# Phase II Environmental Investigation

539 Ridge Road Lackawanna, New York

August 2021

0520-021-002

Prepared For:

City of Lackawanna



Prepared By:



2558 Hamburg Turnpike, Suite 300, Buffalo, New York | phone: (716) 856-0635 | fax: (716) 856-0583

# PHASE II ENVIRONMENTAL INVESTIGATION REPORT

539 RIDGE ROAD Lackawanna, New York

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Prepared by:



Benchmark Civil/Environmental Engineering & Geology, PLLC 2558 Hamburg Turnpike, Suite 300 Buffalo, New York 14218

### PHASE II ENVIRONMENTAL INVESTIGATION REPORT

## 539 RIDGE ROAD

### LACKAWANNA, NEW YORK

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#### PHASE II ENVIRONMENTAL INVESTIGATION REPORT

#### 539 RIDGE ROAD

#### LACKAWANNA, NEW YORK

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# 1.0 INTRODUCTION

### 1.1 Background and Site Description

Benchmark Civil/Environmental Engineering & Geology, PLLC (Benchmark) performed a Phase II Environmental Investigation for the City of Lackawanna at the property addressed at 539 Ridge Road in the City of Lackawanna, Erie County, New York (Site). The Site is located in a highly developed commercial and residential area (see Figure 1). As shown on Figure 2, the Site is currently comprised of vacant land covered by a maintained grass lawn. Historical research completed by Benchmark has revealed that the Site was previously developed with a residence and a commercial building used as a church. Benchmark understands that the Site is currently slated for redevelopment.

The Site consists of one parcel totaling 1.26-acres and has access to municipal sanitary sewer, electric, natural-gas and public water.

The purpose of this investigation was to assess recognized environmental conditions (RECs) identified for the Site in a Phase I Environmental Site Assessment completed by Benchmark in July 2021. Specifically, the potential presence of fill materials at the Site due to previous Site development was considered a REC as subsurface conditions are unknown and as fill materials, if present, could complicate future redevelopment activities. In addition, as the Site has a history of at least one fuel oil underground storage tank (UST)<sup>1</sup>, this study was completed to assess whether orphan UST(s) and/or residual impacts exist on-Site.

Additional information relative to the work completed at the Site by Benchmark is provided below.

<sup>&</sup>lt;sup>1</sup> Spill No. 1100144, dated April 5, 2011, involved a leaking 2,000-gallon fuel oil UST that was found during building demolition work. The UST was removed along with a total of 111.56 tons of petroleum-impacted soils that were transferred off-Site for disposal. Post-excavation soil samples reportedly did not reveal any concerns for volatile organic compounds (VOCs) or semi-volatile organic compounds (SVOCs). The NYSDEC reclassified this spill incident as "closed" on May 4, 2011.



# 2.0 SITE INVESTIGATION ACTIVITIES

## 2.1 Geophysical Survey

Prior to the test pit investigation further detailed below, on June 23, 2021, and June 24, 2021, a geophysical survey was completed on-Site by Benchmark's subcontractor, Maddan Geophysics LLC (Maddan). Maddan used non-intrusive EM-61 equipment to identify potential buried anomalies, such as current/former UST areas. The EM61 unit is a high sensitivity, high resolution time domain electromagnetic (TDEM) metal detector that can detect both ferrous and nonferrous metallic objects. It has an approximate investigation depth of 10 feet. The geophysical work was completed across the subject parcel. A figure showing the limits of the geophysical survey along with potential subsurface structures (anomalies) was generated by Maddan along with a written report (see Appendix C).

### 2.2 Test Pit Investigation

On July 21, 2021, Benchmark mobilized a track-mounted excavator to the Site. As shown on Figure 2, eleven test pits designated as TP-1 through TP-11 were completed on-Site. All test pits were completed to the maximum reach of the excavator of approximately eight feet below ground surface (fbgs), except for test pits TP-4 and TP-6, where equipment refusal was encountered at six fbgs due to hard fill/ cobles. Additional information relative to findings during the test pit investigation is provided in Section 3.0.

The physical characteristics of all test pits were classified using the ASTM D2488 Visual-Manual Procedure Description. Soils from each test pit were screened via headspace screening using a MiniRae 3000 Photoionization Detector (PID). Visual and/or olfactory observations were noted. All field observations, including lithology, depths, PID scan results, etc., at each investigation location are summarized in the Test Pit Log sheets provided in Appendix A. Photographs taken during the work are included in Appendix B.

Five (5) soil samples selected for laboratory analysis were transported under chain-of custody command to Alpha Analytical (Alpha) in Westborough, Massachusetts for analysis of polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyl's (PCBs), and Resource Conservation and Recovery Act (RCRA) metals via United States Environmental Protection Agency (USEPA) Methods 8270D, 6010C/7471B, and 8082, respectively. All samples were collected in laboratory provided sample bottles and were cooled to 4<sup>o</sup> C prior to transport.



# 3.0 INVESTIGATION FINDINGS

### 3.1 Geophysical Survey

Maddan's report (see Appendix C) indicates that numerous small subsurface buried metal anomalies were observed in the data; however, these anomalies appear consistent with the presence of remnant C&D debris from the demolition of the previous structure in lieu of a UST. Five anomalies, labelled A through E on the figure generated by Maddan, were called out due to their relative size (response amplitude and aerial extent). Benchmark's test pit investigation, further detailed below, focused on these areas to further assess the nature of the anomalies.

## 3.2 Qualitative Soil Screening

Soil samples were screened via headspace for VOCs using a MiniRae 3000 PID. PID measurements were not identified above background (0.0 parts per million, ppm) in any of the sample locations. Fill materials (described in Section 3.3 below) were encountered in all sample locations to depths up to 6 fbgs.

Refer to the Test Pit Logs in Appendix A for soil classification for each sample interval, field observations, and PID measurements.

## 3.3 Site Geology/Hydrogeology

The overburden geology observed during the investigation activities is generally described as fill materials overlying native sand or combinations of sand and clay to at least eight fbgs. Fill materials, consisting of black and white ash, cinders/black fines, brick and glass fragments, sand, gravel, and debris (e.g., metal, roofing, siding, wood etc.), were encountered across the Site at all of the investigation locations at depths ranging from one fbgs to the bottom of the test pit at 8 fbgs.

Test pits completed in areas of anomalies identified metal debris, including buried disconnected piping. No evidence of a UST was encountered during the work.

Groundwater was not encountered during the work except for apparent perched water, at TP-10, at a depth of seven fbgs.



Groundwater flow is likely to the west toward the Lake Erie. Local groundwater flow, however, may be influenced by subsurface features, such as excavations, utilities, and localized fill-conditions.

## 3.4 Soil Analytical Results

Appendix D contains a copy of the laboratory analytical data package. Table 1 presents a summary of the detected PAHs, PCBs, and metals for each of the five soil/fill samples selected for laboratory analysis from the investigation. For comparative purposes, Table 1 includes 6NYCRR Part 375 Unrestricted, Restricted-Residential, Commercial and Industrial Use Soil Cleanup Objectives (USCOs, RRSCOs, CSCOs and ISCOs, respectively).

As summarized on Table 1, PAHs were either non-detect or at concentrations below USCOs at TP-1, TP-6, and TP-9. Individual PAHs were identified at concentrations above their respective USCOs, RRSCOs, CSCOs, and/or ISCOs at TP-2 and TP-7, which are located on the northwestern and eastern portions of the Site, respectively. The exceedances were generally all slight by comparison to the RRSCOs, which would likely be the most conservative of the potentially applicable comparative criteria considering Site size and surrounding property uses. Further, the concentrations were well below total levels of 500 ppm, which is frequently used as an alternative action level for subgrade soil/fill on NYS remedial Sites.

Metals were identified at concentrations exceeding USCOs, but not RRSCOs, in the soil/fill samples collected across the Site. In particular, arsenic was identified above USCOs in TP-1. Lead was detected above its respective USCO in all five of the soil/fill samples collected from the Site. Mercury exceeded its respective USCO at TP-2, TP-7, and TP-9.



# 4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the Phase II investigation at the Site, Benchmark offers the following conclusions and recommendations:

- Prior to being vacant land, the Site was developed with a church and a residence.
- An orphan fuel oil UST and associated petroleum-impacted soils, encountered during building demolition activities in April 2011, were addressed to the satisfaction of the NYSDEC; spill No. 1100144 was classified as "closed" by the NYSDEC on May 4, 2011.
- A geophysical assessment completed across the Site did not identify any USTrelated anomalies. Benchmark's test pit investigation confirmed that the anomalies are associated with metal debris, including a disconnected pipe. No evidence of an UST was encountered during the work.
- No olfactory concerns or elevated PID readings above background (0.0 ppm) were identified during the work.
- Fill materials consisting of black and white ash, cinders/black fines, brick and glass fragments, sand, gravel, and debris (e.g., metal, roofing, siding, wood etc.), were encountered across the Site at all of the investigation locations at depths ranging from one fbgs to the bottom of the test pit at 8 fbgs.
- Individual PAHs were identified at concentrations above Part 375 SCOs, including ISCOs, in two of the five soil/fill samples collected from the Site. Metals (arsenic, lead, and/or mercury) exceeded their respective USCOs, but not RRSCOs, in all five soil/fill samples collected from the Site. The exceedances were generally all slight by comparison to the RRSCOs, which would likely be the most conservative of the potentially applicable comparative criteria considering Site size and surrounding property uses. Further, the concentrations were well below total levels of 500 ppm, which is frequently used as an alternative action level for subgrade soil/fill on NYS remedial Sites.

In conclusion, based on the findings of this assessment, there is no current regulatory requirement to complete further environmental work at this time. However, the fill materials identified on-Site are considered a solid waste under NYSDEC regulations; therefore, fill materials at the Site will require exposure control and proper soil management during any future redevelopment work in accordance with applicable local, state and federal regulations.



# 5.0 LIMITATIONS

This report has been prepared for the exclusive use of the City of Lackawanna. The contents of this report are limited to information available at the time of the Site investigation activities and to data referenced herein, and assume all referenced historic information sources to be true and accurate. The findings herein may be relied upon only at the discretion of the City of Lackawanna. Use of or reliance on this report or its findings by any other person or entity is prohibited without written permission of Benchmark Civil/Environmental Engineering & Geology, PLLC.





# **TABLES**





#### TABLE 1

#### SUMMARY OF SOIL ANALYTICAL RESULTS

#### 539 RIDGE ROAD LACKAWANNA, NEW YORK

					SAMPLE LOCATION (DEPTH)				
PARAMETER <sup>1</sup>	Unrestricted Use SCOs <sup>2</sup>	Restricted Residential Use SCOs <sup>3</sup>	Commercial Use SCOs <sup>2</sup>	Industrial Use SCOs <sup>2</sup>	TP-1 (0.25-2')	TP-2 (0-2')	TP-7 (0-1')	TP-6 (2-3')	TP-9 (3-4')
Sample Date							07/21/2021		
Polyaromatic Hydrocarbons (PAHs)	3					·			
Acenaphthene	20	100	500	1000	ND	0.065 J	0.48 J	ND	0.022 J
Fluoranthene	100	100	500	1000	0.035 J	3.7	6.7	0.035 J	0.54
Naphthalene	12	100	500	1000	ND	0.062 J	0.25	ND	0.055 J
Benzo(a)anthracene	1	1	5.6	11	ND	2	2.7	ND	0.24
Benzo(a)pyrene	1	1	1	1.1	ND	1.8	2.5	ND	0.24
Benzo(b)fluoranthene	1	1	5.6	11	ND	2.2	3.2	ND	0.31
Benzo(k)fluoranthene	0.8	3.9	56	110	ND	0.77	1	ND	0.1 J
Chrysene	1	3.9	56	110	ND	1.7	2.6	ND	0.24
Acenaphthylene	100	100	500	1000	ND	0.57	0.17	ND	0.041 J
Anthracene	100	100	500	1000	ND	0.62	1.4	ND	0.096 J
Benzo(ghi)perylene	100	100	500	1000	ND	0.81	1.4	ND	0.14 J
Fluorene	30	100	500	1000	ND	0.11 J	0.72 J	ND	0.041 J
Phenanthrene	100	100	500	1000	0.024 J	1.3	5.4	0.023 J	0.39
Dibenzo(a,h)anthracene	0.33	0.33	0.56	1.1	ND	0.26	0.36	ND	0.036 J
Indeno(1,2,3-cd)pyrene	0.5	0.5	5.6	11	ND	1.1	1.7	ND	0.17
Pyrene	100	100	500	1000	0.03 J	2.9	4.9	0.029 J	0.44
Metals - mg/Kg									
Arsenic	13	16	16	16	14.2	8.26	9.48	7.08	9.2
Barium	350	400	400	10,000	108	86.9	78.1	79.5	114
Cadmium	2.5	4.3	9.3	60	1.6	1.82	1.55	0.39	1.68
Chromium	31	180	1500	6800	15	23.4	16.3	9.29	19.7
Lead	64	400	1000	3900	174	158	96.3	203	106
Mercury	0.18	0.81	2.8	5.7	0.08	0.2	0.35	ND	0.36
Total PCBs - mg/Kg <sup>3</sup>									
Aroclor 1254		4			ND	ND	0.0327 J	ND	ND
Aroclor 1260					ND	ND	0.0159 J	ND	ND
Total PCBs	0.1	1	1	25	ND	ND	0.0486 J	ND	ND

#### Notes:

1. Only those parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.

2. Values per 6NYCRR Part 375 Soil Cleanup Objectives (SCOs).

3. Sample results were reported by the laboratory in ug/kg and converted to mg/kg for comparisons to SCLs

#### Definitions:

ND = Parameter not detected above laboratory detection limit.

J = Estimated value; result is less than the sample quantitation limit but greater than zero.

 Eolimatou valuo, robaltio lobo al	
Bold	: Re

Results exceed Unrestricted Use Soil Cleanup Objectives Results exceed Restricted Residential Use Soil Cleanup Objectives

: Results exceed Commercial Use Soil Cleanup Objectives

Results exceed Industrial Use Soil Cleanup Objectives

# FIGURES



# FIGURE 1



# **FIGURE 2**



# **APPENDIX A**

**TEST PIT LOGS** 



Project No: B0520-021-001

Project: 539 Ridge Road Site

Client: City of Lackawanna

Site Location: Lackawanna, NY

Test Pit I.D.: TP-1

Logged By: NAS

Checked By: BWM



Benchmark Environmental Engineering & Science, PLLC 2558 Hamburg Turnpike, Suite 300 Buffalo, NY 14218 (716) 856-0599

		SUBSURFACE PROFILE				
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Lithologic Symbol	PID VOCs 0 25 50 75 100	Lab Sample	Remarks
0.0 —	0.0	Ground Surface				
_	-0.3	<i>Topsoil</i> Brown, moist, mostly silty sand, medium dense, no odors <i>Fill</i> Black/grey/white, moist, mostly fill (ash, cinders, glass, metal, brick), some fine sand, loose when disturbed, no odors		0.0	Sampled (0.25-2')	
_	<u>2.0</u> 2.0	<i>Fine sand with till</i> Brown, moist, mostly fine to medium sand, some subrounded cobbles (till), medium dense, no odors		0.0		
5.0 —				0.0		
_	-8.0			0.0		
	8.0	End of Test Pit		•		

Excavated By: TurnKey Environmental RestorationLength: 10Excavator Type: Kubota KX040-4Width: 3Excavation Date(s): July 21, 2021Depth: 8Comments:Comments:

Project No: B0520-021-001

Project: 539 Ridge Road Site

Client: City of Lackawanna

Site Location: Lackawanna, NY

Test Pit I.D.: TP-2

Logged By: NAS

Checked By: BWM



Benchmark Environmental Engineering & Science, PLLC 2558 Hamburg Turnpike, Suite 300 Buffalo, NY 14218 (716) 856-0599

		SUBSURFACE PROFILE				
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Lithologic Symbol	PID VOCs 0 25 50 75 100	Lab Sample	Remarks
0.0	0.0	Ground Surface <b>Fill</b> Black, moist, mostly silty sand, some fill (brick, cinders, cast iron pie, metal), loose when disturbed, no odors		0.0	Sampled (0-2')	
	-3.0 3.0	Reworked Sandy Lean Clay with till Reddish brown, moist, mostly medium plasticity fines, some fine sand, little cobbles, few shale, reworked, no odors		0.0 0.0 0.0 0.0		
-	-8.0 8.0	End of Test Pit		0.0		
10.0						

Excavated By: TurnKey Environmental RestorationLength: 10Excavator Type: Kubota KX040-4Width: 3Excavation Date(s): July 21, 2021Depth: 8Comments:Comments:

Project No: B0520-021-001

Project: 539 Ridge Road Site

Client: City of Lackawanna

Site Location: Lackawanna, NY

Test Pit I.D.: TP-3

Logged By: NAS

Checked By: BWM



Benchmark Environmental Engineering & Science, PLLC 2558 Hamburg Turnpike, Suite 300 Buffalo, NY 14218 (716) 856-0599

		SUBSURFACE PROFILE				
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Lithologic Symbol	PID VOCs 0 25 50 75 100	Lab Sample	Remarks
0.0	0.0	Ground Surface				
_	-0.5 0.5	Sitty sand with fill Black, moist, mostly silty sand, some fill (glass, cinders), loose when disturbed, no odors Fine sand with fill Brown, moist, mostly fine sand, little lean clay, some fill (brick, limestone. large cobbles, concrete, wood), loose	đ	0.0		
_		when disturbed, no odors		0.0		
_				0.0		
_				0.0		
5.0 —	-6.0			0.0		
_	0.0	Fine sand Tan, moist, mostly fine sand, few silt, little cobbles (till) medium dense, no odors		0.0		
-	<u>8.0</u> 8.0	End of Test Pit				
10.0 -				·		

Excavated By: TurnKey Environmental RestorationLength: 10Excavator Type: Kubota KX040-4Width: 3Excavation Date(s): July 21, 2021Depth: 8Comments:Comments:

Project No: B0520-021-001

Project: 539 Ridge Road Site

Client: City of Lackawanna

Site Location: Lackawanna, NY

Test Pit I.D.: TP-4

Logged By: NAS

Checked By: BWM



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		SUBSURFACE PROFILE				
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Lithologic Symbol	PID VOCs 0 25 50 75 100	Lab Sample	Remarks
0.0 —	0.0	Ground Surface	~~~~~			
	-0.3 0.3 -1.0	<b>Topsoil</b> <b>Reworked Sandy lean clay with till</b> Reddish brown, moist, mostly sandy lean clay, some cobbles (till), reworked, no odors		0.0		
- - 5.0	-1.0 1.0	cobbles (till), reworked, no odors  Fine sand with fill Brown, moist, mostly fine sand, litle lean clay, some fill (brick, limestone. large cobbles, concrete, wood, metal), very hard, no odors		0.0		
	-6.0 6.0			0.0		
		End of Test Pit				

Excavated By: TurnKey Environmental RestorationLength: 10Excavator Type: Kubota KX040-4Width: 3Excavation Date(s): July 21, 2021Depth: 8Comments:Comments:

Project No: B0520-021-001

Project: 539 Ridge Road Site

Client: City of Lackawanna

Site Location: Lackawanna, NY

Test Pit I.D.: TP-5

Logged By: NAS

Checked By: BWM



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		SUBSURFACE PROFILE				
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Lithologic Symbol	PID VOCs 0 25 50 75 100	Lab Sample	Remarks
0.0	0.0	Ground Surface	~~~~~	·		
-	-0 <u>3</u> 0.3	<b>Topsoil</b> <b>Fine sand</b> Tan, moist, mostly fine sand, some silt, medium dense, no odors		0.0		
5.0	-3.0 3.0	Fine sand with fill Brown, moist, mostly fine sand, litle lean clay, some fill (brick, limestone. large cobbles, concrete, wood, metal, former foundation), very hard, no odors		0.0 0.0 0.0 0.0		
-	-8.0 8.0	End of Test Pit		0.0		
10.0				l		

Excavated By: TurnKey Environmental RestorationLength: 10Excavator Type: Kubota KX040-4Width: 3Excavation Date(s): July 21, 2021Depth: 8Comments:Comments:

Project No: B0520-021-001

Project: 539 Ridge Road Site

Client: City of Lackawanna

Site Location: Lackawanna, NY

Test Pit I.D.: TP-6

Logged By: NAS

Checked By: BWM



Benchmark Environmental Engineering & Science, PLLC 2558 Hamburg Turnpike, Suite 300 Buffalo, NY 14218 (716) 856-0599

Description PID VOCs Lab Remarks	
Depth Elev. (ASTM D2488: Visual-Manual Procedure) Lithologic Symbol ppm 0 25 50 75 100 Promance	emarks
0.0       0.0       Ground Surface         0.1       0.3       Sitty sand with fill         Black, moist, mostly silly sand, few fill (cinders), loose when disturbed, no odors       n.0         Fine sand       no odors         Fine sand       no odors         Brown/white/grey, moist, mostly fill (limestone, cobbles, ciders, well sorted gravel, little ash), very hard, no odors       n.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0       0.0         0.0       0.0	

Excavated By: TurnKey Environmental RestorationLength: 10Excavator Type: Kubota KX040-4Width: 3Excavation Date(s): July 21, 2021Depth: 8Comments: Refusal at 6' hard fillVertice Second Second

Project No: B0520-021-001

Project: 539 Ridge Road Site

Client: City of Lackawanna

Site Location: Lackawanna, NY

Test Pit I.D.: TP-7

Logged By: NAS

Checked By: BWM



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		SUBSURFACE PROFILE				
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Lithologic Symbol	PID VOCs 0 25 50 75 100	Lab Sample	Remarks
0.0-	0.0	Ground Surface				
0.0	0.0	<i>Silty sand with fill</i> Black, moist, mostly silty sand, little fill (cinders, metal, wood, glass), loose when disturbed, no odors		0.0	Sampled 0-1'	
	1.0	Fine sand with clay Tan, moist, mostly fine sand, some sandy lean clay, little well sorted gravel, medium dense, no odors		0.0 0.0 0.0		
_	-6.0 6.0	<i>Fine sand</i> Tan, moist, mostly fine sand, some cobbles (till) medium dense, no odors		0.0		
-	- <u>8.0</u> 8.0	End of Test Pit				

Excavated By: TurnKey Environmental RestorationLength: 10Excavator Type: Kubota KX040-4Width: 3Excavation Date(s): July 21, 2021Depth: 8Comments:Comments:

Project No: B0520-021-001

Project: 539 Ridge Road Site

Client: City of Lackawanna

Site Location: Lackawanna, NY

Test Pit I.D.: TP-8

Logged By: NAS

Checked By: BWM



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		SUBSURFACE PROFILE				
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Lithologic Symbol	PID VOCs 0 25 50 75 100	Lab Sample	Remarks
0.0 -	0.0	Ground Surface		s		
	0.0	Silty sand with fill Black, moist, mostly silty sand, little fill (cinders, brick), loose when disturbed, no odors				
_	-1.0	Fine conductification		0.0		
5.0		Tan, moist, mostly fine sand, some sandy lean clay, little well sorted gravel, medium dense, no odors		0.0 0.0 0.0 0.0 0.0 0.0		
-	-8.0 8.0	End of Test Pit		•		

Excavated By: TurnKey Environmental RestorationLength: 10Excavator Type: Kubota KX040-4Width: 3Excavation Date(s): July 21, 2021Depth: 8Comments:Comments:

Project No: B0520-021-001

Project: 539 Ridge Road Site

Client: City of Lackawanna

Site Location: Lackawanna, NY

Test Pit I.D.: TP-9

Logged By: NAS

Checked By: BWM



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		SUBSURFACE PROFILE				
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Lithologic Symbol	PID VOCs 0 25 50 75 100	Lab Sample	Remarks
0.0	0.0 0.0 -0.3 0.3 -3.0 -4.0 4.0	Ground Surface         Topsoil         Brown, moist, mostly silty sand, medium dense, no odors         Silty sand with fill         Brown, moist, mostly silty sand, little fill (cobbles, well sorted gravel, brick, glass),3 inch diameter metal pipe noted running east to west (disconnected), loose when disturbed, no odors         Fill         Black, moist, mostly silty sand, some fill ( cinders, ash, black fines), loose when disturbed, no odors         Fine sand         Tan, moist, mostly fine sand, some cobbles (till) medium dense, no odors		0.0	Sampled 3-4'	
	-8.0 8.0	End of Test Pit		0.0		

Excavated By: TurnKey Environmental RestorationLength: 10Excavator Type: Kubota KX040-4Width: 3Excavation Date(s): July 21, 2021Depth: 8Comments:Comments:

Project No: B0520-021-001

Project: 539 Ridge Road Site

Client: City of Lackawanna

Site Location: Lackawanna, NY

Test Pit I.D.: TP-10

Logged By: NAS

Checked By: BWM



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		SUBSURFACE PROFILE				
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Lithologic Symbol	PID VOCs 0 25 50 75 100	Lab Sample	Remarks
0.0	0.0 -0.3 -0.3 -0.3	Ground Surface <b>Topsoil</b> Brown, moist, mostly silty sand, medium dense, no odors <b>Silty sand with fill</b> Brown, moist, mostly silty sand, some subrounded gravel, little fill (1" metal pipe,clay tile pipe, brick, plastic, concrete, wood), loose when disturbed, no odors	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	0.0		
	3.5	Fill Grey, moist to wet(7'), mostly sandy lean clay, some fill (wood/ trees) water rushing in at 7', loose when disturbed, no odors		0.0		
_	-8.0 8.0	End of Test Pit		0.0	Sampled 7-8'	
10.0 —				L		

Excavated By: TurnKey Environmental RestorationLength: 10Excavator Type: Kubota KX040-4Width: 3Excavation Date(s): July 21, 2021Depth: 8Comments:Comments:

Project No: B0520-021-001

Project: 539 Ridge Road Site

Client: City of Lackawanna

Site Location: Lackawanna, NY

Test Pit I.D.: TP-11

Logged By: NAS

Checked By: BWM



Benchmark Environmental Engineering & Science, PLLC 2558 Hamburg Turnpike, Suite 300 Buffalo, NY 14218 (716) 856-0599

		SUBSURFACE PROFILE				
Depth (fbgs)	Elev. /Depth	Description (ASTM D2488: Visual-Manual Procedure)	Lithologic Symbol	PID VOCs 0 25 50 75 100	Lab Sample	Remarks
0.0	0.0 0.0 -0.3 0.3	Ground Surface <b>Topsoil</b> Brown, moist, mostly silty sand, medium dense, no odors <b>Fill</b> Brown, moist, mostly silty sand, some cobbles, little subangular gravel, few brick, metal pieces, loose when disturbed, no odors	~~~~	0.0		
5.0	-8.0 •8.0	<i>Fine sand</i> Tan, moist, mostly fine sand, some cobbles (till) medium dense, no odors		0.0		
	8.0	End of Test Pit				

Excavated By: TurnKey Environmental RestorationLength: 10Excavator Type: Kubota KX040-4Width: 3Excavation Date(s): July 21, 2021Depth: 8Comments:Comments:

# **APPENDIX B**

PHOTO LOG



#### Photo 1:



Photo 3:



Photo 2:



- Photo 1: View of TP-1.
- Photo 2: View of the fill noted at TP-1.
- Photo 3: View of TP-2
- Photo 4: View of the fill at TP-2.

# 539 Ridge Road





<image>

Photo 6:







- Photo 5: View of TP-3.
- Photo 6: View of the fill noted at TP-3.
- Photo 7: View of TP-6.
- Photo 8: View of the fill at TP-6.

### 539 Ridge Road



Photo 9:



Photo 11:



<image>

Photo 12:



- Photo 9: View of TP-7.
- Photo 10: View of TP-8.
- Photo 11: View of the pipe at TP-9.
- Photo 12: View of TP-9.

# 539 Ridge Road





Photo 15:



Photo 14:





View of the pipe noted at TP-9. Photo 14:

View of TP-10 Photo 15:

View of TP-11. Photo 16:

# 539 Ridge Road



# **APPENDIX C**

**GEOPHYSICAL REPORT** 





Maddan Geophysics LLC

July 1, 2021

Bryan W. Mayback Project Manager TurnKey Environmental Restoration, LLC 2558 Hamburg Turnpike, Suite 300 Buffalo, NY 14218

Transmitted via email to: Bryan Mayback < bmayback@turnkeyllc.com>

Dear Mr. Mayback:

#### Re: Geophysical Survey Results, 539 Ridge Road, Lackawanna, NY

#### 1.0 INTRODUCTION

This letter report presents the results of the geophysical investigation performed for Turnkey Environmental Restoration, LLC (Turnkey) in support of their environmental investigation of a property located at 539 Ridge Road in Lackawanna, NY (the Site). The purpose of the investigation was to explore for anomalies indicative of underground storage tanks (UST's).

The geophysical investigation was designed to geophysically characterize the subsurface and focus a follow-up intrusive investigation, if warranted. The information provided herein is intended to assist Turnkey with their assessment of potential environmental concerns at the Site. Maddan Geophysics LLC (MADDAN) performed data acquisition on June 23 and 24, 2021.

#### 2.0 METHODOLOGY

A reference grid was installed at the Site to facilitate data acquisition along parallel survey lines spaced 3 feet apart. The grid was marked with orange and white spray paint and pin flags with select coordinates labeled to aid in the reoccupation of stations if necessary. Turnkey arranged for the investigation area to be mowed prior to the geophysical survey to facilitate data acquisition.

#### Time Domain Electromagnetic Survey Methodology (EM61)

The Geonics EM61 was used to map the distribution of buried metals at the Site. The EM61 unit is a high sensitivity, high resolution time domain electromagnetic (TDEM) metal detector that can detect both ferrous and nonferrous metallic objects. It has an approximate investigation depth of 10 feet. The processing console is contained in a backpack worn by the operator which is interfaced to a digital data logger. The transmitter and two receiver coils are located on a two-wheeled cart that is pulled by the operator.

Bryan W. Mayback TurnKey Environmental Restoration, LLC July 1, 2021 Page 2

The device's transmitter coil generates a pulsed primary EM field at a rate of 150 pulses per second, inducing eddy currents into the subsurface. The decay rates of these eddy currents are measured by two, 3.28 foot by 1.64 foot (1 meter by  $\frac{1}{2}$  meter) rectangular receiver coils. By taking the measurements at a relatively long time frame after termination of the primary pulse, the response is practically independent of the survey area's terrain conductivity. Specifically, the decay rates of the eddy currents are much



longer for metals than for normal soils allowing the discrimination of the two.

Data are collected from the EM61's two receiver coils. One of the receiver coils is located coincident to the transmitter coil. The other receiver coil is located 1.31 feet (0.4 meters) above the transmitter coil. Data from the top receiver coil are stored on Channel 1 of a digital data logger. Data from the bottom receiver coil are stored on Channel 2 of the data logger. Channel 1 and Channel 2 data are simultaneously recorded at each station location. The instrument responses are recorded in units of milliVolts (mV). Data were recorded digitally by a data logger at a rate of approximately 2 measurements per foot along the survey lines which were spaced 3 feet apart.

#### **3.0 RESULTS**

The EM61 data for the Site are shown in Figure 1. Areas suspected to be free of buried metals are shown as color shades of blue. All areas exhibiting a response greater than background (0 to  $\sim$ 30 mVolts) likely contain buried metals.

Numerous small subsurface buried metal anomalies are observed in the data. These anomalies would be consistent with the presence of remnant C&D debris from the demolotion of the previous structure. Five anomalies, labelled A through E on Figure 1, are called out due to their relative size (response amplitude and aerial extent). These anomalies may represent a UST or

Bryan W. Mayback TurnKey Environmental Restoration, LLC July 1, 2021 Page 3

remnants of a UST and associated appurtenances, items of potential environmental significance, or miscellaneous buried metals.

Any of the above background responses may be significant from an environmental perspective and these geophysical data should be viewed with recognition of the limitations of the technology employed.

#### 4.0 LIMITATIONS

The geophysical methods used during this survey are established, indirect techniques for nondestructive subsurface reconnaissance exploration. As these instruments utilize indirect methods, they are subject to inherent limitations and ambiguities. Metallic surface features (electrical wires, scrap metal, etc.) preclude reliable non-invasive data/results beneath, and in the immediate vicinity of, the surface features. Targets such as buried drums, buried tanks, conduits, etc. are detectable only if they produce recognizable anomalies or patterns against the background geophysical data collected. As with any remote sensing technique, the anomalies identified during a geophysical survey should be further investigated by other techniques such as historical aerial photography, test pit excavation and/or test boring, if warranted.

Please do not hesitate to contact us if you have any questions or require additional information.

Sincerely yours, Maddan Geophysics, LLC

John Juttinga

John Luttinger President


**Geophysical Anomaly** discussed in report

**Interpreted linear** anomaly

The geophysical methods used during this survey are established, indirect techniques for non-destructive subsurface reconnaissance exploration. As these instruments utilize indirect methods, they are subject to inherent limitations and ambiguities. Metallic surface  $\label{eq:surface}$ features preclude reliable non-invasive data/results beneath, and in the immediate vicinity of, the surface features. Targets such as buried drums, buried tanks, conduits, etc. are detectable only if they produce recognizable anomalies or patterns against the background geophysical data collected. As with any remote sensing technique, the anomalies identified during a geophysical survey should be further investigated by other techniques such as historical aerial photography, test pit excavation and/or test boring, if warranted.

# Figure 1

Geophysical Survey Results Color Contours of EM61 Data (mVolts) 539 Ridge Road Lackawanna, NY Turnkey Environmental Restoration, LLC Maddan Geophysics

# APPENDIX D

# LABORATORY ANALYTICAL DATA SUMMARY PACKAGE





## ANALYTICAL REPORT

Lab Number:	L2139572
Client:	Benchmark & Turnkey Companies
	2558 Hamburg Turnpike
	Suite 300
	Buffalo, NY 14218
ATTN:	Bryan Mayback
Phone:	(716) 856-0599
Project Name:	539 RIDGE ROAD
Project Number:	B0520-021-001-003
Report Date:	08/02/21

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

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



Serial\_No:08022116:53

Project Name:	539 RIDGE ROAD
Project Number:	B0520-021-001-003

 Lab Number:
 L2139572

 Report Date:
 08/02/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2139572-01	TP-1 0.25-2FT	SOIL	LACKAWANNA, NY	07/21/21 08:00	07/22/21
L2139572-02	TP-2 0-2FT	SOIL	LACKAWANNA, NY	07/21/21 09:30	07/22/21
L2139572-03	TP-7 0-1FT	SOIL	LACKAWANNA, NY	07/21/21 11:00	07/22/21
L2139572-04	TP-9 3-4FT	SOIL	LACKAWANNA, NY	07/21/21 11:30	07/22/21
L2139572-05	TP-6 2-3FT	SOIL	LACKAWANNA, NY	07/21/21 10:30	07/22/21



 Project Name:
 539 RIDGE ROAD

 Project Number:
 B0520-021-001-003

 Lab Number:
 L2139572

 Report Date:
 08/02/21

#### **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: 539 RIDGE ROAD Project Number: B0520-021-001-003 Lab Number: L2139572 **Report Date:** 08/02/21

#### **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.

The analysis of Total Metals was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

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:

2017 Jennifer L Clements

Title: Technical Director/Representative

Date: 08/02/21



# ORGANICS

# SEMIVOLATILES

			Serial_No:	08022116:53
Project Name:	539 RIDGE ROAD		Lab Number:	L2139572
Project Number:	B0520-021-001-003		Report Date:	08/02/21
		SAMPLE RESULTS		
Lab ID:	L2139572-01		Date Collected:	07/21/21 08:00
Client ID:	TP-1 0.25-2FT		Date Received:	07/22/21
Sample Location:	LACKAWANNA, NY		Field Prep:	Not Specified
Sample Depth:				
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8270D		Extraction Date:	07/24/21 10:51
Analytical Date:	07/26/21 16:57			
Analyst:	LJG			
Percent Solids:	83%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - We	estborough Lab					
Acenaphthene	ND		ug/kg	160	20.	1
Fluoranthene	35	J	ug/kg	120	23.	1
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	ND		ug/kg	120	33.	1
Benzo(k)fluoranthene	ND		ug/kg	120	32.	1
Chrysene	ND		ug/kg	120	21.	1
Acenaphthylene	ND		ug/kg	160	31.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	23.	1
Fluorene	ND		ug/kg	200	19.	1
Phenanthrene	24	J	ug/kg	120	24.	1
Dibenzo(a,h)anthracene	ND		ug/kg	120	23.	1
Indeno(1,2,3-cd)pyrene	ND		ug/kg	160	28.	1
Pyrene	30	J	ug/kg	120	20.	1

Surrogate	% Recovery	Acceptance Qualifier Criteria	
Nitrobenzene-d5	45	23-120	
2-Fluorobiphenyl	40	30-120	
4-Terphenyl-d14	35	18-120	



			Serial_No:	08022116:53
Project Name:	539 RIDGE ROAD		Lab Number:	L2139572
Project Number:	B0520-021-001-003		Report Date:	08/02/21
		SAMPLE RESULTS		
Lab ID:	L2139572-02		Date Collected:	07/21/21 09:30
Client ID:	TP-2 0-2FT		Date Received:	07/22/21
Sample Location:	LACKAWANNA, NY		Field Prep:	Not Specified
Sample Depth:				
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8270D		Extraction Date:	07/24/21 10:51
Analytical Date:	07/26/21 17:21			
Analyst:	LJG			
Percent Solids:	88%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS	- Westborough Lab					
A 1.4	05			150	40	
Acenaphthene	65	J	ug/kg	150	19.	1
Fluoranthene	3700		ug/kg	110	22.	1
Naphthalene	62	J	ug/kg	190	23.	1
Benzo(a)anthracene	2000		ug/kg	110	21.	1
Benzo(a)pyrene	1800		ug/kg	150	46.	1
Benzo(b)fluoranthene	2200		ug/kg	110	32.	1
Benzo(k)fluoranthene	770		ug/kg	110	30.	1
Chrysene	1700		ug/kg	110	20.	1
Acenaphthylene	570		ug/kg	150	29.	1
Anthracene	620		ug/kg	110	37.	1
Benzo(ghi)perylene	810		ug/kg	150	22.	1
Fluorene	110	J	ug/kg	190	18.	1
Phenanthrene	1300		ug/kg	110	23.	1
Dibenzo(a,h)anthracene	260		ug/kg	110	22.	1
Indeno(1,2,3-cd)pyrene	1100		ug/kg	150	26.	1
Pyrene	2900		ug/kg	110	19.	1

Surrogate	% Recovery	Acceptance Qualifier Criteria	
Nitrobenzene-d5	43	23-120	
2-Fluorobiphenyl	39	30-120	
4-Terphenyl-d14	33	18-120	



			Serial_No:	08022116:53
Project Name:	539 RIDGE ROAD		Lab Number:	L2139572
Project Number:	B0520-021-001-003		Report Date:	08/02/21
		SAMPLE RESULTS		
Lab ID:	L2139572-03		Date Collected:	07/21/21 11:00
Client ID:	TP-7 0-1FT		Date Received:	07/22/21
Sample Location:	LACKAWANNA, NY		Field Prep:	Not Specified
Sample Depth:				
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8270D		Extraction Date:	07/24/21 10:51
Analytical Date:	07/26/21 17:44			
Analyst:	LJG			
Percent Solids:	76%			

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS	S - Westborough Lab					
						_
Acenaphthene	480		ug/kg	170	23.	1
Fluoranthene	6700		ug/kg	130	25.	1
Naphthalene	250		ug/kg	220	26.	1
Benzo(a)anthracene	2700		ug/kg	130	24.	1
Benzo(a)pyrene	2500		ug/kg	170	53.	1
Benzo(b)fluoranthene	3200		ug/kg	130	37.	1
Benzo(k)fluoranthene	1000		ug/kg	130	35.	1
Chrysene	2600		ug/kg	130	23.	1
Acenaphthylene	170		ug/kg	170	34.	1
Anthracene	1400		ug/kg	130	42.	1
Benzo(ghi)perylene	1400		ug/kg	170	26.	1
Fluorene	720		ug/kg	220	21.	1
Phenanthrene	5400		ug/kg	130	26.	1
Dibenzo(a,h)anthracene	360		ug/kg	130	25.	1
Indeno(1,2,3-cd)pyrene	1700		ug/kg	170	30.	1
Pyrene	4900		ug/kg	130	22.	1

Surrogate	% Recovery	Acceptance Qualifier Criteria	
Nitrobenzene-d5	56	23-120	
2-Fluorobiphenyl	46	30-120	
4-Terphenyl-d14	35	18-120	



			Serial_No:08022116:53		
Project Name:	539 RIDGE ROAD		Lab Number:	L2139572	
Project Number:	B0520-021-001-003		Report Date:	08/02/21	
		SAMPLE RESULTS			
Lab ID: Client ID: Sample Location:	L2139572-04 TP-9 3-4FT LACKAWANNA, NY		Date Collected: Date Received: Field Prep:	07/21/21 11:30 07/22/21 Not Specified	
Sample Depth: Matrix: Analytical Method: Analytical Date: Analyst: Percent Solids:	Soil 1,8270D 07/26/21 18:08 LJG 84%		Extraction Method: Extraction Date:	EPA 3546 07/24/21 10:51	

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - V	Vestborough Lab					
						_
Acenaphthene	22	J	ug/kg	160	20.	1
Fluoranthene	540		ug/kg	120	23.	1
Naphthalene	55	J	ug/kg	200	24.	1
Benzo(a)anthracene	240		ug/kg	120	22.	1
Benzo(a)pyrene	240		ug/kg	160	48.	1
Benzo(b)fluoranthene	310		ug/kg	120	33.	1
Benzo(k)fluoranthene	100	J	ug/kg	120	32.	1
Chrysene	240		ug/kg	120	20.	1
Acenaphthylene	30	J	ug/kg	160	30.	1
Anthracene	96	J	ug/kg	120	38.	1
Benzo(ghi)perylene	140	J	ug/kg	160	23.	1
Fluorene	41	J	ug/kg	200	19.	1
Phenanthrene	390		ug/kg	120	24.	1
Dibenzo(a,h)anthracene	36	J	ug/kg	120	23.	1
Indeno(1,2,3-cd)pyrene	170		ug/kg	160	28.	1
Pyrene	440		ug/kg	120	20.	1

Surrogate	% Recovery	Acceptance Qualifier Criteria	
Nitrobenzene-d5	48	23-120	
2-Fluorobiphenyl	42	30-120	
4-Terphenyl-d14	37	18-120	



			Serial_No:08022116:53		
Project Name:	539 RIDGE ROAD		Lab Number:	L2139572	
Project Number:	B0520-021-001-003		Report Date:	08/02/21	
		SAMPLE RESULTS			
Lab ID:	L2139572-05		Date Collected:	07/21/21 10:30	
Client ID:	TP-6 2-3FT		Date Received:	07/22/21	
Sample Location:	LACKAWANNA, NY		Field Prep:	Not Specified	
Sample Depth:					
Matrix:	Soil		Extraction Method:	EPA 3546	
Analytical Method:	1,8270D		Extraction Date:	07/24/21 10:51	
Analytical Date:	07/26/21 18:32				
Analyst:	LJG				
Percent Solids:	86%				

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor		
Semivolatile Organics by GC/MS - Westborough Lab								
Acenaphthene	ND		ug/kg	150	20.	1		
Fluoranthene	35	J	ug/kg	110	22.	1		
Naphthalene	ND		ug/kg	190	23.	1		
Benzo(a)anthracene	ND		ug/kg	110	21.	1		
Benzo(a)pyrene	ND		ug/kg	150	46.	1		
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1		
Benzo(k)fluoranthene	ND		ug/kg	110	30.	1		
Chrysene	ND		ug/kg	110	20.	1		
Acenaphthylene	ND		ug/kg	150	29.	1		
Anthracene	ND		ug/kg	110	37.	1		
Benzo(ghi)perylene	ND		ug/kg	150	22.	1		
Fluorene	ND		ug/kg	190	18.	1		
Phenanthrene	23	J	ug/kg	110	23.	1		
Dibenzo(a,h)anthracene	ND		ug/kg	110	22.	1		
Indeno(1,2,3-cd)pyrene	ND		ug/kg	150	26.	1		
Pyrene	29	J	ug/kg	110	19.	1		

Surrogate	% Recovery	Acceptance Qualifier Criteria	
Nitrobenzene-d5	49	23-120	
2-Fluorobiphenyl	43	30-120	
4-Terphenyl-d14	38	18-120	



Project Name:	539 RIDGE ROAD
Project Number:	B0520-021-001-003

 Lab Number:
 L2139572

 Report Date:
 08/02/21

# Method Blank Analysis Batch Quality Control

Analytical Method: Analytical Date: Analyst:

1,8270D 07/26/21 11:17 IM Extraction Method: EPA 3546 Extraction Date: 07/23/21 14:12

Parameter	Result	Qualifier	Units	RL		MDL
Semivolatile Organics by GC/MS -	Westborough	Lab for s	ample(s):	01-05	Batch:	WG1527282-1
Acenaphthene	ND		ug/kg	130		17.
Fluoranthene	ND		ug/kg	99		19.
Naphthalene	ND		ug/kg	160		20.
Benzo(a)anthracene	ND		ug/kg	99		18.
Benzo(a)pyrene	ND		ug/kg	130		40.
Benzo(b)fluoranthene	ND		ug/kg	99		28.
Benzo(k)fluoranthene	ND		ug/kg	99		26.
Chrysene	ND		ug/kg	99		17.
Acenaphthylene	ND		ug/kg	130		25.
Anthracene	ND		ug/kg	99		32.
Benzo(ghi)perylene	ND		ug/kg	130		19.
Fluorene	ND		ug/kg	160		16.
Phenanthrene	ND		ug/kg	99		20.
Dibenzo(a,h)anthracene	ND		ug/kg	99		19.
Indeno(1,2,3-cd)pyrene	ND		ug/kg	130		23.
Pyrene	ND		ug/kg	99		16.

Surrogate	%Recovery Qualit	Acceptance ier Criteria
2-Fluorophenol	96	25-120
Phenol-d6	105	10-120
Nitrobenzene-d5	95	23-120
2-Fluorobiphenyl	93	30-120
2,4,6-Tribromophenol	87	10-136
4-Terphenyl-d14	103	18-120



# Lab Control Sample Analysis Batch Quality Control

**Project Name:** 539 RIDGE ROAD Project Number: B0520-021-001-003 Lab Number: L2139572 Report Date: 08/02/21

Parameter	LCS %Recovery Qual	LCSD %Recovery	%Recovery Qual Limits	RPD	RPD Qual Limits	
Semivolatile Organics by GC/MS	- Westborough Lab Associated sample(	s): 01-05 Batch	: WG1527282-2 WG1523	7282-3		
Acenaphthene	95	78	31-137	20	50	
Fluoranthene	93	78	40-140	18	50	
Naphthalene	90	74	40-140	20	50	
Benzo(a)anthracene	96	80	40-140	18	50	
Benzo(a)pyrene	98	81	40-140	19	50	
Benzo(b)fluoranthene	96	77	40-140	22	50	
Benzo(k)fluoranthene	96	81	40-140	17	50	
Chrysene	93	76	40-140	20	50	
Acenaphthylene	90	76	40-140	17	50	
Anthracene	96	80	40-140	18	50	
Benzo(ghi)perylene	94	80	40-140	16	50	
Fluorene	93	78	40-140	18	50	
Phenanthrene	97	80	40-140	19	50	
Dibenzo(a,h)anthracene	98	82	40-140	18	50	
Indeno(1,2,3-cd)pyrene	90	78	40-140	14	50	
Pyrene	93	77	35-142	19	50	



## Lab Control Sample Analysis Batch Quality Control

 Project Name:
 539 RIDGE ROAD

 Project Number:
 B0520-021-001-003

 Lab Number:
 L2139572

 Report Date:
 08/02/21

 LCS
 LCSD
 %Recovery
 RPD

 Parameter
 %Recovery
 Qual
 Value
 Limits
 RPD
 Qual
 Limits

 Semivolatile Organics by GC/MS - Westborough Lab
 Associated sample(s):
 01-05
 Batch:
 WG1527282-2
 WG1527282-3

Surrogate	LCS %Recovery Qua	LCSD M %Recovery Qual	Acceptance Criteria
2-Fluorophenol	94	80	25-120
Phenol-d6	100	84	10-120
Nitrobenzene-d5	89	77	23-120
2-Fluorobiphenyl	86	71	30-120
2,4,6-Tribromophenol	82	69	10-136
4-Terphenyl-d14	91	75	18-120



# PCBS



			Serial_No:08022116:53		
Project Name:	539 RIDGE ROAD		Lab Number:	L2139572	
Project Number:	B0520-021-001-003		Report Date:	08/02/21	
		SAMPLE RESULTS			
Lab ID:	L2139572-01		Date Collected:	07/21/21 08:00	
Client ID:	TP-1 0.25-2FT		Date Received:	07/22/21	
Sample Location:	LACKAWANNA, NY		Field Prep:	Not Specified	
Sample Depth:					
Matrix:	Soil		Extraction Method:	EPA 3546	
Analytical Method:	1,8082A		Extraction Date:	07/24/21 09:56	
Analytical Date:	07/24/21 18:21		Cleanup Method:	EPA 3665A	
Analyst:	AD		Cleanup Date:	07/24/21	
Percent Solids:	83%		Cleanup Method:	EPA 3660B	
			Cleanup Date:	07/24/21	

Parameter	Result	Qualifier	Units	RL	MDL	<b>Dilution Factor</b>	Column
Polychlorinated Biphenyls by GC - Westbo	rough Lab						
Aroclor 1016	ND		ug/kg	38.1	3.38	1	А
Aroclor 1221	ND		ug/kg	38.1	3.82	1	А
Aroclor 1232	ND		ug/kg	38.1	8.08	1	А
Aroclor 1242	ND		ug/kg	38.1	5.14	1	А
Aroclor 1248	ND		ug/kg	38.1	5.71	1	А
Aroclor 1254	ND		ug/kg	38.1	4.17	1	А
Aroclor 1260	ND		ug/kg	38.1	7.04	1	А
Aroclor 1262	ND		ug/kg	38.1	4.84	1	А
Aroclor 1268	ND		ug/kg	38.1	3.95	1	А
PCBs, Total	ND		ug/kg	38.1	3.38	1	А

		Acceptance			
Surrogate	% Recovery	Qualifier	Criteria	Column	
2,4,5,6-Tetrachloro-m-xylene	63		30-150	А	
Decachlorobiphenyl	53		30-150	А	
2,4,5,6-Tetrachloro-m-xylene	64		30-150	В	
Decachlorobiphenyl	54		30-150	В	



			Serial_No:	08022116:53
Project Name:	539 RIDGE ROAD		Lab Number:	L2139572
Project Number:	B0520-021-001-003		Report Date:	08/02/21
		SAMPLE RESULTS		
Lab ID:	L2139572-02		Date Collected:	07/21/21 09:30
Client ID:	TP-2 0-2FT		Date Received:	07/22/21
Sample Location:	LACKAWANNA, NY		Field Prep:	Not Specified
Sample Depth:				
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8082A		Extraction Date:	07/24/21 09:56
Analytical Date:	07/24/21 18:28		Cleanup Method:	EPA 3665A
Analyst:	AD		Cleanup Date:	07/24/21
Percent Solids:	88%		Cleanup Method:	EPA 3660B
			Cleanup Date:	07/24/21

Parameter	Result	Qualifier	Units	RL	MDL	<b>Dilution Factor</b>	Column
Polychlorinated Biphenyls by GC - Westbo	rough Lab						
Aroclor 1016	ND		ug/kg	37.4	3.32	1	А
Aroclor 1221	ND		ug/kg	37.4	3.75	1	А
Aroclor 1232	ND		ug/kg	37.4	7.93	1	А
Aroclor 1242	ND		ug/kg	37.4	5.04	1	А
Aroclor 1248	ND		ug/kg	37.4	5.61	1	А
Aroclor 1254	ND		ug/kg	37.4	4.09	1	А
Aroclor 1260	ND		ug/kg	37.4	6.92	1	А
Aroclor 1262	ND		ug/kg	37.4	4.75	1	А
Aroclor 1268	ND		ug/kg	37.4	3.88	1	А
PCBs, Total	ND		ug/kg	37.4	3.32	1	А

Surrogate	% Becovery	Qualifiar	Acceptance		
Surroyate	% Recovery	Quaimer	Criteria	Column	
2,4,5,6-Tetrachloro-m-xylene	61		30-150	А	
Decachlorobiphenyl	51		30-150	А	
2,4,5,6-Tetrachloro-m-xylene	60		30-150	В	
Decachlorobiphenyl	63		30-150	В	



			Serial_No:	08022116:53
Project Name:	539 RIDGE ROAD		Lab Number:	L2139572
Project Number:	B0520-021-001-003		Report Date:	08/02/21
		SAMPLE RESULTS		
Lab ID:	L2139572-03		Date Collected:	07/21/21 11:00
Client ID:	TP-7 0-1FT		Date Received:	07/22/21
Sample Location:	LACKAWANNA, NY		Field Prep:	Not Specified
Sample Depth:				
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8082A		Extraction Date:	07/24/21 09:56
Analytical Date:	07/24/21 18:35		Cleanup Method:	EPA 3665A
Analyst:	AD		Cleanup Date:	07/24/21
Percent Solids:	76%		Cleanup Method:	EPA 3660B
			Cleanup Date:	07/24/21

Parameter	Result	Qualifier	Units	RL	MDL	<b>Dilution Factor</b>	Column
Polychlorinated Biphenyls by GC - Westb	orough Lab						
Aroclor 1016	ND		ug/kg	43.1	3.82	1	A
Aroclor 1221	ND		ug/kg	43.1	4.32	1	А
Aroclor 1232	ND		ug/kg	43.1	9.13	1	А
Aroclor 1242	ND		ug/kg	43.1	5.81	1	А
Aroclor 1248	ND		ug/kg	43.1	6.46	1	А
Aroclor 1254	32.7	J	ug/kg	43.1	4.71	1	А
Aroclor 1260	15.9	J	ug/kg	43.1	7.96	1	А
Aroclor 1262	ND		ug/kg	43.1	5.47	1	А
Aroclor 1268	ND		ug/kg	43.1	4.46	1	А
PCBs, Total	48.6	J	ug/kg	43.1	3.82	1	А

				Acceptance			
Surrogate	% Recovery	Qualifier	Criteria	Column			
2,4,5,6-Tetrachloro-m-xylene	51		30-150	А			
Decachlorobiphenyl	42		30-150	А			
2,4,5,6-Tetrachloro-m-xylene	51		30-150	В			
Decachlorobiphenyl	56		30-150	В			



			Serial_No:	08022116:53
Project Name:	539 RIDGE ROAD		Lab Number:	L2139572
Project Number:	B0520-021-001-003		Report Date:	08/02/21
		SAMPLE RESULTS		
Lab ID:	L2139572-04		Date Collected:	07/21/21 11:30
Client ID:	TP-9 3-4FT		Date Received:	07/22/21
Sample Location:	LACKAWANNA, NY		Field Prep:	Not Specified
Sample Depth:				
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8082A		Extraction Date:	07/24/21 09:56
Analytical Date:	07/24/21 18:42		Cleanup Method:	EPA 3665A
Analyst:	AD		Cleanup Date:	07/24/21
Percent Solids:	84%		Cleanup Method:	EPA 3660B
			Cleanup Date:	07/24/21

Parameter	Result	Qualifier	Units	RL	MDL	<b>Dilution Factor</b>	Column
Polychlorinated Biphenyls by GC - West	borough Lab						
Aroclor 1016	ND		ug/kg	39.1	3.47	1	А
Aroclor 1221	ND		ug/kg	39.1	3.92	1	А
Aroclor 1232	ND		ug/kg	39.1	8.29	1	А
Aroclor 1242	ND		ug/kg	39.1	5.27	1	А
Aroclor 1248	ND		ug/kg	39.1	5.87	1	А
Aroclor 1254	ND		ug/kg	39.1	4.28	1	А
Aroclor 1260	ND		ug/kg	39.1	7.23	1	А
Aroclor 1262	ND		ug/kg	39.1	4.97	1	А
Aroclor 1268	ND		ug/kg	39.1	4.05	1	А
PCBs, Total	ND		ug/kg	39.1	3.47	1	А

				Acceptance			
Surrogate	% Recovery	Qualifier	Criteria	Column			
2,4,5,6-Tetrachloro-m-xylene	56		30-150	А			
Decachlorobiphenyl	44		30-150	А			
2,4,5,6-Tetrachloro-m-xylene	55		30-150	В			
Decachlorobiphenyl	51		30-150	В			



			Serial_No:	08022116:53
Project Name:	539 RIDGE ROAD		Lab Number:	L2139572
Project Number:	B0520-021-001-003		Report Date:	08/02/21
		SAMPLE RESULTS		
Lab ID:	L2139572-05		Date Collected:	07/21/21 10:30
Client ID:	TP-6 2-3FT		Date Received:	07/22/21
Sample Location:	LACKAWANNA, NY		Field Prep:	Not Specified
Sample Depth:				
Matrix:	Soil		Extraction Method:	EPA 3546
Analytical Method:	1,8082A		Extraction Date:	07/24/21 09:56
Analytical Date:	07/24/21 18:49		Cleanup Method:	EPA 3665A
Analyst:	AD		Cleanup Date:	07/24/21
Percent Solids:	86%		Cleanup Method:	EPA 3660B
			Cleanup Date:	07/24/21

Parameter	Result	Qualifier	Units	RL	MDL	<b>Dilution Factor</b>	Column
Polychlorinated Biphenyls by GC - Westbo	rough Lab						
Aroclor 1016	ND		ug/kg	38.0	3.37	1	А
Aroclor 1221	ND		ug/kg	38.0	3.80	1	А
Aroclor 1232	ND		ug/kg	38.0	8.05	1	А
Aroclor 1242	ND		ug/kg	38.0	5.12	1	А
Aroclor 1248	ND		ug/kg	38.0	5.70	1	А
Aroclor 1254	ND		ug/kg	38.0	4.15	1	А
Aroclor 1260	ND		ug/kg	38.0	7.02	1	А
Aroclor 1262	ND		ug/kg	38.0	4.82	1	А
Aroclor 1268	ND		ug/kg	38.0	3.93	1	А
PCBs, Total	ND		ug/kg	38.0	3.37	1	А

			Acceptance	
Surrogate	% Recovery	Qualifier	Criteria	Column
2,4,5,6-Tetrachloro-m-xylene	64		30-150	А
Decachlorobiphenyl	50		30-150	А
2,4,5,6-Tetrachloro-m-xylene	65		30-150	В
Decachlorobiphenyl	59		30-150	В



Project Name:539 RIDGE ROADProject Number:B0520-021-001-003

 Lab Number:
 L2139572

 Report Date:
 08/02/21

# Method Blank Analysis Batch Quality Control

Analytical Method: Analytical Date: Analyst: 1,8082A 07/24/21 19:03 AD Extraction Method:EPA 3546Extraction Date:07/24/21 09:54Cleanup Method:EPA 3665ACleanup Date:07/24/21Cleanup Method:EPA 3660BCleanup Date:07/24/21

Parameter	Result	Qualifier	Units	RL		MDL	Column
Polychlorinated Biphenyls by GC -	Nestborough	Lab for s	ample(s):	01-05	Batch:	WG152	27486-1
Aroclor 1016	ND		ug/kg	32.5		2.89	А
Aroclor 1221	ND		ug/kg	32.5		3.26	А
Aroclor 1232	ND		ug/kg	32.5		6.89	А
Aroclor 1242	ND		ug/kg	32.5		4.38	А
Aroclor 1248	ND		ug/kg	32.5		4.88	А
Aroclor 1254	ND		ug/kg	32.5		3.56	А
Aroclor 1260	ND		ug/kg	32.5		6.01	А
Aroclor 1262	ND		ug/kg	32.5		4.13	А
Aroclor 1268	ND		ug/kg	32.5		3.37	А
PCBs, Total	ND		ug/kg	32.5		2.89	А

		Acceptance					
Surrogate	%Recovery C	Qualifier Criteri	a Column				
2,4,5,6-Tetrachloro-m-xylene	66	30-150	А				
Decachlorobiphenyl	60	30-150	А				
2,4,5,6-Tetrachloro-m-xylene	66	30-150	В				
Decachlorobiphenyl	67	30-150	В				



# Lab Control Sample Analysis Batch Quality Control

**Project Name:** 539 RIDGE ROAD Project Number: B0520-021-001-003 Lab Number: L2139572 Report Date: 08/02/21

	LCS		LCSD		%Recovery			RPD		
Parameter	%Recovery	Qual	%Recovery	Qual	lual Limits		Qual	Limits	Column	
Polychlorinated Biphenyls by GC - Westborough Lab Associated sample(s): 01-05 Batch: WG1527486-2 WG1527486-3										
Aroclor 1016	67		70		40-140	4		50	A	
Aroclor 1260	58		61		40-140	5		50	А	

Surrogate	LCS %Recovery	LCSD Qual %Recovery	Accep Qual Crite	tance eria Column
2,4,5,6-Tetrachloro-m-xylene	61	66	30-1	50 A
Decachlorobiphenyl	54	54	30-1	50 A
2,4,5,6-Tetrachloro-m-xylene	61	67	30-1	50 B
Decachlorobiphenyl	62	62	30-1	50 B



# INORGANICS & MISCELLANEOUS



Project Name:	539 RIDGE	ROAD					Lab N	Number:	L2139572	
Project Number:	B0520-021-	001-003					Repo	ort Date:	08/02/21	
				SAMPLE	RESUL	TS				
Lab ID:	L2139572-0	1					Date	Collected:	07/21/21 08:00	)
Client ID:	TP-1 0.25-2	FT					Date	Received:	07/22/21	
Sample Location:	LACKAWAN	INA, NY					Field	Prep:	Not Specified	
Sample Depth:										
Matrix:	Soil									
Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - We	stborough Lat	C								
Solids, Total	82.8		%	0.100	NA	1	-	07/23/21 10:0	)3 121,2540G	RI

Solids, Total	87.5		%	0.100	NA	1	-	07/23/21 10:03	121,2540G	RI
General Chemistry - We	estborough Lal	b								
Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analys
Sample Depth: Matrix:	Soil									
Sample Location:	LACKAWAN	NNA, NY					Field	Prep: N	lot Specified	
Lab ID: Client ID:	L2139572-0 TP-2 0-2FT	)2					Date Date	Collected: 0 Received: 0	7/21/21 09:30 7/22/21	)
				SAMPLE	RESUL	rs		0 11 / 1 0		
Project Number:	B0520-021-	001-003					Repo	rt Date: 0	8/02/21	
Project Name:	539 RIDGE	ROAD					Lab N	Number: L	2139572	

Solids, Total	75.7		%	0.100	NA	1	-	07/23/21 10:0	121,2540G	RI
General Chemistry - We	estborough La	b								
Parameter	Result	Qualifier	Units	RL	MDL	Factor	Prepared	Analyzed	Method	Analyst
						Dilution	Date	Date	Analytical	
Sample Depth: Matrix:	Soil									
Sample Location:	LACKAWAN	NNA, NY					Field	Prep:	Not Specified	
Client ID:	TP-7 0-1FT						Date	Received:	07/22/21	
Lab ID:	L2139572-0	)3					Date	Collected:	07/21/21 11:00	)
				SAMPLE	RESUL	ГS				
Project Number:	B0520-021-	001-003					Repo	rt Date:	08/02/21	
Project Name:	539 RIDGE	ROAD					Lab N	lumber:	L2139572	



Project Name:	539 RIDGE	ROAD					Lab N	Number:	L2139572	
Project Number:	B0520-021-0	001-003					Repo	ort Date:	08/02/21	
				SAMPLE	RESUL	TS				
Lab ID: Client ID: Sample Location:	L2139572-0 TP-9 3-4FT LACKAWAN	4 INA, NY					Date Date Field	Collected: ( Received: ( Prep: I	07/21/21 11:30 07/22/21 Not Specified	)
Sample Depth: Matrix:	Soil					Dilution	Data	Data	Analytical	
Parameter	Result	Qualifier	Units	RL	MDL	Factor	Prepared	Analyzed	Method	Analyst
General Chemistry - We	stborough Lat	)								
Solids, Total	83.6		%	0.100	NA	1	-	07/23/21 10:03	3 121,2540G	RI

Project Name:	539 RIDGE	ROAD					Lab N	Number:	L2139572	
Project Number:	B0520-021-	001-003					Repo	ort Date:	08/02/21	
				SAMPLE	RESUL	TS				
Lab ID: Client ID: Sample Location:	L2139572-0 TP-6 2-3FT LACKAWAN	5 INA, NY					Date Date Field	Collected: Received: Prep:	07/21/21 10:30 07/22/21 Not Specified	)
Sample Depth: Matrix:	Soil					Dilution	Date	Data	Analytical	
Parameter	Result	Qualifier	Units	RL	MDL	Factor	Prepared	Analyzed	Method	Analyst
General Chemistry - We	stborough Lat	)								
Solids, Total	86.0		%	0.100	NA	1	-	07/23/21 10:0	3 121,2540G	RI

Project Name: Project Number:	539 RIDGE ROAD B0520-021-001-003	L	nb Number eport Date	: L2139572 : 08/02/21				
Parameter		Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits	
General Chemistry - Wes	stborough Lab Associated sar	nple(s): 01-05 QC Bat	tch ID: WG1527142-1	QC Sample:	L2139350-01	Client ID:	DUP Sample	

- -

General Chemistry - Westbolough Lab	Associated sample(s). 01-05	QC Balch ID. WG1527142-	- I QC Sample.	L2139300-01 CI	ent ID. DUP Sample
Solids, Total	79.2	78.2	%	1	20



Project Name: 539 RIDGE ROAD Project Number: B0520-021-001-003 Serial\_No:08022116:53 Lab Number: L2139572 Report Date: 08/02/21

## Sample Receipt and Container Information

Were project specific reporting limits specified?

YES

## **Cooler Information**

Cooler	Custody Seal					
A	Absent					

# Containar Information

			Initial	Final	Temp			Frozen		
Container ID	Container Type	Cooler	pН	pН	deg C	Pres	Seal	Date/Time	Analysis(*)	
L2139572-01A	Glass 60mL/2oz unpreserved	А	NA		3.5	Y	Absent		SUB-RCRA8(28)	
L2139572-01B	Glass 120ml/4oz unpreserved	А	NA		3.5	Y	Absent		TS(7),NYTCL-8082(365)	
L2139572-01C	Vial Large Septa unpreserved (4oz)	А	NA		3.5	Y	Absent		NYCP51-PAH(14)	
L2139572-01D	Glass 250ml/8oz unpreserved	А	NA		3.5	Y	Absent		-	
L2139572-02A	Glass 60mL/2oz unpreserved	А	NA		3.5	Y	Absent		SUB-RCRA8(28)	
L2139572-02B	Glass 120ml/4oz unpreserved	А	NA		3.5	Y	Absent		TS(7),NYTCL-8082(365)	
L2139572-02C	Vial Large Septa unpreserved (4oz)	А	NA		3.5	Y	Absent		NYCP51-PAH(14)	
L2139572-02D	Glass 250ml/8oz unpreserved	А	NA		3.5	Y	Absent		-	
L2139572-03A	Vial Large Septa unpreserved (4oz)	А	NA		3.5	Y	Absent		SUB-RCRA8(28)	
L2139572-03B	Glass 250ml/8oz unpreserved	А	NA		3.5	Y	Absent		NYCP51-PAH(14),TS(7),NYTCL-8082(365)	
L2139572-04A	Vial Large Septa unpreserved (4oz)	А	NA		3.5	Y	Absent		SUB-RCRA8(28)	
L2139572-04B	Glass 250ml/8oz unpreserved	А	NA		3.5	Y	Absent		NYCP51-PAH(14),TS(7),NYTCL-8082(365)	
L2139572-05A	Vial Large Septa unpreserved (4oz)	А	NA		3.5	Y	Absent		SUB-RCRA8(28)	
L2139572-05B	Glass 250ml/8oz unpreserved	А	NA		3.5	Y	Absent		NYCP51-PAH(14),TS(7),NYTCL-8082(365)	



# Project Name: 539 RIDGE ROAD

## Project Number: B0520-021-001-003

# Lab Number: L2139572

## Report Date: 08/02/21

## 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	<ul> <li>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.</li> </ul>
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.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
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.

Report Format: DU Report with 'J' Qualifiers



# Project Name: 539 RIDGE ROAD Project Number: B0520-021-001-003

# Lab Number: L2139572 Report Date: 08/02/21

#### 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.

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 Waterpreserved 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.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

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. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

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 Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.
- 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 concentrations of the analyte at less than ten times (10x) the concentrations of the analyte at less than ten times (10x) the concentrations of the analyte at less than ten times (10x) the concentrations of the analyte at less than ten times (10x) the 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. For NJ-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 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.
- **F** The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.
- 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. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. 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 method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



# Project Name: 539 RIDGE ROAD

Project Number: B0520-021-001-003

Lab Number: L2139572 Report Date: 08/02/21

#### Data Qualifiers

- 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.



 Project Name:
 539 RIDGE ROAD

 Project Number:
 B0520-021-001-003

 Lab Number:
 L2139572

 Report Date:
 08/02/21

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

## 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, Naphthalene

EPA 625/625.1: alpha-Terpineol

EPA 8260C/8260D: <u>NPW</u>: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; <u>SCM</u>: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.

**EPA 8270D/8270E:** <u>NPW:</u> Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; <u>SCM</u>: Dimethylnaphthalene,1,4-Diphenylhydrazine. **SM4500**: <u>NPW</u>: Amenable Cyanide; <u>SCM</u>: Total Phosphorus, TKN, NO2, NO3.

### Mansfield Facility

SM 2540D: TSS

**EPA 8082A:** <u>NPW:</u> 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, SM4500CI-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-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 622.2: Obtained and the BLIC, beta BLIC, beta BLIC, data BLIC, Dickdar, DBD, DBE, DDT, Endeputer, Ladouter, Ladouter, Ladouter, Ladouter, SM4500-CH, SM

**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, SM9222D.

#### 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, EPA 537.1.

#### 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.

### Serial\_No:08022116:53

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PAX: 508-898-9193	FAX: 508-822-3288	Project Location: 64	ckabe	NPG	NG			EQu	S (1 File)		EQui	S (4 F	ile)	PO#	
Client Information		Project # BOSZ	0-021	-001-0	500			Othe	r	-	1.000			177	
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ALPHA Lab ID	Sa	ample ID	Coll	ection	Sample	Sampler's	d'	5	3						±
(Lab Use Only)	1		Date	Time	Matrix	Initials	5	R	C					Sample Specific Comments	e
395+2-01	11-1	0.25-214	7/2//21	8:00	Soil	NAS	X	×	×						3
-02	11-20	0-2Ff	1	9:30			×	4	X						3
-03	TP-70	2-114		11:00			×	4	$\times$						2
-04	TP-9	3-4 FF		11:30			X	X	¥		1				2
-05	17-63	2-3++	Y	10:30	V	V	×	×	$\times$						2
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Preservative Code: A = None B = HCI C = HNO <sub>1</sub>	Container Code P = Plastic A = Amber Glass V = Vial	Westboro: Certification Mansfield: Certification	No: MA935 No: MA015		Cor	ntainer Type	A	A	4					Please print clearly, legib and completely. Samples	ily s can
D = H <sub>2</sub> SO <sub>4</sub> E = NaOH	G = Glass B = Bacteria Cup				F	Preservative	0	0	0					not be logged in and turnaround time clock will	l not
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K/E = Zn Ac/NaOH O = Other -160	D = BOD Bottle	Che		7/22/21	1540	MA	A.	10	A	7/	23/21	01	:00	HAS READ AND AGREE TO BE BOUND BY ALPH	IA'S
Form No: 01-25 HC (rev. 30	-Sept-2013)								D	-			_	TERMS & CONDITIONS (See reverse side.)	8



Monday, August 02, 2021

Attn: Brenda Pirinelli Alpha Analytical Lab 8 Walkup Drive Westborough, MA 01581

 Project ID:
 L2139572

 SDG ID:
 GCI80517

 Sample ID#s:
 CI80517 - CI80521

This laboratory is in compliance with the NELAC requirements of procedures used except where indicated.

This report contains results for the parameters tested, under the sampling conditions described on the Chain Of Custody, as received by the laboratory. This report is incomplete unless all pages indicated in the pagination at the bottom of the page are included.

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

A scanned version of the COC form accompanies the analytical report and is an exact duplicate of the original.

If you are the client above and have any questions concerning this testing, please do not hesitate to contact Phoenix Client Services at ext.200. The contents of this report cannot be discussed with anyone other than the client listed above without their written consent.

Sincerely yours,

 $\lambda = 0$ 

Phyllis/Shiller Laboratory Director

NELAC - #NY11301 CT Lab Registration #PH-0618 MA Lab Registration #M-CT007 ME Lab Registration #CT-007 NH Lab Registration #213693-A,B NJ Lab Registration #CT-003 NY Lab Registration #11301 PA Lab Registration #68-03530 RI Lab Registration #63 UT Lab Registration #CT00007 VT Lab Registration #VT11301





# Sample Id Cross Reference

August 02, 2021

SDG I.D.: GCI80517

Project ID: L2139572

Client Id	Lab Id	Matrix
TP-1 0.25-2 FT	CI80517	SOIL
TP-2 0-2 FT	CI80518	SOIL
TP-7 0-1 FT	CI80519	SOIL
TP-9 3-4 FT	CI80520	SOIL
TP-6 2-3 FT	CI80521	SOIL





# Analysis Report

August 02, 2021

FOR: Attn: Brenda Pirinelli Alpha Analytical Lab 8 Walkup Drive Westborough, MA 01581

Sample	Information

Matrix:

P.O.#:

Location Code: Rush Request:

<u>on</u>	Custody Inforn	nation	<u>Date</u>	<u>Time</u>
SOIL	Collected by:		07/21/21	8:00
ALPHA	Received by:	LB	07/23/21	12:40
Standard	Analyzed by:	see "By" below		

## Laboratory Data

SDG ID: GCI80517 Phoenix ID: CI80517

Project ID:	L2139572
Client ID:	TP-1 0.25-2 F

TP-1 0.25-2 FT

_		RL/				_	- /
Parameter	Result	PQL	Units	Dilution	Date/Time	Ву	Reference
Silver	< 0.48	0.48	mg/Kg	1	07/31/21	CPP	SW6010D
Arsenic	14.2	0.95	mg/Kg	1	07/31/21	CPP	SW6010D
Barium	108	0.48	mg/Kg	1	07/31/21	CPP	SW6010D
Cadmium	1.60	0.48	mg/Kg	1	07/31/21	CPP	SW6010D
Chromium	15.0	0.48	mg/Kg	1	07/31/21	CPP	SW6010D
Mercury	0.08	0.04	mg/Kg	2	07/27/21	AT	SW7471B
Lead	174	0.48	mg/Kg	1	07/31/21	CPP	SW6010D
Selenium	< 1.9	1.9	mg/Kg	1	07/31/21	CPP	SW6010D
Percent Solid	73		%		07/23/21	AR	SW846-%Solid
Sample Disposal	Completed				07/23/21		
Mercury Digestion	Completed				07/26/21	AB/CG/A	BSW7471B
Total Metals Digest	Completed				07/23/21		SW3050B

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL BRL=Below Reporting Level L=Biased Low

### Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

Phyllis, Shiller, Laboratory Director August 02, 2021 Reviewed and Released by: Rashmi Makol, Project Manager





# **Analysis Report**

August 02, 2021

FOR: Attn: Brenda Pirinelli Alpha Analytical Lab 8 Walkup Drive Westborough, MA 01581

Sample	Information	

Matrix:	SOIL
Location Code:	ALPHA
Rush Request:	Standard
P.O.#:	

Custody Inform	nation	<u>Date</u>	<u>Time</u>
Collected by:		07/21/21	9:30
Received by:	LB	07/23/21	12:40
Analyzed by:	see "By" below		

## Laboratory Data

**DI** /

SDG ID: GCI80517 Phoenix ID: CI80518

Project ID:	L2139572
Client ID:	TP-2 0-2 F

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		KL/						
Parameter	Result	PQL	Units	Dilution	Date/Time	By	Reference	
Silver	< 0.41	0.41	mg/Kg	1	07/31/21	CPP	SW6010D	
Arsenic	8.26	0.81	mg/Kg	1	07/31/21	CPP	SW6010D	
Barium	86.9	0.41	mg/Kg	1	07/31/21	CPP	SW6010D	
Cadmium	1.82	0.41	mg/Kg	1	07/31/21	CPP	SW6010D	
Chromium	23.4	0.41	mg/Kg	1	07/31/21	CPP	SW6010D	
Mercury	0.20	0.03	mg/Kg	2	07/27/21	AT	SW7471B	
Lead	158	0.41	mg/Kg	1	07/31/21	CPP	SW6010D	
Selenium	< 1.6	1.6	mg/Kg	1	07/31/21	CPP	SW6010D	
Percent Solid	81		%		07/23/21	AR	SW846-%Solid	
Sample Disposal	Completed				07/23/21			
Mercury Digestion	Completed				07/26/21	AB/CG/A	BSW7471B	
Total Metals Digest	Completed				07/23/21		SW3050B	

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL BRL=Below Reporting Level L=Biased Low

### Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

Phyllis Shiller, Laboratory Director August 02, 2021 Reviewed and Released by: Rashmi Makol, Project Manager





# **Analysis Report**

August 02, 2021

FOR: Attn: Brenda Pirinelli Alpha Analytical Lab 8 Walkup Drive Westborough, MA 01581

Sample Information
--------------------

Matrix:	SOIL
Location Code:	ALPHA
Rush Request:	Standard
P.O.#:	

Custody Inform	nation	<u>Date</u>	<u>Time</u>
Collected by:		07/21/21	11:00
Received by:	LB	07/23/21	12:40
Analyzed by:	see "By" below		

## Laboratory Data

**DI** /

SDG ID: GCI80517 Phoenix ID: CI80519

Project ID:	L2139572
Client ID:	TP-7 0-1 F

Т

		KL/					
Parameter	Result	PQL	Units	Dilution	Date/Time	Ву	Reference
Silver	< 0.39	0.39	mg/Kg	1	07/31/21	CPP	SW6010D
Arsenic	9.48	0.78	mg/Kg	1	07/31/21	CPP	SW6010D
Barium	78.1	0.39	mg/Kg	1	07/31/21	CPP	SW6010D
Cadmium	1.55	0.39	mg/Kg	1	07/31/21	CPP	SW6010D
Chromium	16.3	0.39	mg/Kg	1	07/31/21	CPP	SW6010D
Mercury	0.35	0.03	mg/Kg	2	07/27/21	AT	SW7471B
Lead	96.3	0.39	mg/Kg	1	07/31/21	CPP	SW6010D
Selenium	< 1.6	1.6	mg/Kg	1	07/31/21	CPP	SW6010D
Percent Solid	79		%		07/23/21	AR	SW846-%Solid
Sample Disposal	Completed				07/23/21		
Mercury Digestion	Completed				07/26/21	AB/CG/A	BSW7471B
Total Metals Digest	Completed				07/23/21		SW3050B

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL BRL=Below Reporting Level L=Biased Low

### Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

Phyllis Shiller, Laboratory Director August 02, 2021 Reviewed and Released by: Rashmi Makol, Project Manager





# **Analysis Report**

August 02, 2021

FOR: Attn: Brenda Pirinelli Alpha Analytical Lab 8 Walkup Drive Westborough, MA 01581

	Sampl	e Info	rmation
--	-------	--------	---------

Matrix:	SOIL	(
Location Code:	ALPHA	F
Rush Request:	Standard	A
P.O.#:		

Custody Inform	nation	<u>Date</u>	<u>Time</u>
Collected by:		07/21/21	11:30
Received by:	LB	07/23/21	12:40
Analyzed by:	see "By" below		

## Laboratory Data

**DI** /

SDG ID: GCI80517 Phoenix ID: CI80520

Project ID:	L2139572
Client ID:	TP-9 3-4 F

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Demonster	Deeuk	RL/		l	Dibution	Dete/Time	<b>D</b>	Defenses
Parameter	Result	PQL	U	nits	Dilution	Date/Time	Ву	Reference
Silver	< 0.43	0.43	m	g/Kg	1	07/31/21	CPP	SW6010D
Arsenic	9.20	0.86	m	g/Kg	1	07/31/21	CPP	SW6010D
Barium	114	0.43	m	g/Kg	1	07/31/21	CPP	SW6010D
Cadmium	1.68	0.43	m	g/Kg	1	07/31/21	CPP	SW6010D
Chromium	19.7	0.43	m	g/Kg	1	07/31/21	CPP	SW6010D
Mercury	0.36	0.03	m	g/Kg	2	07/27/21	AT	SW7471B
Lead	106	0.43	m	g/Kg	1	07/31/21	CPP	SW6010D
Selenium	< 1.7	1.7	m	g/Kg	1	07/31/21	CPP	SW6010D
Percent Solid	81			%		07/23/21	AR	SW846-%Solid
Sample Disposal	Completed					07/23/21		
Mercury Digestion	Completed					07/26/21	AB/CG/A	BSW7471B
Total Metals Digest	Completed					07/23/21		SW3050B

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL BRL=Below Reporting Level L=Biased Low

### Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

Phyllis Shiller, Laboratory Director August 02, 2021 Reviewed and Released by: Rashmi Makol, Project Manager





# **Analysis Report**

August 02, 2021

FOR: Attn: Brenda Pirinelli Alpha Analytical Lab 8 Walkup Drive Westborough, MA 01581

Sample	Information

Matrix:	SOIL
Location Code:	ALPHA
Rush Request:	Standard
P.O.#:	

Custody Inform	nation	<u>Date</u>	<u>Time</u>
Collected by:		07/21/21	10:30
Received by:	LB	07/23/21	12:40
Analyzed by:	see "By" below		

## Laboratory Data

DI /

SDG ID: GCI80517 Phoenix ID: CI80521

Project ID:	L2139572
Client ID:	TP-6 2-3 F

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Parameter	Result	PQL	Units	Dilution	Date/Time	By	Reference
Silver	< 0.36	0.36	mg/Kg	1	07/29/21	CPP	SW6010D
Arsenic	7.08	0.71	mg/Kg	1	07/29/21	CPP	SW6010D
Barium	79.5	0.36	mg/Kg	1	07/29/21	CPP	SW6010D
Cadmium	0.39	0.36	mg/Kg	1	07/29/21	CPP	SW6010D
Chromium	9.29	0.36	mg/Kg	1	07/29/21	CPP	SW6010D
Mercury	< 0.03	0.03	mg/Kg	2	07/27/21	AT	SW7471B
Lead	203	0.36	mg/Kg	1	07/29/21	CPP	SW6010D
Selenium	< 1.4	1.4	mg/Kg	1	07/29/21	CPP	SW6010D
Percent Solid	90		%		07/23/21	AR	SW846-%Solid
Sample Disposal	Completed				07/23/21		
Mercury Digestion	Completed				07/26/21	AB/CG/A	BSW7471B
Total Metals Digest	Completed				07/23/21	J/AG/BF	SW3050B

RL/PQL=Reporting/Practical Quantitation Level (Equivalent to NELAC LOQ, Limit of Quantitation) ND=Not Detected at RL/PQL BRL=Below Reporting Level L=Biased Low

### Comments:

All soils, solids and sludges are reported on a dry weight basis unless otherwise noted in the sample comments.

Phyllis Shiller, Laboratory Director August 02, 2021 Reviewed and Released by: Rashmi Makol, Project Manager

SDG I.D.: GCI80517



Environmental Laboratories, Inc. 587 East Middle Turnpike, P.O.Box 370, Manchester, CT 06045 Tel. (860) 645-1102 Fax (860) 645-0823



# QA/QC Report

August 02, 2021

### QA/QC Data

Parameter	Blank	Blk RL	Sample Result	Dup Result	Dup RPD	LCS %	LCSD %	LCS RPD	MS %	MSD %	MS RPD	% Rec Limits	% RPD Limits
QA/QC Batch 584980 (mg/kg),	QC Sam	ple No:	CI80466	2X (CI8	0517, C	CI80518	3, CI805	19, CI8	0520, 0	CI80521	)		
Mercury - Soil Comment:	BRL	0.03	<0.03	<0.03	NC	119	122	2.5	103	112	8.4	70 - 130	30
Additional Mercury criteria: LCS a	cceptanc	e range f	or waters	is 80-120	% and fo	or soils is	s 70-1309	%. MS a	cceptan	ce range	is 75-1	25%.	
QA/QC Batch 584807 (mg/kg),	QC Sam	ple No:	CI80452	(CI8051	17, CI80	)518, C	180519,	CI8052	20)				
ICP Metals - Soil													
Arsenic	BRL	0.67	4.50	4.82	6.90	112	113	0.9	106			75 - 125	35
Barium	BRL	0.33	45.2	48.2	6.40	108	110	1.8	109			75 - 125	35
Cadmium	BRL	0.33	0.75	0.81	NC	105	107	1.9	102			75 - 125	35
Chromium	BRL	0.33	9.27	9.99	7.50	107	107	0.0	103			75 - 125	35
Lead	BRL	0.33	6.62	7.48	12.2	110	113	2.7	109			75 - 125	35
Selenium	BRL	1.3	<1.4	<1.5	NC	111	111	0.0	107			75 - 125	35
Silver	BRL	0.33	<0.36	<0.37	NC	105	107	1.9	103			75 - 125	35
Comment:													
Additional Criteria: LCS acceptant	ce range i	s 80-120	% MS acc	ceptance	range 75	5-125%.							
QA/QC Batch 584837 (mg/kg).	QC Sam	ple No:	CI80456	(CI8052	21)								
ICP Metals - Soil					,								
Arsenic	BRI	0.67	3.85	3.90	NC	105	107	1.9	99.4	98.0	1.4	75 - 125	35
Barium	BRL	0.33	187	159	16.2	101	107	5.8	88.3	81.4	8.1	75 - 125	35
Cadmium	BRL	0.33	<0.48	<0.49	NC	109	104	4.7	98.3	96.8	1.5	75 - 125	35
Chromium	BRL	0.33	49.0	48.9	0.20	103	103	0.0	102	99.7	2.3	75 - 125	35
Lead	BRL	0.33	54.8	10.9	134	101	103	2.0	87.7	86.1	1.8	75 - 125	35
Selenium	BRL	1.3	<1.9	<2.0	NC	102	102	0.0	96.5	95.4	1.1	75 - 125	35
Silver	BRL	0.33	<0.48	<0.49	NC	95.1	101	6.0	99.4	98.6	0.8	75 - 125	35
Comment:													
Additional Criteria, LCC assertan		- 00 100				1050/							

Additional Criteria: LCS acceptance range is 80-120% MS acceptance range 75-125%.

r = This parameter is outside laboratory RPD specified recovery limits.

If there are any questions regarding this data, please call Phoenix Client Services at extension 200.

**RPD** - Relative Percent Difference

LCS - Laboratory Control Sample

LCSD - Laboratory Control Sample Duplicate

MS - Matrix Spike

MS Dup - Matrix Spike Duplicate

NC - No Criteria

Intf - Interference

Phyllis/Shiller, Laboratory Director August 02, 2021

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Monday, Aug	ust 02, 2021		Sample Criter	ia Exceedances Report					
Criteria: N	lone		Gampio onton GC						
State: N	١Y							RI	Analysis
SampNo	Acode	Phoenix Analyte	Criteria	Re	sult	RL	Criteria	Criteria	Units

\*\*\* No Data to Display \*\*\*

Phoenix Laboratories does not assume responsibility for the data contained in this exceedance report. It is provided as an additional tool to identify requested criteria exceedences. All efforts are made to ensure the accuracy of the data (obtained from appropriate agencies). A lack of exceedence information does not necessarily suggest conformance to the criteria. It is ultimately the site professional's responsibility to determine appropriate compliance.





## Analysis Comments

August 02, 2021

SDG I.D.: GCI80517

The following analysis comments are made regarding exceptions to criteria not already noted in the Analysis Report or QA/QC Report: None.





# **NY Temperature Narration**

August 02, 2021



SDG I.D.: GCI80517

The samples in this delivery group were received at 1.1°C. (Note acceptance criteria for relevant matrices is above freezing up to 6°C)

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