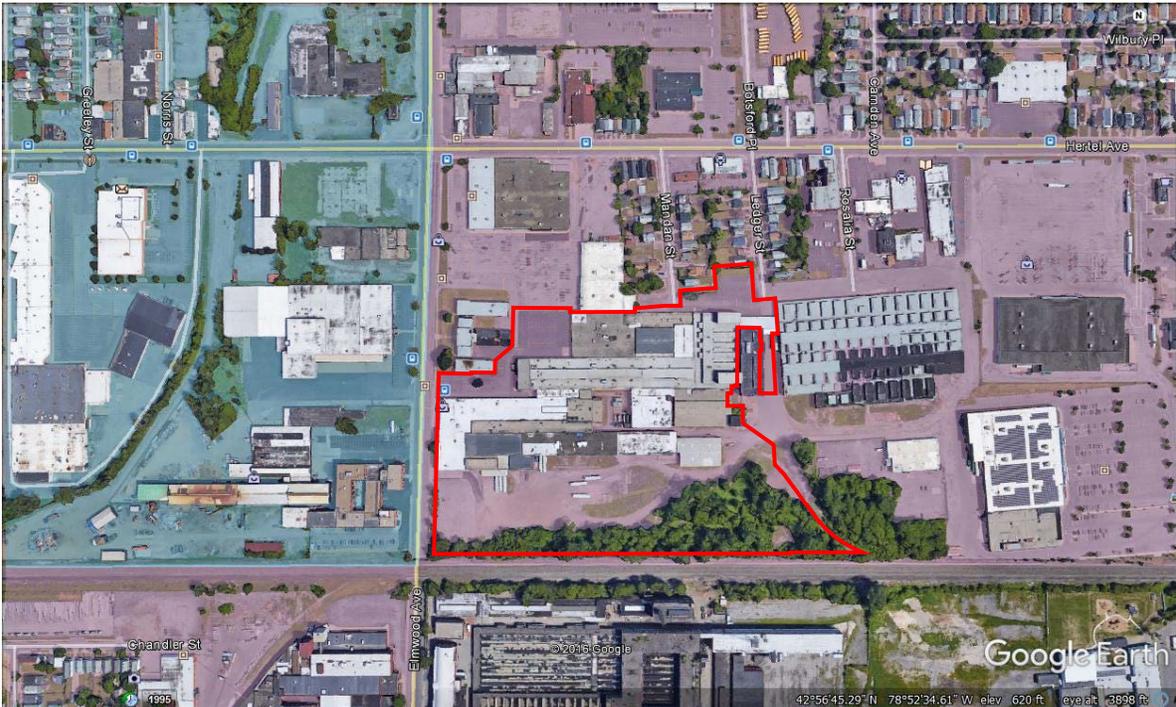


**INTERIM REMEDIAL MEASURE WORK PLAN  
for  
Hot Spot Removal**

**BROWNFIELDS CLEANUP PROGRAM  
For  
MOD-PAC CORP. SITE  
1801 Elmwood Avenue, Buffalo, New York 14207  
BCP # C915314**



Prepared For:  
**MOD-PAC CORP.**  
1801 Elmwood, Buffalo, New York 14203  
HEI Project No: e1601

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March 11, 2019

## CERTIFICATION

I, Michele M. Wittman, P.G., certify that I am currently a NYS registered professional geologist and that this Interim Remedial Measures Work Plan was prepared in accordance with applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10)



Michele M. Wittman, P.G.  
Wittman GeoSciences, PLLC  
New York License Number 000726

3/11/2019

Date



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## 1.0 INTRODUCTION

### 1.1 Project Background

This Interim Remedial Measure (IRM) incorporates remedial activities summarized in a proposed scope of work (Work Plan) to be undertaken at the MOD-PAC CORP. (MOD-PAC) facility located in the City of Buffalo, New York (Site), as shown on Figure 1 and Figure 2. The Applicant, MOD-PAC CORP., has been accepted into the Brownfield Cleanup Program (BCP) as a Participant.

This IRM Work Plan for Hot Spot Removal presents the planned interim remedial steps that will be implemented at the Site to address areas of soil contamination exceeding either Commercial Use soil cleanup objectives (CUSCO) and/or Site Specific Action Limits (SSAL) that were identified during the Remedial Investigation (RI). Based on RI findings, as presented in the Draft Remedial Investigation - Alternative Analysis Report (RI-AAR Report), dated February 18, 2019, approximately 1,800 cubic yards (cy) of contaminated soil/fill materials will be excavated and disposed off-Site. Following the performance of this IRM, the results will be summarized in an IRM Report, and included within the Final Engineering Report (FER) to be submitted to NYSDEC.

## 2.0 INTERIM REMEDIAL MEASURES

This IRM Work Plan for Hot Spot Removal is based on the review and summary of data collected during RI work done in Fall/Winter 2017-2018. Metal soil analytical results are summarized on attached Table 1 and presented on Figure 3.

### 2.1 IRM Tasks

The Site has a historical industrial use past for over the past 100 years. Due to its historical usage, significant amounts of fill materials are present throughout the Site, and present at the surface in the southern portion and ranging in depth from 4 feet to over 19 feet below ground surface. Therefore, general excavation and removal of impacted soil/fill materials exceeding CUSCO would not be practical nor economically feasible. Additionally, the presence of contaminants of concern (COC), including semi-volatile organic compounds (SVOCs) and arsenic, is ubiquitous throughout the property.

Limited areas of significant contaminant concentrations or hot spots were identified, as shown on Figure 4.

SSALs were developed for the Site, that remain protective of public health and the environment under a commercial and restricted-use scenario. Environmental Controls (EC) and Institutional Controls (IC) restrictions will be placed on the Site.

To determine the SSALs to be commissioned for the Site, the following conditions were considered.

- The requirement to remediate areas exceeding SSAL; and
- Exposure scenario for Site workers which may perform required maintenance work

or other subsurface intrusive work, such as utility repair or installation, involving work below the cover system.

The following SSALs are assigned to the Site for soil below the cover system.

<u>Analyte</u>	<u>SSAL</u>
Arsenic	30 mg/kg
Lead	1,500 mg/kg
Copper	270 mg/kg (CUSCO)
Cadmium	9.3 mg/kg (CUSCO)
Total PAHs	500 mg/kg

The application of the assigned SSAL to the Site results in five areas of soil/fill materials below the proposed future cover system that will be excavated, as shown on Figure 4, and listed below:

- SB101 (0.5-3.5') – Arsenic at 36.9 mg/kg; lead 1,570 mg/kg
- TP103 (1-2.5') – Lead at 3,310 mg/kg
- TP104 (2-5') – Arsenic at 109 mg/kg
- TP108 (4-5.5') – Arsenic at 46.4 mg/kg; copper at 314 mg/kg; cadmium at 10.2 mg/kg
- SS102 (0-2") Duplicate – Surface soil sample – Arsenic at 141 ug/kg

Each of the above locations will be excavated as listed below and shown on Figure 4.

- SB101 will be initially excavated to approximately 40 feet by 40 feet by 5 feet deep, resulting in an estimated volume of 300 cubic yards.
- TP103 will be initially excavation to approximately 40 feet by 40 feet by 3 feet deep, resulting in an estimated volume of 180 cubic yards.
- TP104 will be initially excavated to approximately 40 feet by 40 feet by 5 feet deep, resulting in an estimated volume of 300 cubic yards.
- TP-108 will initially be excavated approximately 60 feet by 60 feet by 7 feet deep, resulting in an estimated volume of 950 cubic yards.
- An approximate 40 foot by 25 foot by one-foot deep excavation will be completed in the area of SS102, resulting in an additional 35 cubic yards.

The identified excavation areas are anticipated to generate approximately 1,800 cy of soil for off-Site disposal. Following initial excavation, confirmatory soil samples will be collected from each excavation area, including one bottom and four sidewall samples, which will be analyzed for target analyte list (TAL) metals. Should SSAL not be accomplished, further soil excavation will be completed, as needed.

## 2.2 Site Control

To safeguard the health and safety of Site workers and the general public, access to remedial work areas will be restricted. Prior to implementation of these IRM activities, Site control will be completed by establishment of a demarcation identifying work areas. Temporary

construction fencing may be erected around staging areas to prevent unauthorized personnel from entering these areas as appropriate.

Site control will be completed in the five specific locations. Access to each hot spot removal action will be restricted. Temporary construction fencing will be erected around excavations SB101, TP103, TP104 and TP-108 to prevent unauthorized personnel from entering these areas. The excavation area at SS102 is located within a courtyard area which is surrounded by the MOD-PAC manufacturing building which has a locked gate access. This excavation is anticipated to be one-foot deep and will not be fenced, although signage will be posted on the access gate.

### **2.3 Soil Excavation**

As discussed in the RI-AAR Report, the on-Site fill material is ubiquitous throughout the Site. The estimated limits of each excavation is listed in Section 2.1 above. Due to the large amounts of fill materials at the Site, the excavations are not anticipated to encounter native soil, but will be completed to the planned excavation size and depth.

Although petroleum or other similar impacts are not anticipated in the soil/fill materials planned for removal, an environmental scientist will be on-Site during excavation to screen the removed soil/fill materials for visual and olfactory observations and for total volatile compounds using an organic vapor meter (OVM) equipped with a photoionization detector (PID). If grossly impacted fill is encountered, the fill will be evaluated and may require separate handling, characterization, and disposal. For purposes of this Work Plan, grossly contaminated soil is defined with PID readings exceeding 100 ppm; and/or unusual visual/olfactory deposits encountered.

### **2.4 Confirmatory Soil Sample Collection and Analysis**

Confirmatory soil samples will be collected from each of the excavation areas from the sidewalls and bottom of each excavation. Based on DER-10 requirements, one sample will be collected every 30 linear feet of sidewall and one sample for every 900 square feet of excavation bottom,

The number of confirmatory samples may be altered based on field conditions, and as agreed upon by a NYSDEC representative. Based on known contamination, it is anticipated that sidewall and bottom samples will be analyzed for TAL Metals only. A summary of expected samples is included on Table 1.

### **2.5 Excavation Backfill**

The southern portion of the Site will be developed for commercial usage to include parking areas and a synthetic turf athletic field. Due to the vast amounts of fill present on the Site, and Site grading required for future development, the excavations on the southern portion of the Site, including TP103, TP104, and TP108, will be rough graded to approximate the surrounding surface grade with soil/fill materials from the general areas of the excavations until Site development activities in Spring of 2019.

The excavation at SB101 is located within an existing roadway and will be backfilled with concrete rubble and other hard fill materials currently stockpiled on-Site in the southern portion of the Site, which were generated from northern parking lot repairs. After backfilling, the area will be topped with asphalt millings which are currently stockpiled on-Site that were generated during the parking lot improvements conducted in the Fall of 2018.

SS102 includes excavation of surface fill materials to a depth of approximately one foot. The courtyard area will be completed with one foot of pre-approved gravel as part of Site development tasks. Therefore, this excavation area will not be backfilled as part of this IRM, but will be marked off with posts and hazard tape.

## **2.6 Landfill Characterization Analysis and Soil Disposal**

Excavated soil will be staged on-Site in a stockpile, placed on and covered with 6-mil polyethylene sheeting, and secured to prevent wind or water erosion, with daily inspections.

The selected characterization analysis will be determined based on solid waste landfill requirements (to be determined), but are expected to include toxicity characteristic leaching procedures (TCLP) VOCs, TCLP SVOCs, TCLP Metals, PCBs, pesticides, herbicides, ignitability, corrosivity, and reactivity. The soil will be disposed based on analytical testing results, and in accordance with applicable State disposal regulations.

Analytical test results will be provided to the selected landfill for soil disposal approval. Stockpiled soils will be loaded into a dump truck. Waste disposal manifests will be signed and provided to the driver. Dump trucks will then be transported to the approved receiving disposal facility by a permitted hauler.

## **2.7 Excavation Water Treatment and Disposal**

The soil pile segregation work is anticipated to be above-grade. Due to the shallow depth of expected excavations and limited groundwater encountered during RI work, groundwater is not anticipated to be encountered during excavation activities. However, should groundwater management be required, work on the Site will cease and a groundwater management plan developed.

## **2.8 Personnel Decontamination**

The degree of decontamination is a function of both the particular task and the physical environment in which it takes place. Decontamination procedures will remain flexible, thereby allowing the decontamination crew to respond appropriately to changing conditions at the Site. On-Site sampling activities will be carried out in such a manner as to avoid gross contamination of Site workers and their personal protective equipment and manual sampling equipment.

Upon the completion of the daily field activities, Site workers will proceed to a designated area to be determined. Equipment (e.g., sampling tools, shovels, hand tools, etc.) will be decontaminated in this area. Prior to leaving the Site for breaks, at the end of the work shift, or when PPE has been grossly contaminated, disposable boot covers, gloves, and suits, if utilized, will be removed and placed in a drum designated for the disposal of these materials.

Contaminated PPE and disposable sampling equipment and tools (e.g., gloves, clothing, sample sleeves, whirl-packs, etc.) that have been accumulated in a drum as described above in Section 2.8 will be staged for proper disposal. This drum will be removed from the Site at the end of the IRM activities.

All fluids collected during equipment decontamination will be containerized with the drum(s) being labeled and staged for proper disposal. The drum(s) will be removed from the Site at the end of the IRM activities.

## **2.9 Decontamination of Equipment**

Equipment decontamination efforts will be completed prior to equipment leaving the Site. Trucks and equipment leaving the Site will be broom-cleaned to remove clumped soil and prevent soil tracking off-Site. Standard construction protocols will be utilized, including on-Site designated truck pattern and periodic sweeping of the construction exit areas. Adjacent roads in the designated truck route will be inspected daily to ensure the prevention of soil migration. Roads that have any soil accumulation will be manually scrapped to reduce fugitive dust emissions. On-Site stone haul roads may be constructed as necessary to reduce the amount of soils tracked on the Site.

The decontamination of excavator or other heavy equipment will be undertaken as necessary. Initially, scraping of the equipment will remove heavily caked materials prior to washing, as necessary. Washing will then be accomplished by pressure washing. Water generated during decontamination activities will be collected, stored in one or more drums, as necessary, and profiled for future off-Site disposal. However, the use of water to clean equipment will be avoided, if possible, to prevent the generation of potentially impacted water.

## **2.10 Erosion and Stormwater Management**

As part of the IRM activities, measures may be needed to limit erosion and manage stormwater. Erosion control and stormwater management will be implemented as needed to limit erosion in disturbed areas during excavation activities. Silt fencing will be the primary sediment control measure used in this area, if deemed necessary. The positioning of the silt fencing will be adjusted as necessary as work proceeds or Site conditions change. Silt fences will be maintained as deemed necessary, and will remain in place until excavation and grading activities are completed.

## **2.11 Dust Monitoring and Controls**

A Community Air Monitoring Plan (CAMP) will be implemented during IRM activities and will include particulate monitoring (Appendix A). CAMP monitors will be positioned at upwind and downwind locations on the perimeter of the Site.

The remediation crew will make all efforts to suppress dust and particulate matter during the handling of contaminated fill materials. Fugitive dust and particulate monitoring will be completed in accordance with DER-10 Appendix 1B. The following techniques have been shown to be effective for the controlling the generation and migration of dust during construction activities:

- (a) Applying water on haul roads;
- (b) Wetting equipment and excavation faces;
- (c) Spraying water on buckets during excavation and dumping;
- (d) Hauling materials in properly tarped or watertight containers;
- (e) Restricting vehicle speeds to 10 mph;
- (f) Covering excavated areas and material after excavation activity ceases; and/or
- (g) Reducing the excavation size and/or number of excavations.

Care will be taken not to use excess water, which can result in unacceptably wet Site conditions. Use of atomizing sprays will prevent overly wet conditions, conserve water and provide an effective means of suppressing fugitive dust.

Weather conditions will be evaluated during remedial work. When extreme wind conditions make dust control ineffective, as a last resort, remedial actions may need to be suspended.

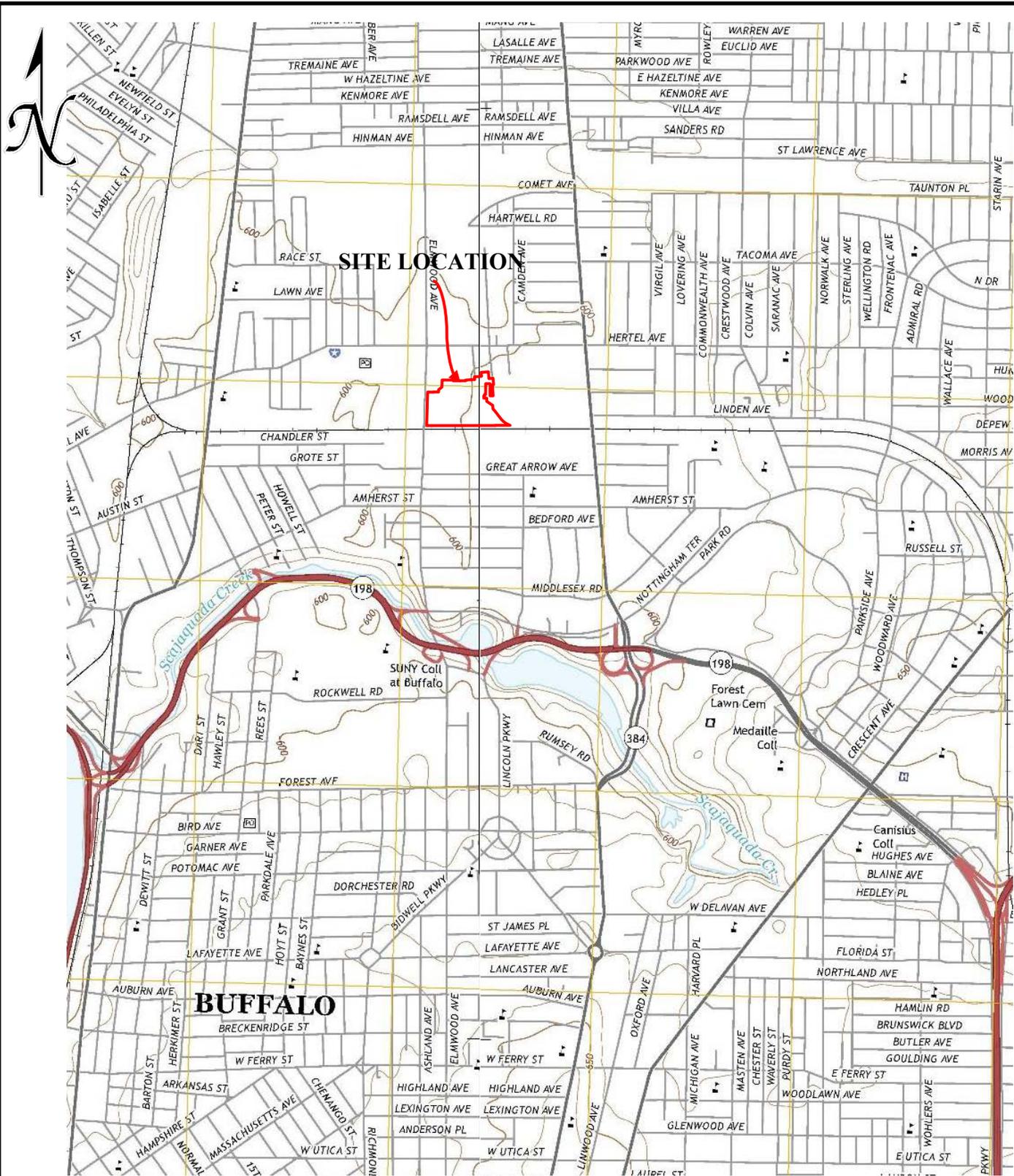
### **3.0 REPORTING**

Upon completion of the field work and receipt of analytical data, a Hot Spot Removal IRM Summary Report will be submitted to NYSDEC. The report will document field work activities, results of confirmatory analytical sampling results, and contain associated figures, tables, and disposal manifests. The results of the IRM activities will also be included within the FER.

### **4.0 PROJECT SCHEDULE**

IRM field work is planned for March 2019, weather permitting, and anticipated to last approximately 3 to 4 days, with loadout to be completed after landfill approval.

## FIGURES



**WITTMAN GEOSCIENCES, PLLC**

**SITE LOCUS PLAN**  
**1801 ELMWOOD AVENUE**  
**BUFFALO, NEW YORK**

DRAWN BY: MMW	SCALE: NOT TO SCALE	PROJECT: 18-103
CHECKED BY: MMW	DATE: 02/2019	FIGURE NO: 1

Base map adapted from USGS topographic maps Buffalo NE and NW, New York quadrangle, dated 2016

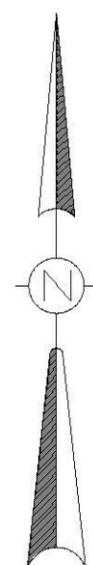
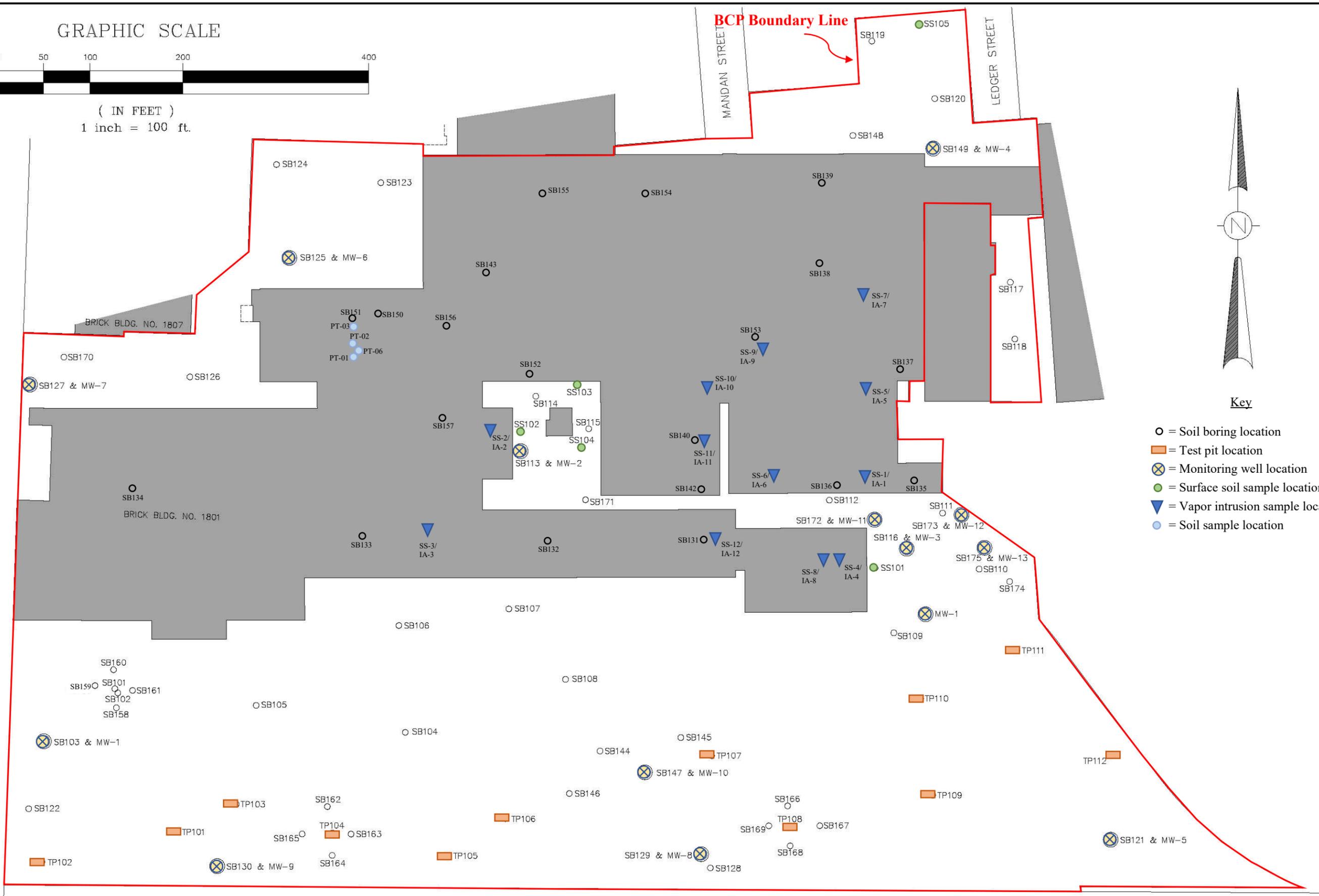
GRAPHIC SCALE



( IN FEET )  
1 inch = 100 ft.

ELMWOOD AVENUE (FORMERLY MACPHERSON STREET)

BCP Boundary Line



Key

- = Soil boring location
- = Test pit location
- ⊗ = Monitoring well location
- = Surface soil sample location
- ▼ = Vapor intrusion sample location
- = Soil sample location

CONRAIL (FORMERLY NEW YORK CENTRAL RAILROAD)

Exterior Investigation locations located by McIntosh & McIntosh; Interior locations measured in the field.

<b>WITTMAN GEOSCIENCES, PLLC</b>	<b>Remedial Investigation Locations</b>	DRAWN BY: MMW	SCALE: 1" = 100'	PROJECT: 18-103
	1801 Elmwood, Buffalo, NY	CHECKED BY: MMW	DATE: 02/2019	FIGURE NO: 2

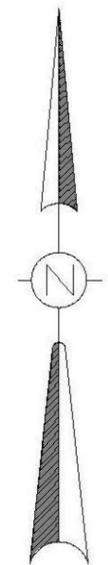
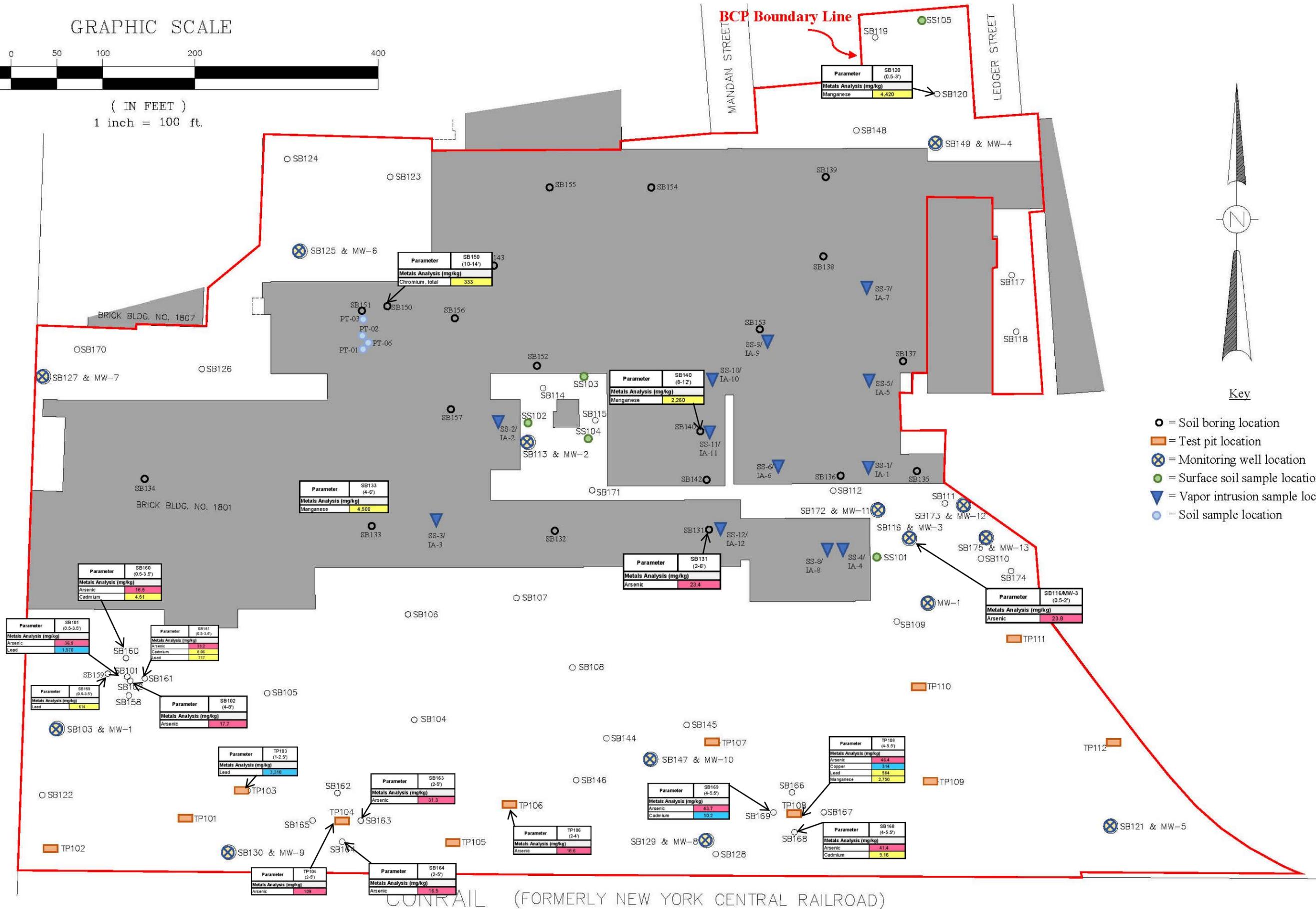
GRAPHIC SCALE



( IN FEET )  
1 inch = 100 ft.

ELMWOOD AVENUE (FORMERLY MACPHERSON STREET)

BCP Boundary Line



Key

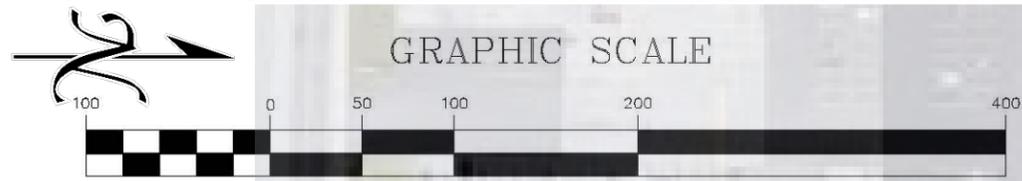
- = Soil boring location
- = Test pit location
- ⊗ = Monitoring well location
- = Surface soil sample location
- ▼ = Vapor intrusion sample location
- = Soil sample location

Shading indicates:  
 exceeds RRUSCO - Restricted Residential Use Soil Cleanup Objective  
 exceeds CUSCO - Commercial Use Soil Cleanup Objective  
 exceeds IUSCO - Industrial Use Soil Cleanup Objective

**WITTMAN  
GEOSCIENCES, PLLC**

**Metals Subsurface Soil Testing Results exceeded Restricted Residential**  
1801 Elmwood, Buffalo, NY

DRAWN BY: MMW	SCALE: 1" = 100'	PROJECT: 18-103
CHECKED BY: MMW	DATE: 02/2019	FIGURE NO: 3



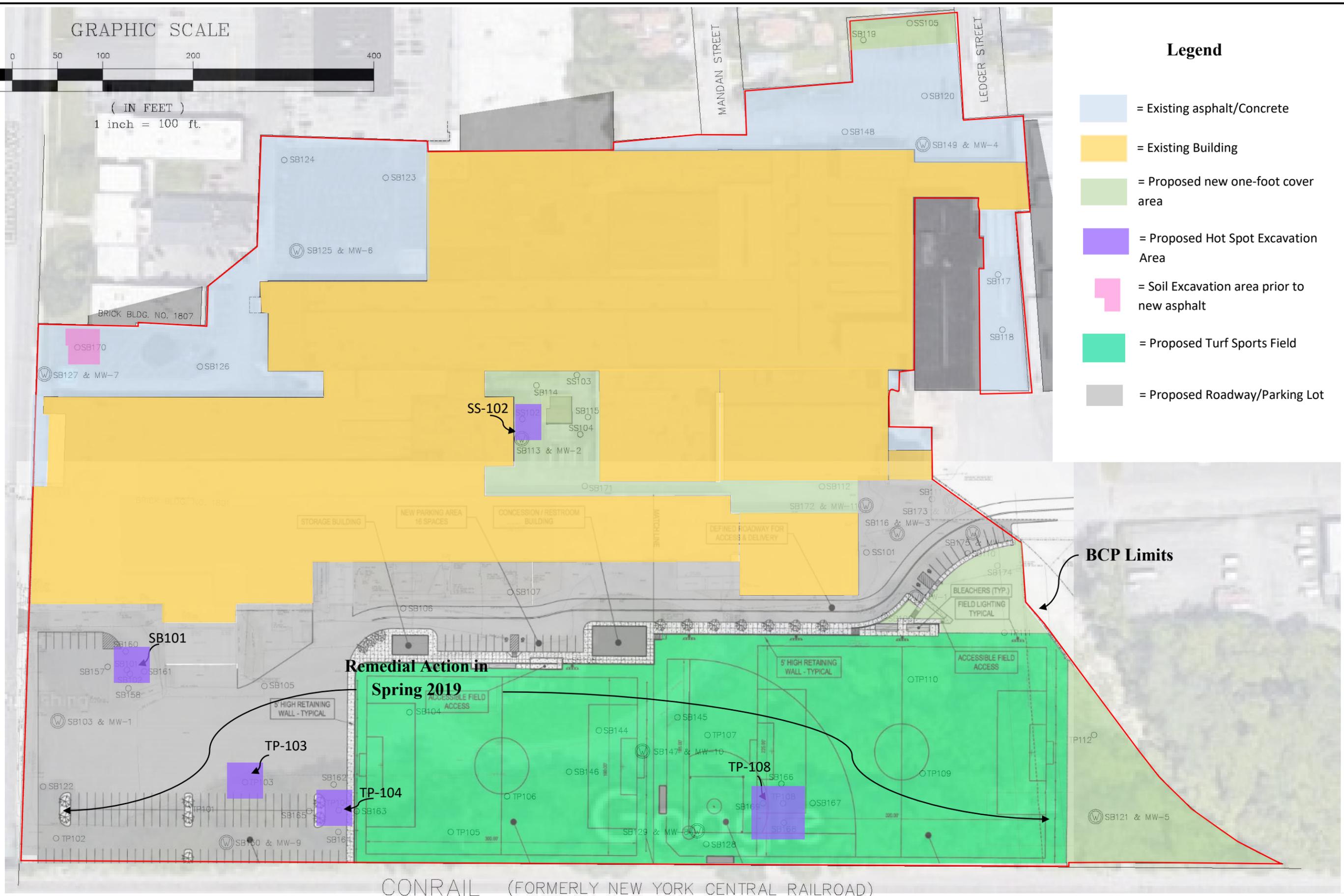
GRAPHIC SCALE

( IN FEET )  
1 inch = 100 ft.

**Legend**

- = Existing asphalt/Concrete
- = Existing Building
- = Proposed new one-foot cover area
- = Proposed Hot Spot Excavation Area
- = Soil Excavation area prior to new asphalt
- = Proposed Turf Sports Field
- = Proposed Roadway/Parking Lot

ELMWOOD AVENUE (FORMERLY MACPHERSON STREET)



CONRAIL (FORMERLY NEW YORK CENTRAL RAILROAD)

<b>WITTMAN GEOSCIENCES, PLLC</b>	<b>IRM Excavation Locations</b> 1801 Elmwood, Buffalo, NY	DRAWN BY: MMW	SCALE: 1" = 100'	PROJECT: 18-103
		CHECKED BY: MMW	DATE: 02/2019	FIGURE NO: 4

## **TABLES**

Table 1 - Metals  
 Subsurface Soil Analytical Testing Results  
 1801 Elmwood Avenue, Buffalo, NY

Parameter	UUSCO	RRUSCO	CUSCO	IUSCO	SB101 (0.5-3.5')	SB103/MW-1 (0.5-3')	SB102 (4-8')	SB105 (2-6')	SB105 (2-6') Duplicate	SB107 (0-4')	SB109 (4-8')	SB110 (1-4')	SB111 (0.5-4')	SB112 (0-4')	SB113/MW-2 (5-9')	SB116/MW-3 (0.5-2')	SB117 (0.5-2.5')	SB120 (0.5-3')	SB121/MW-5 (0-4')	SB123 (0.5-2.5')	
Alpha Job Number					L1738450	L1738450	L1738450	L1738450	L1738450	L1738450	L1738450	L1738450	L1738450	L1738450	L1738450	L1738450	L1738450	L1738450	L1738450	L1738450	L1738450
Sampling Date					10/23/17	10/23/17	10/23/17	10/23/17	10/23/17	10/23/17	10/23/17	10/23/17	10/23/17	10/24/17	10/24/17	10/24/17	10/24/17	10/24/17	10/24/17	10/24/17	10/24/17
Metals Analysis (mg/kg)																					
Aluminum	NV	NV	NV	NV	3,090	3,900	3,240	2,520	3,020	5,960	2,780	13,800	7,260	9,530	5,320	4,140	10,100	7,620	4,580	4,740	
Antimony	NV	NV	NV	NV	5.73	0.607 J	2.97 J	1.21 J	1.31 J	1.67 J	ND	9.79	1.21 J	ND	ND	1.62 J	ND	1.14 J	1.29 J	0.518 J	
Arsenic	13	16	16	16	36.9	9.8	17.7	4.84	5.15	10.2	1.97	6.02	6.96	14.4	5.52	23.8	4.18	5.67	7.12	8.19	
Barium	350	400	400	10,000	38.1	27.7	25.6	92.3	97.7	58.9	19.8	110	183	75.1	25.5	142	98.6	70	37.6	45.2	
Beryllium	7.2	72	590	2,700	0.146 J	0.16 J	0.192 J	0.192 J	0.201 J	0.363 J	0.117 J	2.43	0.728	0.886	ND	0.175 J	0.342 J	0.121 J	0.342 J	0.528	
Cadmium	2.5	4.3	9.3	60	3.24	0.482 J	1.93	0.577 J	0.586 J	1.12	0.191 J	0.244 J	0.466 J	0.728 J	1.04	1.97	1.06	1.11	0.559 J	0.782 J	
Calcium	NV	NV	NV	NV	15,400	45,500	17,600	12,100	13,900	27,800	53,100	105,000	40,400	70,200	41,100	24,100	58,000	94,100	1,110	54,600	
Chromium, total	30	180	1,500	6,800	45.5	10.5	31.5	11.6	11.5	15.8	5.64	6.5	8.52	6.5	11.8	8.33	13.7	79.8	6.36	16.7	
Cobalt	NV	NV	NV	NV	11.4	2.5	7.57	2.8	2.95	5.02	1.88 J	1.72 J	3.99	2.69	3.13	3.3	7.87	3.45	4.12	3.16	
Copper	50	270	270	10,000	54.5	16.7	19.2	15.1	16.5	18.3	2.62	12.5	12.6	9.99	5.74	30.6	17	26.1	10.1	19.4	
Iron	NV	NV	NV	NV	148,000	13,400	132,000	17,600	18,400	40,800	7,220	7,400	23,000	11,700	19,700	20,800	18,800	14,300	14,800	13,700	
Lead	63	400	1,000	3,900	1,570	49.6	23.3	136	150	86.7	13.4	15.1	33.3	44.5	25.6	218	12.9	129	25.2	63.8	
Magnesium	NV	NV	NV	NV	861	3,060	1,780	2,210	2,860	2,900	5,460	12,700	4,580	6,680	3,760	4,780	12,300	7,980	689	4,610	
Manganese	1,600	2,000	10,000	10,000	1,660	183	964	326	301	998	166	1,610	854	1,130	673	252	472	4,420	218	596	
Mercury (total)	0.18	0.81	2.8	5.7	0.11	0.02 J	ND	0.03 J	0.04 J	0.06 J	ND	ND	0.02 J	0.06 J	ND	0.17	ND	0.05 J	0.03 J	0.1	
Nickel	30	310	310	10,000	22.4	8.42	11.2	6.31	7.07	10.9	2.9	2.73	8.1	5.08	5.06	9.47	18.2	9.21	10.7	9.59	
Potassium	NV	NV	NV	NV	206 J	393	217 J	263	323	638	315	998	476	843	572	446	1,260	930	372	534	
Selenium	3.9	180	1,500	6,800	0.499 J	0.348 J	0.265 J	0.257 J	0.284 J	0.692 J	ND	1.82	0.821 J	1.6 J	1.09 J	2.48	ND	2.82	ND	ND	
Silver	2	180	1,500	6,800	0.611 J	ND	0.283 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.13	ND	ND	
Sodium	NV	NV	NV	NV	229	78.2 J	170 J	111 J	139 J	179	113 J	537	163 J	436	193	174 J	185 J	557	44.6 J	361	
Thallium	NV	NV	NV	NV	2.69	ND	1.46 J	ND	ND	0.952 J	ND	1.52 J	0.77 J	ND	ND	ND	ND	2.82	ND	ND	
Vanadium	NV	NV	NV	NV	81.9	20.4	53.8	13.7	17.4	26.2	13.9	7.19	17	9.75	22.8	9.67	19.3	40.5	8.94	13.9	
Zinc	109	10,000	10,000	10,000	76.2	90.1	10.5	650	840	391	35.6	27.7	38.9	40.8	22.3	239	50.3	71.4	53.5	124	

Notes:

- Analytical testing performed by Alpha Analytical. Compounds detected in one or more samples are presented in this table. Refer to Appendix for the full analytical report.
- ug/kg = parts per billion; mg/kg = parts per million.
- ND = not detected; NT = not tested; NV = no value.
- Analytical results compared to NYSDEC Part 375-6; Remedial Program Soil Cleanup Objectives, Table 375-(a) Unrestricted Use Soil Cleanup Objective; and Table 375-6.8(b): Restricted Use Soil Cleanup Objectives.
- \* = Concentration of analyte exceeded range of the calibration curve, which required a re-analysis at a higher dilution factor.
- E = Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- J = Estimated value. The target analyte is below the reporting limit (RL), but above the method detection limit (MDL).
- P = The RPD between the results for the two columns exceeds the method-specified criteria.
- Shading indicates:
 

	exceeds UUSCO - Unrestricted Use Soil Cleanup Objective
	exceeds RRUSCO - Restricted Residential Use Soil Cleanup Objective
	exceeds CUSCO - Commercial Use Soil Cleanup Objective
	exceeds IUSCO - Industrial Use Soil Cleanup Objective

Table 1 - Metals  
 Subsurface Soil Analytical Testing Results  
 1801 Elmwood Avenue, Buffalo, NY

Parameter	UUSCO	RRUSCO	CUSCO	IUSCO	SB125 (1.5-4')	SB126 (4-8')	SB129/MW-8 (9-12')	SB131 (2-6')	SB132 (8-12')	SB133 (4-6')	SB135 (0.5-2')	SB137 (4-8')	SB137 (4-8') Duplicate	SB140 (8-12')	SB142 (4-8')	SB150 (10-14')	SB153 (0.5-4')	SB155 (1-3')	SB156 (4.5-8')
Alpha Job Number					L1738450	L1738450	L1739051	L1739051	L1739051	L1739051	L1739051	L1739051	L1739051	L1739051	L1739051	L1740559	L1740559	L1740559	L1740559
Sampling Date					10/24/17	10/24/17	10/26/17	10/26/17	10/26/17	10/27/17	10/27/17	10/27/17	10/27/17	10/30/17	10/30/17	11/04/17	11/04/17	11/04/17	11/04/17
<b>Metals Analysis (mg/kg)</b>																			
Aluminum	NV	NV	NV	NV	4,120	3,920	10,800	2,760	9,160	22,000	4,840	12,600	11,900	17,400	4,920	3,930	10,800	5,440	15,700
Antimony	NV	NV	NV	NV	0.756 J	ND	ND	1.56 J	ND	1.21 J	1.26 J	ND	0.685 J	ND	ND	0.662 J	ND	ND	ND
Arsenic	13	16	16	16	10.3	3.92	1.8	23.4	3.23	4	12	6.02	2.67	6.27	4.2	3.11	7.13	5.98	5.1
Barium	350	400	400	10,000	35.2	29.9	49.8	18.6	82.5	159	50.9	108	65.9	79.2	21.7	14.2	64.4	53.3	142
Beryllium	7.2	72	590	2,700	0.325 J	0.48	0.545	0.158 J	0.491	1.15	0.413 J	0.582	0.621	0.638	0.232 J	0.115 J	0.492	0.341 J	0.755
Cadmium	2.5	4.3	9.3	60	1.34	0.6 J	0.572 J	1.89	0.621 J	0.467 J	0.636 J	0.508 J	0.502 J	2.19	0.667 J	0.125 J	0.634 J	0.884 J	0.537 J
Calcium	NV	NV	NV	NV	31,000	43,500	43,400	9,100	49,100	75,400	16,800	57,900	45,000	14,600	11,400	38,000	13,800	34,500	29,100
Chromium, total	30	180	1,500	6,800	16.4	6.22	19	23.3	15.3	22.9	11.8	21.1	19.3	23.4	5.81	333	15.8	6	21.5
Cobalt	NV	NV	NV	NV	5.15	2.19	8.5	11	8.09	5.32	4.25	11.1	9.85	9.6	3.27	2.02	6.56	2.45	10.2
Copper	50	270	270	10,000	17.8	11.1	13.6	32.1	16.4	15.9	25.2	23.4	18.8	14.5	6.6	2.88	85.5	12	21.1
Iron	NV	NV	NV	NV	42,600	7,590	18,600	66,100	18,400	25,400	26,900	25,600	23,600	36,900	11,900	6,750	28,200	15,700	28,000
Lead	63	400	1,000	3,900	16.6	19.8	9.63	28.2	9.04	35	61	11.3	9.65	15.2	30.2	15.8	30.8	68.8	10.4
Magnesium	NV	NV	NV	NV	1,900	4,590	14,300	1,190	12,800	1,820	2,080	16,300	13,500	2,460	1,820	4,890	3,820	3,800	12,300
Manganese	1,600	2,000	10,000	10,000	1,230	170	396	882	369	4,500	457	518	442	2,260	180	150	858	275	396
Mercury (total)	0.18	0.81	2.8	5.7	0.05 J	0.06 J	0.03 J	0.07	0.02 J	0.06 J	0.06 J	0.02 J	0.03 J	0.06 J	0.02 J	0.02 J	0.05 J	0.03 J	0.04 J
Nickel	30	310	310	10,000	10.4	5.74	22	18.8	19.8	5.74	9.29	25.4	23.7	19.2	5.75	3.95	14.2	5.66	26
Potassium	NV	NV	NV	NV	377	398	1,510	351	1,170	2,810	882	1,840	1,630	1,380	619	318	1,150	580	1,720
Selenium	3.9	180	1,500	6,800	ND	ND	ND	ND	ND	2.08	1.18 J	0.526 J	0.722 J	ND	ND	ND	ND	ND	ND
Silver	2	180	1,500	6,800	0.281 J	ND	ND	ND	ND	1.12	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium	NV	NV	NV	NV	288	308	231	240	153 J	1,060	228	194	167 J	273	182 J	270	148 J	149 J	228
Thallium	NV	NV	NV	NV	0.484 J	ND	ND	0.667 J	ND	2.92	0.439 J	ND	ND	1.05 J	ND	ND	ND	ND	ND
Vanadium	NV	NV	NV	NV	43.3	10.8	20.1	62.2	20.8	44.1	15.9	27.9	24.5	41.8	14.1	6.63	22.8	11.8	28.6
Zinc	109	10,000	10,000	10,000	55	194	61.6	24.4	54.7	21.8	75.1	71.7	60	146	14.9	14.4	65.4	31.3	57.6

**Notes:**

- Analytical testing performed by Alpha Analytical. Compounds detected in one or more samples are presented in this table. Refer to Appendix for the full analytical report.
- ug/kg = parts per billion; mg/kg = parts per million.
- ND = not detected; NT = not tested; NV = no value.
- Analytical results compared to NYSDEC Part 375-6; Remedial Program Soil Cleanup Objectives, Table 375-(a) Unrestricted Use Soil Cleanup Objective; and Table 375-6.8(b): Restricted Use Soil Cleanup Objectives.
- \* = Concentration of analyte exceeded range of the calibration curve, which required a re-analysis at a higher dilution factor.
- E = Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- J = Estimated value. The target analyte is below the reporting limit (RL), but above the method detection limit (MDL).
- P = The RPD between the results for the two columns exceeds the method-specified criteria.
- Shading indicates:
  - exceeds UUSCO - Unrestricted Use Soil Cleanup Objective
  - exceeds RRUSCO - Restricted Residential Use Soil Cleanup Objective
  - exceeds CUSCO - Commercial Use Soil Cleanup Objective
  - exceeds IUSCO - Industrial Use Soil Cleanup Objective

Table 1 - Metals  
 Subsurface Soil Analytical Testing Results  
 1801 Elmwood Avenue, Buffalo, NY

Parameter	UUSCO	RRUSCO	CUSCO	IUSCO	TP101 (2.5-5')	TP101 (2.5-5') Duplicate	TP102 (1-4.5')	TP102 (4.5-6')	TP103 (1-2.5')	TP103 (2.5-4')	TP104 (2-5')	TP104 (5-6.5')	TP105 (0-2.5')	TP106 (2-4')	TP107 (6-10')	TP108 (4-5.5')	TP109 (3-6')	TP110 (17-19')	TP111 (5-8')	TP112 (3-6')	
Alpha Job Number					L1742080	L1742080	L1742080	L1742080	L1742080	L1742080	L1742080	L1742080	L1742080	L1742080	L1742080	L1742080	L1742080	L1742080	L1742080	L1742080	L1742080
Sampling Date					11/15/17	11/15/17	11/15/17	11/15/17	11/15/17	11/15/17	11/15/17	11/15/17	11/15/17	11/15/17	11/16/17	11/16/17	11/16/17	11/16/17	11/16/17	11/16/17	11/16/17
<b>Metals Analysis (mg/kg)</b>																					
Aluminum	NV	NV	NV	NV	12,600	9,830	8,170	17,500	11,700	3,080	2,230	21,400	7,170	8,870	12,100	5,370	21,800	5,430	5,480	4500	
Antimony	NV	NV	NV	NV	ND	ND	ND	ND	3.82 J	ND	ND	ND	ND	ND	ND	6.26	ND	ND	ND	ND	
Arsenic	13	16	16	16	9.96	8.52	14.7	7.09	9.58	7.96	109	8.38	6.8	18.6	5.12	46.4	5.04	8.59	7.13	5.78	
Barium	350	400	400	10,000	74.7	93.1	71.5	139	147	30.8	154	116	46.6	102	110	187	210	28.6	35.8	32.1	
Beryllium	7.2	72	590	2,700	0.63	0.590	0.788	0.872	0.595	0.146 J	0.327 J	1.09	0.295	0.436	0.562	0.35 J	3.3	0.185 J	1.81 J	0.204 J	
Cadmium	2.5	4.3	9.3	60	0.562 J	0.686 J	0.942 J	0.386 J	0.623 J	0.501 J	0.757 J	0.408 J	0.599 J	1.74	0.356 J	4.28	1.8 J	0.339 J	0.552 J	0.204 J	
Calcium	NV	NV	NV	NV	44,000	36,100	30,100	3,210	49,300	7,260	8,050	2,340	10,000	17,800	53,000	12,500	200,000	40,800	22,700	14900	
Chromium, total	30	180	1,500	6,800	21.4	19.8	22.3	24.7	20.5	12.2	11.4	28.8	9.3	23.5	19.7	67.5	11.3	12	17.3	10.9	
Cobalt	NV	NV	NV	NV	10	9.73	9.07	10.6	11.7	8.97	4.91	16.9	5.02	9.75	10.9	18.8	1.39 J	3.92	5.27	3.44	
Copper	50	270	270	10,000	27.6	43.7	63.7	22.7	50.2	24.3	33.1	23.9	21.7	62.4	21.1	314	8.2	18.7	13.4	17.2	
Iron	NV	NV	NV	NV	35,800	31,900	48,600	30,200	28,500	43,600	43,100	32,900	19,200	79,700	22,800	315,000	10,800	19,500	32,300	14200	
Lead	63	400	1,000	3,900	77.8	130	120	18.8	3,310	38.4	150	15.1	69.8	65.3	9.94	564	25.3	70.3	61.5	46	
Magnesium	NV	NV	NV	NV	9,520	6,510	3,500	5,900	10,300	2,240	1,400	5,570	1,050	2,240	15,800	1,430	14,000	5,210	2,960	2660	
Manganese	1,600	2,000	10,000	10,000	544	1,530	470	300	602	963	84.4	326	470	1,620	500	2,750	2,090	419	1,460	250	
Mercury (total)	0.18	0.81	2.8	5.7	0.22	0.18	0.39	0.04 J	0.17	0.12	0.45	0.05 J	0.1	0.08	ND	0.63	0.11	ND	0.04 J	ND	
Nickel	30	310	310	10,000	23.2	18.4	19.7	26.6	22.3	12.8	14.3	31.8	12.3	22.1	24.8	94.1	3.66	7.17	9.26	7.15	
Potassium	NV	NV	NV	NV	1,740	1,300	1090	1,520	1,620	305	910	1520	872	1040	1640	530	896	831	699	571	
Selenium	3.9	180	1,500	6,800	ND	ND	0.745 J	ND	ND	ND	5.64	ND	0.765 J	ND	ND	1.53 J	ND	0.914 J	ND	ND	
Silver	2	180	1,500	6,800	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.252 j	ND	0.944	ND	ND	ND	ND	
Sodium	NV	NV	NV	NV	151 J	171 J	253	97.7 J	198	119 J	569	73.6 J	144 J	190	300	120 J	635	167 J	181	122 J	
Thallium	NV	NV	NV	NV	ND	ND	ND	ND	ND	ND	1.12 J	ND	ND	ND	ND	1.89	ND	ND	ND	ND	
Vanadium	NV	NV	NV	NV	28.2	32.0	47.9	33.6	26.7	27.6	24	37.4	16.9	38.7	35.2	71.4	5.89	24.1	32	10.7	
Zinc	109	10,000	10,000	10,000	75.5	81.5	184	68.5	201	29.8	102	91	320	206	66.4	556	32.5	83.7	185	27.5	

**Notes:**

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- ug/kg = parts per billion; mg/kg = parts per million.
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Table 1 - Metals  
 Subsurface Soil Analytical Testing Results  
 1801 Elmwood Avenue, Buffalo, NY

Parameter	UUSCO	RRUSCO	CUSCO	IUSCO	SB158 (0.5-3.5')	SB159 (0.5-3.5')	SB160 (0.5-3.5')	SB160 (0.5-3.5') Duplicate	SB161 (0.5-3.5')	SB162 (2-5')	SB163 (2-5')	SB164 (2-5')	SB165 (2-5')	SB166 (4-5.5')	SB167 (3-4')	SB168 (4-5.5')	SB169 (4-5.5')	SB170 (0.5-4')	SB171 (0-3')		
Alpha Job Number					L1803664	L1803664	L1803664	L1803664	L1803664	L1803664	L1803664	L1803664	L1803664	L1803664	L1803664	L1803664	L1803664	L1803664	L1803664	L1803664	
Sampling Date					02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	02/01/18	
<b>Metals Analysis (mg/kg)</b>																					
Aluminum	NV	NV	NV	NV	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	8,100	5,340
Antimony	NV	NV	NV	NV	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND
Arsenic	13	16	16	16	2.88	12.8	16.5	27.6	33.2	23.0	31.3	16.5	12.4	10.6	10.1	41.4	43.7	3.2	0.531	J	
Barium	350	400	400	10,000	13.8	26.2	59.2	74.2	27.3	46.8	81.3	83.7	148	85.6	103	69.7	63.9	49.1	41		
Beryllium	7.2	72	590	2,700	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	0.671	0.911		
Cadmium	2.5	4.3	9.3	60	0.326 J	3.35	4.51	6.99	8.06	0.390 J	3.55	0.957	1.11	2.01	3.16	9.16	10.2	ND	ND		
Calcium	NV	NV	NV	NV	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	51,900	191,000		
Chromium, total	30	180	1,500	6,800	3.65	14.5	16.6	33.6	40.6	4.06	16.3	11.8	10.0	15.9	18.3	70.5	36.8	9.14	7.36		
Cobalt	NV	NV	NV	NV	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	3.87	1.11	J	
Copper	50	270	270	10,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	10.5	12		
Iron	NV	NV	NV	NV	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	19,000	4,010		
Lead	63	400	1,000	3,900	38.0	614	251	186	717	24.7	224	99.1	103	150	254	227	217	10.3	6.97		
Magnesium	NV	NV	NV	NV	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5,440	10,800		
Manganese	1,600	2,000	10,000	10,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	800	566		
Mercury (total)	0.18	0.81	2.8	5.7	ND	0.12	0.46	0.95	0.05 J	0.03 J	0.20	0.21	0.17	0.63	0.15	0.74	0.20	0.02 J	ND		
Nickel	30	310	310	10,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	5.96	4.32		
Potassium	NV	NV	NV	NV	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	656	369		
Selenium	3.9	180	1,500	6,800	ND	ND	0.647 J	0.667 J	0.125 J	1.41	2.72	1.32	0.740 J	0.620 J	0.718 J	2.74	3.22	1.22 J	0.944 J		
Silver	2	180	1,500	6,800	ND	ND	0.203 J	0.303 J	0.293 J	ND	ND	ND	ND	ND	0.196 J	0.620	0.592	ND	ND		
Sodium	NV	NV	NV	NV	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	330	235		
Thallium	NV	NV	NV	NV	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	ND	ND		
Vanadium	NV	NV	NV	NV	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	18.2	6.00		
Zinc	109	10,000	10,000	10,000	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	15.5	31.8		

**Notes:**

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  - exceeds CUSCO - Commercial Use Soil Cleanup Objective
  - exceeds IUSCO - Industrial Use Soil Cleanup Objective

TABLE 2  
 Interim Remedial Measures Analytical Testing Program Summary  
 MOD-PAC CORP.  
 1801 Elmwood Ave, Buffalo, NY  
 NYSDEC Brownfield Cleanup Program

Location	Number of Proposed Locations	Matrix	TCL VOCS	TCL SVOCs	TAL METALS Total	PCBs
<b>IRM Confirmation Sampling *</b>						
Sidewall Samples	26	Soil	-	-	26	-
Bottom Samples	12	Soil	-	-	12	-
Duplicate		Soil	-	-	2	-
MS/MSD		Soil	-	-	4	-
Rinsate		Water	-	-	2	-
<b>Total</b>			<b>0</b>	<b>0</b>	<b>46</b>	<b>0</b>

Notes:

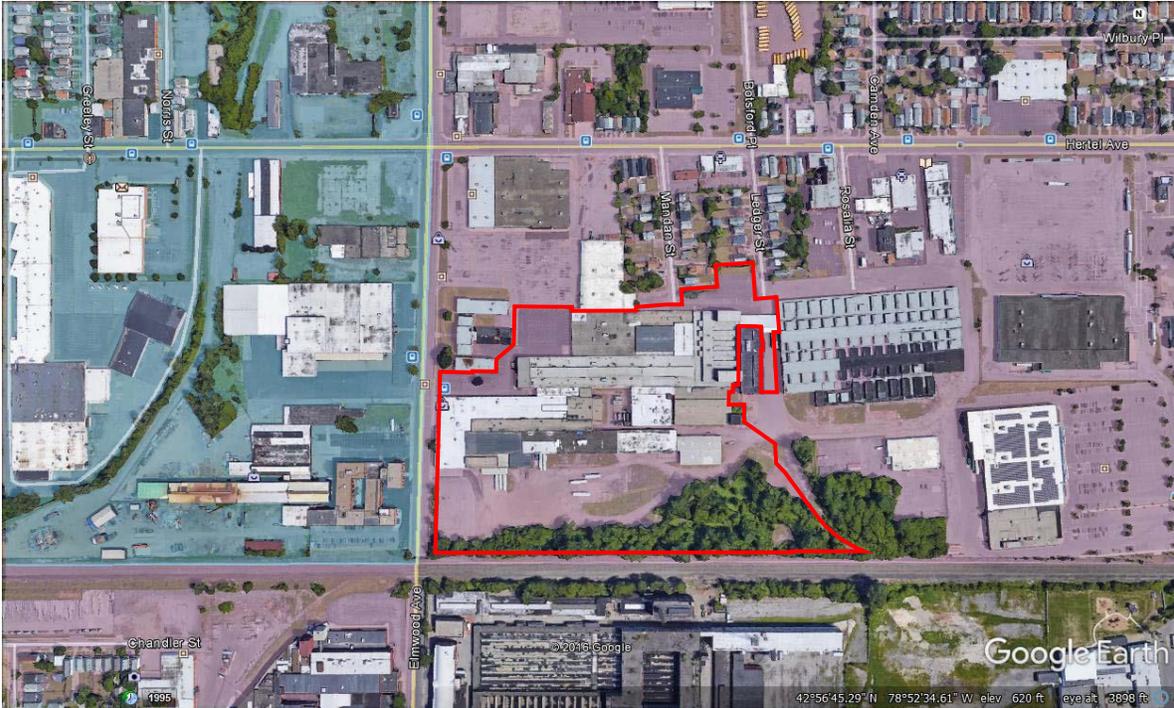
- TCL VOCs - Target Compound List Volatile Organic Compounds.
- TCL SVOCs - Target Compound List Semi-volatile Organic Compounds.
- TAL Metals - Target Analyte List Metals.
- TCL PCBs - Target Compound List Polychlorinated Biphenyls.
- VOC TO-15 - sub-slab, ambient air and soil vapor probe analysis
- PFAS - Polyfluoroalkyl substances
- \* Number of IRM samples may change depending on field conditions.

**APPENDIX A**

**COMMUNITY AIR MONITORING PLAN**

# COMMUNITY AIR MONITORING PLAN

**BROWNFIELDS CLEANUP PROGRAM**  
For  
**MOD-PAC CORP.**  
1801 Elmwood Avenue, Buffalo, New York 14207  
BCP # C915314



Prepared For:  
**MOD-PAC CORP.**  
1801 Elmwood Avenue, Buffalo, New York 14203  
HEI Project No: e1605

Prepared By:  
**Hazard Evaluations, Inc.**  
3636 North Buffalo Road  
Orchard Park, New York 14127  
(716) 667-3130

August 18, 2017

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5.0 WIND DIRECTION .....	3

### LIST OF ATTACHMENTS

Attachment A	NYSDEC DER-10 Appendix 1A, New York State Department of Health, Generic Community Air Monitoring Plan
Attachment B	NYSDEC DER-10 Appendix 1B, Fugitive Dust and Particulate Monitoring

## 1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) has been developed Remedial Investigation/Alternatives Analysis Report (RI) to be completed by Hazard Evaluations, Inc. (HEI) and for MOD-PAC CORP. at 1801 Elmwood Avenue, Buffalo, Erie County, New York, on behalf of MOD-PAC CORP. (Applicant) as part of the Brownfield Cleanup Program (BCP).

The CAMP requires real-time monitoring of volatile organic compounds (VOCs) and particulates (dust) at downwind perimeter of each designated work area. The CAMP will be implemented during the excavation and removal of soils from the courtyard and vacant lot areas of the subject site. This CAMP will be completed in general accordance with NYSDEC DER-10 Appendix 1A, as included in Attachment A. Proposed locations include one upwind and one downwind location within the working area. Due to the large area and amount of sampling points at the site, HEI will determine monitoring points prior to intrusive activities. In addition, wind conditions will be observed during intrusive activities, which may influence the locations of the monitoring points.

## 2.0 VOLATILE ORGANIC COMPOUND AIR MONITORING

VOCs will be monitored at the downwind perimeter of the work area on a continuous basis and periodically during non-intrusive activities. VOC monitoring will be done using an organic vapor meter (OVM) equipped with a photoionization detector (PID) to provide real-time recordable air monitoring data.

VOCs will also be monitored and recorded at the downwind perimeter of the immediate work area(s). Upwind concentrations will be measured at the beginning of each day before activities begin and periodically throughout the day to establish background conditions. The downwind VOC monitoring device will also be checked periodically throughout the day to assess emissions and the need for corrective action. VOC monitoring action levels as per *DER-10 Technical Guidance for Site Investigations and Remediation* is as follows:

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If the organic vapor level at the perimeter of the work area persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions take to abate emissions,

and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less; but in no case than that 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shut down.

### **3.0 PARTICULATE AIR MONITORING**

The remediation crew will make all efforts to suppress dust and particulate matter during the handling of contaminated soil. Fugitive dust and particulate monitoring will be completed in accordance with DER-10 Appendix 1B, as included in Attachment B. The following techniques have been shown to be effective for the controlling the generation and migration of dust during construction activities:

- (a) Applying water on haul roads;
- (b) Wetting equipment and excavation faces;
- (c) Spraying water on buckets during excavation and dumping;
- (d) Hauling materials in properly tarped or watertight containers;
- (e) Restricting vehicle speeds to 10 mph;
- (f) Covering excavated areas and material after excavation activity ceases; and/or
- (g) Reducing the excavation size and/or number of excavations.

Care will be taken not to use excess water, which can result in unacceptably wet site conditions. Use of atomizing sprays will prevent overly wet conditions, conserve water and provide an effective means of suppressing fugitive dust.

Weather conditions will be evaluated during remedial work. When extreme wind conditions make dust control ineffective, as a last resort, remedial actions may need to be suspended.

Dust and particulate monitoring will be conducted near approximate upwind and downwind perimeters of the work area, when possible. If visual evidence of dust is apparent in other locations, monitoring equipment will be placed where necessary. Dust monitoring may be suspended during period of precipitation and snow cover.

Particulate air monitoring will be done with a DataRAM-4 (or similar), which will be capable of reading particles less than 10 micrometers in size (PM-10) and equipped with an audible alarm feature which will indicate exceedances. Dust monitoring devices will be recorded periodically throughout the day to assess emissions and the need for corrective actions. Particulate monitoring action levels as per *DER-10 Technical Guidance for Site Investigations and Remediation* is as follows:

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) greater than background for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 ( $\mu\text{g}/\text{m}^3$ ) above the upwind level and provided that no visible dust is migrating from the work area.
- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 ( $\mu\text{g}/\text{m}^3$ ) above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m<sup>3</sup> of the upwind level and in preventing visible dust migration.

#### **4.0 DOCUMENTATION**

All 15-minute readings will be recorded and be available for or State (NYSDEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

#### **5.0 WIND DIRECTION**

Prevailing wind direction will be recorded at the beginning of each work day by visual observations of an on-site windsock. As wind direction may change throughout the work day, direction will be reestablished if a significant change in direction is observed. The wind direction results will be utilized to determine the placement of the monitoring equipment.

**Attachment A**

**NYSDEC DER-10 Appendix 1A  
New York State Department of Health  
Generic Community Air Monitoring Plan**

## Appendix 1A

### New York State Department of Health Generic Community Air Monitoring Plan

#### Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

#### Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

**Continuous monitoring** will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

**Periodic monitoring** for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or

overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

### VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

### Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter ( $\text{mcg}/\text{m}^3$ ) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed  $150 \text{ mcg}/\text{m}^3$  above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than  $150 \text{ mcg}/\text{m}^3$  above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within  $150 \text{ mcg}/\text{m}^3$  of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

**Attachment B**

**NYSDEC DER-10 Appendix 1B  
Fugitive Dust and Particulate Monitoring**

## **Appendix 1B**

### **Fugitive Dust and Particulate Monitoring**

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.
2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.
3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:
  - (a) Objects to be measured: Dust, mists or aerosols;
  - (b) Measurement Ranges: 0.001 to 400 mg/m<sup>3</sup> (1 to 400,000 :ug/m<sup>3</sup>);
  - (c) Precision (2-sigma) at constant temperature: +/- 10 :g/m<sup>3</sup> for one second averaging; and +/- 1.5 g/m<sup>3</sup> for sixty second averaging;
  - (d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
  - (e) Resolution: 0.1% of reading or 1g/m<sup>3</sup>, whichever is larger;
  - (f) Particle Size Range of Maximum Response: 0.1-10;
  - (g) Total Number of Data Points in Memory: 10,000;
  - (h) Logged Data: Each data point with average concentration, time/date and data point number
  - (i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
  - (j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
  - (k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
  - (l) Operating Temperature: -10 to 50° C (14 to 122° F);
  - (m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.
4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.
5. The action level will be established at 150 ug/m<sup>3</sup> (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m<sup>3</sup>, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m<sup>3</sup> above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m<sup>3</sup> continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM<sub>10</sub> at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

- (a) Applying water on haul roads;
- (b) Wetting equipment and excavation faces;
- (c) Spraying water on buckets during excavation and dumping;
- (d) Hauling materials in properly tarped or watertight containers;
- (e) Restricting vehicle speeds to 10 mph;
- (f) Covering excavated areas and material after excavation activity ceases; and
- (g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m<sup>3</sup> action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

## **Appendix 1C**

### **DEC Permits Subject to Exemption**

In accordance with section 1.10, exemptions from the following permit programs may be granted to the person responsible for conducting the remedial programs undertaken pursuant to section 1.2:

- Air - Title 5 permits
- Air - State permits
- Air - Registrations
- Ballast Discharge
- Chemical Control
- Coastal Erosion Hazard Areas
- Construction of Hazardous Waste Management Facilities
- Construction of Solid Waste Management Facilities
- Dams
- Excavation and Fill in Navigatable Waters (Article 15)
- Flood Hazard Area Development
- Freshwater Wetland
- Hazardous Waste
- Long Island Wells
- Mined Land Reclamation
- Navigation Law - Docks
- Navigation Law - Floating Objects
- Navigation Law - Marinas
- Non-Industrial Waste Transport
- Operation of Solid Waste Management Facilities
- Operation of Hazardous Waste Management Facilities
- State Pollution Discharge Elimination Systems (SPDES)
- Stream Disturbance
- Tidal Wetlands
- Water Quality Certification
- Water Supply
- Wild, Scenic and Recreational Rivers