

**REMEDIAL INVESTIGATION/ INTERIM REMEDIAL
MEASURES WORK PLAN**

FOR

**240 – 260 LAKEFRONT BOULEVARD SITE
240 – 260 LAKEFRONT BOULEVARD
CITY OF BUFFALO, ERIE COUNTY, NEW YORK**

Prepared by:



C&S ENGINEERS, INC.

141 ELM STREET, SUITE 100
BUFFALO, NEW YORK 14203

Prepared on Behalf of:

LAKEFRONT BOULEVARD, LLC

50 FOUNTAIN PLAZA, SUITE 500
BUFFALO, NEW YORK 14202

OCTOBER 2018

TABLE OF CONTENTS

| | |
|---|------------------|
| <u>EXECUTIVE SUMMARY</u> | <u>IV</u> |
| <u>1 INTRODUCTION</u> | <u>1</u> |
| 1.1 SITE DESCRIPTION | 1 |
| 1.2 SITE HISTORY | 1 |
| 1.3 SITE GEOGRAPHY, GEOLOGY, AND HYDROGEOLOGY | 2 |
| <u>2 SUMMARY OF ENVIRONMENTAL CONDITIONS</u> | <u>3</u> |
| 2.1 ENVIRONMENTAL REPORTS | 3 |
| 2.2 NATURE AND EXTENT OF CONTAMINATION | 3 |
| <u>3 OBJECTIVES, SCOPE AND RATIONALE</u> | <u>6</u> |
| <u>4 REMEDIAL INVESTIGATION</u> | <u>7</u> |
| 4.1 FIELD INVESTIGATION | 7 |
| 4.1.1 SURFACE SOIL PROGRAM | 7 |
| 4.1.2 SOIL BORING PROGRAM | 7 |
| 4.1.3 TEST PIT / NEAR SURFACE SOIL PROGRAM | 9 |
| 4.1.4 GROUNDWATER MONITORING | 9 |
| 4.2 SAMPLING PLAN AND LABORATORY ANALYSIS | 10 |
| <u>5 QUALITY ASSURANCE AND QUALITY CONTROL PROTOCOLS</u> | <u>12</u> |
| 5.1 SAMPLING METHODS, ANALYTICAL PROCEDURES AND DOCUMENTATION | 12 |
| 5.1.1 SAMPLING METHODS | 12 |
| 5.1.2 ANALYTICAL PROCEDURES | 13 |
| 5.1.3 DOCUMENTATION | 14 |
| <u>6 HEALTH AND SAFETY</u> | <u>15</u> |
| <u>7 INTERIM REMEDIAL MEASURES</u> | <u>16</u> |
| 7.1 SITE CONTROL | 16 |
| 7.2 EXCAVATION | 16 |
| 7.3 BACKFILLING / SOIL COVER | 17 |
| 7.3.1 BACKFILL | 17 |

**Remedial Investigation / Interim Remedial Measure Work Plan
240-260 Lakefront Boulevard Site**

| | | |
|------------|--|------------------|
| 7.3.2 | SOIL COVER SYSTEM | 17 |
| 7.4 | AIR MONITORING | 18 |
| 7.5 | EROSION AND DUST CONTROLS | 19 |
| 7.6 | CONFIRMATORY SAMPLING | 19 |
| 7.7 | DISCUSSION OF INTERIM REMEDIAL MEASURES | 19 |
| 8 | <u>REPORTING</u> | <u>21</u> |
| 9 | <u>SCHEDULE</u> | <u>22</u> |

FIGURES

| | | |
|----------|-------|--|
| FIGURE 1 | | SITE LOCATION MAP |
| FIGURE 2 | | SITE DETAIL MAP |
| FIGURE 3 | | 2017 SITE CHARACTERIZATION MAP |
| FIGURE 4 | | PROPOSED SOIL SAMPLE LOCATION MAP |
| FIGURE 5 | | GROUNDWATER MONITORING WELL LOCATION MAP |

TABLES

| | | |
|---------|-------|--|
| TABLE 1 | | PROPOSED REMEDIAL INVESTIGATION SAMPLING PROGRAM |
|---------|-------|--|

APPENDICES

| | | |
|------------|-------|---|
| APPENDIX A | | PREVIOUSLY COMPLETED ENVIRONMENTAL INVESTIGATIONS |
| APPENDIX B | | CITIZEN PARTICIPATION PLAN |
| APPENDIX C | | COMMUNITY AIR MONITORING PLAN |
| APPENDIX D | | HEALTH AND SAFETY PLAN |

**Remedial Investigation / Interim Remedial Measure Work Plan
240-260 Lakefront Boulevard Site**

ACRONYM LIST

| | |
|------------|--|
| AAR | ALTERNATIVES ANALYSIS REPORT |
| ACM | ASBESTOS-CONTAINING MATERIAL |
| ASP | ANALYTICAL SERVICES PROTOCOL |
| BGS | BELOW GROUND SURFACE |
| BSA | BUFFALO SEWER AUTHORITY |
| CAMP | COMMUNITY AIR MONITORING PLAN |
| CPP | CITIZEN PARTICIPATION PLAN |
| DER | DEPARTMENT OF ENVIRONMENTAL REMEDIATION |
| DUSR | DATA USABILITY AND SUMMARY REPORT |
| EDD | ELECTRONIC DATA DELIVERABLE |
| ELAP | ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM |
| HASP | HEALTH AND SAFETY PLAN |
| IRM | INTERIM REMEDIAL MEASURES |
| MS/MSD | MATRIX SPIKE / MATRIX SPIKE DUPLICATE |
| NYSDEC | NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION |
| NYSDOH | NEW YORK STATE DEPARTMENT OF HEALTH |
| PAH | POLYCYCLIC AROMATIC HYDROCARBONS |
| PID | PHOTO-IONIZATION DETECTOR |
| RI | REMEDIAL INVESTIGATION |
| RI/AAR/RWP | REMEDIAL INVESTIGATION / ALTERNATIVE ANALYSIS REPORT / REMEDIAL WORK PLAN |
| SCO | SOIL CLEANUP OBJECTIVES |
| SITE | 2.0771 -ACRE PORTION OF 240-260 LAKEFRONT BOULEVARD, BUFFALO, NEW YORK |
| SVOC | SEMI-VOLATILE ORGANIC COMPOUNDS |
| U.S. EPA | UNITED STATES ENVIRONMENTAL PROTECTION AGENCY |
| VOC | VOLATILE ORGANIC COMPOUNDS |

Remedial Investigation / Interim Remedial Measure Work Plan 240-260 Lakefront Boulevard Site

EXECUTIVE SUMMARY

This document presents the Remedial Investigation and Interim Remedial Measures Work Plan for a 2.0771-acre portion of 240-260 Lakefront Boulevard in Buffalo, New York (the Site). The project details are summarized below:

Contaminant Source and Constituents

Contamination in excess of end use soil cleanup objectives associated with historic fill material is located on the Site. Constituents in the fill requiring remediation include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), PCBs, pesticides and metals. Additionally, groundwater at the site contains marginal concentrations of VOCs, SVOCs, PCBs and metals.

Extent of Contamination

Analytical results indicate that contaminants are located within the fill material. Contaminant concentrations varied significantly both vertically and horizontally across the Site due to the heterogeneous nature of the fill material. Based on investigations conducted to date, the highest contaminant concentrations tend to be located within the first 10 feet of fill material.

The historic fill material generally extends from below the vegetative layer to 30 feet below grade and is present across the Site.

Proposed Site Redevelopment

The intended redevelopment will be the construction of 20 three-story townhomes. Each townhome will be slab-on-grade with an integrated 2-car garage at ground level. All 20 townhomes will be sold at market value and will offer open floor plans with views of the water and the city skyline. Public access to the waterfront will be maintained. There will be a walking path to the water with landscaping and benches.

Remedial Investigation

To characterize site conditions and identify the appropriate remedy for the Site, a Remedial Investigation (RI) will be implemented. The RI will include the collection and analysis of fill, native soil, and groundwater samples.

Interim Remedial Measures

Because the contaminants exist within the fill material at the Site, this document presents the proposed plan to address these contaminants through removal of near surface contamination to regrade the Site for redevelopment and installation of a soil cover system throughout the Site .

1 INTRODUCTION

This Remedial Investigation/Interim Remedial Measures (RI/IRM) Work Plan provides a description of the procedures that will be implemented to characterize the nature and extent of contamination of soil at the 240-260 Lakefront Boulevard (the Site) and the proposed methods to address that contamination. This RI/IRM Work Plan has been prepared in accordance with New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation “Technical Guidance for Site Investigation and Remediation” (DER-10). To effectively characterize the environmental conditions, this RI/IRM Work Plan discusses the following:

- Current and historic site conditions
- Contaminants of concern and the extent of the contamination
- Extent of RI activities
- Quality controls and protocols for analytical sampling
- Health and safety procedures to protect site workers and the local community
- Community participation activities
- Proposed remedial measures

On October 18, 2018, Lakefront Boulevard, LLC, (Applicant) acting as BCP Volunteer, submitted a BCP Application to remediate and develop a portion of 240 and 260 Lakefront Boulevard in the City of Buffalo, New York. Investigative and remedial actions covered under this RI/IRM will include the entire 2.0771-acre BCP Site.

The Site is the location of the planned redevelopment of vacant land into 20 townhomes. An RI will be implemented to further evaluate the extent of the contaminated fill material and to aid in the preparation of an Alternatives Analysis Report (AAR). **Section 4 Remedial Investigation** describes the scope of the investigation during remediation. This document also described proposed IRM actions intended to address the contamination present at the Site.

1.1 Site Description

The Site is comprised of a portion of two parcels: 240 and 260 Lakefront Boulevard (SBL: 110.59-1-4.1, 1.0899 acres and SBL: 110.59-1-3.1, 1.3883 acres; total 2.0771 acres).

The BCP Site consists of vacant land between existing townhomes and condominiums. The western portion of the BCP Site has approximately 120 feet of frontage to the Erie Basin Marina. **Figure 1** shows the location of the Site and **Figure 2** shows the Project Area and Site Boundaries.

The Applicant will take ownership for the purpose of redeveloping the Site into 20 townhomes.

1.2 Site History

According to historical records, the Site was initially part of a commercial harbor (Erie Basin Marina) with most of the area consisting of waterway for freight shipments. A portion of a

Remedial Investigation / Interim Remedial Measure Work Plan 240-260 Lakefront Boulevard Site

railway dock intersected the center of the Site with a marina and the Niagara Slip to the Erie Canal to the north.

The marina and Site were backfilled in the late 1960s, such that the Site remained vacant land.

Buffalo Urban Renewal Agency (BURA) has owned the Site since January 22, 1980. During that time period, BURA has maintained the Site.

1.3 Site Geography, Geology, and Hydrogeology

Fill was generally observed across the Site from beneath the topsoil to approximately 25 feet to 30 feet bgs. Fill material identified on-site consisted of any one or mixture of the following materials:

| | |
|---------------------|-------------|
| Crushed Rock | Lumber |
| Sand | Ash/Cinders |
| Silt | Ceramics |
| Clay | Bricks |
| Plastics | Metal |
| Construction Debris | |

The Site contains fill material throughout the property with observed thickness ranging up to approximately 25 feet to 30 feet below grade. Native dense clay and silt is located below the fill material. Onondaga Limestone bedrock was encountered approximately 32 to 37 feet below grade.

Saturated soils encountered during the boring program were typically found at 10 to 20 feet below grade. During monitoring well sampling, the static water level generally ranged from 7 to 9 feet below grade.

Due to the close proximity of the Site to Lake Erie, groundwater levels will be greatly influenced by lake conditions. The National Oceanic and Atmospheric Administration and the Army Corps of Engineers continuously monitor lake water levels. The average monthly lake elevation for November 2017 was 572.37 feet; a difference of 0.68 – 2.26 feet between lake level and on-site groundwater levels.

2 SUMMARY OF ENVIRONMENTAL CONDITIONS

2.1 Environmental Reports

Site characterization efforts were recently conducted to assess contaminant concentrations at the Site and the results are summarized on **Figure 3**. This site characterization was conducted as a 2017 Phase I and Phase II Environmental Site Assessment (ESA). **Appendix A** contains these previous environmental reports.

Analytical results from the investigations are summarized in **Section 2.2** below.

2.2 Nature and Extent of Contamination

Contamination at the Site appears to be from unregulated placement of contaminated fill material to create the Waterfront Village complex. The fill material throughout the BCP Site generally extends from beneath the topsoil to 30 feet below grade. Based on a review of historic maps of the area, it is unknown that this time if the former railroad dock was demolished, a concern that previously undetected discrete areas of contamination related to ancillary uses such as underground petroleum/waste oil storage and/or heating operations (coal or fuel oil burning) may have impacted the subsurface soil.

Subsurface Soil

Based upon investigations conducted to date, the primary contaminants of concern include VOCs, SVOCs, primarily polycyclic aromatic compounds (PAHs), and heavy metals in the fill material present throughout the Site.

It is understood that the contaminant sources are related to the historical urban and commercial uses of the property and the deposition of fill material that occurred over time prior to the Site's current use. The fill material appears to be a heterogeneous mixture of various materials (sand, silt, bricks, ash, coal, metal or crushed concrete) that generally extends from 25 to 30 feet below grade.

The project sponsor's goal is to remediate the Site to Restricted Residential Soil Cleanup Objectives (SCOs). Concentrations of VOCs, SVOC/PAH compounds, pesticides, PCBs and heavy metals present in the fill material exceed SCOs for the intended use of the Site as a townhomes. VOCs exceed Unrestricted Use SCOs in one location on the BCP Site. PAH compounds, such as benzo(a)anthracene, benzo(a)pyrene and benzo(b)fluoranthene, were detected in fill material samples and at concentrations that exceed Restricted Residential, Commercial and Industrial Use SCOs. Pesticides exceed Unrestricted Use SCOs in four locations. Slightly elevated PCB concentrations were detected in four locations – three locations have concentrations above Unrestricted Use SCOs and one location contains PCB levels above Commercial Use SCOs. Heavy metals, cadmium, lead and mercury, were detected in all fill material samples at concentrations that exceeded Unrestricted and Residential Use SCOs.

The table below summarizes the contaminants of concern in the fill material, the number of locations where samples were collected and contain concentrations above SCOs, and the range of the concentrations in parts per million (ppm) for each analyte.

**Remedial Investigation / Interim Remedial Measure Work Plan
240-260 Lakefront Boulevard Site**

| Analyte | Locations with Concentrations above SCOs | Low Concentration (ppm) | High Concentration (ppm) |
|------------------------|--|-------------------------|--------------------------|
| VOCs | | | |
| Acetone | 1 | 0.052 | 0.052 |
| SVOCs / PAHs | | | |
| Benzo(a)anthracene | 5 | 1.5 | 30 |
| Benzo(a)pyrene | 5 | 1.3 | 26 |
| Benzo(b)fluoranthene | 5 | 1.7 | 33 |
| Benzo(k)fluoranthene | 1 | 8.7 | 8.7 |
| Chrysene | 5 | 1.4 | 23 |
| Dibenzo(a,h)anthracene | 1 | 3.9 | 3.9 |
| Indeno(1,2,3-cd)pyrene | 5 | 0.81 | 16 |
| Dibenzofuran | 1 | 10 | 10 |
| Pesticides | | | |
| 4,4'-DDE | 3 | 0.00373 | 0.00587 |
| 4,4'-DDD | 2 | 0.00578 | 0.00715 |
| 4,4'-DDT | 3 | 0.00532 | 0.00788 |
| PCBs | | | |
| Total PCBs | 6 | 0.128 | 1.66 |
| Metals | | | |
| Cadmium | 1 | 3.16 | 3.16 |
| Chromium, Trivalent | 1 | 31 | 31 |
| Copper | 1 | 50.1 | 50.1 |
| Lead | 5 | 74 | 148 |
| Mercury | 9 | 0.24 | 1.4 |
| Nickel | 1 | 56 | 56 |
| Silver | 1 | 2.91 | 2.91 |
| Zinc | 4 | 148 | 177 |

Groundwater

Groundwater concentrations exceeding NYSDEC standards were only encountered in the shallow monitoring wells that are screened within the fill material zone. One round of groundwater samples from all three monitoring wells was collected and analyzed; the following contaminants were detected:

- Concentrations of VOCs in two of the three groundwater samples contained acetone (140 ppb) and benzene (1.6 and 1.8 ppb) above NYSDEC standards – acetone 50 ppb and benzene 1 ppb.
- Concentrations of SVOCs in one sample contained the following concentrations:
 - Acenaphthene (24 ppb) – NYSDEC standard 20 ppb

**Remedial Investigation / Interim Remedial Measure Work Plan
240-260 Lakefront Boulevard Site**

- Naphthalene (51 ppb) – NYSDEC standard 10 ppb
- Benzo(a)anthracene (0.19 ppb) – NYSDEC standard 0.002 ppb
- Benzo(b)fluoranthene (0.16 ppb) – NYSDEC standard 0.002 ppb
- Benzo(k)fluoranthene (0.16 ppb) – NYSDEC standard 0.002 ppb
- Indeno(1,2,3-cd)pyrene (0.08 ppb) – NYSDEC standard 0.002 ppb
- Concentrations of PCBs in one of the three groundwater samples contained PCB (1.51 ppb) above NYSDEC standards –0.09 ppb.
- No pesticides were detected above NYSDEC standards.
- Concentrations of metals in two of the three groundwater samples contained lead (281.6 ppb), manganese (601.5 ppb), and mercury (1.96 ppb) above NYSDEC standards – lead 50 ppb, manganese 300 ppb, and mercury 1.4 ppb.

All potable water used in the City of Buffalo is provided by a publically-owned treatment facility. Use of groundwater for potable purposes is prohibited throughout the City of Buffalo.

3 OBJECTIVES, SCOPE AND RATIONALE

The objectives of the scope of work described in this Work Plan are to evaluate contaminant impacts to soil and identify and evaluate appropriate remedial actions necessary to redevelop the Site. The investigation work will include evaluating the magnitude and extent of contaminant impacts, conducting a qualitative exposure assessment for actual or potential exposures to contaminants at the Site and/or emanating from the Site, and producing data that will support the development of an acceptable RI Report and subsequent Alternatives Analysis Report (AAR). The IRM portion of this document details the remedial methods proposed to address the contamination present at the Site.

The RI is based on information previously gathered regarding historical operations conducted at the Site, the results of the limited site characterization, and the project objectives. The RI will include the following:

- Surface Soil Evaluation - samples will be spatially distributed across the Site in areas not “capped” by asphalt or buildings. Samples will be collected from 0 to 2 inches below grade using a decontaminated, stainless steel spoon or spatula.
- Soil Evaluation – This task will consist of two primary elements: fill material and underlying native soils.
 - The fill material will be characterized to identify the extent and magnitude of contamination. This material will also be the subject of waste characterization sampling because subsequent remedial activities would likely include the excavation and off-site disposal of the historic fill.
 - The underlying native soils will be characterized to determine the depth of impacts from the overlying fill material and the depths at which remedial efforts may be terminated.
- Groundwater Evaluation – Subsequent to completing the above tasks, existing groundwater monitoring wells will be utilized on Site to confirm previous sampling results and evaluate if the on-site historic fill material impacts groundwater quality.

The proposed IRM is intended to address the contamination known to exist within the historic fill material. The IRM tasks include excavating the urban fill and backfilling the excavation.

The RI and IRM activities will be completed in general accordance with NYSDEC Division of Environmental Remediation: Technical Guidance for Site Investigation and Remediation dated May 2010 (DER-10).

4 REMEDIAL INVESTIGATION

Previous soil investigations encountered fill material at the Site that is impacted by VOCs, SVOCs, and metals at concentrations above NYSDEC SCOs. This part of the RI/IRM Work Plan describes the scope of investigative work necessary to collect sufficient data to determine the extent of contaminated fill material which will support subsequent remedial actions in achieving Restricted Residential Use SCOs. This section of the RI/IRM Work Plan includes:

- Field Investigation
- Sampling Program
- Laboratory Analysis

4.1 Field Investigation

The RI intends to supplement the previous site characterization information by the advancement of soil borings, utilization of existing monitoring wells, and collecting and analyzing soil and groundwater samples.

4.1.1 Surface Soil Program

Surface soil samples will be collected from the top two inches below the vegetative layer. In six locations, one urban surface sample will be collected and analyzed for the following:

- 6 NYCRR Part 375-6.8(a) list (Part 375) VOCs
- Part 375 SVOCs
- Part 375 pesticides
- Total polychlorinated biphenyls (PCBs)
- Part 375 metals
- Total mercury
- Total cyanide

4.1.2 Soil Boring Program

A direct-push soil boring study will be implemented at the Site. Each soil boring should be advanced into the fill material, up to 15 feet (ft) below the ground surface (bgs), or at the discretion of the project geologist. Exploration locations will be located with a global positioning system or tape measured from existing site features.

Soils from the borings will be continuously assessed for visible or olfactory indications of impairment, and/or indication of detectable volatile organic compounds (VOCs) with a photoionization detector (PID). Positive indications from any of these screening methods are collectively referred to as “evidence of impairment.” Soil boring logs will be completed and include soil description, PID readings, etc. The boring logs will be included in the RI Report.

Remedial Investigation / Interim Remedial Measure Work Plan 240-260 Lakefront Boulevard Site

Fill Sampling

Fill samples will be collected from the borings based on evidence of impairment and to provide characterization across the Site. In 10 locations, one urban fill sample will be collected and analyzed for the following:

- 6 NYCRR Part 375-6.8(a) list (Part 375) VOCs
- Part 375 SVOCs
- Part 375 pesticides
- Total polychlorinated biphenyls (PCBs)
- Part 375 metals
- Total mercury
- Total cyanide

The vertical extent of the soil sampling program will be limited to the top 15 feet of fill material. To provide characterization of the various depths of fill at the Site, the following presents the depth interval and proposed number of fill samples that will be collected from the within each zone across the Site:

| Zone | Depth (feet) | Samples |
|-------------|---------------------|----------------|
| Zone 1 | 1 - 5 | 4 |
| Zone 2 | 5 - 10 | 3 |
| Zone 3 | 10 - 15 | 3 |

Additionally, up to seven samples will be collected from the urban fill for waste disposal characteristics. The waste characterization analysis will include:

- Toxicity Characteristic Leaching Procedure (TCLP) VOCs
- TCLP SVOCs
- PCBs
- TCLP metals
- Reactivity
- Corrosivity
- Ignitability
- pH
- Percent Solids

Perimeter Sampling

Fill samples will be collected from the borings at the perimeter of the Site boundary. Samples collected from perimeter locations will be used to document and characterize sub-surface conditions adjacent to the Site. Up to 10 samples, one fill sample per location, will be collected and analyzed for the following:

- Part 375 VOCs
- Part 375 SVOCs
- Part 375 pesticides
- Total PCBs

- Part 375 metals
- Total mercury
- Total cyanide

4.1.3 Test Pit / Near Surface Soil Program

Test pits will be excavated with a conventional track-mounted excavator. Test pits will be excavated to a maximum depth of ten feet bgs and extend to a maximum of ten feet in length.

Soils from the borings will be continuously assessed for visible or olfactory indications of impairment, and/or indication of detectable VOCs with a PID. Positive indications from any of these screening methods are collectively referred to as “evidence of impairment.” Soil boring logs will be completed and include soil description, PID readings, etc. The boring logs will be included in the RI Report.

A total of five test pits will be excavated across the Site. From each test pit, five near surface soil samples will be collected from one to two feet bgs. Near surface soil samples will be collected and analyzed for the following:

- 6 NYCRR Part 375-6.8(a) list (Part 375) VOCs
- Part 375 SVOCs
- Part 375 pesticides
- Total polychlorinated biphenyls (PCBs)
- Part 375 metals
- Total mercury
- Total cyanide

4.1.4 Groundwater Monitoring

To characterize groundwater conditions at the Site, three existing monitoring wells and one new monitoring well will be utilized. The existing wells and proposed new well are located throughout the Site, as shown in **Figure 5**.

Existing Groundwater Monitoring Well Construction

Buffalo Drilling Company, Inc. installed the three existing monitoring wells on November 29 and 30, 2017. Each monitoring wells was advanced to 20 feet bgs and completed with five feet of 2-inch diameter Schedule 40 pipe with 0.010-inch slotted screen. The borehole annulus was filled with sand, sealed with bentonite from approximately 10 to 14 feet, backfilled with soil cuttings to ground surface and grouted to the ground surface with a protective steel road box.

New Groundwater Monitoring Well Construction

New overburden wells will be constructed to intersect the top of the water table. Each well will be completed with 5 to 10 feet of 2-inch Schedule 40 0.010-slot well screen connected to an appropriate length of schedule 40 PVC well riser to complete the well. The annulus will be sand packed with quartz sand to approximately one to two feet above the screened section, and one to

Remedial Investigation / Interim Remedial Measure Work Plan 240-260 Lakefront Boulevard Site

two feet of bentonite chips or pellets above the sand. The remaining annulus will be grouted to ground surface. Each well will be completed without a stick-up protective casing.

Following installation, the monitoring wells will be developed through the removal of up to ten well volumes using dedicated bailers or a peristaltic or submersible pump.

Groundwater sampling will be conducted using low-flow purging and sampling techniques. Before purging the well, water levels will be measured using an electric water level sounder capable of measuring to the 0.01 foot accuracy. Peristaltic or bladder pumps using manufacturer-specified tubing will be used for purging and sampling groundwater. Calibration, purging and sampling procedures will be performed as specified by the USEPA¹ for low-flow sampling. Decontamination will be conducted after each well is sampled to reduce the likelihood of cross contamination. Calibration times, purging volumes, water levels and field measurements will be recorded in a field log and will be provided in the RI Report.

The groundwater samples will be analyzed for the following analyte list:

- Part 375 VOCs
- Part 375 SVOCs
- Part 375 pesticides
- Total PCBs
- Part 375 metals
- Total mercury
- Total cyanide

Historic uses and sampling performed to date does not indicate the Site will contain per and polyfluoroalkyl substances (PFOA / PFOS) and 1,4-dioxane. As a prerequisite screening of the Site, the NYSDEC requested one round of groundwater samples will be collected for PFOA/PFOS and 1,4-dioxane on all four groundwater monitoring wells.

Drilling decontamination, development, and purge fluids will be allowed to infiltrate the ground surface of the Site in the vicinity of each soil sampling location.

A second round of groundwater sampling will be performed approximately four weeks after the first round. The second round of groundwater samples will be analyzed for the same analytes as in the first round (excluding PFOA/PFOS and 1,4-dioxane).

4.2 Sampling Plan and Laboratory Analysis

Table 1 summarizes the sampling program described in the sections above. Additionally, Quality Assurance/Quality Control (QA/QC) samples will be collected, and the following describes the minimum number of samples per media type.

- Soil samples (excluding waste characteristic samples)
 - Blind duplicate – 5%
 - Matrix Spike/Matrix Spike Duplicate (MS/MSD) – 5%

¹ U.S. EPA Region 1 Low Stress (low-flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, January 19, 2010.

Remedial Investigation / Interim Remedial Measure Work Plan 240-260 Lakefront Boulevard Site

- Groundwater samples
 - Trip blank – 1 per shipment
 - Blind Duplicate – 5%
 - Matrix Spike/Matrix Spike Duplicate (MS/MSD) – 5%

C&S will utilize the services of an NYSDOH Environmental Laboratory Approval Program (ELAP) certified laboratory for analytical testing. The laboratory results for the samples will be reported in a Category B deliverables package to facilitate validation of the data, and a third party validator will review the laboratory data and prepare a Data Usability Summary Report (DUSR). The validator will evaluate the analytical results for the field samples and quality assurance/quality control samples and compare the findings to USEPA guidance to determine the accuracy and validity of the results.

Summaries of the RI activities will be submitted to the NYSDEC as monthly progress reports and will be included in the RI Report. All data submitted to the NYSDEC will be in approved electronic data deliverable (EDD) format.

5 QUALITY ASSURANCE AND QUALITY CONTROL PROTOCOLS

To ensure that suitable and verifiable data results are obtained from the information collected at the Site, quality assurance procedures are detailed in this section.

5.1 Sampling Methods, Analytical Procedures and Documentation

5.1.1 Sampling Methods

Sampling procedures will be conducted in accordance with the NYSDEC *Sampling Guidelines and Protocols Manual*. Collection of representative samples will include the following procedures:

- Ensuring that the sample taken is representative of the material being sampled;
- Using proper sampling, handling and preservation techniques;
- Properly identifying the collected samples and documenting their collection in field records;
- Maintaining chain-of-custody; and
- Properly preserving samples after collection.

Soil Sampling

Soil sampling will be performed using two methods: (1) field screening using a PID; and (2) grab samples. Whether soil samples are collected from the excavator bucket, direct-push rig sleeves, or split-spoons, they will be collected as grab samples that are split and placed into jars supplied by the laboratory as well as into individual zip-lock bags for screening. Screening soil samples will be allowed to sit in sealed zip-lock bag for a short period of time (minimum of five minutes). Head space measurements will then be taken from each zip-lock bag. To prevent cross contamination, zip-lock bags will not be reused and will be properly disposed. Calibration of all electronic field screening equipment will be completed daily and will be done to manufacturer's specifications.

As detailed in the *Sampling Guidelines and Protocols Manual*, grab samples will be placed in 4-ounce and 8-ounce, wide-mouth, glass jars. Sample jars will immediately be placed on ice in a cooler.

Water Sampling

Groundwater sampling will be conducted in accordance with USEPA guidance for low-flow purging and sampling, as described in **Section 4**.

Water samples will be collected in 40 ml and 1-liter glass jars and immediately placed on ice. The water will be analyzed for VOC, SVOC, PCBs, pesticides and metals on a standard turnaround time.

QA/QC Sampling

Duplicate samples will be collected from a minimum of 5% of the locations, and will be selected randomly.

**Remedial Investigation / Interim Remedial Measure Work Plan
240-260 Lakefront Boulevard Site**

Quality Assurance/Quality Control samples will not be collected and analyzed for the waste characterization sampling.

Table 6-1: Summary of Estimated QA/QC Sampling

| <i>Sample Type</i> | <i>Estimated No. Locations</i> | <i>Purpose</i> |
|------------------------|--|------------------|
| Soil | | |
| Surface | 6 | Characterization |
| Field Duplicate | 1 | QA/QC |
| Matrix Spike | 1 | QA/QC |
| Matrix Spike Duplicate | 1 | QA/QC |
| Fill Material | 15 | Characterization |
| Field Duplicate | 1 | QA/QC |
| Matrix Spike | 1 | QA/QC |
| Matrix Spike Duplicate | 1 | QA/QC |
| Perimeter Samples | 10 | Characterization |
| Field Duplicate | 0 | QA/QC |
| Matrix Spike | 0 | QA/QC |
| Matrix Spike Duplicate | 0 | QA/QC |
| Waste Characterization | 7 | Characterization |
| Groundwater | | |
| Groundwater | 8 | Characterization |
| Field Duplicate | 2 | QA/QC |
| Matrix Spike | 2 | QA/QC |
| Matrix Spike Duplicate | 2 | QA/QC |

5.1.2 Analytical Procedures

Laboratory Analysis

Laboratory analysis will be conducted by a third-party laboratory that is accredited by the NYSDOH Environmental Laboratory Accreditation Program (ELAP). Laboratory analytical methods will include the most current NYSDEC Analytical Services Protocol (ASP).

Soil and groundwater samples sent to a certified laboratory will be analyzed in accordance with EPA SW-846 methodology for the following contaminants:

- VOCs (EPA Method 8260);
- SVOCs (EPA Method 8270C);
- Pesticides (USEPA 8081A);
- PCBs (USEPA 8082);
- Cyanide (USEPA Method 9010B);
- Mercury (USEPA Method 7471A);
- Hexavalent Chromium (USEPA Method 7196A); and

Remedial Investigation / Interim Remedial Measure Work Plan 240-260 Lakefront Boulevard Site

- Metals (EPA Method 6010B).

Groundwater samples only:

- 1,4 dioxane (EPA Method 8270SIM); and
- Per and Polyfluoroalkyl substances (EPA Method 537).

Category B deliverable will be requested to be used in a third-party data validation.

Data Usability

Data Usability Summary Report (DUSR) will be performed by a third-party data consultant using the most recent methods and criteria from the U.S. EPA. The DUSR will assess all sample analytical data, blanks, duplicates and laboratory control samples and evaluate the completeness of the data package. The waste characterization samples will not be validated.

5.1.3 Documentation

Custody Procedures

As outlined in NYSDEC *Sampling Guidelines and Protocols*, a sample is in custody under the following conditions:

- It is in your actual possession;
- It is in your view after being in your physical possession;
- It was in your possession and then you locked or sealed it up to prevent tampering;
or
- It is in a secure area.

The environmental professional will maintain all chain-of-custody documents that will be completed for all samples that will leave the Site to be tested in the laboratory.

Air Monitoring

Air monitoring will be conducted to verify no impacts to ambient air. Air monitoring will be conducted during the soil boring program. The monitoring will include periodic screening for VOCs. All records will be kept on-site during the investigation and will be made available for regulatory inspection. A daily air monitoring log will be maintained through the end of remedial investigation field activities. The specifics of the air monitoring procedures and criteria are detailed in the CAMP.

A CAMP is not generally required for investigation or delineation of site conditions, which are not considered intrusive. These activities include the collection of:

- Surface soil;
- Groundwater;
- Surface Water;
- Sediment;
- Ambient or indoor air; and/or
- Soil gas and sub-slab soil vapor (after the sampling ports have been installed).

6 HEALTH AND SAFETY

To verify the safety of the workers and the local community during the performance of the work, monitoring practices of the work environment will be in place during all phases of RI activities. A Health and Safety Plan (HASP) was prepared that details procedures for maintaining safe working conditions and minimizing the potential for exposure to contaminated material. The HASP is provided in **Appendix D**.

Air monitoring during RI activities will be conducted using PID. Details on air monitoring are provided in the Community Air Monitoring Plan (CAMP). The CAMP is provided in **Appendix C**.

7 INTERIM REMEDIAL MEASURES

The following steps will be implemented to address the known contamination within the fill material at the Site:

- Removal of one foot of historic fill across the Site for off-site disposal or treatment at a regulated facility.
- Installation of a soil cover system throughout the Site.

This section of the report will identify the steps to be taken to remediate the Site and how the actions will successfully achieve the stated Restricted Residential Use Soil Cleanup Objectives.

7.1 Site Control

Site control is an important aspect of this remedial program. In order to safeguard the health and safety of site workers and the general public, access to all remedial work areas will be restricted. Perimeter fencing will be installed to facilitate site control. Additionally, temporary construction fencing will be erected around accessible excavations and staging areas to prevent unauthorized personnel from entering these areas as appropriate.

7.2 Excavation

Excavation is planned to occur across the Site and will include the removal and off-site disposal of fill material to a depth that re-grades the Site for redevelopment. Fill excavated from the Site will not be reused at other sites.

Although petroleum or other similar impacts are not anticipated, a C&S scientist or engineer will screen the removed fill for visual and olfactory observations and for total volatile compounds using a photoionization detector (PID). If grossly contaminated fill is observed, the impacted material will be evaluated and may be handled separately from the remaining fill at the Site.

Excavated fill may be direct-loaded onto trucks for off-site disposal or stockpiled. Excavated fill to be stockpiled on-site will be placed on and covered by a minimum of double 6-mil polyethylene sheeting which is sufficiently anchored to prevent any wind and water erosion. The cover will be inspected at least once per day with corrective action taken as needed. The inspections and any corrective actions will be documented in logs and will occur until the fill materials have been properly removed and disposed off-site.

Good housekeeping practices will be followed during excavation activities to prevent leaving contaminated material on the ground surface (e.g., precautions will be taken to prevent impacts to the ground surface due to material spilled from the excavator bucket). Additionally, if any damage occurs to existing groundwater monitoring wells, they will be properly fixed and/or replaced.

Transportation of all wastes will be completed by properly permitted vehicles. To the extent practicable, trucks will travel along routes that avoid residential areas.

**Remedial Investigation / Interim Remedial Measure Work Plan
240-260 Lakefront Boulevard Site**

7.3 Backfilling / Soil Cover

7.3.1 Backfill

The excavation at the Site will be backfilled to grade with material such as clean soil, and/or crushed stone.

For each source of backfill that is imported to the Site, one of the following will be completed prior to importing the backfill.

- a. Documentation will be provided to NYSDEC as to the source of the material and the consistency of the material in accordance with the exemption for no chemical testing listed in DER-10 Section 5.4(e)(5); **OR**
- b. Chemical testing will be completed in accordance with the following table:

| Recommended Number of Soil Samples for Soil Imported To or Exported From a Site | | | |
|---|--|-------------------------------------|--|
| Contaminant | VOCs | SVOCs, Inorganics & PCBs/Pesticides | |
| Soil Quantity (cubic yards) | Discrete Samples | Composite | Discrete Samples/Composite |
| 0-50 | 1 | 1 | 3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis |
| 50-100 | 2 | 1 | |
| 100-200 | 3 | 1 | |
| 200-300 | 4 | 1 | |
| 300-400 | 4 | 2 | |
| 400-500 | 5 | 2 | |
| 500-800 | 6 | 2 | |
| 800-1000 | 7 | 2 | |
| 1000 | Add an additional 2 VOC and 1 composite for each additional 1000 Cubic yards or consult with DER | | |

Taken from DER-10 - Table 5.4(e)10

In the event that laboratory analytical testing is conducted, the results for each new source of fill must meet the values provided in Appendix 5 of DER-10 (provided as Appendix C in this Work Plan) for Restricted Residential use and must receive approval by the NYSDEC.

7.3.2 Soil Cover System

Re-grading of the entire Site will require approximately one foot of soil will be removed and sent to an offsite disposal facility. Removing the top one-foot of soil will expose the underlying contaminated fill material to the public and the environment. Exposure to

Remedial Investigation / Interim Remedial Measure Work Plan 240-260 Lakefront Boulevard Site

remaining contamination will be prevented by the installation of a soil cover system. The soil cover system will be comprised of the following elements:

- Placement of clean backfill material (backfill material described in the previous section) at a minimum thickness of 24-inches in areas not covered by existing or future hardscape (buildings, pavement, sidewalks, etc.);
- Installation and/or maintenance of hard surfaces (concrete building slabs, asphalt parking lots, sidewalks, etc.); and
- Placement of a demarcation layer at the bottom of the soil/hard surface cover system. The demarcation layer will consist of geotextile fabric placed in the excavations prior to backfilling. The delineating layer will allow identification, segregation and proper handling of contaminated soil/fill that may be excavated during any intrusive work at the Site for redevelopment in the future.

The inspection, monitoring and maintenance of the soil cover system will be described in the upcoming Site Management Plan.

7.4 Air Monitoring

Continuous air monitoring will be conducted at upwind and downwind locations during all ground intrusive activities as per DOH Generic CAMP (CAMP) included in **Appendix C**. A particulate monitor will be used at a downwind location on the perimeter of the Site. Another handheld detector was used in the excavation to ensure that the worker area was safe.

The action threshold for VOCs established in the CAMP is 5 ppm above background. If this value is exceeded for the 15-minute average work will be halted and work may resume once instantaneous readings fall below 5 ppm work. The action level for dust is 100 micrograms per cubic meter over background during a 15-minute average. If this limit is exceeded, dust suppression techniques will be employed, including using water to wet the area.

Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative-pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned

work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m³, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m³ or less at the monitoring point.

7.5 Erosion and Dust Controls

As part of the remedial actions to be performed at the Site, measures will be needed to limit erosion and dust generation. Erosion control and dust suppression techniques will be employed as necessary to limit erosion and fugitive dust generated in disturbed areas during remediation and redevelopment activities. Such techniques may be employed even if the community air monitoring results indicate that particulate levels are below action levels. Techniques may include but are not limited to:

- Using silt fencing, hay bales, and/or mulching
- Applying water on haul roads
- Wetting equipment and excavation surfaces
- Hauling materials in properly tarped or watertight containers
- Limiting vehicle speed on the Site
- Limiting the size of excavations
- Covering excavated areas and materials following excavation

Effectiveness of the dust suppression measures will be evaluated based on the results of the air monitoring that will be conducted under the Site-Specific Community Air Monitoring Plan provided in **Appendix C**.

7.6 Confirmatory Sampling

The RI will determine the depth of impacts from the overlying fill material. Fill material will be removed only in areas required for re-grading the Site. A soil cover will be placed on top of the fill material to prevent future exposure concerns; additional confirmatory sampling will not be necessary.

7.7 Discussion of Interim Remedial Measures

The IRM as described above will be effective in remediating the Site.

In order to re-grade the Site for construction some contaminated fill will be properly excavated and disposed off-site. Backfill / soil cover materials will meet NYSDEC requirements for backfill at BCP sites. Additionally, the placement of an easement on the Site will ensure that future Site uses and activities will remain as restricted residential. The

**Remedial Investigation / Interim Remedial Measure Work Plan
240-260 Lakefront Boulevard Site**

implementation of a site management plan will also provide guidance on the site handling of any contaminated material during future work, should such a situation arise.

8 REPORTING

Based on the results of the work described above, one report will be prepared to describe the methodologies and results of the RI and IRM. The report will also identify and evaluate additional remedial activities for the Site, if any. The RI and IRM portions of the Report will describe:

- Investigative methods;
- Observations and findings;
- Inspection/Monitoring observations of the remedial measures;
- Results of the community air monitoring program; and
- Analytical results.

The Alternatives Analysis Report (AAR) portion of the Report will include the following elements:

- An Alternatives Analysis
 - Description of remaining contamination, if any
 - Identification of potential, additional remedial measures
 - Evaluation of potential, additional remedial measures, including no action following the remediation
 - Identification of recommended additional remedy

The documents will be submitted to the NYSDEC for review and approval.

**Remedial Investigation / Interim Remedial Measure Work Plan
240-260 Lakefront Boulevard Site**

9 SCHEDULE

It is assumed that NYSDEC will promptly review this RI/IRM Work Plan followed by a 45-day comment period. Below is an anticipated schedule of milestones for the remediation of the Site.

| <u>Anticipated Date</u> | <u>Milestone</u> |
|--------------------------------|--|
| Mid October 2018 | Brownfield Cleanup Program (“BCP”) Application Submission |
| Mid October 2018 | Remedial Investigation / Interim Remedial Measure Work Plan (“RI/IRM WP”) Submission |
| Late December 2018 | BCP Acceptance |
| Mid March 2019 | Brownfield Cleanup Agreement (“BCA”) Executed |
| Late March 2019 | RI/IRM WP Approved |
| Early April 2019 | Remedial Investigation Begins |
| Early May 2019 | Remedial Investigation Ends |
| Early June 2019 | Remedial Work Begins |
| Late July 2019 | Remedial Work Ends |
| Mid August 2019 | Remedial Investigation / Interim Remedial Measure Report Submission |
| Mid August 2019 | Environmental Easement Submission |
| Late August 2019 | Site Management Plan (“SMP”) Submission |
| Mid September 2019 | Final Engineering Report (“FER”) Submission |
| Late September 2019 | Remedial Investigation / Interim Remedial Measure Report Approval |
| Mid September 2019 | SMP Approved |
| Mid September 2019 | Environment Easement Executed |
| Early October 2019 | FER Approved |
| Late October 2019 | Decision Document |
| Late December 2019 | Certificate of Completion Issued |

FIGURES



LEGEND

- BROWNFIELD CLEANUP BOUNDARY
- PROPERTY SURVEY**
- UE — UNDERGROUND ELECTRIC
- UT — UNDERGROUND TELEPHONE
- UC — UNDERGROUND COMMUNICATIONS
- SS — SANITARY SEWER
- ST — STORM SEWER
- W — WATER
- G — GAS
- U — UNKNOWN UNDERGROUND UTILITY
- X — FENCE
- — GUIDERAIL
- ◀ — TRAFFIC LIGHT
- ◻ — LIGHT POLE
- ◻ — LIGHT BASE ONLY
- ◻ — C.B. — CATCH BASIN
- ⊙ — COMB. M.H. — COMBINATION MANHOLE
- ⊙ — ST. M.H. — STORM MANHOLE
- ⊙ — P.M. — PARKING METER
- ⊙ — RCVR. — PARKING RECEIVER
- ⊙ — BUT. — PARKING BUTTON
- ⊙ — G.P. — GUARD POST
- ⊙ — C.O. — CLEANOUT
- ⊙ — G.V. — GAS VALVE
- ⊙ — W.V. — WATER VALVE
- ⊙ — HYD. — HYDRANT
- ⊙ — PH. — TELEPHONE
- ⊙ — TEL. M.H. — TELEPHONE MANHOLE
- ⊙ — TRAF. M.H. — TRAFFIC MANHOLE
- ⊙ — LIGHT. M.H. — LIGHTING MANHOLE
- ⊙ — ELEC. M.H. — ELECTRIC MANHOLE
- ⊙ — SIGN — SIGN
- — N.F.V. — NOT FIELD VERIFIED

NOTES

1) PROPERTY SURVEY FROM MCINTOSH & MCINTOSH, P.C., SURVEY OF PART OF LOTS-5 & 14, OCTOBER 20, 2016 (JOB NO. 8755).

C&S Engineers, Inc.
 141 Elm Street
 Buffalo, New York 14203
 Phone: 716-847-1630
 Fax: 716-847-1454
 www.cscos.com



**240 - 260 LAKEFRONT BLVD. SITE
 BROWNFIELD CLEANUP PROGRAM**

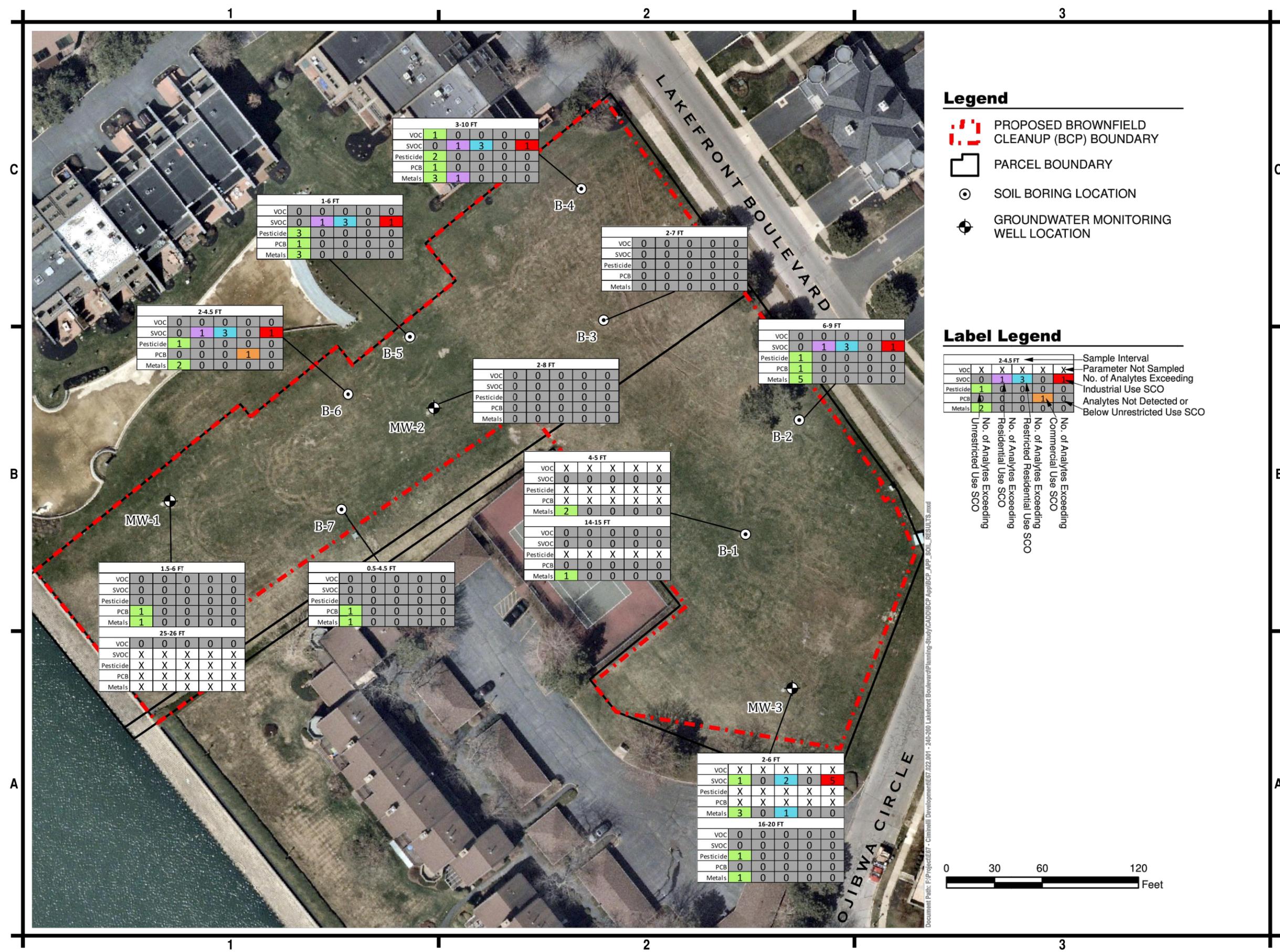
CITY OF BUFFALO, NY

| MARK | DATE | DESCRIPTION |
|--|-------------|-------------|
| REVISIONS | | |
| PROJECT NO: | E67.022.003 | |
| DATE: | 08/14/2018 | |
| DRAWN BY: | C. MARTIN | |
| DESIGNED BY: | C. MARTIN | |
| CHECKED BY: | D. RIKER | |
| NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW | | |

SITE DETAIL

FIGURE 2

f:\Project\67 - ciminelli development\67.022.001 - 240-260 lakefront boulevard\planning-study\CADD\3 SITE CHARACTERIZATION.dwg



Legend

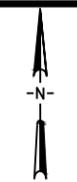
- PROPOSED BROWNFIELD CLEANUP (BCP) BOUNDARY
- PARCEL BOUNDARY
- SOIL BORING LOCATION
- GROUNDWATER MONITORING WELL LOCATION

Label Legend

| | | 2-4.5 FT | | | | | Sample Interval |
|-----------|---|--|---|--|--|--|---|
| VOC | X | X | X | X | X | X | Parameter Not Sampled |
| SVOC | 0 | 1 | 3 | 0 | 0 | 0 | No. of Analytes Exceeding Industrial Use SCO |
| Pesticide | 1 | 0 | 0 | 0 | 0 | 0 | Analytes Not Detected or Below Unrestricted Use SCO |
| PCB | 0 | 0 | 0 | 0 | 1 | 0 | |
| Metals | 2 | 0 | 0 | 0 | 0 | 0 | |
| | | No. of Analytes Exceeding Unrestricted Use SCO | No. of Analytes Exceeding Residential Use SCO | No. of Analytes Exceeding Commercial Use SCO | No. of Analytes Exceeding Restricted Residential Use SCO | No. of Analytes Exceeding Industrial Use SCO | |



C&S Engineers, Inc.
 141 Elm Street.
 Buffalo, New York 14203
 Phone: 716-847-1630
 Fax: 716-847-1454
 www.cscos.com



240-260 LAKEFRONT BLVD. SITE
 BROWNFIELD CLEANUP PROGRAM
 CITY OF BUFFALO, NEW YORK

| MARK | DATE | DESCRIPTION |
|--|-----------------|-------------|
| REVISIONS | | |
| PROJECT NO: | E67.022.003 | |
| DATE: | AUGUST 15, 2018 | |
| DRAWN BY: | C. MARTIN | |
| DESIGNED BY: | C. MARTIN | |
| CHECKED BY: | D. RIKER | |
| NO ALTERATION PERMITTED HEREON EXCEPT AS PROVIDED UNDER SECTION 7209 SUBDIVISION 2 OF THE NEW YORK EDUCATION LAW | | |

2017
 SITE
 CHARACTERIZATION

FIGURE 3

TABLES

Table 1
Proposed Remedial Investigation Sampling Program

| Matrix | Sample Type | Lab Analysis | No. Samples | Field Duplicates | Matrix Spike | Matrix Spike Duplicate | Trip Blank | Total |
|----------------|------------------------|---------------------|-------------|------------------|--------------|------------------------|------------|-------|
| Soil | Surface | Part 375 VOC | 6 | 1 | 1 | 1 | -- | 9 |
| | | Part 375 SVOC | 6 | 1 | 1 | 1 | -- | 9 |
| | | Part 375 Pesticides | 6 | 1 | 1 | 1 | -- | 9 |
| | | Total PCB | 6 | 1 | 1 | 1 | -- | 9 |
| | | Part 375 Metals | 6 | 1 | 1 | 1 | -- | 9 |
| | | Cyanide | 6 | 1 | 1 | 1 | -- | 9 |
| | | Hexavalent Chromium | 0 | 0 | 0 | 0 | -- | 0 |
| | Fill Material | Part 375 VOC | 15 | 1 | 1 | 1 | -- | 18 |
| | | Part 375 SVOC | 15 | 1 | 1 | 1 | -- | 18 |
| | | Part 375 Pesticides | 15 | 1 | 1 | 1 | -- | 18 |
| | | Total PCB | 15 | 1 | 1 | 1 | -- | 18 |
| | | Part 375 Metals | 15 | 1 | 1 | 1 | -- | 18 |
| | | Cyanide | 15 | 1 | 1 | 1 | -- | 18 |
| | | Hexavalent Chromium | 0 | 0 | 0 | 0 | -- | 0 |
| | Perimeter | Part 375 VOC | 10 | 0 | 0 | 0 | -- | 10 |
| | | Part 375 SVOC | 10 | 0 | 0 | 0 | -- | 10 |
| | | Part 375 Pesticides | 10 | 0 | 0 | 0 | -- | 10 |
| | | Total PCB | 10 | 0 | 0 | 0 | -- | 10 |
| | | Part 375 Metals | 10 | 0 | 0 | 0 | -- | 10 |
| | | Cyanide | 10 | 0 | 0 | 0 | -- | 10 |
| | | Hexavalent Chromium | 0 | 0 | 0 | 0 | -- | 0 |
| | Waste Characterization | TCLP VOC | 7 | -- | -- | -- | -- | 7 |
| | | TCLP SVOC | 7 | -- | -- | -- | -- | 7 |
| | | PCB | 7 | -- | -- | -- | -- | 7 |
| | | TCLP Metal | 7 | -- | -- | -- | -- | 7 |
| | | Reactivity | 7 | -- | -- | -- | -- | 7 |
| | | Corrosivity | 7 | -- | -- | -- | -- | 7 |
| | | Ignitability | 7 | -- | -- | -- | -- | 7 |
| pH | | 7 | -- | -- | -- | -- | 7 | |
| Percent Solids | | 7 | -- | -- | -- | -- | 7 | |
| Water | Groundwater | Part 375 VOC | 8 | 2 | 2 | 2 | 2 | 16 |
| | | Part 375 SVOC | 8 | 2 | 2 | 2 | 0 | 14 |
| | | Part 375 Pesticides | 8 | 2 | 2 | 2 | 0 | 14 |
| | | Total PCB | 8 | 2 | 2 | 2 | 0 | 14 |
| | | Part 375 Metals | 8 | 2 | 2 | 2 | 0 | 14 |
| | | Cyanide | 8 | 0 | 0 | 0 | 0 | 8 |
| | | Hexavalent Chromium | 0 | 0 | 0 | 0 | 0 | 0 |
| | | 1,4 Dioxane | 3 | 1 | 1 | 1 | 0 | 6 |
| | | PFOA/PFOS | 3 | 1 | 1 | 1 | 0 | 6 |