichloroethane	ND	1.00	--	ND	5.46	--		5
Benzene	1.72	1.00	--	5.49	3.19	--		5
Carbon tetrachloride	ND	1.00	--	ND	6.29	--		5
Cyclohexane	2.28	1.00	--	7.85	3.44	--		5
1,2-Dichloropropane	ND	1.00	--	ND	4.62	--		5
Bromodichloromethane	ND	1.00	--	ND	6.70	--		5
1,4-Dioxane	ND	1.00	--	ND	3.60	--		5
Trichloroethene	ND	1.00	--	ND	5.37	--		5
2,2,4-Trimethylpentane	ND	1.00	--	ND	4.67	--		5
Heptane	13.9	1.00	--	57.0	4.10	--		5
cis-1,3-Dichloropropene	ND	1.00	--	ND	4.54	--		5
4-Methyl-2-pentanone	ND	2.50	--	ND	10.2	--		5
trans-1,3-Dichloropropene	ND	1.00	--	ND	4.54	--		5
1,1,2-Trichloroethane	ND	1.00	--	ND	5.46	--		5
Toluene	10.6	1.00	--	39.9	3.77	--		5
2-Hexanone	ND	1.00	--	ND	4.10	--		5
Dibromochloromethane	ND	1.00	--	ND	8.52	--		5
1,2-Dibromoethane	ND	1.00	--	ND	7.69	--		5
Tetrachloroethene	7.67	1.00	--	52.0	6.78	--		5
Chlorobenzene	ND	1.00	--	ND	4.61	--		5
Ethylbenzene	4.07	1.00	--	17.7	4.34	--		5

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-07 D
Client ID: RSSV04
Sample Location: BRONX, NY

Date Collected: 12/31/18 12:38
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	20.5	2.00	--	89.0	8.69	--		5
Bromoform	ND	1.00	--	ND	10.3	--		5
Styrene	ND	1.00	--	ND	4.26	--		5
1,1,2,2-Tetrachloroethane	ND	1.00	--	ND	6.87	--		5
o-Xylene	10.3	1.00	--	44.7	4.34	--		5
4-Ethyltoluene	1.38	1.00	--	6.78	4.92	--		5
1,3,5-Trimethylbenzene	4.00	1.00	--	19.7	4.92	--		5
1,2,4-Trimethylbenzene	4.12	1.00	--	20.3	4.92	--		5
Benzyl chloride	ND	1.00	--	ND	5.18	--		5
1,3-Dichlorobenzene	ND	1.00	--	ND	6.01	--		5
1,4-Dichlorobenzene	ND	1.00	--	ND	6.01	--		5
1,2-Dichlorobenzene	ND	1.00	--	ND	6.01	--		5
1,2,4-Trichlorobenzene	ND	1.00	--	ND	7.42	--		5
Hexachlorobutadiene	ND	1.00	--	ND	10.7	--		5

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	92		60-140
Bromochloromethane	76		60-140
chlorobenzene-d5	114		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-08
Client ID: RSSV07
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:53
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 01/09/19 00:12
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.533	0.200	--	2.64	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	2.83	1.00	--	6.72	2.38	--		1
Trichlorofluoromethane	0.284	0.200	--	1.60	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-08
Client ID: RSSV07
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:53
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	0.464	0.200	--	1.75	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	0.720	0.200	--	4.88	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	17.5	0.200	--	76.0	0.869	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

SAMPLE RESULTS

Lab ID: L1900163-08
Client ID: RSSV07
Sample Location: BRONX, NY

Date Collected: 12/31/18 11:53
Date Received: 01/02/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	61.5	0.400	--	267	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	17.5	0.200	--	76.0	0.869	--		1
4-Ethyltoluene	0.226	0.200	--	1.11	0.983	--		1
1,3,5-Trimethylbenzene	0.290	0.200	--	1.43	0.983	--		1
1,2,4-Trimethylbenzene	0.900	0.200	--	4.42	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	93		60-140
Bromochloromethane	93		60-140
chlorobenzene-d5	115		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 01/08/19 15:26

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-08 Batch: WG1195786-4								
Propylene	ND	0.500	--	ND	0.861	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 01/08/19 15:26

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-08 Batch: WG1195786-4								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900163
Report Date: 01/09/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 01/08/19 15:26

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-08 Batch: WG1195786-4								
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Lab Control Sample Analysis
Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900163
Report Date: 01/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-08 Batch: WG1195786-3								
Chlorodifluoromethane	90		-		70-130	-		
Propylene	103		-		70-130	-		
Propane	77		-		70-130	-		
Dichlorodifluoromethane	112		-		70-130	-		
Chloromethane	94		-		70-130	-		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	110		-		70-130	-		
Methanol	78		-		70-130	-		
Vinyl chloride	107		-		70-130	-		
1,3-Butadiene	102		-		70-130	-		
Butane	97		-		70-130	-		
Bromomethane	110		-		70-130	-		
Chloroethane	114		-		70-130	-		
Ethyl Alcohol	74		-		70-130	-		
Dichlorofluoromethane	89		-		70-130	-		
Vinyl bromide	109		-		70-130	-		
Acrolein	87		-		70-130	-		
Acetone	110		-		70-130	-		
Acetonitrile	95		-		70-130	-		
Trichlorofluoromethane	122		-		70-130	-		
iso-Propyl Alcohol	100		-		70-130	-		
Acrylonitrile	88		-		70-130	-		
Pentane	95		-		70-130	-		
Ethyl ether	83		-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900163
Report Date: 01/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-08 Batch: WG1195786-3								
1,1-Dichloroethene	108		-		70-130	-		
tert-Butyl Alcohol	81		-		70-130	-		
Methylene chloride	96		-		70-130	-		
3-Chloropropene	100		-		70-130	-		
Carbon disulfide	98		-		70-130	-		
1,1,2-Trichloro-1,2,2-Trifluoroethane	114		-		70-130	-		
trans-1,2-Dichloroethene	104		-		70-130	-		
1,1-Dichloroethane	104		-		70-130	-		
Methyl tert butyl ether	88		-		70-130	-		
Vinyl acetate	104		-		70-130	-		
2-Butanone	99		-		70-130	-		
cis-1,2-Dichloroethene	105		-		70-130	-		
Ethyl Acetate	106		-		70-130	-		
Chloroform	112		-		70-130	-		
Tetrahydrofuran	91		-		70-130	-		
2,2-Dichloropropane	102		-		70-130	-		
1,2-Dichloroethane	116		-		70-130	-		
n-Hexane	91		-		70-130	-		
Isopropyl Ether	80		-		70-130	-		
Ethyl-Tert-Butyl-Ether	70		-		70-130	-		
1,2-Dichloroethene (total)	105		-			-		
1,2-Dichloroethene (total)	105		-			-		
1,1,1-Trichloroethane	107		-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900163
Report Date: 01/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-08 Batch: WG1195786-3								
1,1-Dichloropropene	90		-		70-130	-		
Benzene	89		-		70-130	-		
Carbon tetrachloride	117		-		70-130	-		
Cyclohexane	91		-		70-130	-		
Tertiary-Amyl Methyl Ether	**66**	Q	-		70-130	-		
Dibromomethane	95		-		70-130	-		
1,2-Dichloropropane	91		-		70-130	-		
Bromodichloromethane	105		-		70-130	-		
1,4-Dioxane	96		-		70-130	-		
Trichloroethene	97		-		70-130	-		
2,2,4-Trimethylpentane	93		-		70-130	-		
Methyl Methacrylate	93		-		70-130	-		
Heptane	89		-		70-130	-		
cis-1,3-Dichloropropene	91		-		70-130	-		
4-Methyl-2-pentanone	88		-		70-130	-		
trans-1,3-Dichloropropene	82		-		70-130	-		
1,1,2-Trichloroethane	98		-		70-130	-		
Toluene	97		-		70-130	-		
1,3-Dichloropropane	92		-		70-130	-		
2-Hexanone	88		-		70-130	-		
Dibromochloromethane	120		-		70-130	-		
1,2-Dibromoethane	100		-		70-130	-		
Butyl Acetate	81		-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900163
Report Date: 01/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-08 Batch: WG1195786-3								
Octane	92		-		70-130	-		
Tetrachloroethene	99		-		70-130	-		
1,1,1,2-Tetrachloroethane	102		-		70-130	-		
Chlorobenzene	99		-		70-130	-		
Ethylbenzene	99		-		70-130	-		
p/m-Xylene	102		-		70-130	-		
Bromoform	117		-		70-130	-		
Styrene	95		-		70-130	-		
1,1,2,2-Tetrachloroethane	104		-		70-130	-		
o-Xylene	104		-		70-130	-		
1,2,3-Trichloropropane	94		-		70-130	-		
Nonane (C9)	84		-		70-130	-		
Isopropylbenzene	100		-		70-130	-		
Bromobenzene	93		-		70-130	-		
o-Chlorotoluene	97		-		70-130	-		
n-Propylbenzene	99		-		70-130	-		
p-Chlorotoluene	99		-		70-130	-		
4-Ethyltoluene	105		-		70-130	-		
1,3,5-Trimethylbenzene	88		-		70-130	-		
tert-Butylbenzene	103		-		70-130	-		
1,2,4-Trimethylbenzene	109		-		70-130	-		
Decane (C10)	100		-		70-130	-		
Benzyl chloride	129		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET

Project Number: 170487001

Lab Number: L1900163

Report Date: 01/09/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-08 Batch: WG1195786-3								
1,3-Dichlorobenzene	108		-		70-130	-		
1,4-Dichlorobenzene	105		-		70-130	-		
sec-Butylbenzene	101		-		70-130	-		
p-Isopropyltoluene	99		-		70-130	-		
1,2-Dichlorobenzene	110		-		70-130	-		
n-Butylbenzene	114		-		70-130	-		
1,2-Dibromo-3-chloropropane	109		-		70-130	-		
Undecane	104		-		70-130	-		
Dodecane (C12)	102		-		70-130	-		
1,2,4-Trichlorobenzene	115		-		70-130	-		
Naphthalene	110		-		70-130	-		
1,2,3-Trichlorobenzene	106		-		70-130	-		
Hexachlorobutadiene	121		-		70-130	-		

Lab Duplicate Analysis
Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900163
Report Date: 01/09/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-08 QC Batch ID: WG1195786-5 QC Sample: L1900607-01 Client ID: DUP Sample						
Dichlorodifluoromethane	0.552	0.555	ppbV	1		25
Chloromethane	0.477	0.496	ppbV	4		25
1,2-Dichloro-1,1,2,2-tetrafluoroethane	ND	ND	ppbV	NC		25
1,3-Butadiene	ND	ND	ppbV	NC		25
Bromomethane	ND	ND	ppbV	NC		25
Chloroethane	ND	ND	ppbV	NC		25
Ethyl Alcohol	ND	ND	ppbV	NC		25
Vinyl bromide	ND	ND	ppbV	NC		25
Acetone	2.78	2.74	ppbV	1		25
Trichlorofluoromethane	0.865	0.867	ppbV	0		25
iso-Propyl Alcohol	2.12	2.10	ppbV	1		25
tert-Butyl Alcohol	ND	ND	ppbV	NC		25
Methylene chloride	0.865	0.865	ppbV	0		25
3-Chloropropene	ND	ND	ppbV	NC		25
Carbon disulfide	ND	ND	ppbV	NC		25
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,1-Dichloroethane	ND	ND	ppbV	NC		25
Methyl tert butyl ether	ND	ND	ppbV	NC		25
2-Butanone	ND	ND	ppbV	NC		25
Ethyl Acetate	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900163
Report Date: 01/09/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-08 QC Batch ID: WG1195786-5 QC Sample: L1900607-01 Client ID: DUP Sample						
Chloroform	ND	ND	ppbV	NC		25
Tetrahydrofuran	ND	ND	ppbV	NC		25
1,2-Dichloroethane	ND	ND	ppbV	NC		25
n-Hexane	ND	ND	ppbV	NC		25
Benzene	ND	ND	ppbV	NC		25
Cyclohexane	ND	ND	ppbV	NC		25
1,2-Dichloropropane	ND	ND	ppbV	NC		25
Bromodichloromethane	ND	ND	ppbV	NC		25
1,4-Dioxane	ND	ND	ppbV	NC		25
2,2,4-Trimethylpentane	ND	ND	ppbV	NC		25
Heptane	ND	ND	ppbV	NC		25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC		25
4-Methyl-2-pentanone	ND	ND	ppbV	NC		25
Xylene (Total)	ND	ND	ppbV	NC		25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC		25
1,1,2-Trichloroethane	ND	ND	ppbV	NC		25
Toluene	0.804	0.784	ppbV	3		25
2-Hexanone	ND	ND	ppbV	NC		25
Dibromochloromethane	ND	ND	ppbV	NC		25
1,2-Dibromoethane	ND	ND	ppbV	NC		25
Chlorobenzene	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900163
Report Date: 01/09/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-08 QC Batch ID: WG1195786-5 QC Sample: L1900607-01 Client ID: DUP Sample						
Ethylbenzene	ND	ND	ppbV	NC		25
p/m-Xylene	ND	ND	ppbV	NC		25
1,2-Dichloroethene (total)	ND	ND	ppbV	NC		25
Bromoform	ND	ND	ppbV	NC		25
1,3-Dichloropropene, Total	ND	ND	ppbV	NC		25
Styrene	ND	ND	ppbV	NC		25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC		25
o-Xylene	ND	ND	ppbV	NC		25
4-Ethyltoluene	ND	ND	ppbV	NC		25
1,3,5-Trimethylbenzene	ND	ND	ppbV	NC		25
1,2,4-Trimethylbenzene	ND	ND	ppbV	NC		25
Benzyl chloride	ND	ND	ppbV	NC		25
1,3-Dichlorobenzene	ND	ND	ppbV	NC		25
1,4-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC		25
Hexachlorobutadiene	ND	ND	ppbV	NC		25

Project Name: GERARD AVE & E. 146 STREET

Project Number: 170487001

Lab Number: L1900163

Report Date: 01/09/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1900163-01	RAA01	0972	Flow 3	12/19/18	281620		-	-	-	Pass	18.0	17.8	1
L1900163-01	RAA01	2078	2.7L Can	12/19/18	281620	L1851680-01	Pass	-29.7	-3.7	-	-	-	-
L1900163-02	RSV01	0575	Flow 4	12/19/18	281620		-	-	-	Pass	18.0	18.0	0
L1900163-02	RSV01	2206	2.7L Can	12/19/18	281620	L1851680-01	Pass	-28.8	-4.0	-	-	-	-
L1900163-03	RSV02	0138	Flow 4	12/19/18	281620		-	-	-	Pass	18.0	18.3	2
L1900163-03	RSV02	2299	2.7L Can	12/19/18	281620	L1851680-01	Pass	-29.5	-3.0	-	-	-	-
L1900163-04	RSSV01	0934	Flow 3	12/19/18	281620		-	-	-	Pass	18.0	18.9	5
L1900163-04	RSSV01	2225	2.7L Can	12/19/18	281620	L1851680-01	Pass	-29.5	-2.3	-	-	-	-
L1900163-05	RSSV02	01143	SV20	12/28/18	282079		-	-	-	Pass	19.1	16.7	13
L1900163-05	RSSV02	2599	2.7L Can	12/19/18	281620	L1851680-01	Pass	-29.5	-4.7	-	-	-	-
L1900163-06	RSSV03	0387	Flow 3	12/19/18	281620		-	-	-	Pass	18.0	19.4	7
L1900163-06	RSSV03	174	2.7L Can	12/19/18	281620	L1851680-01	Pass	-29.6	-4.1	-	-	-	-
L1900163-07	RSSV04	0401	Flow 3	12/19/18	281620		-	-	-	Pass	18.0	17.7	2
L1900163-07	RSSV04	2347	2.7L Can	12/19/18	281620	L1851680-01	Pass	-29.4	-4.4	-	-	-	-
L1900163-08	RSSV07	0507	SV200	12/28/18	282079		-	-	-	Pass	19.0	16.5	14

Project Name: GERARD AVE & E. 146 STREET

Project Number: 170487001

Lab Number: L1900163

Report Date: 01/09/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1900163-08	RSSV07	2210	2.7L Can	12/19/18	281620	L1851680-01	Pass	-29.4	-4.4	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1851680
Report Date: 01/09/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 12/14/18 21:42
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION **Lab Number:** L1851680

Project Number: CANISTER QC BAT **Report Date:** 01/09/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1851680
Report Date: 01/09/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1851680
Report Date: 01/09/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1851680
Report Date: 01/09/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	92		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	92		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1851680
Report Date: 01/09/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 12/14/18 21:42
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1851680
Report Date: 01/09/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1851680
Report Date: 01/09/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	91		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900163
Report Date: 01/09/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
N/A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1900163-01A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)
L1900163-02A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)
L1900163-03A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)
L1900163-04A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)
L1900163-05A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)
L1900163-06A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)
L1900163-07A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)
L1900163-08A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name:	GERARD AVE & E. 146 STREET	**Lab Number:**	L1900163
Project Number:	170487001	**Report Date:**	01/09/19

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: Data Usability Report

Project Name:	GERARD AVE & E. 146 STREET	**Lab Number:**	L1900163
Project Number:	170487001	**Report Date:**	01/09/19

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

Project Name:	GERARD AVE & E. 146 STREET	**Lab Number:**	L1900163
Project Number:	170487001	**Report Date:**	01/09/19

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

AIR ANALYSIS

CHAIN OF CUSTODY

PAGE 1 OF 1

320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 1/3/19

ALPHA Job #: L1900163

Client Information

Client: Langan Engineering
Address: 21 Penn Plaza, 360 W. 31st Street
8th Floor, NY, NY 10001-2727
Phone: (212) 479-5400
Fax: (212) 479-5444
Email: jleung@langan.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Gerard Ave + E. 146th St.
Project Location: Bronx, NY
Project #: 170487001
Project Manager: Julia Leung
ALPHA Quote #: 7013

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☒ Additional Deliverables: ASP-B
Report to: (if different than Project Manager)

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

Other Project Specific Requirements/Comments:
Please also cc: datamanagement@langan.com and vzuluaga@langan.com

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-14A by TO-15	TO-15	TO-15 SIM	APH	FIXED GASES	TO-13A	TO-4 / TO-10	Sample Comments (i.e. PID)
00163.01	RAA01	12/31/18	0900	1105	-30.63	-5.42	AA	JD	2.7L	2078	0972		X						
02	RSV01	↓	0927	1129	-29.47	-5.69	SV	JD	↓	2206	0575		X						
03	RSV02	↓	0913	1117	-30.80	-4.84	↓	JD	↓	2299	0138		X						
04	RSSV01	↓	0855	1055	-29.0	-4.30	↓	JD	↓	2225	0934		X						
05	RSSV02	↓	1010	1210	-30.72	-6.65	↓	JD	↓	2599	01143		X						
06	RSSV03	↓	1025	1226	-30.80	-5.99	↓	JD	↓	174	0387		X						
07	RSSV04	↓	1034	1238	-29.9	-6.23	↓	JD	↓	2347	0401		X						
08	RSSV07	↓	0951	1153	-30.33	-6.41	↓	JD	↓	2210	0507		X						

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Relinquished By:	Date/Time	Received By:	Date/Time:
[signature]	1/2/19 - 3:15pm	Ksmeik Jackson AAL	1/2/19 1515
[signature]	1/2 1730	[signature] 1/2	01/03/19 0200
[signature]	01/03/19 0345	Tim Banks	1/3/19 0345

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Form No: 101-02 (19-Jun-09)

ANALYTICAL REPORT

Lab Number:	L1900997
Client:	Langan Engineering & Environmental 21 Penn Plaza 360 W. 31st Street, 8th Floor New York, NY 10001-2727
ATTN:	Julia Leung
Phone:	(212) 479-5400
Project Name:	GERARD AVE & E. 146 STREET
Project Number:	170487001
Report Date:	01/15/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900997
Report Date: 01/15/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1900997-01	RSSV05	SOIL_VAPOR	BRONX, NY	01/09/19 11:59	01/09/19
L1900997-02	RSSV06	SOIL_VAPOR	BRONX, NY	01/09/19 10:35	01/09/19

Project Name: GERARD AVE & E. 146 STREET **Lab Number:** L1900997
Project Number: 170487001 **Report Date:** 01/15/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY
For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: GERARD AVE & E. 146 STREET **Lab Number:** L1900997
Project Number: 170487001 **Report Date:** 01/15/19

Case Narrative (continued)

Volatile Organics in Air

Canisters were released from the laboratory on December 28, 2018. The canister certification results are provided as an addendum.

L1900997-02: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 01/15/19

AIR

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900997
Report Date: 01/15/19

SAMPLE RESULTS

Lab ID: L1900997-01
Client ID: RSSV05
Sample Location: BRONX, NY

Date Collected: 01/09/19 11:59
Date Received: 01/09/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 01/12/19 19:06
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.545	0.200	--	2.69	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	3.06	1.00	--	7.27	2.38	--		1
Trichlorofluoromethane	0.285	0.200	--	1.60	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900997
Report Date: 01/15/19

SAMPLE RESULTS

Lab ID: L1900997-01
Client ID: RSSV05
Sample Location: BRONX, NY

Date Collected: 01/09/19 11:59
Date Received: 01/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.237	0.200	--	0.757	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	2.42	0.200	--	9.12	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	0.319	0.200	--	2.16	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	0.573	0.200	--	2.49	0.869	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900997
Report Date: 01/15/19

SAMPLE RESULTS

Lab ID: L1900997-01
Client ID: RSSV05
Sample Location: BRONX, NY

Date Collected: 01/09/19 11:59
Date Received: 01/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	2.14	0.400	--	9.30	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	0.563	0.200	--	2.45	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	0.893	0.200	--	4.39	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	90		60-140
Bromochloromethane	92		60-140
chlorobenzene-d5	95		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900997
Report Date: 01/15/19

SAMPLE RESULTS

Lab ID: L1900997-02 D
Client ID: RSSV06
Sample Location: BRONX, NY

Date Collected: 01/09/19 10:35
Date Received: 01/09/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 01/13/19 02:32
Analyst: EW

	ppbV			ug/m3				
Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	ND	1.00	--	ND	4.94	--		5
Chloromethane	ND	1.00	--	ND	2.07	--		5
Freon-114	ND	1.00	--	ND	6.99	--		5
Vinyl chloride	ND	1.00	--	ND	2.56	--		5
1,3-Butadiene	ND	1.00	--	ND	2.21	--		5
Bromomethane	ND	1.00	--	ND	3.88	--		5
Chloroethane	ND	1.00	--	ND	2.64	--		5
Ethanol	ND	25.0	--	ND	47.1	--		5
Vinyl bromide	ND	1.00	--	ND	4.37	--		5
Acetone	8.18	5.00	--	19.4	11.9	--		5
Trichlorofluoromethane	ND	1.00	--	ND	5.62	--		5
Isopropanol	ND	2.50	--	ND	6.15	--		5
1,1-Dichloroethene	ND	1.00	--	ND	3.96	--		5
Tertiary butyl Alcohol	ND	2.50	--	ND	7.58	--		5
Methylene chloride	ND	2.50	--	ND	8.69	--		5
3-Chloropropene	ND	1.00	--	ND	3.13	--		5
Carbon disulfide	ND	1.00	--	ND	3.11	--		5
Freon-113	ND	1.00	--	ND	7.66	--		5
trans-1,2-Dichloroethene	ND	1.00	--	ND	3.96	--		5
1,1-Dichloroethane	ND	1.00	--	ND	4.05	--		5
Methyl tert butyl ether	ND	1.00	--	ND	3.61	--		5
2-Butanone	ND	2.50	--	ND	7.37	--		5
cis-1,2-Dichloroethene	ND	1.00	--	ND	3.96	--		5

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900997
Report Date: 01/15/19

SAMPLE RESULTS

Lab ID: L1900997-02 D
Client ID: RSSV06
Sample Location: BRONX, NY

Date Collected: 01/09/19 10:35
Date Received: 01/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	2.50	--	ND	9.01	--		5
Chloroform	ND	1.00	--	ND	4.88	--		5
Tetrahydrofuran	ND	2.50	--	ND	7.37	--		5
1,2-Dichloroethane	ND	1.00	--	ND	4.05	--		5
n-Hexane	ND	1.00	--	ND	3.52	--		5
1,1,1-Trichloroethane	ND	1.00	--	ND	5.46	--		5
Benzene	ND	1.00	--	ND	3.19	--		5
Carbon tetrachloride	ND	1.00	--	ND	6.29	--		5
Cyclohexane	ND	1.00	--	ND	3.44	--		5
1,2-Dichloropropane	ND	1.00	--	ND	4.62	--		5
Bromodichloromethane	ND	1.00	--	ND	6.70	--		5
1,4-Dioxane	ND	1.00	--	ND	3.60	--		5
Trichloroethene	ND	1.00	--	ND	5.37	--		5
2,2,4-Trimethylpentane	ND	1.00	--	ND	4.67	--		5
Heptane	4.08	1.00	--	16.7	4.10	--		5
cis-1,3-Dichloropropene	ND	1.00	--	ND	4.54	--		5
4-Methyl-2-pentanone	ND	2.50	--	ND	10.2	--		5
trans-1,3-Dichloropropene	ND	1.00	--	ND	4.54	--		5
1,1,2-Trichloroethane	ND	1.00	--	ND	5.46	--		5
Toluene	2.34	1.00	--	8.82	3.77	--		5
2-Hexanone	ND	1.00	--	ND	4.10	--		5
Dibromochloromethane	ND	1.00	--	ND	8.52	--		5
1,2-Dibromoethane	ND	1.00	--	ND	7.69	--		5
Tetrachloroethene	2.22	1.00	--	15.1	6.78	--		5
Chlorobenzene	ND	1.00	--	ND	4.61	--		5
Ethylbenzene	2.72	1.00	--	11.8	4.34	--		5

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900997
Report Date: 01/15/19

SAMPLE RESULTS

Lab ID: L1900997-02 D
Client ID: RSSV06
Sample Location: BRONX, NY

Date Collected: 01/09/19 10:35
Date Received: 01/09/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	10.0	2.00	--	43.4	8.69	--		5
Bromoform	ND	1.00	--	ND	10.3	--		5
Styrene	ND	1.00	--	ND	4.26	--		5
1,1,2,2-Tetrachloroethane	ND	1.00	--	ND	6.87	--		5
o-Xylene	5.98	1.00	--	26.0	4.34	--		5
4-Ethyltoluene	ND	1.00	--	ND	4.92	--		5
1,3,5-Trimethylbenzene	1.60	1.00	--	7.87	4.92	--		5
1,2,4-Trimethylbenzene	1.50	1.00	--	7.37	4.92	--		5
Benzyl chloride	ND	1.00	--	ND	5.18	--		5
1,3-Dichlorobenzene	ND	1.00	--	ND	6.01	--		5
1,4-Dichlorobenzene	ND	1.00	--	ND	6.01	--		5
1,2-Dichlorobenzene	ND	1.00	--	ND	6.01	--		5
1,2,4-Trichlorobenzene	ND	1.00	--	ND	7.42	--		5
Hexachlorobutadiene	ND	1.00	--	ND	10.7	--		5

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	90		60-140
Bromochloromethane	90		60-140
chlorobenzene-d5	102		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900997
Report Date: 01/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 01/12/19 15:20

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-02 Batch: WG1197111-4								
Propylene	ND	0.500	--	ND	0.861	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900997
Report Date: 01/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 01/12/19 15:20

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-02 Batch: WG1197111-4								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001
Lab Number: L1900997
Report Date: 01/15/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 01/12/19 15:20

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-02 Batch: WG1197111-4								
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Lab Control Sample Analysis
Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900997
Report Date: 01/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-02 Batch: WG1197111-3								
Chlorodifluoromethane	94		-		70-130	-		
Propylene	115		-		70-130	-		
Propane	84		-		70-130	-		
Dichlorodifluoromethane	116		-		70-130	-		
Chloromethane	93		-		70-130	-		
1,2-Dichloro-1,1,2,2-tetrafluoroethane	109		-		70-130	-		
Methanol	80		-		70-130	-		
Vinyl chloride	105		-		70-130	-		
1,3-Butadiene	102		-		70-130	-		
Butane	94		-		70-130	-		
Bromomethane	108		-		70-130	-		
Chloroethane	101		-		70-130	-		
Ethyl Alcohol	81		-		70-130	-		
Dichlorofluoromethane	97		-		70-130	-		
Vinyl bromide	104		-		70-130	-		
Acrolein	85		-		70-130	-		
Acetone	107		-		70-130	-		
Acetonitrile	91		-		70-130	-		
Trichlorofluoromethane	121		-		70-130	-		
iso-Propyl Alcohol	94		-		70-130	-		
Acrylonitrile	85		-		70-130	-		
Pentane	95		-		70-130	-		
Ethyl ether	**67**	Q	-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET

Project Number: 170487001

Lab Number: L1900997

Report Date: 01/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-02 Batch: WG1197111-3								
1,1-Dichloroethene	106		-		70-130	-		
tert-Butyl Alcohol	75		-		70-130	-		
Methylene chloride	94		-		70-130	-		
3-Chloropropene	99		-		70-130	-		
Carbon disulfide	96		-		70-130	-		
1,1,2-Trichloro-1,2,2-Trifluoroethane	114		-		70-130	-		
trans-1,2-Dichloroethene	102		-		70-130	-		
1,1-Dichloroethane	102		-		70-130	-		
Methyl tert butyl ether	83		-		70-130	-		
Vinyl acetate	102		-		70-130	-		
2-Butanone	97		-		70-130	-		
cis-1,2-Dichloroethene	114		-		70-130	-		
Ethyl Acetate	105		-		70-130	-		
Chloroform	112		-		70-130	-		
Tetrahydrofuran	90		-		70-130	-		
2,2-Dichloropropane	98		-		70-130	-		
1,2-Dichloroethane	115		-		70-130	-		
n-Hexane	90		-		70-130	-		
Isopropyl Ether	76		-		70-130	-		
Ethyl-Tert-Butyl-Ether	**66**	Q	-		70-130	-		
1,2-Dichloroethene (total)	108		-			-		
1,2-Dichloroethene (total)	108		-			-		
1,1,1-Trichloroethane	104		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET

Project Number: 170487001

Lab Number: L1900997

Report Date: 01/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-02 Batch: WG1197111-3								
1,1-Dichloropropene	97		-		70-130	-		
Benzene	87		-		70-130	-		
Carbon tetrachloride	115		-		70-130	-		
Cyclohexane	90		-		70-130	-		
Tertiary-Amyl Methyl Ether	**62**	Q	-		70-130	-		
Dibromomethane	93		-		70-130	-		
1,2-Dichloropropane	88		-		70-130	-		
Bromodichloromethane	102		-		70-130	-		
1,4-Dioxane	94		-		70-130	-		
Trichloroethene	95		-		70-130	-		
2,2,4-Trimethylpentane	94		-		70-130	-		
Methyl Methacrylate	90		-		70-130	-		
Heptane	87		-		70-130	-		
cis-1,3-Dichloropropene	88		-		70-130	-		
4-Methyl-2-pentanone	86		-		70-130	-		
trans-1,3-Dichloropropene	80		-		70-130	-		
1,1,2-Trichloroethane	97		-		70-130	-		
Toluene	97		-		70-130	-		
1,3-Dichloropropane	89		-		70-130	-		
2-Hexanone	85		-		70-130	-		
Dibromochloromethane	119		-		70-130	-		
1,2-Dibromoethane	97		-		70-130	-		
Butyl Acetate	78		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET

Project Number: 170487001

Lab Number: L1900997

Report Date: 01/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-02 Batch: WG1197111-3								
Octane	90		-		70-130	-		
Tetrachloroethene	98		-		70-130	-		
1,1,1,2-Tetrachloroethane	102		-		70-130	-		
Chlorobenzene	98		-		70-130	-		
Ethylbenzene	98		-		70-130	-		
p/m-Xylene	102		-		70-130	-		
Bromoform	116		-		70-130	-		
Styrene	94		-		70-130	-		
1,1,2,2-Tetrachloroethane	103		-		70-130	-		
o-Xylene	104		-		70-130	-		
1,2,3-Trichloropropane	93		-		70-130	-		
Nonane (C9)	86		-		70-130	-		
Isopropylbenzene	100		-		70-130	-		
Bromobenzene	93		-		70-130	-		
o-Chlorotoluene	97		-		70-130	-		
n-Propylbenzene	99		-		70-130	-		
p-Chlorotoluene	99		-		70-130	-		
4-Ethyltoluene	104		-		70-130	-		
1,3,5-Trimethylbenzene	100		-		70-130	-		
tert-Butylbenzene	104		-		70-130	-		
1,2,4-Trimethylbenzene	109		-		70-130	-		
Decane (C10)	100		-		70-130	-		
Benzyl chloride	126		-		70-130	-		

Lab Control Sample Analysis

Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET

Project Number: 170487001

Lab Number: L1900997

Report Date: 01/15/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-02 Batch: WG1197111-3								
1,3-Dichlorobenzene	106		-		70-130	-		
1,4-Dichlorobenzene	106		-		70-130	-		
sec-Butylbenzene	102		-		70-130	-		
p-Isopropyltoluene	99		-		70-130	-		
1,2-Dichlorobenzene	107		-		70-130	-		
n-Butylbenzene	112		-		70-130	-		
1,2-Dibromo-3-chloropropane	106		-		70-130	-		
Undecane	103		-		70-130	-		
Dodecane (C12)	100		-		70-130	-		
1,2,4-Trichlorobenzene	114		-		70-130	-		
Naphthalene	105		-		70-130	-		
1,2,3-Trichlorobenzene	102		-		70-130	-		
Hexachlorobutadiene	117		-		70-130	-		

Lab Duplicate Analysis
Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900997
Report Date: 01/15/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1197111-5 QC Sample: L1900997-02 Client ID: RSSV06						
Dichlorodifluoromethane	ND	ND	ppbV	NC		25
Chloromethane	ND	ND	ppbV	NC		25
Freon-114	ND	ND	ppbV	NC		25
Vinyl chloride	ND	ND	ppbV	NC		25
1,3-Butadiene	ND	ND	ppbV	NC		25
Bromomethane	ND	ND	ppbV	NC		25
Chloroethane	ND	ND	ppbV	NC		25
Ethanol	ND	ND	ppbV	NC		25
Vinyl bromide	ND	ND	ppbV	NC		25
Acetone	8.18	7.66	ppbV	7		25
Trichlorofluoromethane	ND	ND	ppbV	NC		25
Isopropanol	ND	ND	ppbV	NC		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
Tertiary butyl Alcohol	ND	ND	ppbV	NC		25
Methylene chloride	ND	ND	ppbV	NC		25
3-Chloropropene	ND	ND	ppbV	NC		25
Carbon disulfide	ND	ND	ppbV	NC		25
Freon-113	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,1-Dichloroethane	ND	ND	ppbV	NC		25
Methyl tert butyl ether	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900997
Report Date: 01/15/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1197111-5 QC Sample: L1900997-02 Client ID: RSSV06						
2-Butanone	ND	ND	ppbV	NC		25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		25
Ethyl Acetate	ND	ND	ppbV	NC		25
Chloroform	ND	ND	ppbV	NC		25
Tetrahydrofuran	ND	ND	ppbV	NC		25
1,2-Dichloroethane	ND	ND	ppbV	NC		25
n-Hexane	ND	ND	ppbV	NC		25
1,1,1-Trichloroethane	ND	ND	ppbV	NC		25
Benzene	ND	ND	ppbV	NC		25
Carbon tetrachloride	ND	ND	ppbV	NC		25
Cyclohexane	ND	ND	ppbV	NC		25
1,2-Dichloropropane	ND	ND	ppbV	NC		25
Bromodichloromethane	ND	ND	ppbV	NC		25
1,4-Dioxane	ND	ND	ppbV	NC		25
Trichloroethene	ND	ND	ppbV	NC		25
2,2,4-Trimethylpentane	ND	ND	ppbV	NC		25
Heptane	4.08	3.84	ppbV	6		25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC		25
4-Methyl-2-pentanone	ND	ND	ppbV	NC		25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC		25
1,1,2-Trichloroethane	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900997
Report Date: 01/15/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1197111-5 QC Sample: L1900997-02 Client ID: RSSV06						
Toluene	2.34	2.30	ppbV	2		25
2-Hexanone	ND	ND	ppbV	NC		25
Dibromochloromethane	ND	ND	ppbV	NC		25
1,2-Dibromoethane	ND	ND	ppbV	NC		25
Tetrachloroethene	2.22	1.86	ppbV	18		25
Chlorobenzene	ND	ND	ppbV	NC		25
Ethylbenzene	2.72	2.54	ppbV	7		25
p/m-Xylene	10.0	9.74	ppbV	3		25
Bromoform	ND	ND	ppbV	NC		25
Styrene	ND	ND	ppbV	NC		25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC		25
o-Xylene	5.98	5.74	ppbV	4		25
4-Ethyltoluene	ND	ND	ppbV	NC		25
1,3,5-Trimethylbenzene	1.60	1.62	ppbV	1		25
1,2,4-Trimethylbenzene	1.50	1.54	ppbV	3		25
Benzyl chloride	ND	ND	ppbV	NC		25
1,3-Dichlorobenzene	ND	ND	ppbV	NC		25
1,4-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC		25
Hexachlorobutadiene	ND	ND	ppbV	NC		25

Project Name: GERARD AVE & E. 146 STREET

Project Number: 170487001

Lab Number: L1900997

Report Date: 01/15/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1900997-01	RSSV05	0624	Flow 4	12/28/18	282079		-	-	-	Pass	18.0	8.7	70
L1900997-01	RSSV05	353	2.7L Can	12/19/18	281620	L1851680-01	Pass	-29.7	-10.37	-	-	-	-
L1900997-02	RSSV06	0854	Flow 4	12/28/18	282079		-	-	-	Pass	23.2	18.5	23
L1900997-02	RSSV06	207	2.7L Can	12/19/18	281620	L1851680-01	Pass	-29.4	-2.42	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1851680
Report Date: 01/15/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 12/14/18 21:42
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1851680
Report Date: 01/15/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1851680
Report Date: 01/15/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1851680
Report Date: 01/15/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1851680
Report Date: 01/15/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	92		60-140
Bromochloromethane	94		60-140
chlorobenzene-d5	92		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1851680
Report Date: 01/15/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 12/14/18 21:42
Analyst: RY

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1851680
Report Date: 01/15/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1851680
Report Date: 01/15/19

Air Canister Certification Results

Lab ID: L1851680-01
Client ID: CAN 336 SHELF 7
Sample Location:

Date Collected: 12/14/18 09:00
Date Received: 12/14/18
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	92		60-140
bromochloromethane	93		60-140
chlorobenzene-d5	91		60-140

Project Name: GERARD AVE & E. 146 STREET
Project Number: 170487001

Lab Number: L1900997
Report Date: 01/15/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
N/A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1900997-01A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)
L1900997-02A	Canister - 2.7 Liter	N/A	NA			Y	Absent		TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name:	GERARD AVE & E. 146 STREET	**Lab Number:**	L1900997
Project Number:	170487001	**Report Date:**	01/15/19

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample¿s toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

1	- The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Report Format: Data Usability Report

Project Name:	GERARD AVE & E. 146 STREET	**Lab Number:**	L1900997
Project Number:	170487001	**Report Date:**	01/15/19

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

ND - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS

PAGE 1 OF 1

CHAIN OF CUSTODY

ALPHA ANALYTICAL
320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: L1900997

Client Information

Client: Langan Engineering
Address: 21 Penn Plaza, 360 W. 31st Street
8th Floor, NY, NY 10001-2727
Phone: (212) 479-5400
Fax: (212) 479-5444
Email: jleung@langan.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Gerard Ave + E. 146th St.
Project Location: Bronx, NY
Project #: 170487001
Project Manager: Julia Leung
ALPHA Quote #: 7013

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☐ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☒ Additional Deliverables: ASP-B deliverables
Report to: (if different than Project Manager)

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Criteria

Other Project Specific Requirements/Comments:
Please also cc: datamanagement+@langan.com and vzulvaga@langan.com

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	ANALYSIS TO-14A by TO-15	TO-15	TO-15 SIM	APH	FIXED GASES	TO-13A	TO-4 / TO-10	Sample Comments (i.e. PID)
L1900997-01	RSSV05	1/9/19	0916	1159	-29.95	-11.38	SV	JA	2.7L	353	0624		X						
-02	RSSV06	↓	0833	1035	-29.79	-3.55	SV	JA	2.7L	207	0854		X						

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time:
[signature]	1/9/19 1215	George Wagner	1/9/19 1215
George Wagner	1/10/19 1000	Brendan Soler	1/10/19 900
Brendan Soler	1/10/19 1000	[signature]	1/10/19 10:00

Form No: 101-02 (19-Jun-09)

ANALYTICAL REPORT

Lab Number:	L1931018
Client:	Langan Engineering & Environmental 21 Penn Plaza 360 W. 31st Street, 8th Floor New York, NY 10001-2727
ATTN:	Julia Leung
Phone:	(212) 479-5400
Project Name:	404 EXTERIOR ST
Project Number:	170487001
Report Date:	07/25/19

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: 404 EXTERIOR ST
Project Number: 170487001

Lab Number: L1931018
Report Date: 07/25/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1931018-01	RSSV08_071519	SOIL_VAPOR	BRONX, NY	07/15/19 05:04	07/15/19
L1931018-02	RSSV09_071519	SOIL_VAPOR	BRONX, NY	07/15/19 05:01	07/15/19
L1931018-03	RAA02_071519	AIR	BRONX, NY	07/15/19 05:07	07/15/19

Project Name:	404 EXTERIOR ST	**Lab Number:**	L1931018
Project Number:	170487001	**Report Date:**	07/25/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	404 EXTERIOR ST	**Lab Number:**	L1931018
Project Number:	170487001	**Report Date:**	07/25/19

Case Narrative (continued)

Report Revision

July 25, 2019: This report replaces the one previously issued on July 18, 2019. The report has been amended to change sample IDs for L1931018-01 and L1931018-02 at the request of the client.

Volatile Organics in Air

Canisters were released from the laboratory on July 15, 2019. The canister certification results are provided as an addendum.

L1931018-01 & -02 : The canister vacuum measured on receipt at the laboratory was > 15 in. Hg. Prior to sample analysis, the canisters were pressurized with UHP Nitrogen in order to facilitate the transfer of sample to the Gas Chromatograph. The addition of Nitrogen resulted in a dilution of the samples. The reporting limits have been elevated accordingly.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Christopher J. Anderson

Title: Technical Director/Representative Date: 07/25/19

AIR

Project Name: 404 EXTERIOR ST
Project Number: 170487001

Lab Number: L1931018
Report Date: 07/25/19

SAMPLE RESULTS

Lab ID: L1931018-01 D
Client ID: RSSV08_071519
Sample Location: BRONX, NY

Date Collected: 07/15/19 05:04
Date Received: 07/15/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 07/17/19 05:04
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.601	0.354	--	2.97	1.75	--		1.772
Chloromethane	ND	0.354	--	ND	0.731	--		1.772
Freon-114	ND	0.354	--	ND	2.47	--		1.772
Vinyl chloride	ND	0.354	--	ND	0.905	--		1.772
1,3-Butadiene	ND	0.354	--	ND	0.783	--		1.772
Bromomethane	ND	0.354	--	ND	1.37	--		1.772
Chloroethane	ND	0.354	--	ND	0.934	--		1.772
Ethanol	270	8.86	--	509	16.7	--		1.772
Vinyl bromide	ND	0.354	--	ND	1.55	--		1.772
Acetone	7.99	1.77	--	19.0	4.20	--		1.772
Trichlorofluoromethane	ND	0.354	--	ND	1.99	--		1.772
Isopropanol	1.20	0.886	--	2.95	2.18	--		1.772
1,1-Dichloroethene	ND	0.354	--	ND	1.40	--		1.772
Tertiary butyl Alcohol	3.06	0.886	--	9.28	2.69	--		1.772
Methylene chloride	ND	0.886	--	ND	3.08	--		1.772
3-Chloropropene	ND	0.354	--	ND	1.11	--		1.772
Carbon disulfide	2.38	0.354	--	7.41	1.10	--		1.772
Freon-113	ND	0.354	--	ND	2.71	--		1.772
trans-1,2-Dichloroethene	ND	0.354	--	ND	1.40	--		1.772
1,1-Dichloroethane	ND	0.354	--	ND	1.43	--		1.772
Methyl tert butyl ether	ND	0.354	--	ND	1.28	--		1.772
2-Butanone	8.07	0.886	--	23.8	2.61	--		1.772
cis-1,2-Dichloroethene	ND	0.354	--	ND	1.40	--		1.772

Project Name: 404 EXTERIOR ST
Project Number: 170487001
Lab Number: L1931018
Report Date: 07/25/19

SAMPLE RESULTS

Lab ID: L1931018-01 D
Client ID: RSSV08_071519
Sample Location: BRONX, NY

Date Collected: 07/15/19 05:04
Date Received: 07/15/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.886	--	ND	3.19	--		1.772
Chloroform	0.633	0.354	--	3.09	1.73	--		1.772
Tetrahydrofuran	ND	0.886	--	ND	2.61	--		1.772
1,2-Dichloroethane	ND	0.354	--	ND	1.43	--		1.772
n-Hexane	4.16	0.354	--	14.7	1.25	--		1.772
1,1,1-Trichloroethane	ND	0.354	--	ND	1.93	--		1.772
Benzene	2.38	0.354	--	7.60	1.13	--		1.772
Carbon tetrachloride	4.32	0.354	--	27.2	2.23	--		1.772
Cyclohexane	2.51	0.354	--	8.64	1.22	--		1.772
1,2-Dichloropropane	ND	0.354	--	ND	1.64	--		1.772
Bromodichloromethane	ND	0.354	--	ND	2.37	--		1.772
1,4-Dioxane	ND	0.354	--	ND	1.28	--		1.772
Trichloroethene	ND	0.354	--	ND	1.90	--		1.772
2,2,4-Trimethylpentane	5.13	0.354	--	24.0	1.65	--		1.772
Heptane	4.53	0.354	--	18.6	1.45	--		1.772
cis-1,3-Dichloropropene	ND	0.354	--	ND	1.61	--		1.772
4-Methyl-2-pentanone	ND	0.886	--	ND	3.63	--		1.772
trans-1,3-Dichloropropene	ND	0.354	--	ND	1.61	--		1.772
1,1,2-Trichloroethane	ND	0.354	--	ND	1.93	--		1.772
Toluene	16.8	0.354	--	63.3	1.33	--		1.772
2-Hexanone	2.89	0.354	--	11.8	1.45	--		1.772
Dibromochloromethane	ND	0.354	--	ND	3.02	--		1.772
1,2-Dibromoethane	ND	0.354	--	ND	2.72	--		1.772
Tetrachloroethene	2.53	0.354	--	17.2	2.40	--		1.772
Chlorobenzene	ND	0.354	--	ND	1.63	--		1.772
Ethylbenzene	4.54	0.354	--	19.7	1.54	--		1.772

Project Name: 404 EXTERIOR ST
Project Number: 170487001
Lab Number: L1931018
Report Date: 07/25/19

SAMPLE RESULTS

Lab ID: L1931018-01 D
Client ID: RSSV08_071519
Sample Location: BRONX, NY

Date Collected: 07/15/19 05:04
Date Received: 07/15/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	17.1	0.709	--	74.3	3.08	--		1.772
Bromoform	ND	0.354	--	ND	3.66	--		1.772
Styrene	ND	0.354	--	ND	1.51	--		1.772
1,1,2,2-Tetrachloroethane	ND	0.354	--	ND	2.43	--		1.772
o-Xylene	6.75	0.354	--	29.3	1.54	--		1.772
4-Ethyltoluene	1.32	0.354	--	6.49	1.74	--		1.772
1,3,5-Trimethylbenzene	2.20	0.354	--	10.8	1.74	--		1.772
1,2,4-Trimethylbenzene	7.75	0.354	--	38.1	1.74	--		1.772
Benzyl chloride	ND	0.354	--	ND	1.83	--		1.772
1,3-Dichlorobenzene	ND	0.354	--	ND	2.13	--		1.772
1,4-Dichlorobenzene	ND	0.354	--	ND	2.13	--		1.772
1,2-Dichlorobenzene	ND	0.354	--	ND	2.13	--		1.772
1,2,4-Trichlorobenzene	ND	0.354	--	ND	2.63	--		1.772
Hexachlorobutadiene	ND	0.354	--	ND	3.78	--		1.772

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	80		60-140
Bromochloromethane	91		60-140
chlorobenzene-d5	102		60-140

Project Name: 404 EXTERIOR ST
Project Number: 170487001

Lab Number: L1931018
Report Date: 07/25/19

SAMPLE RESULTS

Lab ID: L1931018-02 D
Client ID: RSSV09_071519
Sample Location: BRONX, NY

Date Collected: 07/15/19 05:01
Date Received: 07/15/19
Field Prep: Not Specified

Sample Depth:
Matrix: Soil_Vapor
Anaytical Method: 48,TO-15
Analytical Date: 07/17/19 05:44
Analyst: EW

	ppbV			ug/m3				
Parameter	Results	RL	MDL	Results	RL	MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.592	0.392	--	2.93	1.94	--		1.961
Chloromethane	0.463	0.392	--	0.956	0.809	--		1.961
Freon-114	ND	0.392	--	ND	2.74	--		1.961
Vinyl chloride	ND	0.392	--	ND	1.00	--		1.961
1,3-Butadiene	ND	0.392	--	ND	0.867	--		1.961
Bromomethane	ND	0.392	--	ND	1.52	--		1.961
Chloroethane	ND	0.392	--	ND	1.03	--		1.961
Ethanol	43.9	9.80	--	82.7	18.5	--		1.961
Vinyl bromide	ND	0.392	--	ND	1.71	--		1.961
Acetone	4.14	1.96	--	9.83	4.66	--		1.961
Trichlorofluoromethane	ND	0.392	--	ND	2.20	--		1.961
Isopropanol	ND	0.980	--	ND	2.41	--		1.961
1,1-Dichloroethene	ND	0.392	--	ND	1.55	--		1.961
Tertiary butyl Alcohol	3.84	0.980	--	11.6	2.97	--		1.961
Methylene chloride	1.27	0.980	--	4.41	3.40	--		1.961
3-Chloropropene	ND	0.392	--	ND	1.23	--		1.961
Carbon disulfide	2.29	0.392	--	7.13	1.22	--		1.961
Freon-113	ND	0.392	--	ND	3.00	--		1.961
trans-1,2-Dichloroethene	ND	0.392	--	ND	1.55	--		1.961
1,1-Dichloroethane	ND	0.392	--	ND	1.59	--		1.961
Methyl tert butyl ether	ND	0.392	--	ND	1.41	--		1.961
2-Butanone	6.20	0.980	--	18.3	2.89	--		1.961
cis-1,2-Dichloroethene	ND	0.392	--	ND	1.55	--		1.961

Project Name: 404 EXTERIOR ST
Project Number: 170487001
Lab Number: L1931018
Report Date: 07/25/19

SAMPLE RESULTS

Lab ID: L1931018-02 D
Client ID: RSSV09_071519
Sample Location: BRONX, NY

Date Collected: 07/15/19 05:01
Date Received: 07/15/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.980	--	ND	3.53	--		1.961
Chloroform	ND	0.392	--	ND	1.91	--		1.961
Tetrahydrofuran	ND	0.980	--	ND	2.89	--		1.961
1,2-Dichloroethane	ND	0.392	--	ND	1.59	--		1.961
n-Hexane	14.5	0.392	--	51.1	1.38	--		1.961
1,1,1-Trichloroethane	ND	0.392	--	ND	2.14	--		1.961
Benzene	9.65	0.392	--	30.8	1.25	--		1.961
Carbon tetrachloride	0.482	0.392	--	3.03	2.47	--		1.961
Cyclohexane	13.0	0.392	--	44.7	1.35	--		1.961
1,2-Dichloropropane	ND	0.392	--	ND	1.81	--		1.961
Bromodichloromethane	ND	0.392	--	ND	2.63	--		1.961
1,4-Dioxane	ND	0.392	--	ND	1.41	--		1.961
Trichloroethene	ND	0.392	--	ND	2.11	--		1.961
2,2,4-Trimethylpentane	9.68	0.392	--	45.2	1.83	--		1.961
Heptane	14.6	0.392	--	59.8	1.61	--		1.961
cis-1,3-Dichloropropene	ND	0.392	--	ND	1.78	--		1.961
4-Methyl-2-pentanone	ND	0.980	--	ND	4.02	--		1.961
trans-1,3-Dichloropropene	ND	0.392	--	ND	1.78	--		1.961
1,1,2-Trichloroethane	ND	0.392	--	ND	2.14	--		1.961
Toluene	58.1	0.392	--	219	1.48	--		1.961
2-Hexanone	ND	0.392	--	ND	1.61	--		1.961
Dibromochloromethane	ND	0.392	--	ND	3.34	--		1.961
1,2-Dibromoethane	ND	0.392	--	ND	3.01	--		1.961
Tetrachloroethene	3.66	0.392	--	24.8	2.66	--		1.961
Chlorobenzene	ND	0.392	--	ND	1.81	--		1.961
Ethylbenzene	10.8	0.392	--	46.9	1.70	--		1.961

Project Name: 404 EXTERIOR ST
Project Number: 170487001
Lab Number: L1931018
Report Date: 07/25/19

SAMPLE RESULTS

Lab ID: L1931018-02 D
Client ID: RSSV09_071519
Sample Location: BRONX, NY

Date Collected: 07/15/19 05:01
Date Received: 07/15/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	39.6	0.784	--	172	3.41	--		1.961
Bromoform	ND	0.392	--	ND	4.05	--		1.961
Styrene	ND	0.392	--	ND	1.67	--		1.961
1,1,2,2-Tetrachloroethane	ND	0.392	--	ND	2.69	--		1.961
o-Xylene	14.4	0.392	--	62.5	1.70	--		1.961
4-Ethyltoluene	2.55	0.392	--	12.5	1.93	--		1.961
1,3,5-Trimethylbenzene	3.58	0.392	--	17.6	1.93	--		1.961
1,2,4-Trimethylbenzene	12.8	0.392	--	62.9	1.93	--		1.961
Benzyl chloride	ND	0.392	--	ND	2.03	--		1.961
1,3-Dichlorobenzene	ND	0.392	--	ND	2.36	--		1.961
1,4-Dichlorobenzene	ND	0.392	--	ND	2.36	--		1.961
1,2-Dichlorobenzene	ND	0.392	--	ND	2.36	--		1.961
1,2,4-Trichlorobenzene	ND	0.392	--	ND	2.91	--		1.961
Hexachlorobutadiene	ND	0.392	--	ND	4.18	--		1.961

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	90		60-140
Bromochloromethane	96		60-140
chlorobenzene-d5	110		60-140

Project Name: 404 EXTERIOR ST
Project Number: 170487001
Lab Number: L1931018
Report Date: 07/25/19

SAMPLE RESULTS

Lab ID: L1931018-03
Client ID: RAA02_071519
Sample Location: BRONX, NY

Date Collected: 07/15/19 05:07
Date Received: 07/15/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 07/16/19 19:44
Analyst: EW

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Dichlorodifluoromethane	0.478	0.200	--	2.36	0.989	--		1
Chloromethane	0.618	0.200	--	1.28	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	9.01	5.00	--	17.0	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	3.52	1.00	--	8.36	2.38	--		1
Trichlorofluoromethane	0.238	0.200	--	1.34	1.12	--		1
Isopropanol	0.814	0.500	--	2.00	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: 404 EXTERIOR ST
Project Number: 170487001
Lab Number: L1931018
Report Date: 07/25/19

SAMPLE RESULTS

Lab ID: L1931018-03
Client ID: RAA02_071519
Sample Location: BRONX, NY

Date Collected: 07/15/19 05:07
Date Received: 07/15/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	0.270	0.200	--	0.952	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	0.268	0.200	--	0.856	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	0.270	0.200	--	1.26	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	0.596	0.200	--	2.25	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1

Project Name: 404 EXTERIOR ST
Project Number: 170487001
Lab Number: L1931018
Report Date: 07/25/19

SAMPLE RESULTS

Lab ID: L1931018-03
Client ID: RAA02_071519
Sample Location: BRONX, NY

Date Collected: 07/15/19 05:07
Date Received: 07/15/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	88		60-140
Bromochloromethane	91		60-140
chlorobenzene-d5	92		60-140

Project Name: 404 EXTERIOR ST
Project Number: 170487001
Lab Number: L1931018
Report Date: 07/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 07/16/19 18:23

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG1260608-4								
Propylene	ND	0.500	--	ND	0.861	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: 404 EXTERIOR ST
Project Number: 170487001
Lab Number: L1931018
Report Date: 07/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 07/16/19 18:23

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG1260608-4								
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1

Project Name: 404 EXTERIOR ST
Project Number: 170487001
Lab Number: L1931018
Report Date: 07/25/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 48,TO-15
Analytical Date: 07/16/19 18:23

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab for sample(s): 01-03 Batch: WG1260608-4								
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
o-Xylene	ND	0.200	--	ND	0.869	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Lab Control Sample Analysis
Batch Quality Control

Project Name: 404 EXTERIOR ST
Project Number: 170487001

Lab Number: L1931018
Report Date: 07/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG1260608-3								
Propylene	81		-		70-130	-		
Dichlorodifluoromethane	88		-		70-130	-		
Chloromethane	97		-		70-130	-		
Freon-114	91		-		70-130	-		
Vinyl chloride	94		-		70-130	-		
1,3-Butadiene	108		-		70-130	-		
Bromomethane	93		-		70-130	-		
Chloroethane	93		-		70-130	-		
Ethanol	110		-		40-160	-		
Vinyl bromide	89		-		70-130	-		
Acetone	77		-		40-160	-		
Trichlorofluoromethane	97		-		70-130	-		
Isopropanol	82		-		40-160	-		
1,1-Dichloroethene	105		-		70-130	-		
Tertiary butyl Alcohol	102		-		70-130	-		
Methylene chloride	118		-		70-130	-		
3-Chloropropene	100		-		70-130	-		
Carbon disulfide	103		-		70-130	-		
Freon-113	103		-		70-130	-		
trans-1,2-Dichloroethene	99		-		70-130	-		
1,1-Dichloroethane	99		-		70-130	-		
Methyl tert butyl ether	92		-		70-130	-		
Vinyl acetate	95		-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: 404 EXTERIOR ST
Project Number: 170487001

Lab Number: L1931018
Report Date: 07/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG1260608-3								
2-Butanone	87		-		70-130	-		
cis-1,2-Dichloroethene	91		-		70-130	-		
Ethyl Acetate	105		-		70-130	-		
Chloroform	90		-		70-130	-		
Tetrahydrofuran	77		-		70-130	-		
1,2-Dichloroethane	110		-		70-130	-		
n-Hexane	87		-		70-130	-		
1,1,1-Trichloroethane	105		-		70-130	-		
Benzene	98		-		70-130	-		
Carbon tetrachloride	113		-		70-130	-		
Cyclohexane	104		-		70-130	-		
1,2-Dichloropropane	105		-		70-130	-		
Bromodichloromethane	101		-		70-130	-		
1,4-Dioxane	97		-		70-130	-		
Trichloroethene	96		-		70-130	-		
2,2,4-Trimethylpentane	107		-		70-130	-		
Heptane	110		-		70-130	-		
cis-1,3-Dichloropropene	103		-		70-130	-		
4-Methyl-2-pentanone	113		-		70-130	-		
trans-1,3-Dichloropropene	91		-		70-130	-		
1,1,2-Trichloroethane	103		-		70-130	-		
Toluene	94		-		70-130	-		
2-Hexanone	109		-		70-130	-		

Lab Control Sample Analysis
Batch Quality Control

Project Name: 404 EXTERIOR ST
Project Number: 170487001

Lab Number: L1931018
Report Date: 07/25/19

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 Batch: WG1260608-3								
Dibromochloromethane	101		-		70-130	-		
1,2-Dibromoethane	94		-		70-130	-		
Tetrachloroethene	89		-		70-130	-		
Chlorobenzene	97		-		70-130	-		
Ethylbenzene	97		-		70-130	-		
p/m-Xylene	100		-		70-130	-		
Bromoform	114		-		70-130	-		
Styrene	92		-		70-130	-		
1,1,2,2-Tetrachloroethane	100		-		70-130	-		
o-Xylene	102		-		70-130	-		
4-Ethyltoluene	93		-		70-130	-		
1,3,5-Trimethylbenzene	96		-		70-130	-		
1,2,4-Trimethylbenzene	97		-		70-130	-		
Benzyl chloride	106		-		70-130	-		
1,3-Dichlorobenzene	98		-		70-130	-		
1,4-Dichlorobenzene	108		-		70-130	-		
1,2-Dichlorobenzene	91		-		70-130	-		
1,2,4-Trichlorobenzene	89		-		70-130	-		
Hexachlorobutadiene	87		-		70-130	-		

Lab Duplicate Analysis
Batch Quality Control

Project Name: 404 EXTERIOR ST
Project Number: 170487001

Lab Number: L1931018
Report Date: 07/25/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1260608-5 QC Sample: L1931018-02 Client ID: RSSV09_071519						
Dichlorodifluoromethane	0.592	0.590	ppbV	0		25
Chloromethane	0.463	0.488	ppbV	5		25
Freon-114	ND	ND	ppbV	NC		25
Vinyl chloride	ND	ND	ppbV	NC		25
1,3-Butadiene	ND	ND	ppbV	NC		25
Bromomethane	ND	ND	ppbV	NC		25
Chloroethane	ND	ND	ppbV	NC		25
Ethanol	43.9	43.5	ppbV	1		25
Vinyl bromide	ND	ND	ppbV	NC		25
Acetone	4.14	4.39	ppbV	6		25
Trichlorofluoromethane	ND	ND	ppbV	NC		25
Isopropanol	ND	ND	ppbV	NC		25
1,1-Dichloroethene	ND	ND	ppbV	NC		25
Tertiary butyl Alcohol	3.84	3.93	ppbV	2		25
Methylene chloride	1.27	1.25	ppbV	2		25
3-Chloropropene	ND	ND	ppbV	NC		25
Carbon disulfide	2.29	2.27	ppbV	1		25
Freon-113	ND	ND	ppbV	NC		25
trans-1,2-Dichloroethene	ND	ND	ppbV	NC		25
1,1-Dichloroethane	ND	ND	ppbV	NC		25
Methyl tert butyl ether	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: 404 EXTERIOR ST
Project Number: 170487001

Lab Number: L1931018
Report Date: 07/25/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1260608-5 QC Sample: L1931018-02 Client ID: RSSV09_071519						
2-Butanone	6.20	6.15	ppbV	1		25
cis-1,2-Dichloroethene	ND	ND	ppbV	NC		25
Ethyl Acetate	ND	ND	ppbV	NC		25
Chloroform	ND	ND	ppbV	NC		25
Tetrahydrofuran	ND	ND	ppbV	NC		25
1,2-Dichloroethane	ND	ND	ppbV	NC		25
n-Hexane	14.5	13.7	ppbV	6		25
1,1,1-Trichloroethane	ND	ND	ppbV	NC		25
Benzene	9.65	9.87	ppbV	2		25
Carbon tetrachloride	0.482	0.494	ppbV	2		25
Cyclohexane	13.0	12.9	ppbV	1		25
1,2-Dichloropropane	ND	ND	ppbV	NC		25
Bromodichloromethane	ND	ND	ppbV	NC		25
1,4-Dioxane	ND	ND	ppbV	NC		25
Trichloroethene	ND	ND	ppbV	NC		25
2,2,4-Trimethylpentane	9.68	9.61	ppbV	1		25
Heptane	14.6	14.4	ppbV	1		25
cis-1,3-Dichloropropene	ND	ND	ppbV	NC		25
4-Methyl-2-pentanone	ND	ND	ppbV	NC		25
trans-1,3-Dichloropropene	ND	ND	ppbV	NC		25
1,1,2-Trichloroethane	ND	ND	ppbV	NC		25

Lab Duplicate Analysis
Batch Quality Control

Project Name: 404 EXTERIOR ST
Project Number: 170487001

Lab Number: L1931018
Report Date: 07/25/19

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Volatile Organics in Air - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1260608-5 QC Sample: L1931018-02 Client ID: RSSV09_071519						
Toluene	58.1	59.5	ppbV	2		25
2-Hexanone	ND	ND	ppbV	NC		25
Dibromochloromethane	ND	ND	ppbV	NC		25
1,2-Dibromoethane	ND	ND	ppbV	NC		25
Tetrachloroethene	3.66	3.95	ppbV	8		25
Chlorobenzene	ND	ND	ppbV	NC		25
Ethylbenzene	10.8	11.1	ppbV	3		25
p/m-Xylene	39.6	39.1	ppbV	1		25
Bromoform	ND	ND	ppbV	NC		25
Styrene	ND	ND	ppbV	NC		25
1,1,2,2-Tetrachloroethane	ND	ND	ppbV	NC		25
o-Xylene	14.4	14.5	ppbV	1		25
4-Ethyltoluene	2.55	2.74	ppbV	7		25
1,3,5-Trimethylbenzene	3.58	3.58	ppbV	0		25
1,2,4-Trimethylbenzene	12.8	13.5	ppbV	5		25
Benzyl chloride	ND	ND	ppbV	NC		25
1,3-Dichlorobenzene	ND	ND	ppbV	NC		25
1,4-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2-Dichlorobenzene	ND	ND	ppbV	NC		25
1,2,4-Trichlorobenzene	ND	ND	ppbV	NC		25
Hexachlorobutadiene	ND	ND	ppbV	NC		25

Project Name: 404 EXTERIOR ST

Lab Number: L1931018

Project Number: 170487001

Report Date: 07/25/19

Canister and Flow Controller Information

Samplenum	Client ID	Media ID	Media Type	Date Prepared	Bottle Order	Cleaning Batch ID	Can Leak Check	Initial Pressure (in. Hg)	Pressure on Receipt (in. Hg)	Flow Controler Leak Chk	Flow Out mL/min	Flow In mL/min	% RPD
L1931018-01	RSSV08_071519	0396	Flow 5	07/15/19	296913		-	-	-	Pass	4.5	0.5	160
L1931018-01	RSSV08_071519	195	2.7L Can	07/15/19	296913	L1930221-05	Pass	-29.3	-17.7	-	-	-	-
L1931018-02	RSSV09_071519	0435	Flow 5	07/15/19	296913		-	-	-	Pass	4.5	4.6	2
L1931018-02	RSSV09_071519	411	2.7L Can	07/15/19	296913	L1930221-05	Pass	-29.2	-18.4	-	-	-	-
L1931018-03	RAA02_071519	01248	FLOW 5	07/15/19	296913		-	-	-	Pass	4.5	4.6	2
L1931018-03	RAA02_071519	202	2.7L Can	07/15/19	296913	L1930221-05	Pass	-29.2	-7.5	-	-	-	-

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1930221
Report Date: 07/25/19

Air Canister Certification Results

Lab ID: L1930221-05
Client ID: CAN 2238 SHELF 8
Sample Location:

Date Collected: 06/11/19 09:00
Date Received: 07/11/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15
Analytical Date: 07/11/19 21:04
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air - Mansfield Lab								
Chlorodifluoromethane	ND	0.200	--	ND	0.707	--		1
Propylene	ND	0.500	--	ND	0.861	--		1
Propane	ND	0.500	--	ND	0.902	--		1
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.200	--	ND	1.40	--		1
Methanol	ND	5.00	--	ND	6.55	--		1
Vinyl chloride	ND	0.200	--	ND	0.511	--		1
1,3-Butadiene	ND	0.200	--	ND	0.442	--		1
Butane	ND	0.200	--	ND	0.475	--		1
Bromomethane	ND	0.200	--	ND	0.777	--		1
Chloroethane	ND	0.200	--	ND	0.528	--		1
Ethanol	ND	5.00	--	ND	9.42	--		1
Dichlorofluoromethane	ND	0.200	--	ND	0.842	--		1
Vinyl bromide	ND	0.200	--	ND	0.874	--		1
Acrolein	ND	0.500	--	ND	1.15	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Acetonitrile	ND	0.200	--	ND	0.336	--		1
Trichlorofluoromethane	ND	0.200	--	ND	1.12	--		1
Isopropanol	ND	0.500	--	ND	1.23	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
Pentane	ND	0.200	--	ND	0.590	--		1
Ethyl ether	ND	0.200	--	ND	0.606	--		1
1,1-Dichloroethene	ND	0.200	--	ND	0.793	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1930221
Report Date: 07/25/19

Air Canister Certification Results

Lab ID: L1930221-05
Client ID: CAN 2238 SHELF 8
Sample Location:

Date Collected: 06/11/19 09:00
Date Received: 07/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Tertiary butyl Alcohol	ND	0.500	--	ND	1.52	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
3-Chloropropene	ND	0.200	--	ND	0.626	--		1
Carbon disulfide	ND	0.200	--	ND	0.623	--		1
Freon-113	ND	0.200	--	ND	1.53	--		1
trans-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
1,1-Dichloroethane	ND	0.200	--	ND	0.809	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
Vinyl acetate	ND	1.00	--	ND	3.52	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
Xylenes, total	ND	0.600	--	ND	0.869	--		1
cis-1,2-Dichloroethene	ND	0.200	--	ND	0.793	--		1
Ethyl Acetate	ND	0.500	--	ND	1.80	--		1
Chloroform	ND	0.200	--	ND	0.977	--		1
Tetrahydrofuran	ND	0.500	--	ND	1.47	--		1
2,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
1,2-Dichloroethane	ND	0.200	--	ND	0.809	--		1
n-Hexane	ND	0.200	--	ND	0.705	--		1
Diisopropyl ether	ND	0.200	--	ND	0.836	--		1
tert-Butyl Ethyl Ether	ND	0.200	--	ND	0.836	--		1
1,2-Dichloroethene (total)	ND	1.00	--	ND	1.00	--		1
1,1,1-Trichloroethane	ND	0.200	--	ND	1.09	--		1
1,1-Dichloropropene	ND	0.200	--	ND	0.908	--		1
Benzene	ND	0.200	--	ND	0.639	--		1
Carbon tetrachloride	ND	0.200	--	ND	1.26	--		1
Cyclohexane	ND	0.200	--	ND	0.688	--		1
tert-Amyl Methyl Ether	ND	0.200	--	ND	0.836	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1930221
Report Date: 07/25/19

Air Canister Certification Results

Lab ID: L1930221-05
Client ID: CAN 2238 SHELF 8
Sample Location:

Date Collected: 06/11/19 09:00
Date Received: 07/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
Dibromomethane	ND	0.200	--	ND	1.42	--		1
1,2-Dichloropropane	ND	0.200	--	ND	0.924	--		1
Bromodichloromethane	ND	0.200	--	ND	1.34	--		1
1,4-Dioxane	ND	0.200	--	ND	0.721	--		1
Trichloroethene	ND	0.200	--	ND	1.07	--		1
2,2,4-Trimethylpentane	ND	0.200	--	ND	0.934	--		1
Methyl Methacrylate	ND	0.500	--	ND	2.05	--		1
Heptane	ND	0.200	--	ND	0.820	--		1
cis-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.200	--	ND	0.908	--		1
1,1,2-Trichloroethane	ND	0.200	--	ND	1.09	--		1
Toluene	ND	0.200	--	ND	0.754	--		1
1,3-Dichloropropane	ND	0.200	--	ND	0.924	--		1
2-Hexanone	ND	0.200	--	ND	0.820	--		1
Dibromochloromethane	ND	0.200	--	ND	1.70	--		1
1,2-Dibromoethane	ND	0.200	--	ND	1.54	--		1
Butyl acetate	ND	0.500	--	ND	2.38	--		1
Octane	ND	0.200	--	ND	0.934	--		1
Tetrachloroethene	ND	0.200	--	ND	1.36	--		1
1,1,1,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1
Chlorobenzene	ND	0.200	--	ND	0.921	--		1
Ethylbenzene	ND	0.200	--	ND	0.869	--		1
p/m-Xylene	ND	0.400	--	ND	1.74	--		1
Bromoform	ND	0.200	--	ND	2.07	--		1
Styrene	ND	0.200	--	ND	0.852	--		1
1,1,2,2-Tetrachloroethane	ND	0.200	--	ND	1.37	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1930221
Report Date: 07/25/19

Air Canister Certification Results

Lab ID: L1930221-05
Client ID: CAN 2238 SHELF 8
Sample Location:

Date Collected: 06/11/19 09:00
Date Received: 07/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								
o-Xylene	ND	0.200	--	ND	0.869	--		1
1,2,3-Trichloropropane	ND	0.200	--	ND	1.21	--		1
Nonane	ND	0.200	--	ND	1.05	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
Bromobenzene	ND	0.200	--	ND	0.793	--		1
2-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
n-Propylbenzene	ND	0.200	--	ND	0.983	--		1
4-Chlorotoluene	ND	0.200	--	ND	1.04	--		1
4-Ethyltoluene	ND	0.200	--	ND	0.983	--		1
1,3,5-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
tert-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trimethylbenzene	ND	0.200	--	ND	0.983	--		1
Decane	ND	0.200	--	ND	1.16	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
1,4-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.200	--	ND	1.20	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2-Dibromo-3-chloropropane	ND	0.200	--	ND	1.93	--		1
Undecane	ND	0.200	--	ND	1.28	--		1
Dodecane	ND	0.200	--	ND	1.39	--		1
1,2,4-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Naphthalene	ND	0.200	--	ND	1.05	--		1
1,2,3-Trichlorobenzene	ND	0.200	--	ND	1.48	--		1
Hexachlorobutadiene	ND	0.200	--	ND	2.13	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1930221
Report Date: 07/25/19

Air Canister Certification Results

Lab ID: L1930221-05
Client ID: CAN 2238 SHELF 8
Sample Location:

Date Collected: 06/11/19 09:00
Date Received: 07/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air - Mansfield Lab								

	Results	Qualifier	Units	RDL	Dilution Factor
Tentatively Identified Compounds					

No Tentatively Identified Compounds

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-Difluorobenzene	99		60-140
Bromochloromethane	100		60-140
chlorobenzene-d5	100		60-140

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1930221
Report Date: 07/25/19

Air Canister Certification Results

Lab ID: L1930221-05
Client ID: CAN 2238 SHELF 8
Sample Location:

Date Collected: 06/11/19 09:00
Date Received: 07/11/19
Field Prep: Not Specified

Sample Depth:
Matrix: Air
Anaytical Method: 48,TO-15-SIM
Analytical Date: 07/11/19 21:04
Analyst: TS

	ppbV			ug/m3				
Parameter	**Results**	**RL**	**MDL**	**Results**	**RL**	**MDL**	**Qualifier**	**Dilution Factor**
Volatile Organics in Air by SIM - Mansfield Lab								
Dichlorodifluoromethane	ND	0.200	--	ND	0.989	--		1
Chloromethane	ND	0.200	--	ND	0.413	--		1
Freon-114	ND	0.050	--	ND	0.349	--		1
Vinyl chloride	ND	0.020	--	ND	0.051	--		1
1,3-Butadiene	ND	0.020	--	ND	0.044	--		1
Bromomethane	ND	0.020	--	ND	0.078	--		1
Chloroethane	ND	0.100	--	ND	0.264	--		1
Acetone	ND	1.00	--	ND	2.38	--		1
Trichlorofluoromethane	ND	0.050	--	ND	0.281	--		1
Acrylonitrile	ND	0.500	--	ND	1.09	--		1
1,1-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Methylene chloride	ND	0.500	--	ND	1.74	--		1
Freon-113	ND	0.050	--	ND	0.383	--		1
trans-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
1,1-Dichloroethane	ND	0.020	--	ND	0.081	--		1
Methyl tert butyl ether	ND	0.200	--	ND	0.721	--		1
2-Butanone	ND	0.500	--	ND	1.47	--		1
cis-1,2-Dichloroethene	ND	0.020	--	ND	0.079	--		1
Chloroform	ND	0.020	--	ND	0.098	--		1
1,2-Dichloroethane	ND	0.020	--	ND	0.081	--		1
1,1,1-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Benzene	ND	0.100	--	ND	0.319	--		1
Carbon tetrachloride	ND	0.020	--	ND	0.126	--		1
1,2-Dichloropropane	ND	0.020	--	ND	0.092	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT

Lab Number: L1930221
Report Date: 07/25/19

Air Canister Certification Results

Lab ID: L1930221-05
Client ID: CAN 2238 SHELF 8
Sample Location:

Date Collected: 06/11/19 09:00
Date Received: 07/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
Bromodichloromethane	ND	0.020	--	ND	0.134	--		1
1,4-Dioxane	ND	0.100	--	ND	0.360	--		1
Trichloroethene	ND	0.020	--	ND	0.107	--		1
cis-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
4-Methyl-2-pentanone	ND	0.500	--	ND	2.05	--		1
trans-1,3-Dichloropropene	ND	0.020	--	ND	0.091	--		1
1,1,2-Trichloroethane	ND	0.020	--	ND	0.109	--		1
Toluene	ND	0.050	--	ND	0.188	--		1
Dibromochloromethane	ND	0.020	--	ND	0.170	--		1
1,2-Dibromoethane	ND	0.020	--	ND	0.154	--		1
Tetrachloroethene	ND	0.020	--	ND	0.136	--		1
1,1,1,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
Chlorobenzene	ND	0.100	--	ND	0.461	--		1
Ethylbenzene	ND	0.020	--	ND	0.087	--		1
p/m-Xylene	ND	0.040	--	ND	0.174	--		1
Bromoform	ND	0.020	--	ND	0.207	--		1
Styrene	ND	0.020	--	ND	0.085	--		1
1,1,2,2-Tetrachloroethane	ND	0.020	--	ND	0.137	--		1
o-Xylene	ND	0.020	--	ND	0.087	--		1
Isopropylbenzene	ND	0.200	--	ND	0.983	--		1
4-Ethyltoluene	ND	0.020	--	ND	0.098	--		1
1,3,5-Trimethybenzene	ND	0.020	--	ND	0.098	--		1
1,2,4-Trimethylbenzene	ND	0.020	--	ND	0.098	--		1
Benzyl chloride	ND	0.200	--	ND	1.04	--		1
1,3-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
1,4-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
sec-Butylbenzene	ND	0.200	--	ND	1.10	--		1

Project Name: BATCH CANISTER CERTIFICATION
Project Number: CANISTER QC BAT
Lab Number: L1930221
Report Date: 07/25/19

Air Canister Certification Results

Lab ID: L1930221-05
Client ID: CAN 2238 SHELF 8
Sample Location:

Date Collected: 06/11/19 09:00
Date Received: 07/11/19
Field Prep: Not Specified

Sample Depth:

Parameter	ppbV Results	ppbV RL	ppbV MDL	ug/m3 Results	ug/m3 RL	ug/m3 MDL	Qualifier	Dilution Factor
Volatile Organics in Air by SIM - Mansfield Lab								
p-Isopropyltoluene	ND	0.200	--	ND	1.10	--		1
1,2-Dichlorobenzene	ND	0.020	--	ND	0.120	--		1
n-Butylbenzene	ND	0.200	--	ND	1.10	--		1
1,2,4-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Naphthalene	ND	0.050	--	ND	0.262	--		1
1,2,3-Trichlorobenzene	ND	0.050	--	ND	0.371	--		1
Hexachlorobutadiene	ND	0.050	--	ND	0.533	--		1

Internal Standard	% Recovery	Qualifier	Acceptance Criteria
1,4-difluorobenzene	99		60-140
bromochloromethane	99		60-140
chlorobenzene-d5	100		60-140

Project Name: 404 EXTERIOR ST
Project Number: 170487001

Lab Number: L1931018
Report Date: 07/25/19

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
NA	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1931018-01A	Canister - 2.7 Liter	NA	NA			Y	Absent		TO15-LL(30)
L1931018-02A	Canister - 2.7 Liter	NA	NA			Y	Absent		TO15-LL(30)

*Values in parentheses indicate holding time in days

Project Name:	404 EXTERIOR ST	**Lab Number:**	L1931018
Project Number:	170487001	**Report Date:**	07/25/19

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

Report Format: Data Usability Report

Project Name:	404 EXTERIOR ST	**Lab Number:**	L1931018
Project Number:	170487001	**Report Date:**	07/25/19

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensation Product".

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the reporting limit (RL) for the sample.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: Data Usability Report

Project Name:	404 EXTERIOR ST	**Lab Number:**	L1931018
Project Number:	170487001	**Report Date:**	07/25/19

REFERENCES

48 Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air. Second Edition. EPA/625/R-96/010b, January 1999.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene
EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.

EPA 6860: SCM: Perchlorate

SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

AIR ANALYSIS

CHAIN OF CUSTODY PAGE 1 OF 1

Date Rec'd in Lab: 7-16-19

ALPHA Job #: L1931018

ALPHA ANALYTICAL
320 Forbes Blvd, Mansfield, MA 02048
TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: LANGAN ENG
Address: 360 W 31ST STREET NEW YORK, NY
Phone: 212 479 5400
Fax:
Email: jleung@langan.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: 404 EXTERIOR ST
Project Location: BRONX, NY
Project #: 170487001
Project Manager: JULIA LEUNG
ALPHA Quote #:

Turn-Around Time

☐ Standard ☒ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX
☒ ADEx
Criteria Checker:
(Default based on Regulatory Criteria Indicated)
Other Formats:
☐ EMAIL (standard pdf report)
☐ Additional Deliverables:
Report to: (if different than Project Manager)

Billing Information

☒ Same as Client info PO #:

Regulatory Requirements/Report Limits

State/Fed	Program	Res / Comm

Other Project Specific Requirements/Comments:

Project-Specific Target Compound List: ☐

All Columns Below Must Be Filled Out

ALPHA Lab ID (Lab Use Only)	Sample ID	End Date	Start Time	End Time	Initial Vacuum	Final Vacuum	Sample Matrix*	Sampler's Initials	Can Size	I D Can	I D - Flow Controller	TO-15	TO-15 SIM	APH	Fixed Gases	Sulfides & Mercaptans by TO-15	Sample Comments (i.e. PID)
31018-01	RSV03_071519	7/15/19	9:04	~~9:04~~ 5:04	-29.99	-17.88	SV	SS	2.7L	195	396	X					
02	RSV04_071519	↓	9:01	~~9:01~~ 5:01	-30.01	-18.57	↓	↓	↓	411	455	X					
03	RAA02_071519	↓	9:07	~~9:07~~ 5:07	-30.10	-7.03	↓	↓	↓	202	1248	X					

*SAMPLE MATRIX CODES
AA = Ambient Air (Indoor/Outdoor)
SV = Soil Vapor/Landfill Gas/SVE
Other = Please Specify

Container Type

Relinquished By:	Date/Time	Received By:	Date/Time:
Seth S. Eager	7/15/19 5:11 pm	Rameik Jackson AAL	7/15 1711
[signature]	7/15 1934	[signature]	7/15 ...
[signature]	7/16 0230	[signature] AAL	7-16-19 0230

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Form No: 101-02 Rev: (25-Sep-15)

ANALYTICAL REPORT

Lab Number:	L1901689
Client:	Langan Engineering & Environmental 21 Penn Plaza 360 W. 31st Street, 8th Floor New York, NY 10001-2727
ATTN:	Julia Leung
Phone:	(212) 479-5400
Project Name:	GERARD AVE. + E. 146TH ST.
Project Number:	170487001
Report Date:	01/21/19

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: GERARD AVE. + E. 146TH ST.
Project Number: 170487001

Lab Number: L1901689
Report Date: 01/21/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1901689-01	RMW18_011419	WATER	BRONX, NY	01/14/19 14:27	01/14/19
L1901689-02	RMW22_011419	WATER	BRONX, NY	01/14/19 12:22	01/14/19
L1901689-03	GWFB01_011419	WATER	BRONX, NY	01/14/19 13:00	01/14/19
L1901689-04	GWTB01_011419	WATER	BRONX, NY	01/14/19 00:00	01/14/19

Project Name:	GERARD AVE. + E. 146TH ST.	**Lab Number:**	L1901689
Project Number:	170487001	**Report Date:**	01/21/19

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	GERARD AVE. + E. 146TH ST.	**Lab Number:**	L1901689
Project Number:	170487001	**Report Date:**	01/21/19

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Perfluorinated Alkyl Acids by Isotope Dilution

L1901689-03 and WG1198461QC: Extracted Internal Standard recoveries were outside the acceptance criteria for individual analytes. Please refer to the surrogate section of the report for details.

WG1198573-11: The continuing calibration standard, associated with L1901689 as well as the associated QC, had the response for the extracted internal standard Perfluoro[1,2-13C2]Tetradecanoic Acid (M2PFTEDA) (158.7%) outside the acceptance criteria for the method. The associated target analytes were within acceptance criteria, therefore no further action was taken.

Total Metals

The WG1197906-3 MS recoveries for calcium (30%) and iron (0%), performed on L1901689-01, do not apply because the sample concentrations are greater than four times the spike amounts added.

Dissolved Metals

The WG1197826-3 MS recoveries for calcium (40%) and sodium (64%), performed on L1901689-01, do not apply because the sample concentrations are greater than four times the spike amounts added.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 01/21/19

ORGANICS

VOLATILES

Project Name: GERARD AVE. + E. 146TH ST. **Lab Number:** L1901689

Project Number: 170487001 **Report Date:** 01/21/19

SAMPLE RESULTS

Lab ID: L1901689-01 Date Collected: 01/14/19 14:27
Client ID: RMW18_011419 Date Received: 01/14/19
Sample Location: BRONX, NY Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/17/19 10:37
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: GERARD AVE. + E. 146TH ST. **Lab Number:** L1901689

Project Number: 170487001 **Report Date:** 01/21/19

SAMPLE RESULTS

Lab ID: L1901689-01 Date Collected: 01/14/19 14:27

Client ID: RMW18_011419 Date Received: 01/14/19

Sample Location: BRONX, NY Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: GERARD AVE. + E. 146TH ST. **Lab Number:** L1901689

Project Number: 170487001 **Report Date:** 01/21/19

SAMPLE RESULTS

Lab ID: L1901689-01 Date Collected: 01/14/19 14:27

Client ID: RMW18_011419 Date Received: 01/14/19

Sample Location: BRONX, NY Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130

Project Name: GERARD AVE. + E. 146TH ST. **Lab Number:** L1901689

Project Number: 170487001 **Report Date:** 01/21/19

SAMPLE RESULTS

Lab ID: L1901689-02 Date Collected: 01/14/19 12:22
Client ID: RMW22_011419 Date Received: 01/14/19
Sample Location: BRONX, NY Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/17/19 11:05
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: GERARD AVE. + E. 146TH ST. **Lab Number:** L1901689

Project Number: 170487001 **Report Date:** 01/21/19

SAMPLE RESULTS

Lab ID: L1901689-02 Date Collected: 01/14/19 12:22

Client ID: RMW22_011419 Date Received: 01/14/19

Sample Location: BRONX, NY Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: GERARD AVE. + E. 146TH ST. **Lab Number:** L1901689

Project Number: 170487001 **Report Date:** 01/21/19

SAMPLE RESULTS

Lab ID: L1901689-02 Date Collected: 01/14/19 12:22

Client ID: RMW22_011419 Date Received: 01/14/19

Sample Location: BRONX, NY Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	102		70-130

Project Name: GERARD AVE. + E. 146TH ST. **Lab Number:** L1901689

Project Number: 170487001 **Report Date:** 01/21/19

SAMPLE RESULTS

Lab ID: L1901689-04
Client ID: GWTB01_011419
Sample Location: BRONX, NY

Date Collected: 01/14/19 00:00
Date Received: 01/14/19
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 01/17/19 11:33
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: GERARD AVE. + E. 146TH ST. **Lab Number:** L1901689

Project Number: 170487001 **Report Date:** 01/21/19

SAMPLE RESULTS

Lab ID: L1901689-04 Date Collected: 01/14/19 00:00

Client ID: GWTB01_011419 Date Received: 01/14/19

Sample Location: BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Acrylonitrile	ND		ug/l	5.0	1.5	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1

Project Name: GERARD AVE. + E. 146TH ST. **Lab Number:** L1901689

Project Number: 170487001 **Report Date:** 01/21/19

SAMPLE RESULTS

Lab ID: L1901689-04 Date Collected: 01/14/19 00:00

Client ID: GWTB01_011419 Date Received: 01/14/19

Sample Location: BRONX, NY Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
n-Propylbenzene	ND		ug/l	2.5	0.70	1
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1
p-Diethylbenzene	ND		ug/l	2.0	0.70	1
p-Ethyltoluene	ND		ug/l	2.0	0.70	1
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.0	0.54	1
Ethyl ether	ND		ug/l	2.5	0.70	1
trans-1,4-Dichloro-2-butene	ND		ug/l	2.5	0.70	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	102		70-130

Project Name: GERARD AVE. + E. 146TH ST. **Lab Number:** L1901689

Project Number: 170487001 **Report Date:** 01/21/19

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 01/17/19 09:13
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02,04 Batch: WG1198696-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18