156 SOLAR STREET, LLC

REMEDIAL INVESTIGATION WORK PLAN
AMPHION PIANO PLAYER BCP SITE
156 SOLAR STREET, SYRACUSE, NEW YORK

BCP Site No.: C734156

18 March 2022

Prepared for:

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1.0 INTRODUCTION

1.1 PURPOSE

As stated in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation dated May 2010 issued by New York State Department of Environmental Conservation (NYSDEC), herein referred to as DER-10, the purpose of the Remedial Investigation (RI) at the Amphion Piano Player BCP Site is summarized as follows:

- delineate the areal and vertical extent of contaminants in all media at the site;
- determine the surface and subsurface characteristics of the site, including topography, geology and hydrogeology (including depth to groundwater);
- identify the sources of contamination, the migration pathways, and actual or potential receptors of contaminants on or through air, soil, bedrock, sediment, groundwater, surface water, utilities, and structures at a contaminated site;
- collect and evaluate all data necessary to determine if a fish and wildlife resource impact analysis (FWRIA) is needed to evaluate all actual and potential adverse impact to fish and wildlife resources (if any);
- collect and evaluate all data necessary to evaluate the actual and potential threats to public health and the environment, including evaluating all current and future potential public health exposure pathways, and potential impacts to biota; and
- collect the data necessary to evaluate any release to an environmental medium and develop remedial alternative(s) to address the release.

Please note that this RI is to be performed by a 'Volunteer' under the NYSDEC Brownfield Cleanup Program (BCP) and, as such, investigation of off-site conditions is not included in the RI scope of work.

1.2 OBJECTIVES

This RI Work Plan (RIWP) was developed consistent with DER-10 and the USEPA Guidance for Conducting Remedial Investigation and Feasibility Studies under CERCLA (dated October 1988). A Phase I Environmental Site Assessment (ESA) was performed by Plumley Engineering (Plumley) in 2016 and limited Site Investigations were

performed by Plumley in 2016 and by AECC Environmental Consulting (AECC) in 2018 (see Section 2.5). Those efforts identified constituents of concern (COCs) in soil and groundwater at the Site. The objectives of the RI are to further evaluate and delineate COCs at the Site to support an evaluation of feasible remedial alternative leading to cleanup and redevelopment of the Site under the BCP.

1.3 ORGANIZATION

This document presents the RIWP for the Site and is organized as follows.

- Sections 1 to 6 – RIWP - Section 1 outlines the purpose and objectives of the RI. Section 2 presents site background and setting information. Section 3 presents the results of previous evaluations and a conceptual site model. Sections 4 to 5 present the scope of work to be completed during the RI, and Section 6 presents a project schedule.
- Attachment 1 - Support Documentation.
- Attachment 2 - Sampling and Analysis Plan (SAP).
- Attachment 3 - Quality Assurance Project Plan (QAPP).
- Attachment 4 - Health and Safety Plan (HASP).

2.0 SITE BACKGROUND AND SETTING

2.1 SITE LOCATION

The Amphion Piano Player BCP Site, located at 156-158 Solar Street, is comprised of tax map parcel 118.-06-01.0 and consists of 2.01 acres in an urban location on Solar Street in the City of Syracuse, Onondaga County ('the Site'). The northwest corner of the Site is located at the intersection of Solar Street and West Division Street in the 'Lakefront District' of the City of Syracuse. The Property has approximately 334 feet of road frontage along Solar Street and approximately 260 feet of frontage along West Division Street. Surrounding areas consist of commercial, residential, corporate office, retail and mixed land use. A US Post office is located proximal to the Site. Syracuse's 'Inner Harbor' is 0.25 miles north of the Site. Refer to Figure 2-1 (USGS 7.5-minute topographical quadrangle map), Figure 2-2 (Site Location Map), Figure 2-3 (Site Survey with 2.01-acre BCP Site Limits), and Figure 2-4 (Tax Map showing BCP Site) for additional Site information.

The onsite vacant and dilapidated building has three distinct sections: a single-story block section (150 feet by 100 feet) most recently occupied by Syracuse Scale Company, Inc., a three-story factory section (240 feet by 75 feet), and a single-story steel-clad section (100 feet by 75 feet). Paved driveways and parking areas are located on the northwest and southeast sides of the building. A small section of the existing building that fronts Solar Street will be demolished; remaining structures at the Site will be completely renovated and redeveloped to be consistent with land use in the area.

2.2 SURROUNDING PROPERTY USAGE

Surrounding areas consist of commercial, residential, corporate office, retail and mixed land use. A US Post office is located proximal to the Site. Syracuse's 'Inner Harbor' is 0.25 miles north of the Site.

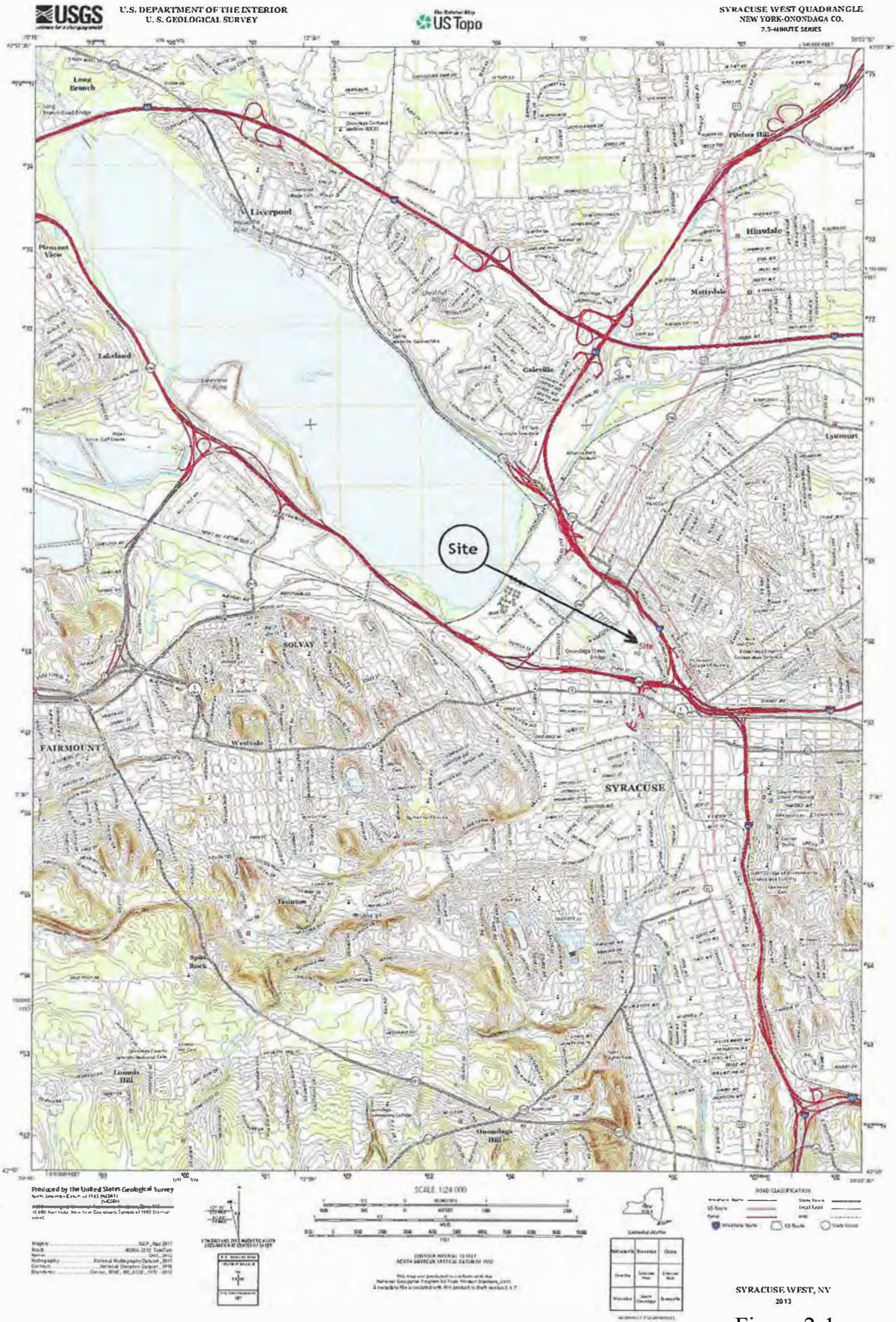

USGS
U.S. DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY
US Topo
SYRACUSE WEST QUADRANGLE
NEW YORK-ONONDAGA CO.
7.5-MINUTE SERIES
Long Branch
Liverpool
Pleasant View
Lakeland
Pitcher Hill
Hiwdale
Mattydale
Galeville
Lyncourt
Site
SOLVAY
Westvale
FAIRMOUNT
SYRACUSE
Tainton
Split Rock
Loomis Hill
Onondaga Hill
Produced by the United States Geological Survey
SCALE 1:24 000
ROAD CLASSIFICATION
SYRACUSE WEST, NY
2013

Figure 2-1

Figure 2-2: Site Location Map
156-158 Solar Street, Syracuse, NY
Amphion Piano Player Redevelopment
BCP Project Site
Prepared by Ambient Environmental, Inc. on 3/8/22

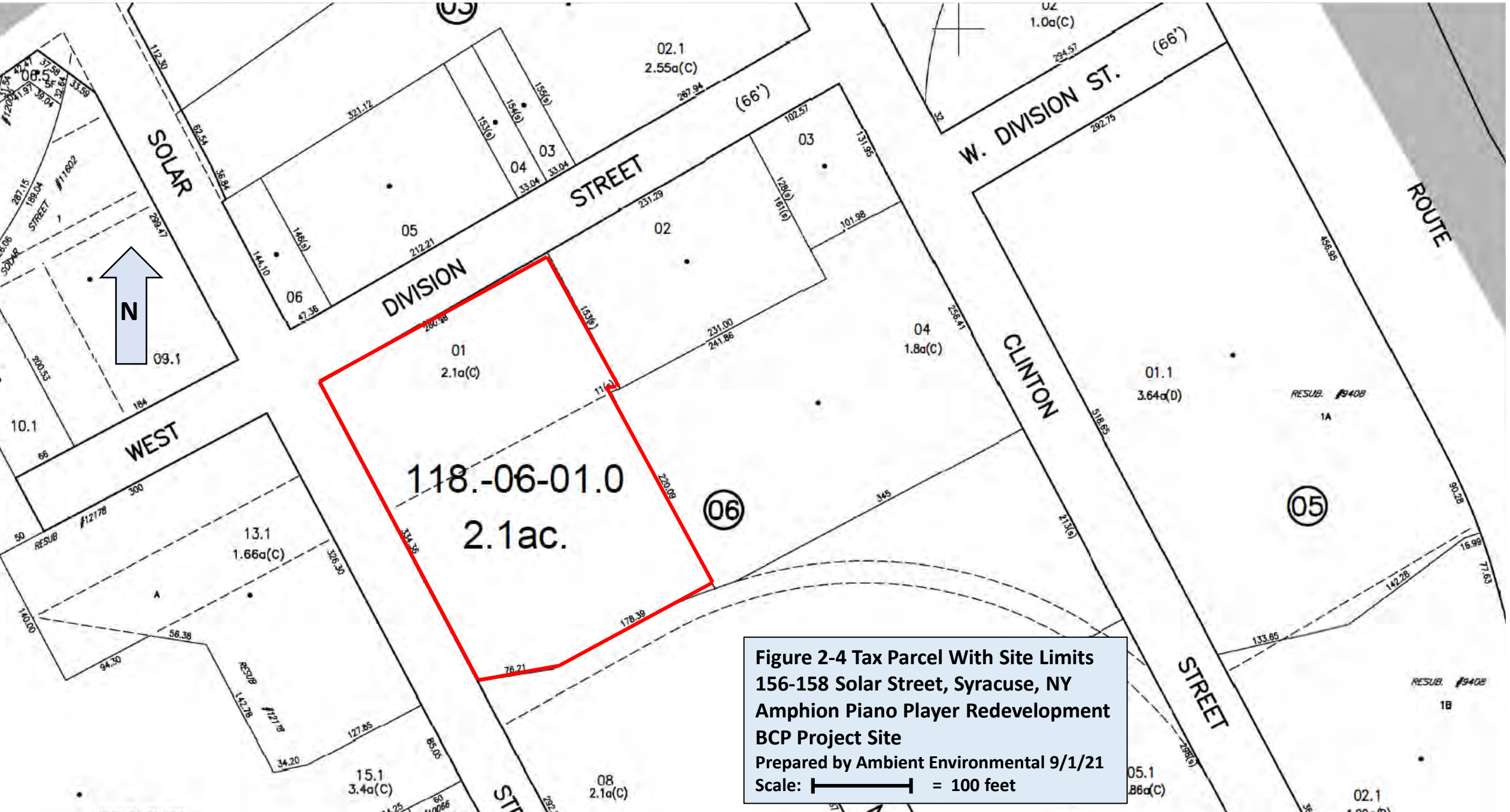


Figure 2-4 Tax Parcel With Site Limits
156-158 Solar Street, Syracuse, NY
Amphion Piano Player Redevelopment
BCP Project Site
Prepared by Ambient Environmental 9/1/21
Scale: ——— = 100 feet

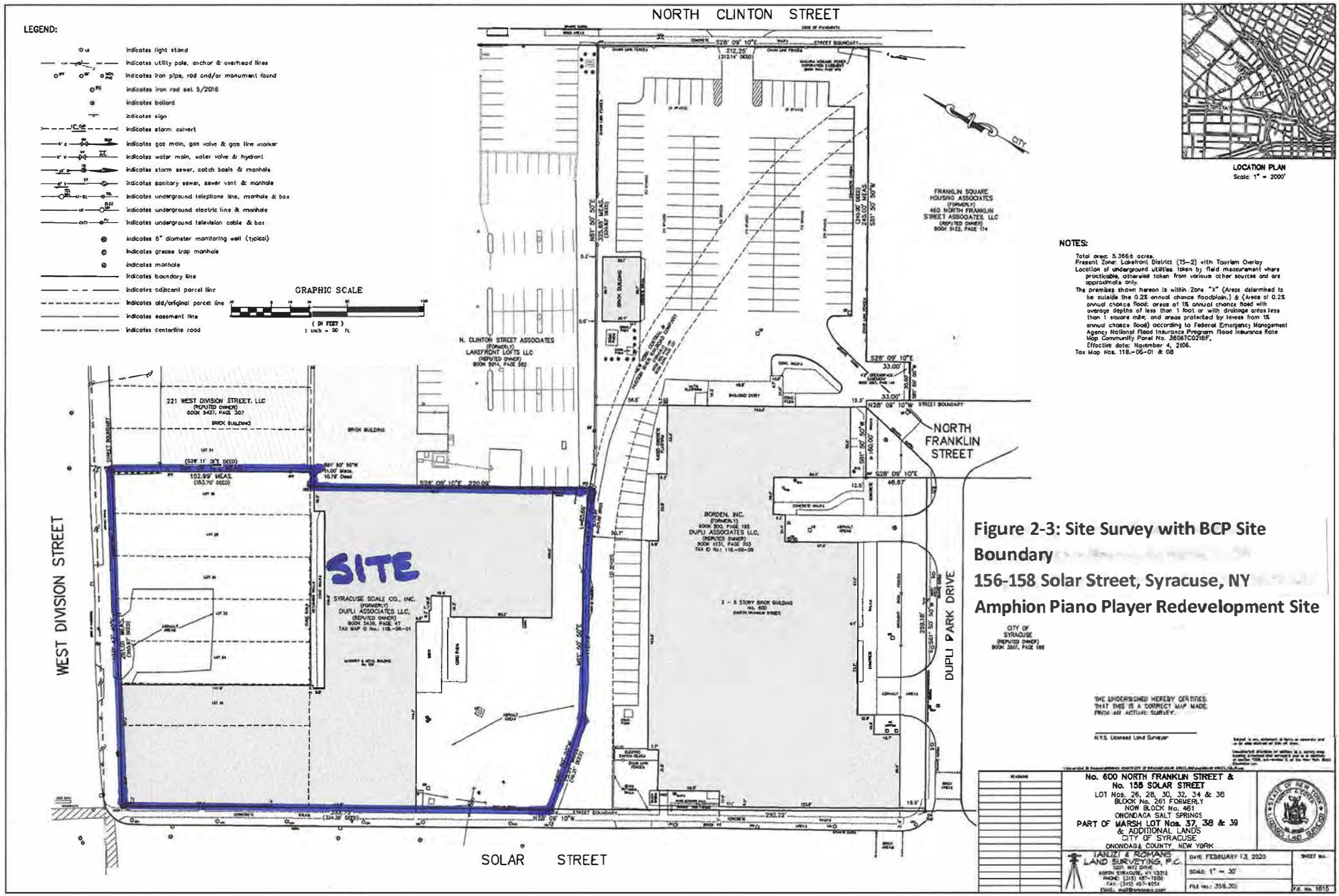


Figure 2-3: Site Survey with BCP Site Boundary
156-158 Solar Street, Syracuse, NY
Amphion Piano Player Redevelopment Site

2.3 PHYSICAL SETTING

2.3.1 Geology

The elevation of the Property is approximately 375 feet (USGS datum) above sea level. The nearest body of water is Onondaga Creek, located approximately 1,000 feet to the west.

Soil at the Site is described as urban land and well-drained channery loam. Subsurface conditions encountered by others during Site Investigations (see below) were generally typified by the presence of a thick layer of peat with an earthy odor found between three feet and twelve feet below ground surface (bgs). Some medium and coarse sands were interspersed, and coarser material was generally found around the level of the groundwater table. Depth to shallow groundwater typically ranged from approximately 9 to 11 feet bgs.

2.3.2 Hydrogeology

Based on the interpretation of ground surface topography and surface water features, general groundwater flow is expected to be north-northwest towards Onondaga Creek and Onondaga Lake. Subsurface conditions encountered by others during Site Investigations (SIs) indicated that depth to shallow groundwater typically ranged from approximately 9 to 11 feet bgs. The SI report dated February 16, 2018 states that generally flat groundwater contours were determined across the center of the Site, and that the anomalous groundwater elevations encountered could be explained by a perched water table and/or by subsurface building foundation elements.

2.3.3 Surface Water and Wetlands

Surface water and wetland features are not present on the Site. The nearest body of water is Onondaga Creek, located approximately 1,000 feet to the west.

According to published reports, the Site does not lie in the 100-year floodplain as described by the Federal Emergency Management Agency (FEMA). There are no known state or federal mapped wetlands on the Site.

2.4 SITE HISTORY

The Site has been used for industrial purposes since the early 1900s. Player pianos were manufactured at the location for American Piano Company (Ampico) and for Recordo pianos from about 1900 to 1932. A box manufacturing company (Lowman Box, and other names) operated at the property from 1932 to 1980. The property was used by Syracuse Scale Co., Inc. for sales, service and rental of scales ranging in size from gram to 500 tons from 1980 to about 2016. The Site has been essentially idle and abandoned since about 2016.

2.5 SUMMARY OF PREVIOUS INVESTIGATION

2.5.1 2016 Phase I Environmental Site Assessment Report

A Phase I Environmental Site Assessment (ESA) conducted in September 2016 identified several potential areas of concern as follows:

- Contaminated soil was discovered during the removal of a former onsite underground gasoline tank; although contaminated soil was excavated from the site, the spill incident associated with this tank removal was closed as not meeting cleanup standards; and
- This property has been utilized for industrial purposes for over 100 years; although the general nature of the known occupants suggests a low risk for environmental releases, environmental and occupant records prior to the 1970s are fragmented.

The Phase I ESA also mention, as a 'miscellaneous concern' that several floor drains and trench drains were observed onsite and that it is unknown if the drains go directly to the sewer system or drain to an on-site system.

2.5.2 2016 and 2018 Limited Site Investigations

Site investigation (SI) activities conducted by Plumley in 2016 and AECC in 2018 documented numerous potential sources of contamination at the Site including floor drains, trench drains, a boiler with oil on the surrounding floor, a previously-removed

gasoline UST, a potential closed-in-place UST, on-site transformers, and various abandoned waste materials.

The **2016 Plumley SI** included the advancement of seven soil borings and installation of temporary wells in all seven borings. Field indicators of apparent contamination (odors, staining, elevated PID readings) were present in three of the seven borings; those borings were located in the southern portion of the Site. Results are briefly summarized below.

Soil

Volatile organic compounds (VOCs) were detected in the soil samples from borings B-3, B-4, B-5 and B-6. The concentrations of several VOCs exceeded Unrestricted Use SCOs: however, all detected concentrations were below the Restricted Residential Use SCOs.

Several SVOCs were detected in the samples collected from B-1, B-4, B-5, B-6 and B-7. The detected concentration of chrysene exceeded the Unrestricted Use SCO; however, all SVOCs detected were below the Restricted Residential SCOs.

Several metals were detected in the soil samples from borings B-1, B-3, B-5, B-6 and B-7. Analyses of the soil sample collected at B-3 from a depth of approximately 0-2 ft bgs detected barium at a concentration exceeding both the Unrestricted SCO and the Restricted Residential SCO (B-3:0-2' barium = 461 ppm; RRSCO = 400ppm). Mercury was detected in soil samples B-1 (0-2 ft bgs), B-3 (0-2 ft bgs), B-6 (0-2 ft bgs), and B-7 (0-2 ft bgs) at concentrations that exceeded Unrestricted Use SCOs; however, the reported concentrations were below Restricted Use Residential SCOs.

PCBs were not detected in any of the five soil samples analyzed.

Groundwater

The water table was generally encountered at a depth of 5.6 to 11.10 feet below grade.

Petroleum-like odors and sheen were present in the water purged from borings B-5 and B-6 and a slight sheen was noted in the water sample from B-6.

Several VOCs were detected in the groundwater sample from well B-5/TW at concentrations exceeding New York State Groundwater Standards (GWS); VOCs were either not detected or below GWS in the groundwater samples from wells B-1/TW, B-2/TW, B-3/TW, B-4/TW and B-7/TW. Two SVOCs were detected in the groundwater sample from well B-5/TW at concentrations that exceeded GWS (Naphthalene = 65.8 ppb; GWS = 10ppb; bis(2-chloroethyl)ether = 5.1 ppb; GWS = 1 ppb). Lead was detected in the groundwater sample from B-5/TW at a concentration of 129 ppb, exceeding the GWS of 50 ppb (**note-** turbidity information is not provided).

The **2018 AECC report** included surface and subsurface soil sampling, and groundwater sampling (the AECC report states that a Ground Penetrating Radar survey was conducted but survey results are not provided in the report). PID readings collected during drilling detected VOC vapors ranging from 0 ppm (SB-06 only) to 2,452 ppm at SB-13.

Temporary wells installed by AECC indicated a depth to shallow groundwater of 9 to 11 feet bgs.

Analytical results reported by AECC are summarize below.

Surface Soil. SVOCs were detected at concentrations that exceed their respective Unrestricted Use SCOs; several SVOCs exceeded their respective Restricted Residential Use SCOs, and the chemical compound benzo(a)pyrene was detected at a concentration that exceeds its Industrial Use SCO.

Multiple metals (mercury, barium, and lead) were detected at concentrations that exceed their respective Unrestricted Use SCOs; barium in sample Surface 01 exceed Restricted Residential RSCOs (Surface 01 barium = 542 ppm; RRSCO = 400 ppm).

Subsurface Soil. VOCs were detected in subsurface soil at concentrations exceeded Unrestricted SCOs at two locations. Multiple SVOCs were detected at concentrations exceeding their respective Unrestricted Use SCOs in the SB-09 soil sample only (several of these SVOCs also exceeded their Restricted Residential Use RSCO, and benzo(a)pyrene exceeded its Industrial Use RSCO).

Groundwater. VOCs exceeded Groundwater Standards (GWS) in samples from five wells, all located in the southern portion of the Site.

Tables and figures presenting sampling results are provided in Attachment 1.

3.0 INITIAL EVALUATION

A detailed summary of the findings of the previous investigation specific to each media sampled onsite is provided in the following sections.

3.1 REVIEW OF EXISTING DATA

Maps showing the sampling locations, soil borings and temporary well points including analytical data summary tables are presented in Attachment 1 for reference. A summary of findings for each of the sampled media is presented below.

3.1.1 General Characteristics of Soils

Soil at the Site is described as urban land and well-drained channery loam. Subsurface conditions encountered by others during Site Investigations (see below) were generally typified by the presence of a thick layer of peat with an earthy odor found between three feet and twelve feet below ground surface (bgs). Some medium and coarse sands were interspersed, and coarser material was generally found around the level of the groundwater table.

3.1.2 General Chemical Characteristics of Soils

Based on sampling location, soils contain VOCs and/or SVOCs at concentrations exceeding the intended use Soil Cleanup Objectives (SCOs) as described below. The concentrations of several metals also exceeded SCOs. Exceedances relate to past use of ASTs and USTs, pit and sumps, floor drains, and the general historic industrial use of the Site.

3.1.3 Chemical Characteristics of Soils in Comparison to SCOs

Analytical soil data were compared to NYSDEC 6NYCRR Part 375 SCOs to evaluate the nature of soil impacts onsite. Per NYSDEC guidance, when no Part 375 SCO was available for a particular analyte NYSDEC Part 375 recommended SCOs were utilized

for evaluation purposes. A summary of the analytical data evaluation for each of the published Part 375 SCOs is presented in the following sections.

3.1.3.1 Comparison to Unrestricted Use SCOs

Analytical soil data were compared to the 6NYCRR Part 375 Unrestricted Use SCOs which represent the concentration of a contaminant in soil which, when achieved at a site, will require no use restrictions on the site for the protection of public health, groundwater and ecological resources due to the presence of COCs in the soil. A review of the analytical data indicated the following.

Plumley SI

VOCs were detected in the soil samples from borings B-3, B-4, B-5 and B-6. Ethylbenzene at 1.01mg/kg (Unrestricted SCO = 1 mg/kg), and 1,2,4-Trimethylbenzene at 7.46 mg/kg (Unrestricted SCO = 3.6 mg/kg) were detected in soil sample B-5 from depths of approximately 16-20 bgs at concentrations exceeding Unrestricted Use SCOs.

Several SVOCs were detected in the samples collected from B-1, B-4, B-5, B-6 and B-7. Chrysene was detected in the soil sample from B-7 at a depth of approximately 0-2 feet (ft) bgs at a concentration of 1.12 mg/kg, which exceeded the Unrestricted SCO of 1 mg/kg.

Several metals were detected in the soil samples from borings B-1, B-3, B-5, B-6 and B-7. Analyses of the soil sample collected at B-3 from a depth of approximately 0-2 ft bgs detected barium at a concentration of 461 mg/kg, exceeding the Unrestricted SCO of 350 mg/kg. Mercury was detected in soil samples B-1 (0-2 ft bgs), B-3 (0-2 ft bgs), B-6 (0-2 ft bgs), and B-7 (0-2 ft bgs) at concentrations that exceeded Unrestricted Use SCOs.

PCBs were not detected in any of the five soil samples analyzed.

AECC SI

VOCs were not detected in any surface soil samples at concentrations exceeding Unrestricted Use SCOs.

Benzo(a)anthracene, benzo(a)pyrene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene were detected at concentrations that exceed their respective Unrestricted Use SCOs from surface soil samples SURF-01 and SURF-03.

Mercury, barium, and lead were detected at concentrations that exceed their respective Unrestricted Use SCOs from samples SURF-01 and SURF-03, while only mercury was detected at a concentration that exceeded its respective Unrestricted Use SCO in samples SURF-02 and SURF-04.

The following VOCs were detected at concentrations that exceed their respective Unrestricted Use SCO from soil samples SB- 02 and SB-03: Isopropylbenzene (4.42 mg/kg; 2.62 mg/kg), n-Propylbenzene (7.12 mg/kg; 4.28 mg/kg), 1,2,4-trimethylbenzene (38 mg/kg; 22.6 mg/kg), Xylene (0.891 mg/kg; 1.572 mg/kg), and Ethylbenzene (*SB-03 only at 3.65 mg/kg)

3.1.3.2 Comparison to Restricted Use SCOs - Residential

Analytical soil data were compared to the 6NYCRR Part 375 Restricted Use SCOs for the protection of public health for residential. Residential use allows for any use other than raising livestock or producing animal products for human consumption. This is a land use category which would be considered for single family housing. A review of the analytical data indicated the following.

Plumley SI

Chrysene was detected in the soil sample from B-7 at a depth of approximately 0-2 feet (ft) bgs at a concentration of 1.12 mg/kg, which exceeded the Residential SCO of 1 mg/kg. Analyses of the soil sample collected at B-3 from a depth of approximately 0-2 ft bgs detected barium at a concentration of 461 mg/kg, exceeding the Residential SCO of 350 mg/kg. These were the only detected exceedances of Residential SCOs in soil samples collected during the Plumley SI.

AECC SI

Benzo(a)anthracene, benzo(a)pyrene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene were detected in surface soil samples at concentrations that exceeded the Residential SCO.

Barium in surface soil sample SURF-01 (543 mg.kg) exceeded the Residential SCO of 350 mg/kg.

3.1.3.3 Comparison to Restricted Use SCOs – Restricted Residential

Analytical soil data were compared to the 6NYCRR Part 375 Restricted Residential Use SCOs for the protection of public health. Restricted residential is a land use category which shall only be considered when there is a common ownership or a single owner/managing entity of the site. Restricted residential usage prohibits single family homes, recreational usage where there is a reasonable potential for soil contact, and vegetable gardens onsite. **Restricted Residential SCOs are considered appropriate for this Site**. A review of the analytical data indicated the following.

Plumley SI

Analyses of the soil sample collected at B-3 from a depth of approximately 0-2 ft bgs detected barium at a concentration of 461 mg/kg, exceeding the Residential SCO of 400 mg/kg. This was the only detected exceedances of Restricted Residential SCOs in soil samples collected during the Plumley SI.

AECC SI

Benzo(a)anthracene, benzo(a)pyrene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, and dibenzo(a,h)anthracene were detected in surface soil samples at concentrations that exceeded the Restricted Residential SCO.

Barium in surface soil sample SURF-01 (542 mg/kg) exceeded the Restricted Residential SCO of 400 mg/kg.

3.1.3.4 Comparison to Restricted Use SCOs – Commercial and Industrial Restricted

Analytical soil data were compared to the 6NYCRR Part 375 Commercial and Industrial Restricted Use SCOs for the protection of public health. Commercial usage is a land use category which shall only be considered for the primary purpose of buying, selling or trading of merchandise or services. Commercial usage also includes passive recreational activities with limited potential for soil contact. Industrial usage is a land use category which shall only be considered for the primary purpose of manufacturing, production, fabrication or assembly processes and ancillary services. Industrial use does not include any recreational component. A review of the analytical data indicated the following.

Plumley SI

The soil sample collected from B-3 from a depth of approximately 0-2 ft bgs displayed a detection for barium at a concentration of 461 mg/kg, exceeding the Commercial SCO of 400 mg/kg but below the Industrial Use SCO of 10,000 mg/kg.

AECC SI

Benzo(a)pyrene was detected in surface soil samples at concentrations that exceeded Commercial SCO of 1 mg/kg and the Industrial Use SCO of 1.1 mg/kg.

Barium in surface soil sample SURF-01 (542 mg/kg) exceeded the Commercial SCO of 400 mg/kg but not the Industrial Use SCO of 10,000 mg/kg.

3.1.3.5 Comparison to Protection of Groundwater SCOs

Analytical soil data were compared to the 6NYCRR Part 375 Protection of Groundwater SCOs. Protection of groundwater SCOs apply to restricted use sites where contamination has been identified in onsite soils and groundwater standards are, or are threatened to be, contravened by the presence of soil contamination at concentrations above the protection of groundwater soil cleanup objectives. A review of the analytical data indicated the following.

Plumley SI

Ethylbenzene at 1.01mg/kg (Groundwater SCO = 1 mg/kg), and 1,2,4-Trimethylbenzene at 7.46 mg/kg (Groundwater SCO = 3.6 mg/kg) were detected in soil sample B-5 from depths of approximately 16-20 bgs at concentrations exceeding Groundwater SCOs.

Chrysene was detected in the soil sample from B-7 at a depth of approximately 0-2 feet (ft) bgs at a concentration of 1.12 mg/kg, which exceeded the Groundwater SCO of 1 mg/kg.

AECC SI

Benzo(a)anthracene and benzo(b)fluoranthene were detected in surface soils at concentrations exceeding Groundwater SCOs; Benzo(a)anthracene, benzo(b)fluoranthene and Chrysene were detected in subsurface soils at concentrations exceeding Groundwater SCOs.

3.1.4 General Characteristics of Groundwater

Based on the interpretation of ground surface topography and surface water features, general groundwater flow is expected to be north-northwest towards Onondaga Creek and Onondaga Lake. Subsurface conditions encountered by others during Site Investigations (SIs) indicated that depth to shallow groundwater typically ranged from approximately 9 to 11 feet bgs.

3.1.5 Chemical Characteristics of Shallow Groundwater

Groundwater samples were collected from seven temporary well point by Plumley in 2016 and from eight temporary well points installed by AECC in 2018.

As shown on the maps and tables in Attachment 1, VOC concentrations exceeded NYS Groundwater Standards (GWS) at one Plumley location and five AECC locations. The concentration of naphthalene also exceeded the GWS in the one Plumley sample that had VOC exceedances. Most exceedances were in the southeast portion of the Site (note-most wells were located in that area). Frequency of VOC detections are summarized below.

Volatile Organic Compounds	GWS (ppb)	Detections above GWS	Max. Detection (ppb)
Benzene	1	5	129
n-Butylbenzene	5	4	12.5
sec-Butylbenzene	5	4	11.9
Ethylbenzene	5	4	192
Isopropylbenzene	5	6	62.3
4-Isopropyltoluene	5	4	15.4
Naphthalene	10	4	124
n-Propylbenzene	5	5	67.5
Toluene	5	2	23.7
1,2,4-Trimethylbenzene	5	5	217
m,p-xylene	5	4	19.9
o-xylene	5	1	6

To the best of Ambient's knowledge, there is no use of water from the groundwater systems in the area surrounding the Site. Groundwater in the area is not used as a drinking water supply source, nor is it extracted for other residential, commercial or industrial use in the area surrounding the Site. Potable water in the area is supplied by the Onondaga County Water Authority (OCWA).

3.2 STANDARDS, CRITERIA AND GUIDANCE

Standards, Criteria and Guidance (SCGs) mean standards and criteria that are generally applicable, consistently applied, and officially promulgated, that are either directly applicable, or that are not directly applicable but are relevant and appropriate. This term incorporates both the CERCLA concept of applicable or relevant and appropriate requirements (ARARs) and the EPA's to be considered (TBCs) category of non-enforceable criteria or guidance. For purposes of this SI, soil SCGs means the soil cleanup objectives and supplemental soil cleanup objectives identified in 6 NYCRR 375-6.8 as well as NYSDEC CP-51: Soil Cleanup Guidance. Water standards (including groundwater and surface water) are presented in 6 NYCRR Part 700-706: NYSDEC Water Quality Regulations for Surface Waters and Groundwater. NYSDEC Technical and Operational Guidance Series 1.1.1: ambient water quality standards and guidance values are also considered SCGs and will be referenced in the absence of water quality standards.

4.0 RI OBJECTIVES

Analytical data collected during the Limited Site Investigations indicated that soils and groundwater across various areas of the Site contain various analytes at concentrations in excess of SCGs. Data indicate that soil samples contained VOCs, SVOCs and metals at concentrations in excess of NYSDEC PART 375 SCOs and that groundwater samples contained VOCs and SVOCs at concentrations in excess of 6 NYCRR Part 700-706 groundwater standards (GWS).

Based on the available laboratory analytical data, findings of previous investigations, and site history it has been established that there is a need to further define the potential environmental and human health hazards associated with the Site. The objectives of the RI for the Site are to therefore define these hazards in a manner consistent DER-10 as follows:

- delineate the areal and vertical extent of contaminants in all media at the site;
- determine the surface and subsurface characteristics of the site, including geology and hydrogeology;
- identify the sources of contamination, the migration pathways (including soil vapor), and actual or potential receptors of contaminants on or through air, soil, sediment, groundwater, surface water, utilities, and structures at the site;
- collect and evaluate all data necessary to determine the need for a fish and wildlife resource impact analysis (FWRIA) and, if necessary, to determine all actual and potential adverse impact to fish and wildlife resources (if any);
- collect and evaluate all data necessary to evaluate the actual and potential threats to public health and the environment, including evaluating all current and future potential public health exposure pathways, and potential impacts to biota; and
- collect the data necessary to evaluate any release to an environmental medium and develop remedial alternative(s) to address the release.

4.1 DATA QUALITY OBJECTIVES (DQOS)

DQOs are based on the concept that various uses of data collected during the RI require varying degrees of data quality. Data quality is defined as the degree of certainty in a data set with respect to precision, accuracy, representativeness, completeness and comparability (PARCC). DQOs are qualitative and quantitative statements specifying the required quality of data necessary to support RI activities. These activities include site screening, site characterization, risk assessment and support of the evaluation of engineering alternatives and selection of remedial alternatives. DQO development has been integrated into the scoping process and the results incorporated into the Work Plan, SAP, HASP and QAPP. The categories of data quality to be utilized during the RI at the Site are consistent with those outlined in the USEPA Guidance document entitled *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*, dated October 1988, and are described below.

- DQO Level 1 – Field Screening Using Portable Instrumentation: Data used for site health and safety monitoring and field screening during site characterization activities. The data generally determines the presence or absence of certain constituents and is generally qualitative rather than quantitative. Field screening data provides the lowest data quality.
- DQO Level 2 – Field Laboratory Analysis: Data used for field activities during site characterization activities, evaluation of remedial alternatives, engineering design and monitoring during implementation of alternatives. The data generally determines levels of certain constituents relative to a calibration standard and is generally qualitative or quantitative.
- DQO Level 3 – Engineering Level Data: Data used for site characterization, risk assessment, evaluation of alternatives, engineering design and monitoring during implementation of alternatives. The data is quantitative and is generated using EPA analytical laboratory procedures; however, it does not include full CLP documentation.
- DQO Level 4 – Laboratory Analysis: Data used for risk assessment, evaluation of alternatives and engineering design. The data is quantitative and is generated using EPA analytical laboratory procedures. All analyses require full CLP

analytical protocols including reports and data validation procedures. The majority of the data generated during the RI will be DQO Level 4.

- DQO Level 5 – Non-Standard Special Analytical Services: Data for use when analysis by non-standard procedures is required to obtain specific or lower detection limits or analyses that are not of a nature typically performed under the CLP Routine Analytical Service (RAS) Program.

DQOs have been developed for the tasks outlined in Section 5 of this Work Plan. The DQOs are designed to support remedial alternative selection and risk assessment tasks associated with the RI process. During the RI process it is anticipated that DQO Levels 1 and 4 will primarily be utilized.

DQO Level 1 data (field screening) will be generated during site characterization activities including: head space screening of soil samples; health and safety monitoring; screening of test pits and soil borings; and collection of surface water and groundwater parameters.

DQO Level 4 data (laboratory analysis by CLP/ASP Methods) will be the primary objectives for the RI process.

DQO Level 2 data (field analysis), DQO Level 3 data (engineering) and DQO Level 5 (non-standard) data are not expected to be generated as part of the initial RI activities. However, these data at these DQO levels may be generated during supplemental activities, if required.

5.0 RI TASKS

The task plan elements for the RI are as follows:

- Task 1 – Project Planning
- Task 2 – Community Relations
- Task 3 – Field Investigation
- Task 4 – Sample Analyses/Validation
- Task 5 – Data Evaluation
- Task 6 – Risk Assessment
- Task 7 – Remedial Investigation Report

5.1 REMEDIAL INVESTIGATION TASKS

Sections 5.2 to 5.9 describe the tasks that will be completed as part of the RI. Detailed specifications, field procedures and methodologies associated with the various tasks are presented in the attached SAP, HASP, and QAPP (Attachments 2, 3, and 4).

5.2 TASK 1 – PROJECT PLANNING

Project planning includes work which must be performed in order to produce the planning documents and project schedule necessary to execute the RI. Work performed as part of this task included site visits and interviews with facility personnel; the evaluation of existing data; the evaluation of historic information including maps, aerial photographs, and miscellaneous file information; confirmation of SCGs; finalize DQOs; and final scoping of the RI.

5.3 TASK 2 – COMMUNITY RELATIONS

156 Solar Street, LLC anticipates that NYSDEC will take the lead in community relations with regard to the RI at the Site. 156 Solar Street, LLC will assist by preparing and submitting a Citizens Participation Plan (CPP) in cooperation with NYSDEC.

5.4 TASK 3 – FIELD INVESTIGATION

This section describes the tasks that will be completed at the Site to further characterize onsite conditions and to support the preparation of risk assessments. Detailed specifications, field procedures and methodologies associated with the various tasks are presented in the attached SAP, HASP, and QAPP (Attachments 2, 3, and 4).

5.4.1 Site-wide Ground Penetrating Radar Survey

The first step in the RI process will be a Ground Penetrating Radar Survey (GPRS) of the entire accessible, exterior portion of the Site. A 400 MHz GPR antenna mounted in a stroller frame which rolls over the surface will be utilized for the GPRS. Data will be displayed on a screen and marked in the field in real time. GPRS details are provided in the SAP. Results of the GPRS, such as the discovery of potential buried tanks, dry wells or other structures, will be used to adjust site investigation activities as appropriate.

5.4.2 Soil Borings

An estimate ten shallow (four feet deep) soil borings and an estimated six deep (fifteen feet deep) soil borings will be advanced; depths below ground surface (bgs) may be adjusted based on field screening and site conditions. Soil borings will be advanced using 'direct push' technology to collect soil samples continuously from grade to total depth. Soil borings will be logged and continuously scanned with a PID by an on-site geologist/qualified environmental professional. Detailed logs describing soil type, color, odor, moisture, etc. and all detected PID readings will be prepared for each boring. Additional soil borings may be advanced based on field observations. One soil sample will be collected per boring for analyses (see below); however, some soil samples may be 'archive for future analyses, which will be based on initial analytical results.

5.4.3 Monitoring Well Point Installations

Shallow overburden monitoring wells points will be installed at ten locations on the Site as follows:

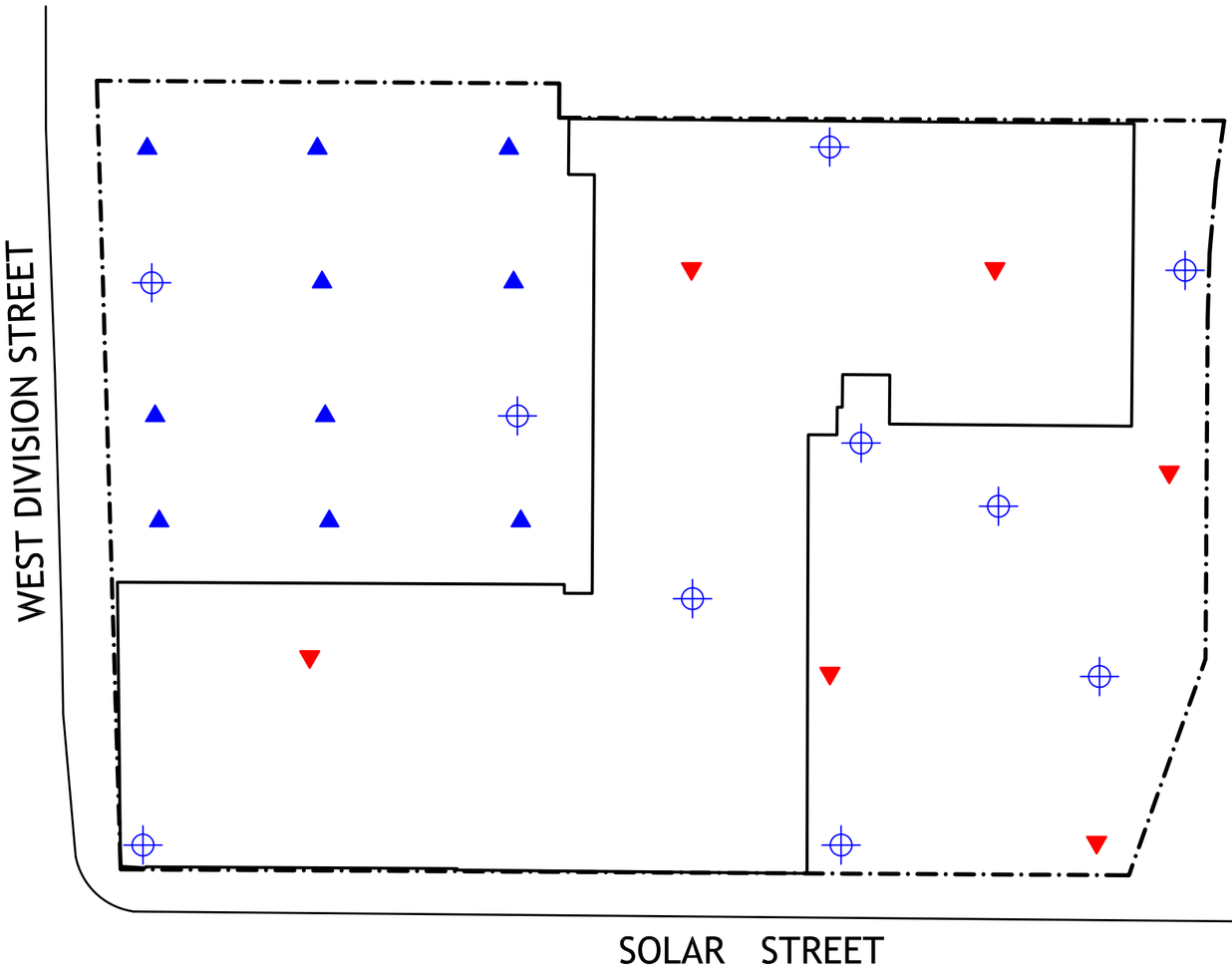
- Two monitoring well points in the northeast exterior ‘northern yard’;
- Three monitoring well points inside the building in the northeast, central and southwest portions of the building;
- Five monitoring well point is the ‘south yard’ including the loading dock area and in the southern portion of the Site.

Soil borings (in addition to the six deep soil boring previously described) will be advanced to facilitate well point construction. Soil samples from borings associated with monitoring well point installation will be logged and field screened with a PID to monitor for the potential presence of VOC vapors as previously described. It is estimated that one soil sample per boring will be collected, six of which will be submitted for laboratory analyses. Each of the monitoring well points will be constructed of one-inch-diameter PVC riser and ten feet of one-inch-diameter, 0.01-inch slotted PVC well screen. The well screen will be installed to “straddle” the top of the water table in the shallow, unconfined groundwater unit. The actual depth of the wells will be dependent on observed field conditions.

A sand pack will be installed around the well screens and will extend one to two feet above the top of the screens. A one-foot to two-foot-thick seal of hydrated bentonite pellets will be installed above the sand pack. A concrete seal will be installed in the remainder of annular space. As these are ‘temporary well points’, curb boxes will not be installed; however, permanent wells may be constructed in the future. Following installation, reference points will be marked on the top of the PVC at each well location to allow for surveying.

Well points will be installed as part of the RI instead of permanent wells, as Site redevelopment will destroy any wells that might be installed. Permanent wells will be installed at a later time if required.

Anticipated soil boring and well point locations are provided on Figure 5-1.



50 0 10 20 30 40 50

SCALE IN FEET

Ambient Environmental, Inc.
Building Science and EHS Solutions
828 Washington Avenue, Albany, NY 12203
PH: 518.482.0704 FAX:518.482.0750
www.ambient-env.com

LEGEND

- MONITORING WELL POINT
- SHALLOW SOIL BORING
- SHALLOW SOIL BORING

REVISIONS		

PROJECT LOCATION

156-158 Solar Street
Syracuse, New York

DRAWING TITLE

Amphion Piano Player
Site BCP RI Activities

DATE: 02/25/2022	SCALE: 1"=50'
PROJECT NO.	210707ENVB
DRAWN BY	
CHECKED BY	

DWG. NO.

Figure 5-1

5.4.4 Monitoring Well Point Development

Well point development will begin after final completion of each monitoring well. For development, the monitoring well points will be purged at the highest sustainable rate at which the wells can yield water without significantly depressing the water level. Well points will be developed using either a peristaltic pump or a disposable bailer. Each well point will be developed until the turbidity of the water is below 50 NTU (if possible). Development water will be placed in a drum, properly labeled and stored on-site for future proper disposal per DER-10 Section 3.3 (e) 5.

5.4.5 Soil and Groundwater Sampling

An estimated 22 soil samples will be collected during soil boring advancement. Additional samples may be collected based on field observations (it is anticipated that additional soil samples will be collected and 'archived' for potential future analyses based on initial analytical results).

Anticipated soil sample analyses are as follows (details are provide in the QAPP, Attachment 3).

Shallow soil borings (ten). One sample (collected from 0.5-1.5 feet bgs*) per shallow boring will be analyzed for TCL SVOCs (USEPA Method 8270) and TAL metals (Method 6010/7470 for mercury/9010 for cyanide). Selected samples (estimated 4) will be analyzed for TCL VOCs (USEPA Method 8260) depending on PID readings. An estimated four samples will be analyzed for PCBs (Method 8082), Pesticides (Method 8081), PFASs (EPA Method mod 537.1), and 1,4-Dioxane (Method 8270 SIM). [*soil samples will be collected from deeper intervals and 'archived']

Deep Soil Borings (six). One sample per deep boring* will be analyzed for TCL VOCs (USEPA Method 8260), TCL SVOCs (USEPA Method 8270) and TAL metals (Method 6010/7470 for mercury/9010 for cyanide). An estimated two samples will be analyzed

for PCBs (Method 8082), Pesticides (Method 8081), PFASs (EPA Method mod 537.1), and 1,4-Dioxane (Method 8270 SIM). The intervals to be samples will depend on field observations.
[*additional soil samples may be collected and 'archived']

Monitoring Well Point Soil Borings (ten borings/six samples). An estimated six soil samples from monitoring well point borings* will be analyzed for TCL VOCs (USEPA Method 8260), TCL SVOCs (USEPA Method 8270) and TAL metals (Method 6010/7470 for mercury/9010 for cyanide). An estimated two samples will be analyzed for PCBs (Method 8082), Pesticides (Method 8081), PFASs (EPA Method mod 537.1), and 1,4-Dioxane (Method 8270 SIM).
[*additional soil samples may be collected and either analyzed or 'archived' based on field observations.]

Field screening activities, such as use of a PID and visual observations, shall be included in the field notes as part of this remedial investigation report. If elevated PID readings indicate the potential for contamination in soil, additional soil samples may be obtained for laboratory analysis.

Groundwater samples will be collected from the ten well points no sooner than 48 hours after final development of each of the newly installed monitoring well point. Water level measurements will be collected prior to purging. Each monitoring well point will be purged a minimum of three well point volumes prior to sampling. Wells will be purged using either a peristaltic pump or a disposable bailer. Purge water will be placed in a drum, properly labeled and stored on-site for future proper disposal per DER-10 Section 3.3 (e) 5. Following purging, groundwater samples will be collected directly from a disposable bailer. Field parameters (pH, temperature, conductivity, dissolved oxygen, oxidation-reduction potential, and turbidity) will be collected from each monitoring well point during sampling.

Groundwater samples collected from the ten newly-installed monitoring well points will be analyzed for TCL VOCs (USEPA Method 8260) and TCL SVOCs (USEPA Method

8270). An estimated four groundwater samples will be analyzed for TAL metals (Method 6010/7470 for mercury/9010 for cyanide), PCBs (Method 8082), Pesticides (Method 8081), PFASs (EPA Method mod 537.1), and 1,4-Dioxane (Method 8270 SIM).

5.4.6 Evaluation of Areas of Concern (AOCs)

Several 'building features' such as an interior AST with floating oil in the associated secondary containments, floor trenches and drains, floor pits and other features of concern are present at the Site. Those features need to be evaluated to determine if they have potentially released contaminants of concern to the environment. Sampling adjacent to and possibly below those features may be needed. As necessary, removing waste from the feature and disposing of the waste, cleaning the features, and inspecting the structures (possibly including hydrostatic testing) will be conducted. Soil samples may be collected under the structures. Any generated waste will be properly handled, characterized (see Work Plan section 5.4.1), and disposed.

5.4.7 Surface Soil Sampling

The Site is currently covered with pavement or structures, limiting access for surface soil sampling. As such, 'near-surface' soil samples will be collected from paved areas as part of the previously-described 'shallow' soil boring advancement. If areas of surface soil (unpaved, uncovered and accessible) are discovered at the Site, surface soil samples will be collected and analyzed as described above for shallow soil borings and in discussion with NYSDEC.

5.4.8 Surface Water and Sediment Sampling

Surface water features do not exist on the Site; therefore, there will not be any collection of surface water and sediment samples.

5.4.9 Surveying

Upon completion of all field tasks, the horizontal and vertical locations of all soil borings, monitoring wells and surface water samples will be surveyed by a New York State (NYS) licensed land surveyor and updated on the existing site survey map. Vertical elevations will be recorded to the nearest 0.01-foot. Top-of-PVC casing elevations for each

monitoring well will also be recorded to the nearest 0.01-foot to establish water table elevations and groundwater flow direction.

5.4.10 Waste Characterization Sampling

It is anticipated that waste materials in the former production areas will need to be disposed off-site. As such, samples of waste material will be collected during the RI and analyzed for waste characterization parameters such as VOC, SVOC, PCBs, metals, ignitability, reactivity and corrosivity. Some analyses will include TCLP extraction. Waste materials may include sludge from the interior waste pit, the interior AST area, and interior floor drains.

5.4.11 Soil Vapor Evaluation

The results of the initial soil and groundwater evaluation will be used to determine the locations of soil vapor sampling points across the Site. The soil vapor sampling will also consider future use. It may be prudent to perform soil vapor sampling after selected buildings are demolished; therefore, the timing of the soil vapor evaluation will be discussed with NYSDEC. Once the scope and timing of the soil vapor evaluation is determined, a soil vapor sampling workplan will be developed as an addendum to the RIWP for review and approval by NYSDEC. The workplan approach and procedure will be in accordance with NYSDEC DER-10 (May 2010) Section 3.6. The soil vapor sampling workplan will be implemented upon approval by NYSDEC.

5.5 TASK 4 – SAMPLE ANALYSIS VALIDATION

Samples will be analyzed by a New York State Department of Health (NYSDOH) ELAP-certified laboratory utilizing USEPA SW-846 third addition methodologies as appropriate.

Analytical results will be reported using ASP 2000 category B QA/QC backup data packages as described in the most current DEC Analytical Services Protocol (ASP). Site-specific quality assurance/quality control (QA/QC) samples, including matrix spike (MS)/matrix spike duplicate (MSD) samples and field duplicates will also be

collected/analyzed, as appropriate. To the extent possible, dedicated sampling equipment will be used during sample collection such that equipment field blanks will not be required (except for PFAS groundwater samples). Following receipt, the analytical data will be checked for completeness and accuracy; it will then be validated by a NYSDEC-approved data validation chemist and a Data Usability Summary Report (DUSR) will be prepared.

Data generated for waste characterization sampling will not require data validation.

5.6 TASK 5 – DATA EVALUATION

Following validation, the analytical data will be reviewed, compared to applicable SCGs as previously described, and placed on tables.

5.7 TASK 6 – RISK ASSESSMENT

5.7.1 Human Exposure Evaluation

A qualitative human exposure evaluation, which describes the potential for human exposure to site-related constituents, will be prepared for the Site. The exposure evaluation will use information regarding current and future land use scenarios and available analytical data to evaluate the magnitude of potential exposure to human receptors. The human exposure assessment will include a discussion of the environmental setting of the Site, an identification of constituents of interest, an identification of potentially complete exposure pathways, and a qualitative assessment of identified exposure routes.

5.7.2 Fish and Wildlife Resources Impact Analysis

Upon completion of Remedial Investigation activities and evaluation of data, Ambient will determine if a Fish and Wildlife Resources Impact Analysis (FWRIA) is needed. That determination will be based on NYSDEC DER-10 Section 3.10.1(b) which states that a RWRIA is not needed if the four criteria presented in Section 3.10.1(b) are met. The determination will be discussed with NYSDEC. If it is determined that a FWRIA is needed, a Part 1 resource characterization consisting of the five steps detailed in Section

3.10.1(c) will be conducted. If the results of the resource characterization indicate that further assessment is needed, an ecological impact assessment (Part 2) will be performed.

5.8 TASK 7 – REMEDIAL INVESTIGATION REPORT

Following completion of RI activities, a RI report will be prepared and submitted to NYSDEC for review and comment. This report will include the appropriate support documentation (tables, maps, data validation reports, figures, etc.), field data and laboratory analytical data. The report will present findings, conclusions, and recommendations for additional work and/or remediation, if necessary.

6.0 SCHEDULE

Summarized below is a tentative schedule for completion of project milestones, which is based in part on assumptions related to the timing of NYSDEC review and public comment.

Brownfield Cleanup Agreement (BCA) executed	2/16/22
CPP Final, Fact Sheet Mailed	3/11/22
BCP Work Plan Submitted	3/18/22
BCP Work Plan Approved (address NYSDEC and Public Comments)	5/2/22
Begin Remedial Investigation (RI) field work	5/16/22
Complete RI field work	5/27/22
Receive final analytical reports and completed DUSR	6/24/22
Submit RI Report	7/15/22
NYSDEC approves RI Report	8/12/22
Submit Remedial Action Workplan (RAW)	9/6/22
RAW public comment period ends, RAW accepted	10/2122
Remediation work begins	10/31/22

Note: This schedule is estimated, and NYSDEC review durations are assumed.

ATTACHMENT 1

SUPPORT DOCUMENTATION

WEST DIVISION STREET

SOLAR STREET

LOADING DOCK

B-2/TW

SURF Ø2

SURF Ø4

SURF Ø1

SURF Ø3

B-1/TW

B-3/TW

B-7/TW

SOIL PILE #Ø2

benzo(a)pyrene 1.23J
benzo(b)fluoranthene 11.4
dibenzo(a.h)anthracene 1.52J

SOIL PILE #Ø1

benzo(a)pyrene 1.23J

benzo(a)pyrene 1.70
barium 542

barium 461 (0-2')

benzo(a)pyrene 2.28

BOILER ROOM

FUEL TANK
(ABANDONED IN PLACE)

SB-09 benzo(a)pyrene 5.07 ppm

SB-07
TW-03

SB-02

SB-13
TW-07

SB-03
TW-02

SB-12
TW-06

SB-01
TW-01

SB-08

SB-11

SB-10

SB-05
TW-04

SB-04

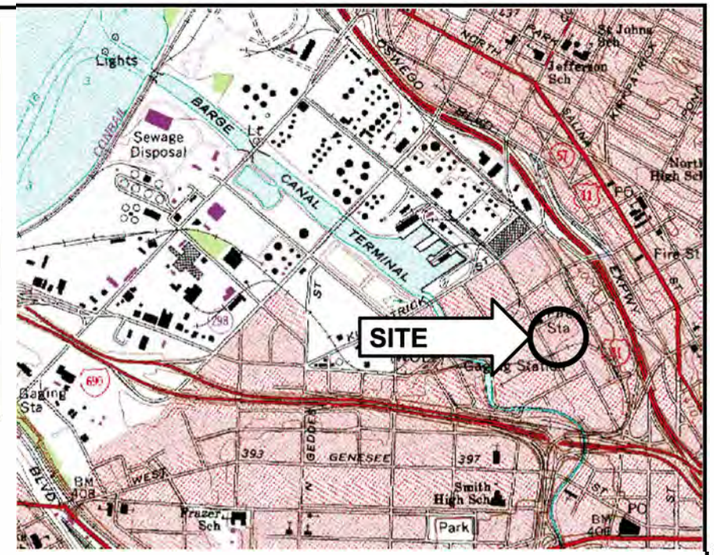
SB-14
TW-08

SB-06

B-5/TW
(TW-05)

B-6/TW

B-4/TW



SITE LOCATION

LEGEND:

- PROPERTY LINE
- SB-#▲ AECC SOIL BORING LOCATION
- SB-#/TW-# AECC SOIL BORING/TEMPORARY WELL INSTALLATION
- ○ AECC DISCRETE SURFACE SOIL SAMPLE LOCATION
- ● B-#/TW APPROXIMATE PLUMLEY SOIL BORING/ TEMPORARY WELL INSTALLATION
- SURFACE SOIL COMPOSITING AREA

Soil data red (in ppm). Only RRSCO exceedances shown

RRSCOs (ppm)
benzo(a)pyrene 1
benzo(b)fluoranthene 1
dibenzo(a,h)anthracene 0.33
barium 400

1. AERIAL PHOTOGRAPH FROM GOOGLE EARTH WEBSITE.
2. APPROXIMATE PROPERTY LINE BASED ON 2017 ONONDAGA COUNTY TAX MAP.
3. ALL LOCATIONS ARE APPROXIMATE.

0 45' 90'
GRAPHIC SCALE

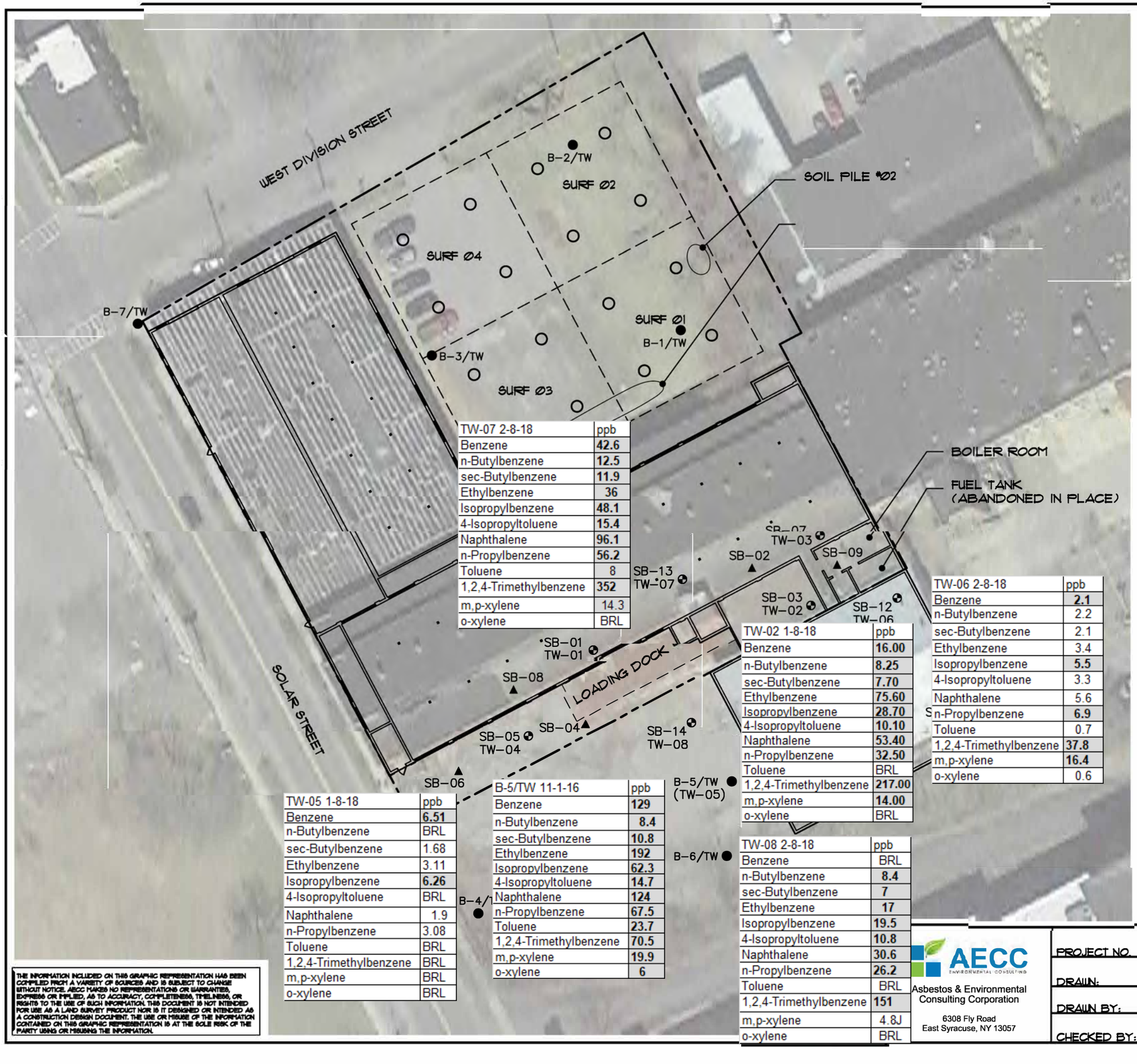
AECC
ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO.	17-258
DRAWN:	JAN. 2018
DRAWN BY:	HS
CHECKED BY:	RM

SAMPLE LOCATION AND SITE PLAN

SYRACUSE SCALE
156-158 SOLAR STREET
SYRACUSE, NEW YORK

FIGURE
1



TW-07 2-8-18	ppb
Benzene	**42.6**
n-Butylbenzene	**12.5**
sec-Butylbenzene	**11.9**
Ethylbenzene	**36**
Isopropylbenzene	**48.1**
4-Isopropyltoluene	**15.4**
Naphthalene	**96.1**
n-Propylbenzene	**56.2**
Toluene	8
1,2,4-Trimethylbenzene	**352**
m,p-xylene	14.3
o-xylene	BRL

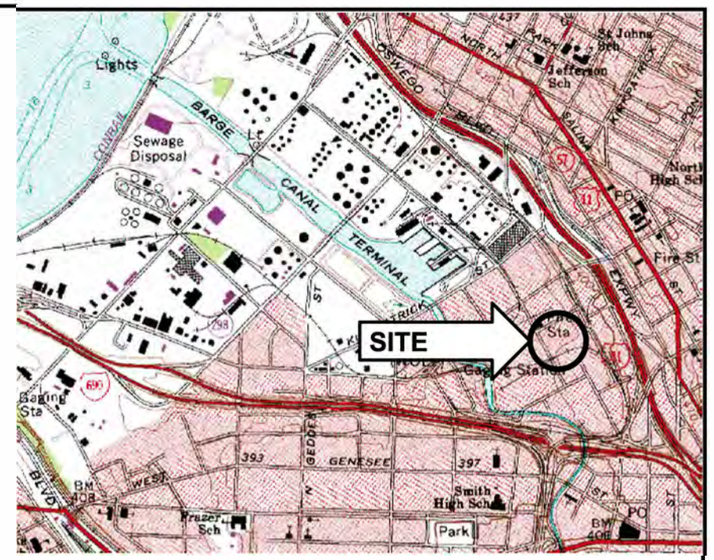
TW-02 1-8-18	ppb
Benzene	**16.00**
n-Butylbenzene	**8.25**
sec-Butylbenzene	**7.70**
Ethylbenzene	**75.60**
Isopropylbenzene	**28.70**
4-Isopropyltoluene	**10.10**
Naphthalene	**53.40**
n-Propylbenzene	**32.50**
Toluene	BRL
1,2,4-Trimethylbenzene	**217.00**
m,p-xylene	**14.00**
o-xylene	BRL

TW-06 2-8-18	ppb
Benzene	**2.1**
n-Butylbenzene	2.2
sec-Butylbenzene	2.1
Ethylbenzene	3.4
Isopropylbenzene	**5.5**
4-Isopropyltoluene	3.3
Naphthalene	5.6
n-Propylbenzene	**6.9**
Toluene	0.7
1,2,4-Trimethylbenzene	**37.8**
m,p-xylene	**16.4**
o-xylene	0.6

TW-05 1-8-18	ppb
Benzene	**6.51**
n-Butylbenzene	BRL
sec-Butylbenzene	1.68
Ethylbenzene	3.11
Isopropylbenzene	**6.26**
4-Isopropyltoluene	BRL
Naphthalene	1.9
n-Propylbenzene	3.08
Toluene	BRL
1,2,4-Trimethylbenzene	BRL
m,p-xylene	BRL
o-xylene	BRL

B-5/TW 11-1-16	ppb
Benzene	**129**
n-Butylbenzene	**8.4**
sec-Butylbenzene	**10.8**
Ethylbenzene	**192**
Isopropylbenzene	**62.3**
4-Isopropyltoluene	**14.7**
Naphthalene	**124**
n-Propylbenzene	**67.5**
Toluene	**23.7**
1,2,4-Trimethylbenzene	**70.5**
m,p-xylene	**19.9**
o-xylene	**6**

TW-08 2-8-18	ppb
Benzene	BRL
n-Butylbenzene	**8.4**
sec-Butylbenzene	**7**
Ethylbenzene	**17**
Isopropylbenzene	**19.5**
4-Isopropyltoluene	**10.8**
Naphthalene	**30.6**
n-Propylbenzene	**26.2**
Toluene	BRL
1,2,4-Trimethylbenzene	**151**
m,p-xylene	4.8J
o-xylene	BRL



SITE LOCATION

LEGEND:

- PROPERTY LINE
- SB-#▲ AECC SOIL BORING LOCATION
- SB-#/TW-# AECC SOIL BORING/TEMPORARY WELL INSTALLATION
- ○ AECC DISCRETE SURFACE SOIL SAMPLE LOCATION
- ● B-#/TW APPROXIMATE PLUMLEY SOIL BORING/ TEMPORARY WELL INSTALLATION
- SURFACE SOIL COMPOSITING AREA

GW data on tables (ppb)

Values exceedng NYS GWS are **bold**

NOTES:

1. AERIAL PHOTOGRAPH FROM GOOGLE EARTH WEBSITE.
2. APPROXIMATE PROPERTY LINE BASED ON 2017 ONONDAGA COUNTY TAX MAP.
3. ALL LOCATIONS ARE APPROXIMATE.

0 45' 90'

GRAPHIC SCALE

AECC ENVIRONMENTAL CONSULTING
Asbestos & Environmental Consulting Corporation
6308 Fly Road
East Syracuse, NY 13057

PROJECT NO. 17-258
DRAWN: JAN. 2018
DRAWN BY: HS
CHECKED BY: RM

SAMPLE LOCATION AND SITE PLAN

SYRACUSE SCALE
156-158 SOLAR STREET
SYRACUSE, NEW YORK

FIGURE
1

TABLE 1

Surface Soil Analysis Summary - SVOCs Method SW-846 8270

Limited Phase II ESA Syracuse Scale: Plumley and AECC Data

156-158 Solar St, Syracuse, NY

ANALYTES	APPLICABLE STANDARD (PART 375)									
		Plumley			AECC					
Semi-Volatile Organic Compounds	RRSCO	B-1 (0-2')	B-6 (0-2')	B-7 (0-2')	SURF-01	SURF-02	SURF-03	SURF-04	Soil Pile 01	Soil Pile 02
		10/27/16	10/27/16	10/27/16	01/04/18	01/04/18	01/04/18	01/04/18	01/02/18	01/03/18
Acenaphthene	100	ND	ND	ND	ND	ND	ND	ND	ND	1.61 J
Acenaphthylene	100	0.219	ND	0.145	ND	ND	ND	ND	ND	ND
Anthracene	100	ND	ND	0.29	ND	0.0887 J	0.316 J	ND	ND	4.38
Benzo (a) anthracene	1	0.352	0.344	0.854	**1.75**	0.393	**2.32**	0.18	**1.35 J**	**10.7**
Benzo (a) pyrene	1	0.352	0.408	0.625	**1.7**	0.391	**2.28**	0.185	**1.23 J**	**9.58**
Benzo (b) fluoranthene	1	0.364	0.322	0.71	**1.66**	0.379	**2.07**	0.194	**1.16 J**	**11.4**
Benzo (g,h,i) perylene	100	0.199	0.25	0.377	0.82	0.218	1.22	0.113	0.754 J	4.79
Benzo (k) fluoranthene	3.9	0.302	0.322	0.635	1.57	0.307	1.9	0.159	1.24 J	**6.03**
Chrysene	3.9	0.465	0.31	1.12	1.57	0.393	2.34	0.187	1.22 J	**10.2**
Dibenzo (a,h) anthracene	0.33	ND	ND	0.152	ND	0.0615 J	**0.334 J**	0.0326 J	ND	**1.52 J**
Fluoranthene	100	0.637	0.499	1.76	2.79	0.766	4.84	0.321	2.84	24.4
Fluorene	100	ND	ND	0.128	ND	ND	ND	ND	ND	2.13
Indeno (1,2,3-cd) pyrene	0.5	ND	ND	0.395	0.962	0.235	1.36	0.113	0.836 J	5.62
2-Methylnaphthalene	NS	NA	NA	NA	ND	ND	0.239 J	ND	ND	ND
Naphthalene	100	0.542	ND	0.387	ND	ND	ND	ND	ND	1.65
Phenanthrene	100	0.8	0.145	1.7	1.18	0.459	1.76	0.161	1.43 J	19.6
Pyrene	100	0.662	0.504	1.46	2.31	0.635	4.25	0.271	2.17 J	18.2
1-Methylnaphthalene	NS	NA	NA	NA	ND	ND	0.21 J	ND	ND	ND

Notes:

All concentrations in milligrams per kilogram (mg/kg)/parts per billion (ppm)

Onlythose compounds detected in at least one sample are shown on this table.

Semi-Volatile Organic Compounds	RRSCO	Detections above RRSCO	SURF-01	SURF-03	Soil Pile 01	Soil Pile 02	Max. Detection (ppm)
			01/04/18	01/04/18	01/02/18	01/03/18	
Benzo (a) anthracene	1	4	**1.75**	**2.32**	**1.35 J**	**10.7**	**10.7**
Benzo (a) pyrene	1	4	**1.7**	**2.28**	**1.23 J**	**9.58**	**9.58**
Benzo (b) fluoranthene	1	4	**1.66**	**2.07**	**1.16 J**	**11.4**	**11.4**
Benzo (k) fluoranthene	3.9	1	1.57	1.9	1.24 J	**6.03**	**6.03**
Chrysene	3.9	1	1.57	2.34	1.22 J	**10.2**	**10.2**
Dibenzo (a,h) anthracene	0.33	2	ND	**0.334 J**	ND	**1.52 J**	**1.52 J**

TABLE 2

Sub-Surface Soil Analysis Summary - SVOCs Method SW-846 8270

Limited Phase II ESA Syracuse Scale:Plumley and AECC Data

156-158 Solar St, Syracuse, NY

ANALYTES	APPLICABLE STANDARD (Part 375)									
		Plumley			AECC					
Semi-Volatile Organic Compounds	RRSCO	B-4 (4-8')	B-5 (12-16')	B-6 (12-16')	SB-01	SB-02	SB-03	SB-05	SB-07	SB-09
		10/27/16	10/27/16	10/27/16	01/03/18	01/03/18	01/03/18	01/03/18	01/03/18	01/03/18
Acenaphthene	100	ND	0.233	0.194	ND	0.409	0.177	ND	ND	0.681 J
Anthracene	100	ND	0.123	0.145	ND	0.202	0.0923	0.0643 J	0.0557 J	1.54
Benzo (a) anthracene	1	ND	ND	ND	ND	0.14	0.0686 J	0.136	0.364	**4.38**
Benzo (a) pyrene	1	ND	ND	ND	ND	0.07 J	0.0376 J	0.12	0.379	**5.07**
Benzo (b) fluoranthene	1	ND	ND	ND	ND	0.0445 J	0.0357 J	0.112	0.34	**5.27**
Benzo (g,h,i) perylene	100	ND	ND	ND	ND	ND	ND	0.0647 J	0.229	2.87
Benzo (k) fluoranthene	3.9	ND	ND	ND	ND	0.0506 J	ND	0.0818 J	0.342	3.89
Chrysene	3.9	ND	ND	ND	ND	0.111	0.0591 J	0.127	0.414	**4.71**
Dibenzo (a,h) anthracene	0.33	ND	ND	ND	ND	ND	ND	ND	0.0704 J	**0.981**
Fluoranthene	100	0.176	0.138	0.202	ND	0.254	0.137	0.329	0.619	9.5
Fluorene	100	ND	0.148	ND	ND	0.304	0.145	ND	ND	0.693 J
Indeno (1,2,3-cd) pyrene	0.5	ND	ND	ND	ND	ND	ND	0.0638 J	0.221	2.98
2-Methylnaphthalene	NS	NA	NA	NA	ND	3.56	1.4	ND	0.0575 J	0.614 J
Naphthalene	100	ND	1.21	ND	ND	2	0.625	ND	ND	0.547 J
Phenanthrene	100	0.237	0.445	0.221	ND	0.906	0.393	0.278	0.322	7.11
Pyrene	100	0.182	0.234	0.321	ND	0.411	0.207	0.239	0.568	7.03
1-Methylnaphthalene	NS	NA	NA	NA	ND	2.15	0.737	ND	0.0428	0.484

Notes:

All concentrations in milligrams per kilogram (mg/kg)/parts per million (ppm)

Only those SVOCs detected in at least one sample are presented on this table.

Semi-Volatile Organic Compounds	RRSCO	Detections above RRSCO	SB-09	Max. Detection (ppm)
			01/03/18	
Benzo (a) anthracene	1	1	4.38	4.38
Benzo (a) pyrene	1	1	5.07	5.07
Benzo (b) fluoranthene	1	1	5.27	5.27
Chrysene	3.9	1	4.71	4.71
Dibenzo (a,h) anthracene	0.33	1	0.981	0.981

TABLE 3

Groundwater Analysis Summary - VOCs Method SW-846 8260

Limited Phase II ESA Syracuse Scale: Plumley and AECC Data

156-158 Solar St, Syracuse, NY

ANALYTES	APPLICABLE STANDARD						
		Plumley	AECC				
Volatile Organic Compounds	GWS	B-5/TW	TW-02	TW-05	TW-06	TW-07	TW-08
		11/01/16	01/08/18	01/08/18	02/08/18	02/08/18	02/08/18
Benzene	1	**129**	**16.00**	**6.51**	**2.1**	**42.6**	BRL
n-Butylbenzene	5	**8.4**	**8.25**	BRL	2.2	**12.5**	**8.4**
sec-Butylbenzene	5	**10.8**	**7.70**	1.68	2.1	**11.9**	**7**
Ethylbenzene	5	**192**	**75.60**	3.11	3.4	**36**	**17**
Isopropylbenzene	5	**62.3**	**28.70**	**6.26**	**5.5**	**48.1**	**19.5**
4-Isopropyltoluene	5	**14.7**	**10.10**	BRL	3.3	**15.4**	**10.8**
Naphthalene	10	**124**	**53.40**	1.9	5.6	**96.1**	**30.6**
n-Propylbenzene	5	**67.5**	**32.50**	3.08	**6.9**	**56.2**	**26.2**
Toluene	5	**23.7**	BRL	BRL	0.7	8	BRL
1,2,4-Trimethylbenzene	5	**70.5**	**217.00**	BRL	**37.8**	**352**	**151**
m,p-xylene	5	**19.9**	**14.00**	BRL	**16.4**	**14.3**	4.8J
o-xylene	5	**6**	BRL	BRL	0.6	BRL	BRL

Notes:

All concentrations in micrograms per liter (ug/L)/parts per billion (ppb)

Only those VOCs detected in at least one sample are shown on this table.

Volatile Organic Compounds	GWS	Detections above GWS	Max. Detection (ppb)
Benzene	1	5	129
n-Butylbenzene	5	4	12.5
sec-Butylbenzene	5	4	11.9
Ethylbenzene	5	4	192
Isopropylbenzene	5	6	62.3
4-Isopropyltoluene	5	4	15.4
Naphthalene	10	4	124
n-Propylbenzene	5	5	67.5
Toluene	5	2	23.7
1,2,4-Trimethylbenzene	5	5	217
m,p-xylene	5	4	19.9
o-xylene	5	1	6

ATTACHMENT 2

SAMPLING AND ANALYSIS PLAN

156 SOLAR STREET, LLC

SAMPLING AND ANALYSIS PLAN
AMPHION PIANO PLAYER BCP SITE
156 SOLAR STREET, SYRACUSE, NEW YORK

BCP Site No.: C734156

18 March 2022

Prepared for:

156 Solar Street LLC
113 Court Street
Binghamton, NY 13901

Prepared by:

Ambient Environmental, Inc.
828 Washington Avenue
Albany, NY 12203

Ambient Project No. 210707ENVB

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APPENDICES

APPENDIX A: GENERAL SAMPLING PROCEDURES FOR FIELD INVESTIGATION

1.0 INTRODUCTION

This document represents the Sampling and Analysis Plan (SAP), which is Attachment 2 of the Remedial Investigation Work Plan for the Amphion Piano Player Brownfield Cleanup Program (BCP) site at 156 Solar Street in the City of Syracuse, Onondaga County, NY (hereinafter the "Site"). This SAP describes the sampling program and procedures to be followed during all sample collection and handling tasks and other investigative tasks associated with this project. It is anticipated that Ambient Environmental, Inc. (Ambient) will implement this SAP.

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2.0 SAMPLING ACTIVITIES AND PROCEDURES

Soil, groundwater, and waste characterization samples will be collected from the Site during implementation of the Remedial Investigation (RI) and analyzed to address data gaps and allow for an evaluation of potential remedial alternatives. Soil vapor samples may also be collected and analyzed. Detailed field sampling procedures, proposed sampling locations, and analyses are described in the following sections of this SAP. A detailed summary outlining the sampling program is presented in the accompanying Quality Assurance Project Plan (QAPP) on Table 6-1 of that document (See Attachment 3 of the RI Work Plan). Detailed sample collection/handling and record keeping procedures are presented in Appendix A of this document.

2.1 Analytical Procedures

Soil and water sample analyses to be completed as part of the RI are as follows: volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). Selected samples will also be analyzed for metals, pesticides, Polychlorinated Biphenyls (PCBs), Per- and Polyfluoroalkyl Substances (PFAS), and 1,4-Dioxane. Samples will be analyzed by a New York State Department of Health (NYSDOH) ELAP-certified laboratory utilizing USEPA SW-846 third addition methodologies as appropriate. Analytical results will be reported using ASP 2000 category B QA/QC backup data packages as described in the most current DEC Analytical Services Protocol (ASP). Full category B deliverable will be provided, and a Data Usability Summary Report (DUSR) will be prepared by an independent 3rd party data validator. Waste characterization samples will also be analyzed utilizing TCLP extraction and analyses for VOCs, SVOCs, RCRA metals, PCBs, and potentially pesticides, herbicides and other parameters (e.g. ignitability, corrosivity) as required by the disposal facility. Waste characterization samples will not be included in the DUSR.

It is anticipated that Alpha Analytical, Inc. (Alpha), a NYSDOH-approved laboratory, will be utilized for all analytical work.

2.2 Remedial Investigation Sampling Tasks

Dig Safely New York will be contacted at least three business days prior to commencing any ground intrusive activities to complete a public utility mark-out. Private utilities not included in the Dig Safely New York mark-out were identified and marked out during preliminary site investigation activities. There are no known underground utilities in the proposed drilling and excavation areas. Furthermore, Ground Penetrating Radar will be conducted to evaluate the Site for buried features. Excavation safety is discussed further in the Health and Safety Plan (HASP) provided as Attachment 4 of the RI Work Plan.

2.2.1 Ground Penetrating Radar

A Ground Penetrating Radar Survey (GPRS) of the entire accessible, exterior portion of the Site will be conducted. A 400 MHz GPR antenna mounted in a stroller frame which rolls over the surface will be utilized for the GPRS. Data will be displayed on a screen and marked in the field in real time. GPR works by sending pulses of energy into a material and recording the strength and the time required for the return of the reflected signal. Reflections are produced when the energy pulses enter into a material with different electrical properties from the material it left. The strength of the reflection is determined by the contrast in signal speed between the two materials. The total depth achieved can be as much as eight feet or more with this antenna but can vary widely depending on the conductivity of the materials. Conductive soil types such as clay may limit depths to three feet or less. As depth increases, targets must be larger in order to be detected and nonmetallic targets can be especially difficult to locate. Depths provided will be treated as estimates as their accuracy can be affected by multiple factors. Results of the GPRS, such as the discovery of potential buried tanks, dry wells, or other structures, will be used to adjust site investigation activities as appropriate.

2.2.2 Soil Borings

An estimate ten shallow (four feet deep) soil borings and an estimated six deep (fifteen feet deep) soil borings will be advanced; depths below ground surface (bgs) may be adjusted based on field screening and site conditions. Soil borings will be advanced

using ‘direct push’ technology to collect soil samples continuously from grade to total depth. Soil borings will be logged and continuously scanned with a PID by an on-site geologist/qualified environmental professional. Detailed logs describing soil type, color, odor, moisture, etc. and all detected PID readings will be prepared for each boring. Additional soil borings may be advanced based on field observations. One soil sample will be collected per boring for analyses (see below); however, some soil samples may be ‘archive for future analyses, which will be based on initial analytical results.

2.2.3 Soil Sampling

An estimated 22 soil samples will be collected during soil boring advancement. Additional samples may be collected based on field observations (it is anticipated that additional soil samples will be collected and ‘archived’ for potential future analyses based on initial analytical results).

Anticipated soil sample analyses are as follows (details are provide in the QAPP, Attachment 3).

Shallow soil borings (ten). One sample (collected from 0.5-1.5 feet bgs*) per shallow boring will be analyzed for TCL SVOCs (USEPA Method 8270) and TAL metals (Method 6010/7470 for mercury/9010 for cyanide). Selected samples (estimated 4) will be analyzed for TCL VOCs (USEPA Method 8260) depending on PID readings. An estimated four samples will be analyzed for PCBs (Method 8082), Pesticides (Method 8081), PFASs (EPA Method mod 537.1), and 1,4-Dioxane (Method 8270 SIM). [*soil samples will be collected from deeper intervals and ‘archived’]

Deep Soil Borings (six). One sample per deep boring* will be analyzed for TCL VOCs (USEPA Method 8260), TCL SVOCs (USEPA Method 8270) and TAL metals (Method 6010/7470 for mercury/9010 for cyanide). An estimated two samples will be analyzed for PCBs (Method 8082), Pesticides (Method 8081), PFASs (EPA Method mod 537.1), and 1,4-Dioxane (Method 8270 SIM). The intervals to be samples will depend on field observations.

[*additional soil samples may be collected and 'archived']

Monitoring Well Point Soil Borings (ten borings/six samples). An estimated six soil samples from monitoring well point borings* will be analyzed for TCL VOCs (USEPA Method 8260), TCL SVOCs (USEPA Method 8270) and TAL metals (Method 6010/7470 for mercury/9010 for cyanide). An estimated two samples will be analyzed for PCBs (Method 8082), Pesticides (Method 8081), PFASs (EPA Method mod 537.1), and 1,4-Dioxane (Method 8270 SIM).
[*additional soil samples may be collected and either analyzed or 'archived' based on field observations.]

Field screening activities, such as use of a PID and visual observations, shall be included in the field notes as part of this remedial investigation report. If elevated PID readings indicate the potential for contamination in soil, additional soil samples may be obtained for laboratory analysis.

2.2.4 Monitoring Well Point Installations

Shallow overburden monitoring wells points will be installed at ten locations on the Site as follows:

- Two monitoring well points in the northeast exterior 'northern yard';
- Three monitoring well points inside the building in the northeast, central and southwest portions of the building;
- Five monitoring well point is the 'south yard' including the loading dock area and in the southern portion of the Site.

Soil borings (in addition to the six deep soil boring previously described) will be advanced to facilitate well point construction. Soil samples from borings associated with monitoring well point installation will be logged and field screened with a PID to monitor for the potential presence of VOC vapors as previously described. It is estimated that one soil sample per boring will be submitted for laboratory analyses. Each of the monitoring well points will be constructed of one-inch-diameter PVC riser and ten feet of one-inch-

diameter, 0.01-inch slotted PVC well screen. The well screen will be installed to "straddle" the top of the water table in the shallow, unconfined groundwater unit. The actual depth of the wells will be dependent on observed field conditions.

A sand pack will be installed around the well screens and will extend one to two feet above the top of the screens. A one-foot to two-foot-thick seal of hydrated bentonite pellets will be installed above the sand pack. A concrete seal will be installed in the remainder of annular space. As these are 'temporary well points', curb boxes will not be installed; however, permanent wells may be constructed in the future. Following installation, reference points will be marked on the top of the PVC at each well location to allow for surveying.

Well points will be installed as part of the RI instead of permanent wells, as Site redevelopment will destroy any wells that might be installed. Permanent wells will be installed at a later time if required.

2.2.5 Monitoring Well Point Development

Well point development will begin after final completion of each monitoring well. For development, the monitoring well points will be purged at the highest sustainable rate at which the wells can yield water without significantly depressing the water level. Wells will be developed using either a peristaltic pump or a disposable bailer. Each well point will be developed until the turbidity of the water is below 50 NTU (if possible). Development water will be placed in a drum, properly labeled and stored on-site for future proper disposal per DER-10 Section 3.3 (e) 5.

2.2.6 Groundwater Sampling

Groundwater samples will be collected from the ten well points no sooner than 48 hours after final development of each of the newly installed monitoring well point. Water level measurements will be collected prior to purging. Each monitoring well point will be purged a minimum of three well point volumes prior to sampling. Wells will be purged using either a peristaltic pump or a disposable bailer. Purge water will be placed in a

drum, properly labeled and stored on-site for future proper disposal per DER-10 Section 3.3 (e) 5. Following purging, groundwater samples will be collected directly from a disposable bailer. Field parameters (pH, temperature, conductivity, dissolved oxygen, oxidation-reduction potential, and turbidity) will be collected from each monitoring well point during sampling.

Groundwater samples collected from the ten newly-installed monitoring well points will be analyzed for TCL VOCs (USEPA Method 8260) and TCL SVOCs (USEPA Method 8270). An estimated four groundwater samples will be analyzed for TAL metals (Method 6010/7470 for mercury/9010 for cyanide), PCBs (Method 8082), Pesticides (Method 8081), PFASs (EPA Method mod 537.1), and 1,4-Dioxane (Method 8270 SIM).

2.2.7 Evaluation of Building Features

Several 'building features' such as an interior AST with floating oil in the associated secondary containments, floor trenches and drains, floor pits and other features of concern are present at the Site. Those features need to be evaluated to determine if they have potentially released contaminants of concern to the environment. Sampling adjacent to and possibly below those features may be needed. As necessary, removing waste from the feature and disposing of the waste, cleaning the features, and inspecting the structures (possibly including hydrostatic testing) will be conducted. Soil samples may be collected under the structures. Any generated waste will be properly handled, characterized (see Work Plan section 5.4.1), and disposed.

2.2.8 Surface Soil Sampling

The Site is currently covered with pavement or structures, limiting access for surface soil sampling. As such, 'near-surface' soil samples will be collected from paved areas as part of the previously-described 'shallow' soil boring advancement. If areas of surface soil (unpaved, uncovered and accessible) are discovered at the Site, surface soil samples will be collected and analyzed as described above for shallow soil borings and in discussion with NYSDEC.

2.2.9 Surface Water and Sediment Sampling

Surface water features do not exist on the Site; therefore, there will not be any collection of surface water and sediment samples.

2.2.10 Surveying

Upon completion of all field tasks, the horizontal and vertical locations of all soil borings and monitoring wells will be surveyed by a New York State (NYS) licensed land surveyor and updated on the existing site survey map. Vertical elevations will be recorded to the nearest 0.01-foot. Top-of-PVC casing elevations for each monitoring well will also be recorded to the nearest 0.01-foot to establish water table elevations and groundwater flow direction. In addition, any other reasonably accessible sampling points (i.e., surface soil) will be surveyed and referenced to an onsite fixed datum point.

2.2.11 Waste Characterization Sampling

It is anticipated that waste materials in the former production areas will need to be disposed off-site. As such, samples of waste material will be collected during the RI and analyzed for waste characterization parameters such as VOC, SVOC, PCBs, metals, ignitability, reactivity and corrosivity. Some analyses will include TCLP extraction. Waste materials may include sludge from the interior waste pit, the interior AST area, and interior floor drains.

2.2.12 Soil Vapor Evaluation

The results of the initial soil and groundwater evaluation will be used to determine the locations of soil vapor sampling points across the Site. The soil vapor sampling will also consider future use. It may be prudent to perform soil vapor sampling after selected buildings are demolished; therefore, the timing of the soil vapor evaluation will be discussed with NYSDEC. Once the scope and timing of the soil vapor evaluation is determined, a soil vapor sampling workplan will be developed as an addendum to the RIWP for review and approval by NYSDEC. The workplan approach and procedure will

be in accordance with NYSDEC DER-10 (May 2010) Section 3.6. The soil vapor sampling workplan will be implemented upon approval by NYSDEC.

3.0 DATA EVALUATION

Soil analytical results will be compared soil cleanup objectives and supplemental soil cleanup objectives identified in 6 NYCRR 375-6.8 as well as NYSDEC CP-51: Soil Cleanup Guidance. Water analytical results will be compared to 6 NYCRR Part 700-706: NYSDEC Water Quality Regulations for Surface Waters and Groundwater. NYSDEC Technical and Operational Guidance Series 1.1.1: ambient water quality standards and guidance values will be referenced in the absence of water quality standards.

Data generated for waste characterization sampling will not require data validation.

4.0 DOCUMENTATION PROCEDURE

Ambient will maintain complete documentation of all remediation activities so that decision processes, actions and results can be recreated as needed. As such, a history of the project will be maintained. Documentation of the activities for various aspects of the project will be accomplished as presented below.

4.1 Field Activities

Field Notebook – Ambient will maintain a bound field notebook that will document dates, times and duration of all field activities. The field notebook will be maintained by the Site Manager. All notebook entries will be made in ink on consecutive pages.

Photographs - Photographs will be taken of all significant site activities.

Calibration Records - Calibration activities for all field instrumentation will be maintained in the field notebook.

Geologic Logs - Observations pertaining to site geology made during all sub-surface drilling or excavations activities will be recorded in the field notebook.

Safety Forms - Sign-in forms, levels of personal protection, air-monitoring results, incidents reporting forms and other safety-related forms will be maintained in the field notebook, as necessary.

4.2 Environmental Sampling

Chain-of-Custody Forms - All sample handling will be recorded on chain-of custody forms and associated labels.

4.3 Management Reports

Monthly Reports - Monthly progress reports will be issued starting with the date the Brownfield Cleanup Agreement (BCA) is executed and ending with the issuance of a

Certificate of Completion. Monthly progress reports will adhere to the requirements of DER-10 Section 5.7.

4.4 Final Report

A RI Report will be submitted to NYSDEC upon completion of the RI.

The RI report will include drawings, data summary tables, laboratory reports, Data Usability Summary Reports, Site photographs and other support documents as required by DER-10.

Additionally, electronic data will be submitted for all media, including their respective laboratory analysis results.

SAP - APPENDIX A

GENERAL SAMPLING PROCEDURES FOR FIELD INVESTIGATION

GENERAL SAMPLING PROCEDURES

1.0 INTRODUCTION

During the course of the remedial action program, the applicable procedures listed below will be followed for sample collection.

- Accurate and detailed field notes will be maintained including detailed descriptions of sample collection and handling procedure and sample characteristics.
- Sampling procedures will be performed with the overall intent of collecting representative samples and minimizing sample disturbance.
- Laboratory-supplied sample bottles (pre-preserved as applicable) will be labeled with the sample location, identification number, and date and time of sampling prior to being filled with sample material.
- All sample collection, handling and shipping information will be recorded in the field notebook and chain of custody documents as appropriate.

2.0 GENERAL SAMPLE COLLECTION PROCEDURES

All non-dedicated sampling equipment will be suitably cleaned before entry to the Site, between sampling locations and intervals, and prior to departure from the Site.

1. All sample containers will be labeled with: 1) site name; 2) project number; 3) sample number; 4) location description 5) sample interval; 6) date; 7) time of collection; and 8) initials of sampler.
2. The sample collector will record descriptions of soil samples as to 1) soil type; 2) color; 3) odor; 4) moisture content; 5) texture; 6) grain size, shape and angularity; 7) consistency; and 8) any other observations, particularly relating to waste materials or unnatural materials. For water samples, the sample collector will describe 1) color; 2) odor; 3) visual turbidity; and 4) any observed phase separation.

3. Sample containers will be capped immediately after filling and placed into a chilled cooler containing sufficient ice or cold packs to cool the samples to 4°C for transport to the laboratory.
4. All equipment used to collect samples for analysis will be either decontaminated before each use at a particular sample location or will be dedicated/disposable such that decontamination will not be required.

3.0 SOIL/BACKFILL SAMPLE COLLECTION PROCEDURES

The applicable procedures noted below will be followed during collection of soil samples.

1. Soil samples will be collected using dedicated sampling equipment, a trowel or stainless-steel spoon or a clean nitrile-gloved hand. Other equipment used during sampling such as bowls and mixing spoons will be made of stainless steel.
2. All samples will be screened immediately upon sample retrieval with a PID. Samples will be collected directly from the sampling tool into the appropriate laboratory-supplied sample containers. Sample container, preservation and holding time information for the anticipated soil sample analyses is provided in the table below. Samples for VOCs will be collected so that there is "zero headspace" in the sample container. Composite samples (if any) for all parameters aside from VOCs will be mixed/homogenized in a decontaminated stainless-steel pan or bowl (VOCs cannot be mixed and will be transferred directly from the sampling tool). Soil samples will not require preservation except for maintaining the media to approximately 4°C.

Sample Container, Preservation and Holding Times for Anticipated Soil Sample Analyses

	TCL VOCs	TCL SVOCs	Pesticides/PCBs	TAL Metals	PFOAs
Container	4 oz Amber Glass Jar	4 oz Amber Glass Jar	4 oz Amber Glass Jar	8 oz Amber Glass Jar	4 oz Plastic (no Teflon Lid)
Preservation	Zero Headspace; cool to 4°C	Cooled to 4°C	Cooled to 4°C	Cooled to 4°C	Cooled to 4°C; double bag ice
Hold Time	14 days	14 days/40 days	14 days/40 days	365 days 28 days-Hg	14 days/40 days

Note: 7 days/40 days means time to extraction/analyses

NOTE- Samples to be analyzed for PFOS/PFOA will be collected in accordance with NYSDEC Guidance "Sampling, Analyses and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs, June 2021

3.1 Materials

The following materials will be available during sampling activities:

- Health and safety equipment (PPE, PID, etc.);
- Sample retrieval device (trowel, bailers, spoons, etc.) ;
- Stainless steel spatulas, bowls and scoops;
- Polyethylene sheeting;
- Sample containers and chain-of-custody forms;
- Transport container with cold source (i.e., cooler with ice or cold packs);
- Field notebook;
- Decontamination supplies; and
- Aluminum foil and Zip-lock type bags.

4.0 GROUNDWATER SAMPLE COLLECTION PROCEDURES

Purging and sampling methods will either a peristaltic pump or a disposable bailer. Prior to sampling, all wells will be purged until field parameters including pH, temperature, conductivity, DO, ORP, and turbidity have stabilized or at least the equivalent of three well volumes have been removed. Although not anticipated, wells with low recovery rates will be evacuated to near dryness once and allowed to recover sufficiently for samples to be collected. Wells with low recovery rates will be characterized as those wells where purging at a rate of 1,000 ml/min or less dewaters the well. All measuring equipment will be properly calibrated and decontaminated between wells.

4.1 Materials

The following materials will be available for groundwater sampling activities.

- Water level indicator (accurate to 0.01 foot);

- New dedicated bailers;
- Polypropylene/nylon rope;
- Multi-parameter water quality meter with capabilities to measure pH, DO, temperature, ORP, conductivity and turbidity;
- A flow-thru cell (optional);
- PID;
- Sample bottles/labels;
- Chain-of-custody forms;
- Thermally insulated container with cold source;
- Sample preservation (may be added to bottle by analytical laboratory);
- A 0.45-micron polypropylene filter for dissolved iron samples from MW-01 only;
- Field book;
- PPE as needed (gloves, etc.); and
- Decontamination supplies (detergent, water, hexane, methanol and/or nitric acid rinses (if necessary), buckets, brushes, etc.).

4.2 Groundwater Sampling Protocol

Groundwater sampling protocol is described below.

- Open well casing and monitor headspace for VOCs. If greater than 5 ppm detected, allow well to vent for 5 to 10 minutes. Re-measure headspace for VOCs. Record PID readings in field book.
- A water level indicator will be used to accurately measure the depth to groundwater from a surveyed datum on the top of the PVC well casing. This measurement will be used in conjunction with the total depth of the well to calculate the standing volume of water in the well as well as to establish the water table elevation for groundwater flow direction purposes.
- Prior to sampling, the wells will be purged until field parameters (pH, temperature, conductivity, DO, ORP, and turbidity) have stabilized or at least the equivalent of three well volumes have been purged. The indicator parameters will

be considered stabilized when three consecutive readings collected five minutes apart meet the following criteria

- pH is within +/- 0.1 pH unit;
- temperature range is within +/- 3%;
- specific conductance range is within +/- 3%;
- dissolved oxygen concentration is within +/-10%;
- ORP is within +/- 10 mV; and
- turbidity is within +/- 10% (ideally less than 10 NTU)

Field parameter measurements will be made and recorded in the field book along with the actual volume removed. Wells with low recovery rates will be evacuated to near dryness once, then allowed to recover sufficiently for samples to be collected. Wells with low recovery rates will be characterized as those wells where pumping at a rate of 1000 ml/minute or less dewaters the well.

- Within eight hours of purging or as soon as the well has sufficiently recovered, groundwater samples will be collected using disposable bailers. The laboratory-supplied vials for VOC analysis will be filled first. Care will be taken not to agitate the sample when transferring it into the laboratory-supplied vials. Samples for any additional parameters will be collected subsequent to the VOC samples. Assuming adequate recharge, all samples will be collected within eight hours of purging.
- Pumping rates during purging and sample collection will be managed appropriately to maintain minimal turbidity for the collection of total metals samples (if needed).
- VOC samples will be collected in 40 ml glass vials with zero headspace and will be preserved with hydrochloric acid to a pH of less than two (in accordance with the instructions provided in the Region II CERCLA QA Manual, Revision 1, October, 1989, p. 31). The sample bottles for all other analytical parameters will be properly preserved (e.g. metals samples will be preserved with nitric acid). Sample container, preservation and holding time information for the anticipated groundwater sample analyses is provided in the table below. Care will be taken to

not overfill the bottles during sample collection thereby ensuring proper sample preservation.

Sample Container, Preservation and Holding Times for Anticipated Groundwater Sample Analyses

	TCL VOCs	TCL SVOCs	TAL Metals; 1-4 dioxane	Pesticides/ PCBs	PFOAs
Container	(3) 40 mL VOA Vials	(2) 250 mL Amber Glass Jars	500 mL Plastic Container	(2) 120 mL Amber Glass Jars	(2) 250 ML plastic w/ plastic lid (no Teflon)
Preservation	Zero Headspace, HCl & Cooled to 4°C	Cooled to 4°C	Metals: HNO_3 & cooled to 4°C 1-4 Dioxane: Cooled to 4°C	Cooled to 4°C	Cooled to 4°C (double bagged ice); stored away from other sample containers
Hold Time	14 Days	7 Days/40 days	365 days 28 Days for Hg	14 Days/40 days	14 days/40 days

Note: 7 days/40 days means time to extraction/analyses

- Sample containers will be capped immediately after filling and placed into a chilled cooler for transport to the laboratory.
- Sampling will progress from the least contaminated well to the most contaminated well, based on the results of previous sampling and analysis. Samples will be properly preserved, stored on ice and transported to the laboratory under proper chain-of-custody protocol.

NOTE- Samples to be analyzed for PFOS/PFOA will be collected in accordance with NYSDEC Guidance "Sampling, Analyses and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs, June 2021.

ATTACHMENT 3

QUALITY ASSURANCE PROJECT PLAN

156 SOLAR STREET, LLC

QUALITY ASSURANCE PROJECT PLAN
AMPHION PIANO PLAYER BCP SITE
156 SOLAR STREET, SYRACUSE, NEW YORK

BCP Site No.: C734156

18 March 2022

Prepared for:

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1.0 INTRODUCTION

This document represents the Quality Assurance Project Plan (QAPP), which is Attachment 3 of the Remedial Investigation Work Plan for the Amphion Piano Player Brownfield Cleanup Program site at 156 Solar Street in the City of Syracuse, Onondaga County (hereinafter the "Site"). This QAPP describes the field and laboratory Quality Assurance (QA) and Quality Control (QC) measures to be implemented during the project. This QAPP was prepared in accordance with New York State Department of Environmental Conservation (NYSDEC) DER-10 Technical Guidance for Site Investigation and Remediation (DER-10) and USEPA guidance document entitled "EPA Requirements for Quality Assurance Project Plans" dated March 2001.

2.0 SITE GOALS

As described in the RI Work Plan, the goals of the RI are to address data gaps identified in the Limited Environmental Site Investigation Report dated September 4, 2018 and to further assess the nature and extent of constituents of concern in various media onsite.

Prior work at the Site has included soil, waste and groundwater sampling to identify potential constituents of concern at the Site. Pending site activities will consist of soil borings, test pit excavation, monitoring well point installations and multi-media sampling.

3.0 QUALITY ASSURANCE OBJECTIVES

3.1 DATA QUALITY OBJECTIVES

Data Quality Objectives (DQOs) are based on the concept that various uses of data collected during the RI require varying degrees of data quality. Data quality is defined as the degree of certainty in a data set with respect to precision, accuracy, representativeness, completeness and comparability (PARCC). DQOs are qualitative and quantitative statements specifying the required quality of data necessary to support RI and future remediation activities. These activities include site screening and site characterization. A description of PARCC parameters is described below.

Precision is a measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation. Various measures of precision exist depending upon the "prescribed similar conditions".

Accuracy is the degree of agreement of a measurement (or an average of measurements) with an accepted reference or "true value". Accuracy is one estimate of the bias in a system.

Representativeness expresses the degree to which data accurately and precisely represents a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition.

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount expected to be obtained under correct normal conditions.

Comparability expresses the confidence with which one data set can be compared to another data set.

It is the responsibility of the field team to collect representative and complete samples. It is the responsibility of the analytical laboratory to analyze these samples using accepted protocols resulting in data that meet PARCC standards.

The categories of data quality to be utilized during the RI at the Site are consistent with those outlined in DER-10 and the USEPA Guidance document entitled *Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*, dated October 1988, and are described below.

- DQO Level 1 - Field Screening Utilizing Portable Instrumentation: Data used for site health and safety monitoring and field screening during site characterization activities. The data generally determines the presence or absence of certain constituents and is generally qualitative rather than quantitative. Field screening data provides the lowest data quality.
- DQO Level 2 - Field Laboratory Analysis: Data used for field screening during site characterization activities, evaluation of remedial alternatives, engineering design and monitoring during implementation of alternatives. The data generally determines levels of certain constituents relative to a calibration standard and is generally qualitative or quantitative.
- DQO Level 3 – Geologic/Engineering Level Data: Data used for site characterization, risk assessment, evaluation of alternatives, engineering design and monitoring during implementation of alternatives. The data is quantitative and is generated using EPA analytical laboratory procedures; however, it does not include full Contract Laboratory Protocol (CLP) documentation.
- DQO Level 4 - Laboratory Analysis: Data used for risk assessment, evaluation of alternatives and engineering design. The data is quantitative and is generated using EPA analytical laboratory procedures. All analyses require full Analytical Services Protocol (ASP)/CLP analytical protocols including Data Usability Summary Reports (DUSR). The majority of the data generated during the RI will be DQO Level 4.

- DQO Level 5 – Non-Standard Special Analytical Services: Data for use when analysis by non-standard procedures is required to obtain specific or lower detection limits or analyses are not of a nature typically performed under the CLP Routine Analytical Service (RAS) Program.

DQOs have been developed for the tasks outlined in Section 5 of the RI Work Plan. The DQOs are designed to support remedial alternative selection and risk assessment tasks associated with the Remedial Alternatives Analyses and remedial selection and design process. It is anticipated that DQO Levels 1 and 4 will primarily be utilized during the SI.

DQO Level 1 data (field screening) will be generated during site characterization activities including: head space screening of soil samples; health and safety monitoring; screening of test pits and soil borings; and collection of groundwater parameters.

DQO Level 4 data (laboratory analysis by CLP/ASP Methods) will be the primary objectives for the RI.

DQO Level 2 data (field analysis), DQO Level 3 data (engineering) and DQO Level 5 (non-standard) data are not expected to be generated as part of the initial RI activities. However, these data at these DQO levels may be generated during supplemental activities, if required.

3.2 FIELD SAMPLING QUALITY OBJECTIVES

The objectives with respect to field sampling activities are to maximize the confidence in the data in terms of PARCC. Field Internal Quality Control Checks will be utilized during this investigation through the use of field duplicates as presented below.

Field Duplicates – At a minimum, one of every twenty samples collected in the field will be accompanied by a duplicate sample. The duplicate will be prepared by homogenizing

the sample and preparing two identical sample aliquots for analysis (grab samples will be used for VOC analysis). The duplicate sample will be assigned a fictitious sample number, which will be recorded in the field notebook. Analysis of duplicate samples will determine the precision of the analytical techniques.

Precision will be calculated as relative percent difference (RPD) if there are only two analytical points, and percent relative standard deviation (%RSD) if there are more than two analytical points. Through the submission of field QC samples, the distinction may be made between analytical problems, sampling technique considerations, and sample matrix variability. This distinction will be made by the data reviewer based on industry guidelines and personal judgment.

To assure representativeness, a field sampling plan has been devised that estimates the number of samples to be collected. This plan is presented in the project Sampling and Analysis Plan (SAP). The data quality objective for the completeness of all data to be collected during the investigation is 100%. In other words, the objective is to collect samples from all of the locations noted in the SAP (Attachment 2 to the RI Work Plan). In the event 100% is not obtained due to inaccessibility of sampling points or other field conditions, the effect that the missing data will have on project objectives will be evaluated. If necessary, corrective action will be initiated to resolve any data gaps that develop as a result of less than 100% data completeness. Every effort will be made to obtain valid data for all sampling points, particularly those identified by the Site Manager as critical points. In this regard, the sampling points identified as critical will be selected for QC sampling (duplicate sample collection) at the frequency specified.

In order to establish a degree of comparability, such that observations and conclusions can be directly compared with all historical data, standardized methods of field analysis, sample collection, holding times, sample preservation and standard units of measurement for data will be used. In addition, field conditions will be documented and considered when evaluating data to determine the effects of sample characteristics on analytical

results. Whenever possible, the same sampling team will obtain all samples to reduce inconsistencies which may be caused by technique and time variables.

3.3 LABORATORY DATA QUALITY OBJECTIVES

The laboratory will demonstrate analytical precision and accuracy by the analysis of laboratory duplicates and by adherence to accepted manufacture and procedural methodologies.

The performance of the laboratory will be evaluated by the Project Manager and Project Quality Assurance Officer during data reduction. The evaluation will include a review of all deliverables for completeness and accuracy when applicable.

4.0 QUALITY CONTROL PROCEDURES

This section presents a general overview of the quality assurance and quality control procedures that will be implemented during the investigation. These quality control procedures are to be implemented as follows:

- at the factory for certain manufactured products;
- in the field; and
- in the laboratory utilized for selected sample analyses.

4.1 SAMPLING ACTIVITIES

Sampling and analysis will be conducted to characterize the Site. General field sampling procedures are described in Appendix A of the SAP. Samples will be handled by all field and laboratory personnel in a manner, which allows for custody tracking and maintenance of the validity of the samples. Sample custody procedures are presented as Appendix A of this QAPP.

All sampling equipment, field measuring equipment and heavy equipment will be decontaminated according to the decontamination procedures presented in Appendix B of this QAPP.

All field activities will be documented in accordance with Appendix C of this QAPP.

5.0 CALIBRATION PROCEDURES

Laboratory calibration and frequency for specific analytical methods and pieces of equipment are specified in USEPA SW846 and the laboratory's Standard Operating Procedures.

During the course of this investigation, soil samples may be screened with a photoionization detector (PID) in the field. A maintenance, calibration, and operation program will be implemented to ensure that routine calibration and maintenance is performed on all field instruments. The O&M program will be monitored by the Site Manager. Trained team members will perform scheduled calibration, field calibrations, checks, and instrument maintenance prior to use each day. Additionally, calibration will be checked as necessary to ascertain that proper measurements are being taken.

Team members are familiar with the field calibration, operation, and maintenance of the equipment, and will perform the prescribed field operating procedures outlined in the operation and field manuals accompanying the respective instrument. Field personnel will keep records of all field instruments calibrations and field checks in the field logbooks. Calibration information recorded in field logbooks will include date, time, instrument model and serial number, a description of calibration or field check procedure, and any instrument deviations.

If on-site monitoring equipment should fail, the Site Manager will be contacted immediately. Replacement equipment will be provided or the malfunction will be repaired in a timely fashion.

6.0 ANALYTICAL PROCEDURES AND DATA EVALUATION

RI activities will include sample collection and analysis for some or all of the following analytes: TCL VOCs (USEPA Method 8260), TCL SVOCs (USEPA Method 8270), TAL metals (Method 6010/7470 for mercury/9010 for cyanide), PCBs (Method 8082), Pesticides (Method 8081), PFASs (EPA Method mod 537.1), and 1,4-Dioxane (Method 8270 SIM). Soil, groundwater, and waste materials will be sampled as part of this RI. In general, laboratory analytical procedures will adhere to USEPA SW-846 third addition methodologies as appropriate. Samples will be analyzed by a laboratory that is a NYSDOH ELAP certified laboratory.

A summary of the sampling program and analytical methods are shown in Table 6-1.

Upon receipt of analytical reports from the laboratory, the data packages will be evaluated to confirm that samples were analyzed within required holding time and at proper detection limits. Data validation will be conducted for all samples analyzed in accordance with ASP methodologies and a Data Usability Summary Report (DUSR) will be prepared by a qualified independent third party. The laboratory will provide ASP 2000 category B QA/QC backup data packages as described in the most current DEC Analytical Services Protocol (ASP) with all analytical reports. These packages will be reviewed for completeness and provided upon request. Data deliverables will comply with the requirements of *DER-10 Appendix 2B: Guidance for Data Deliverables and the Development of Data Usability Summary Reports.* As such, electronic data deliverable submissions (EDDS) will be submitted.

Table 6-1
RI Sampling Program
Amphion Piano Player Brownfield Cleanup Program 156 Solar Street, Syracuse

Task	Matrix	VOCs EPA Method 8260	SVOCs EPA Method 8270	TAL Metals EPA Method 6010*	Pest/ PCBs EPA Method 8081/ 8082	TCLP RCRA Metals EPA Method 6010*	TCLP Pest./ Herb. EPA Method 8081/8151	PFAS EPA Method Mod 537.1	1,4-Dioxane EPA Method 8270***
Soil Samples									
Shallow Soil Borings	Soil	4	10	10	4			4	4
Deep Soil Borings	Soil	6	6	6	2			2	2
Mon. Well Borings	Soil	6	6	6	2			2	2
Duplicates (1 per 20)	Soil	1	2	2	1			1	1
MS/MSD (1 set/20)	Soil	2	4	4	2			2	2
Total Soil Samples	Soil	19	28	28	11			11	11
Water Sampling									
New Wells (GW)	Water	10	10	4	4			4	4
Duplicates (1 per 20)	Water	1	1	1	1			1	1
MS/MSD (1 set/20)	Water	2	2	2	2			2	2
Trip Blank	Water	1							
Total Water Samples	Water	14	13	7	7			7	7
Waste Characterization Samples									
As needed	liquid	3**	3**		3	3	3		

Notes:

The method quantification limits will be the lowest as required by the method.
The actual detection limit will be dependent upon the sample matrix.
Holding times, sample preservatives and sample containers will be specified by the analytical method.
Waste characterization samples are not subject to duplicate and MS/MSD requirements.
*The analytical method for mercury is 7470. The analytical method for cyanide is 9010.
**VOCs/SVOCs for waste characterization will utilize TCLP extraction.
*** For aqueous samples, method will be EPA Method 8270 SIM.

Waste characterization samples will be collected if waste and/or affected soil are removed during the RI. Waste characterization samples may also be analyzed for reactivity, corrosivity and ignitability as required by the accepting facility. Waste characterization samples will not require data validation

NOTE: PFAS analyses will comply with NYSDEC Guidance "Sampling, Analyses and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs, June 2021

The project Quality Assurance/Quality Control (QA/QC) officer will review the data packages to confirm completeness of the ASP Category B deliverables and to prepare a DUSR in accordance with NYSDEC guidelines. The QA/QC officer will be independent from the analytical laboratory. At a minimum, the following information will be evaluated:

- chain-of-custody forms;
- date sampled/date analyzed;
- sample temperature at check-in;
- raw data;
- initial and continuing instrument calibrations;
- matrix spikes;
- laboratory duplicate analyses;
- surrogate recoveries (organics); and
- laboratory control samples (inorganics).

The DUSR will comply with the requirements of *DER-10 Appendix 2B: Guidance for Data Deliverables and the Development of Data Usability Summary Reports.*

Data reduction will consist of presenting analytical results on summary tables. Data resulting from investigation analyses will then be used to characterize the various environmental media at the Site and to define the extent of any impacted medium.

7.0 PROJECT PERSONNEL

The RI Work Plan and associated documents were prepared by, and will be implemented by, a project team from Ambient Environmental, Inc. (Ambient) with extensive experience in site investigation, risk evaluation, alternative analyses, and remediation. The project team will be responsible for implementation of the RI Work Plan. Key personnel to be assigned to this project, and their project role, will be provided prior to the start of work; professional profiles for these persons will also be provided prior to the start of work.

The laboratory analytical contractor will be a NYSDOH-certified laboratory with ASP/CLP experience to be selected upon completion and approval of the RI Work Plan. All data validation and DUSR preparation will be performed by a qualified independent third-party data validator. Site contractors will be selected upon completion and approval of the RI Work Plan.

8.0 SCHEDULE

The estimated work schedule is presented in Section 6.0 of the RI Work Plan document. A start date will be established based on finalization of the Work Plan.

APPENDIX A

SAMPLE CUSTODY PROCEDURES

SAMPLE CUSTODY PROCEDURES

The primary objective of the sample custody procedures is to create an accurate written record which can be used to trace the possession and handling of all samples from the moment of their collection, through analysis, until their final disposition. For the purpose of this document, the USEPA Office of Enforcement and Compliance Monitoring, National Enforcement Investigation Center (NEIC) Policies and Procedures (May 1986) definition of custody applies. USEPA states that a sample is under custody if:

1. It is in one's possession, or
2. It is in one's view, after being in one's possession, or
3. It is locked up after being in one's possession, or
4. It is in a designated secure area.

The Site Manager or the field personnel collecting the samples will maintain custody for samples collected during this investigation. The Site Manager or field personnel are responsible for documenting each sample transfer and maintaining custody of all samples until they are shipped to the laboratory.

A self-adhesive sample label will be affixed to each container before sample collection. These labels will be covered with clear waterproof tape if necessary to protect the label from water or solvents. The sample label will contain the following information:

- Laboratory Name
- Sample ID Number
- Sample Location
- Sample Matrix
- Date and Time of Sample Collection
- Designation as grab or composite
- Parameters to be tested
- Preservative Added
- Name of Sampler.

All sampling containers will be supplied by the laboratory, and are to be cleaned by the bottle supplier in accordance with standard laboratory procedures. Analytical proof of cleanliness will be available for review. Sample containers will be enclosed in clear plastic bags and packed with cushioning material inside the coolers.

The Site Manager will maintain custody of the sample bottles. Sample bottles needed for a specific sampling task will be properly preserved in the laboratory prior to sample collection. After the Site Manager has verified the integrity of the bottles and that the proper bottles have been assigned for the task, the bottles will be relinquished to the sampling team. The sampler will place a sufficient volume of sample in the appropriate laboratory-grade bottles for use as sample containers. Care will be taken to not overfill the bottles during sample collection, thereby ensuring proper sample preservation.

The samples collected for analyses will be stored in an insulated cooler for shipment to the laboratory. The laboratory should receive the samples within 48 hours of sampling. Field chain-of-custody records completed at the time of sample collection will be placed inside the cooler for shipment to the laboratory. These record forms will be sealed in a zip-lock type plastic bag to protect them against moisture. Each cooler will contain sufficient ice or cold packs to ensure that an approximate 4^0C temperature is maintained, and will be packed in a manner to prevent damage to sample containers. Sample coolers will be sealed with strapping tape and the Site Manager will sign and date a custody seal and place it on the cooler in such a way that any tampering during shipment will be detected.

All coolers will be shipped by an overnight courier according to current US DOT regulations. Upon receiving the samples, the sample custodian at the laboratory will inspect the condition of the samples, compare the information on the sample labels against the field chain-of-custody record, assign a laboratory control number, and log the control number into the computer sample inventory system. The sample custodian will then store the sample in a secure sample storage cooler maintained at approximately 4°C and maintain custody until the sample is assigned to an analyst for analysis. Custody will be maintained until disposal of the analyzed samples.

The sample custodian will note any damaged sample vials, void space within the vials, or discrepancies between the sample label and information on the field chain-of-custody record when logging the sample. This information will also be communicated to field personnel so proper action can be taken. The chain-of-custody form will be signed by both the relinquishing and receiving parties and the reason for transfer indicated each time the sample custody changes.

An internal chain-of-custody form will be used by the laboratory to document sample possession from laboratory sample custodian to analysts and final disposition. All chain-of-custody information will be supplied with the data packages for inclusion in the document control file.

APPENDIX B

DECONTAMINATION PROCEDURES

DECONTAMINATION PROCEDURES

1.0 INTRODUCTION

Decontamination of all field investigation and sampling equipment will follow the decontamination procedures detailed below.

Equipment cleaning areas will generally be established within or adjacent to the specific work area. The equipment cleaning procedures described below include pre-field, field and post-field cleaning of sampling equipment. The equipment consists of soil sampling equipment. The non-disposable equipment will be cleaned after completing each sampling event. All rinse water will be contained and treated on site or sent to an approved disposal facility. The site manager will monitor cleaning procedures.

Solids (e.g., disposable gloves, disposable clothing, and other disposable equipment) generated from personnel cleaning procedures will be collected for proper disposal. Decontamination procedures will be fully documented in the field notebook.

2.0 SAMPLING EQUIPMENT DECONTAMINATION

Typical sampling equipment cleaning materials may include:

- phosphate-free detergent solution soap;
- potable water (which will be obtained from a treated municipal water source);
- appropriate cleaning solvent (e.g., dilute nitric acid or methanol);
- wash basins;
- brushes;
- polyethylene sheeting;
- aluminum foil;
- large heavy-duty garbage bags;
- spray bottles;

- zip-lock type bags;
- paper towels/Handiwipes®; and
- non-phthalate, latex, disposable gloves.

All sampling equipment will be stored in a clean environment and, where appropriate, the equipment will be covered in aluminum foil.

Field decontamination procedures, as described below, will include the establishment of cleaning stations. These stations will be located away from the immediate work area so as not to adversely impact the cleaning procedure, but close enough to the sampling teams to keep equipment handling to a minimum.

All equipment such as drill rigs and excavation equipment will be inspected to determine if an initial cleaning at this location prior to use on-site is needed. The frequency of subsequent on-site cleaning will depend on actual equipment use in the collection of environmental samples or during remedial activities. Cleaning will occur at the sampling location after all samples are collected. All fluids and residues produced from the decontamination procedures will be discharged at the cleaning location as to not transfer materials from one location to another.

All sampling equipment (e.g. hand-operated coring devices, knives, hand-augers, bowls) will be cleaned before each use and prior to leaving the site. The field sampling equipment-cleaning procedure when analyzing for organic constituents is as follows:

- Phosphate-free detergent solution;
- Potable water rinse;
- Deionized water rinse;
- Repeat water rinse twice (i.e., triple rinse) and allow to air dry; and
- Wrap equipment completely with aluminum foil to prevent contact with other materials during storage and/or transport to the sampling location.

The initial step, a soap and water wash, is to remove all visible particulate matter and residual oils and grease (this may be preceded by a steam cleaning to facilitate residuals

removal). When analyzing for organic constituents when tools appear heavily contaminated, this may be followed by a potable water rinse to remove the detergent and a rinse sequence of methanol and deionized water.

All heavy equipment (drill rigs, excavator, etc.) will be washed prior to onsite usage, between locations if the equipment comes in direct contact with contaminated media, and prior to leaving the site. All down-hole equipment (sampling tubes and buckets) will be washed between uses at each location. Equipment will be scrubbed manually as needed to remove heavy soils prior to steam cleaning. Clean equipment will be stored in an in-active work area on-site until use.

3.0 METER AND FILTER DECONTAMINATION

All meters and probes used in the field will be decontaminated between uses with deionized water (triple rinse).

Filtering apparatus will be cleaned prior to each use by washing with a phosphate-free detergent solution, rinsing with potable water and a final rinse with deionized water. Used filters will be properly disposed following sample collection.

Sampling equipment and probes will be decontaminated in an area covered by polyethylene sheeting near the sampling location.

APPENDIX C

FIELD DOCUMENTATION

FIELD DOCUMENTATION

All the field data, such as those generated during field measurements, observations and field instrument calibrations, will be entered directly into a bound field notebook. Each project team member will be responsible for proofing all data transfers made, and the Site Manager will proof at least ten percent of all data transfers.

One or more bound field notebooks may be maintained for the Site; each book will be consecutively numbered. The book(s) will remain with the Site file.

All entries in the Logbook will be made in ink. Logbook entries will include but not be limited to the following:

First Page:

- site name and number
- date and time started
- personnel on-site

Subsequent Pages:

- detailed description of investigative activities including sampling, on-site meetings and any problems encountered along with the duration of these activities
- documentation of all personnel monitoring results (e.g. PID readings)
- list of all samples obtained and sample appearance (referenced to field logs if necessary)
- list of personal protection used and documentation procedure
- all other pertinent daily activities

Each new day will contain:

- date and time started
- weather
- personnel on-site
- activity information
- initials of notekeeper

*Note: When a mistake is made in the log, it will be crossed out with a single ink line and will be initialed and dated.

Special care will be taken in the description and documentation of sampling procedures. Sampling information to be documented in the field notebook and/or associated forms are as follows:

- sample number
- date and time sample collected
- source of sample (Area, monitoring well number, etc.)
- location of sample - document with a site sketch and/or written description of the sampling location so that accurate resampling can be conducted if necessary
- sampling equipment (trowel, split spoon, sediment corer, etc.)
- analysis and QA/QC required
- chemical preservative used (HCl, HNO_3, H_2SO_4, NaOH, etc.)
- field instrument calibration including date of calibration, standards used and their source, results of calibration and any corrective actions taken.
- field data (pH, temperature, conductivity, etc.)
- field observations - all significant observations will be documented.
- sample condition (color, odor, etc.)
- site condition (stressed vegetation, exposure of buried wastes, erosion problems, etc.)
- sample shipping procedure, date, time, destination and if container seals were attached to transport container(s)

- comments - any observation or event that occurred that would be relevant to the facility; for example: weather changes and effect on sampling, conversations with the client, public official or private citizen; and instrument calibration, equipment problems, and field changes.

ATTACHMENT 4

HEALTH AND SAFETY PLAN

156 SOLAR STREET, LLC

HEALTH & SAFETY PLAN
AMPHION PIANO PLAYER BCP SITE
156 SOLAR STREET, SYRACUSE, NEW YORK

BCP Site No.: C734156

18 March 2022

Prepared for:

156 Solar Street LLC
113 Court Street
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Prepared by:

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Ambient Project No. 210707ENVB

HEALTH AND SAFETY PLAN

PREPARED BY: James F. Blasting/Mark Dugas

APPROVED BY:

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Mark Dugas, Health and Safety Officer

_____ Date:_____

James F. Blasting, Project Manager

_____ Date:_____

Luke McKenney, Site Manager

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1.0 INTRODUCTION

This document represents the Health and Safety Plan (HASP), which is Attachment 4 of the Remedial Investigation (RI) Work Plan for the Amphion Piano Player Brownfield Cleanup Program (BCP) site at 156 Solar Street in the City of Syracuse, Onondaga County, NY (hereinafter the "Site").

This HASP summarizes the intended field activities at the Site and chemicals of concern expected to be present. The HASP then describes the procedures to be followed in conducting the field operations, given the existing data concerning the Site.

2.0 FIELD ACTIVITIES AND CHEMICALS OF CONCERN

The field activities to be conducted are described in the associated Sampling and Analysis Plan (SAP). Planned Site activities include advancing soil borings, constructing temporary well points, and multi-media sampling. Site activities are planned for the spring/summer 2022.

Preliminary Site Investigation activities performed at the Site by Plumley Engineering in 2016 and AECC Environmental Consulting in 2018 identified Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs) as the primary chemicals of concern.

Principal VOCs identified in one or more site matrices (soil, groundwater) include: benzene, n-butylbenzene, sec-butylbenzene, toluene, ethylbenzene, p/m-xylene, naphthalene, n-propylbenzene, 1,3,5-trimethylbenzene, 1,2,4-trimethylbenzene, isopropylbenzene, and 4-isopropyltoluene.

The SVOCs identified in one or more of these same matrices were benzo(a) anthracene, benzo(a)pyrene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and trace concentration of other SVOCs.

The concentration of barium in one surface soil sample at a concentration of 542 mg/kg, which exceeded the Commercial SCO of 400 mg/kg, indicates that barium is a potential health concern.

A summary of the specific compounds, the concentrations, and the corresponding matrices are presented in Attachment 1 of the SI Work Plan.

3.0 POTENTIAL CHEMICAL AND PHYSICAL HAZARDS

VOCs and SVOCs are the main contaminants of concern related to the Site. Since the field activities involve subsurface disturbance, inhalation (volatiles and dust particles), dermal contact and ingestion are considered the potential pathways of concern.

A **VOCs Action Limit of 5 ppm** is established for the inhalation pathway. The limit of 5 ppm is based on measurement by a PID or similar direct reading instrument near the breathing zone of workers. The VOC Action Limit is based on the VOCs identified and their respective concentrations in the soil and water matrices identified during site characterization investigation.

A **dust/particulate Action Limit of 100 mg/m3** has been established for site activities. Measurement for dust/particulate shall be conducted near a worker's breathing zone with particulate direct reading instrumentation.

These Action Limits are based on the compounds and their respective concentrations in the soil and water matrices identified during the preliminary site investigation. The SSO, project manager or project health professional may change these limits when warranted. Any changes in Action Limits must be clearly documented in field notes.

To address potential dermal contact & ingestion, a **"No Skin Contact Policy"** will also be followed for all site activities. This policy requires that there shall be no direct skin contact with any soils, sediments or water including items or equipment that may have contacted soils, sediments or water unless they have been properly decontaminated. Gloves and other protective equipment (pants, long sleeve shirts, etc.), based on specific activities, shall be worn whenever there is a potential for contact or contamination. Additionally, no potentially contaminated or soiled items, PPE, or footwear shall be taken off site unless properly decontaminated. It is anticipated that rubber over boots or disposable shoe covers will be worn by all on-site personnel within established exclusion and contamination reduction zones. This policy may be modified at the discretion of the

SSO, project manager or project health professional. Any changes in the policy must be clearly documented in field notes.

Physical hazards may also be encountered at the Site, especially during drilling and excavation activities. Table 3-1 lists potential physical hazards that may be encountered during the field activities. This list has been compiled based on planned activities and potential site conditions.

Table 3-1
Physical Safety Concerns
Amphion Piano Player BCP, 156 Solar Street, Syracuse, NY

Hazard	Description	Location	Procedures Used to Monitor/Reduce Hazard
Underground Utilities	Electric, Gas, Sanitary and Storm Sewer	Throughout	Verify number and location of all utilities prior to site operations.
Heat Stress	Hot Weather Activities	Throughout	Protections and monitoring as designated in this HASP
Cold Weather	Frost-bite, Hypothermia	Throughout	Wear appropriate clothing. Provide warm shelter area and liquids. Monitor worker physical conditions.
Heavy Equipment	Drill Rig and Excavator	Select Areas	All personnel should be cautious around heavy equipment. Make eye contact with operator prior to entering the work area.
Weather	Lightning, Heavy Rain or Snow	Throughout	During lightning, cease all heavy equipment activities. During cold weather, beware of wet and slippery conditions.
Noise	Heavy Equipment	Select Areas	Use appropriate earplugs or earmuffs, during equipment operation.
Overhead Electrical Equipment	Overhead Lines	Select Areas with Heavy Equipment	Maintain at least ten feet of clearance from any overhead lines.
Struck by Vehicle	Work in Traffic Areas	Parking Lots	Block all work areas off with reflective cones.

4.0 HAZARDS EVALUATION

Details pertaining to site activities are outlined in the RI Work Plan and associated SAP.

4.1 SITE MONITORING FOR CHEMICAL HAZARDS

The primary compounds of concern in the work areas are VOCs and SVOCs. Air monitoring (where applicable) and good work practices will be used during the field activities to ensure that appropriate personal protection is used and to minimize potential exposures. Appropriate monitoring equipment to be used during site activities is described herein. All field monitoring will be conducted by or under the supervision of the Site Safety Officer (SSO). The SSO will properly maintain and calibrate all monitoring instruments throughout the field activities to ensure their accuracy and reliability. The SSO will keep a written record of all calibration activities.

4.1.1 VOC Monitoring

Direct reading instrumentation for VOCs shall be used to monitor exposure potentials during activities involving potentially contaminated soil and water, as determined necessary by the SSO. Direct reading instrumentation, such as a photoionization detector (PID) detector will be utilized. Based on the exposure levels in the breathing zone of personnel, the SSO will determine if an upgrade in respiratory protection is warranted. These upgrade levels are presented in the following table.

Table 4-1
Personal Protection Action Levels – VOCs
Amphion Piano Player BCP, 156 Solar Street, Syracuse, NY

Total Concentration	Required Action and/or Personal Protection
Monitor during all operations with the potential to release VOCs*	
VOC: Detection Limit to 5 ppm	Level D personal protection
5 ppm to 25 ppm	Upgrade to Level C personal protection with full-face air purifying respirators with combination P100/Organic Vapor cartridges. Change cartridges after each daily use.
Over 25 ppm	Notify the Site Safety Officer and implement means to control exposure levels.
	*All concentrations are sustained- in the breathing zone

4.1.2 Dust Monitoring

Dust or particulate may be generated during activities at the Site. It will be at the discretion of the SSO to determine the need for formal dust monitoring during Site activities. Generally speaking, if continuous visible dust is being generated and is present in the employee work area, formal monitoring will be conducted. Monitoring will be conducted with a direct-reading dust monitor. ***The action level for dust/particulate will be 100 mg/m^3*** (Note: based on P10 detection limits). If this level is exceeded, a filter device provided by or in accordance with the manufacturer recommendations will be utilized for field screening equipment, controls will be implemented to minimize dust exposure and/or employees will utilize Level C respiratory protection.

4.2 PHYSICAL HAZARDS

To minimize hazards, standard safety procedures will be followed at all times. The primary physical safety hazards for this project include, but are not limited to:

- common slip, trip, and fall hazards;

- overhead and buried hazards;
- drill rig and heavy equipment operation;
- excavation safety;
- electrical and power equipment;
- vehicular traffic;
- lifting excessive weights;
- sampling hazards;
- excessive noise levels;
- heat and cold stress; and
- other hazards.

4.2.1 Common Slip, Trip, Fall Hazards

Personnel should be aware of common slip, trip or fall hazards that are encountered frequently in industrial and project environments. Heightened awareness and emphasis on good housekeeping are the most effective ways to prevent accidents.

4.2.2 Overhead and Buried Hazards

Utility lines, both above and below ground, may pose a safety hazard for site personnel during soil boring or other heavy equipment operations. If overhead utilities have been identified on site as a hazard, the equipment operator must maintain a safe clearance between the lines and the equipment at all times during work operations. High voltage lines require greater clearance distances. As a safe work practice, equipment operators will maintain a 10-foot clearance between equipment and power lines or other energized sources unless the source is greater than 350 KV, in which case 29CFR 1910.180(j) must be applied. The location of buried utilities lines must be determined prior to the start of work activities. Overhead and buried utility and electrical lines may be a concern during all activities. These concerns will be addressed as part of the daily safety meeting.

4.2.3 Drill Rig and Heavy Equipment Operation

Truck-mounted drill rigs and heavy equipment presents multiple hazards while in operation. Excessive noise, boom raising, lowering and swing, cable and hook damage and operator error may result in injuries. To minimize potential accidents, the following safety measures will be required for all operations:

- All operators of equipment used on site will be familiar with the requirement for inspection and operation of such equipment. The operator will be required to demonstrate proficiency in safe operation the equipment.
- All drilling and excavation shall be performed from a stable ground position, if unable to locate on level ground, the drill rig shall be appropriately checked, blocked and braced prior to the derrick being raised.
- Daily inspections of the drilling or excavation area shall be made by a person competent in heavy equipment safety. The inspector shall note the safety of the area and confirm the location of utilities.
- Before drilling or excavation, the existence and location of utility lines (electric and gas) will be determined by the Site owner. If the knowledge is not available, an appropriate device, such as a cable avoiding tool, will be used to locate the services line(s).
- If drilling equipment is located in the vicinity of overhead power lines, a distance of ten-feet must be maintained between the lines and any point on the equipment.
- Daily inspection of the drill rig and heavy machinery must be conducted and documented by the operator prior to each day's operation.
- In the event repairs to the drilling rig derrick are required, personnel climbing the derrick to affect such repairs must wear restraint system, including full body harness and lifeline, to prevent an accidental fall.

4.2.4 Excavation Safety

This task involves removing earthen materials from a designated area, thereby creating a man-made cut, trench, or depression in the earth's surface.

Physical Hazards: The physical hazards involved in the excavation of soils are related to the excavation itself and the operation of heavy equipment. The presence of overhead utilities such as power lines requires careful positioning of the excavating equipment in order to maintain a safe distance between the lines and the closest part of the equipment. The presence of underground utilities such as gas lines, power lines, water lines and sewer pipes must be determined prior to beginning the excavation.

Excavations pose significant hazards to employees if they are not carefully controlled. There exists a chance for the excavation to collapse if it is not dug properly, sloped, benched or shored as required by 29 CFR 1926 Subpart P. Protective systems, as required by 29 CFR 1926 Subpart P, must be utilized if the potential for hazardous cave-ins exist. The excavation also is a fall hazard, and employees must pay careful attention to what they are doing or they risk a fall into the excavation. Fall protection, as required by 29 CFR 1926 Subpart M, may be required.

No activities will require personnel to enter an excavation. No employees are permitted to enter any excavation. Equipment placement and other activities shall be done remotely, without entering the excavation.

Control

Before any digging can be done, all underground utilities must be located and identified. The underground utilities will be located and identified by contacting Dig Safely New York, reviewing available drawings showing locations of on-site underground utilities, and by contacting the appropriate client representative to mark the location of underground utilities. The Site Manager will meet with utility locators on site prior to marking out the underground utilities. During the on-site meeting, the Site Manager will provide the utility locator with a site figure, which shows the locations where excavation

activities will be completed during site activities. The Site Manager will conduct a site walkover with utility locators, as necessary, to visually identify each location where excavation activities are to be completed during activities (as shown on the site figure to be provided to the locators).

General Requirements

No person shall be permitted underneath loads handled by lifting or digging equipment. Site personnel must be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped, in accordance with 1926.601(b)(6), to provide adequate protection for the operator during loading and unloading operations.

If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes, or other suitable means must be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation. Excavations subject to runoff from heavy rains will require an inspection by a competent person.

Where the stability of adjoining buildings, walls, or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning must be provided to ensure the stability of such structures for the protection of employees. Excavation below the level of the base or footing of any foundation or retaining wall that could be reasonably expected to pose a hazard to employees is not permitted except when:

- A support system designed by a competent person, such as underpinning, is provided to ensure the safety of employees and the stability of the structure; or
- The excavation is in stable rock; or

- A registered professional engineer has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity; or
- A registered professional engineer has approved the determination that such excavation work will not pose a hazard to employees.

Sidewalks, pavement and appurtenant structures must not be undermined unless a support system or another method of protection is provided to protect from the possible collapse of such structures. Adequate protection must be provided to protect from loose rock or soil that could pose a hazard by falling or rolling from an excavation face. Such protection must consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material; or other means that provide equivalent protection.

Employees must be protected from excavated or other materials or equipment that could pose a hazard by falling or rolling into excavations. Protection must be provided by placing and keeping such materials or equipment at least 2 feet (.61 m) from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

Inspections by Competent Person

Daily inspections of excavations, the adjacent areas, and protective systems must be made by a competent person for evidence of a situation that could result in possible cave-ins, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions. An inspection must be conducted by the competent person prior to the start of work and as needed throughout the shift.

Inspections also must be made after every rainstorm or other hazard-increasing occurrence. These inspections are only required when employee exposure can be

reasonably anticipated. Where the competent person finds evidence of a situation that could result in a possible cave-in, indications of failure of protective systems, hazardous atmospheres, or other hazardous conditions, exposed employees must be removed from the hazardous area until the necessary precautions have been taken to ensure their safety.

Walkways must be provided where employees or equipment are required or permitted to cross over excavations. Guardrails which comply with 1926.502(b) must be provided where walkways are 4 feet (1.2 m) or more above lower levels. Adequate barrier protection must be provided at all remotely located excavations. All wells, pits, shafts, etc., must be barricaded or covered. Upon completion of exploration and other similar operations, temporary wells, pits, shafts, etc., must be backfilled.

4.2.5 Tools - Hand and Power

Hand and power tools may be utilized as part of this investigation. All tools used during field activities will conform to the standards set both in OSHA 29CFR-1926.300 - 1926.305. To minimize the potential for any safety related accidents, the following measures will be required:

- All hand and power tools shall be maintained in a safe condition;
- Power operated tools shall be equipped with protective guard when in use;
- All hand-held power tools shall be equipped with a constant pressure switch that will shut off the power when the pressure is released;
- Hand tools shall be kept free of splinters or cracks;
- Electrical power tools shall have double-insulated type grounding;
- Electrical tools used in wet environments should have ground fault circuit interrupters (GFCI) in place;
- Electrical cords are not permitted for hoisting or lowering tools;
- All fuel powered tools shall be stopped while being refueled or maintained; and,
- When fuel powered tools are used in enclosed spaces the ambient air will be measured for oxygen and toxic gasses.

4.2.6 Vehicular Traffic

Vehicular traffic in and around the facility may pose a hazard to project personnel. Precaution, including reflector vests and cones, should be taken when fieldwork is occurring near traveled areas.

4.2.7 Lifting Excessive Weights

Personnel should exercise caution when lifting any object that weighs greater than 50 pounds. For objects, which weigh less than 50 pounds, proper lifting technique is essential to minimize the potential for injury. No excessively bulky objects should be lifted without assistance.

4.2.8 Sampling Hazards

Field activities will consist of collecting soil and water samples for analysis and evaluation. The hazards of this operation are primarily associated with the sample collection methods and procedures utilized.

The SAP outlines the standard methods and procedures that will be utilized for sampling activities. Of these specific procedures, none present hazards that are unique to sampling. Potential hazards that may be encountered are described in other sections of the HASP.

4.2.9 Excessive Noise Levels

Noise generated by heavy equipment may present a hazard during site operations. Excessive noise can physically damage the ear, hinder communications and startle or annoy the workers. All on-site personnel will wear hearing protection (earplugs or earmuffs) when working near heavy equipment and when noise levels may exceed 85dBA.

4.2.10 Heat Stress

Heat stress is the aggregate of environmental and physical work factors that make up the total heat load imposed on the body. The environmental factors of heat stress include air temperatures, humidity, radiant heat exchange, wind and water vapor pressure (related to humidity). Physical work adds to the total heat stress by producing metabolic heat in the body, proportional to the intensity of work.

Heavy physical labor can greatly increase the likelihood of heat fatigue, heat exhaustion and heatstroke, the latter being a life-threatening condition. Heat stress monitoring of personnel shall commence when the ambient temperature is 80°F (70°F if chemical protective clothing is worn) or above. Frequency of monitoring shall increase as the ambient temperature rises. Various control measures shall be employed if heat stress becomes a problem. These include:

- Provision for liquids to replace lost body fluids;
- Establishment of a work/rest schedule that allows for rest periods to cool down; and
- Training workers in the recognition and prevention of heat stress.

Specific steps to implement should ambient temperatures pose a hazard include:

- Site workers will be encouraged to drink plenty of water (or nutrient replacement drinks, such as Gatorade) throughout the day.
- On-site drinking water will be kept cool (50°-60°F) to encourage personnel to drink frequently;
- A work/rest schedule that will provide adequate rest periods for cooling down will be established as required;
- All personnel will be advised of the dangers and symptoms of heat stroke, heat exhaustion and heat cramps;

- Employees should be instructed to monitor themselves and co-workers for signs of heat stress and to take breaks as necessary;
- A shaded rest area must be provided. All breaks should take place in the shaded area;
- Employees shall not be assigned to other tasks during breaks;
- All employees shall be informed of the importance of adequate rest, acclimation and proper diet in the prevention of heat stress disorders; and
- The buddy system shall be practiced at all times on site.

The signs of heat stress disorders are described below.

Heat Cramps

Heat cramps are caused by heavy sweating and inadequate electrolyte replacement. Signs and symptoms include muscle spasms and pain in the hands, feet, and abdomen.

Heat Exhaustion

Heat exhaustion occurs from increased stress on various body organs, signs and symptoms include:

- Pale, cool, moist skin;
- Heavy sweating; and
- Dizziness, nausea, fainting.

Heat Stroke

Heat stroke is the most serious form of heat stress, and should always be treated as a medical emergency. The body's temperature regulation system fails and the body temperature rapidly rises to critical levels. Immediate action must be taken to cool the body before serious injury or death occurs. Signs and symptoms of heat stroke include:

- Red, hot, unusually dry skin;
- Lack of, or reduced, perspiration;
- Nausea;
- Dizziness and confusion;
- Strong, rapid pulse and confusion; and,
- Coma.

4.2.11 Cold Stress

Cold and/or wet environmental conditions can place workers at risk of cold related illness. Hypothermia can occur whenever temperatures are below 45°F. It is most common during wet windy conditions, with temperatures between 40° to 30°F. The principal cause of hypothermia in these conditions is loss of insulating properties of clothing due to moisture, coupled with heat loss due to wind and evaporation of moisture on the skin.

Frostbite, the other hazard associated with exposure to the cold, is the freezing of body tissue, which ranges from superficial freezing of surface skin layers to deep freezing of underlying tissue. Frostbite will only occur when ambient temperatures are below 32°F. The risk of frostbite increases as the temperature drops and the wind speed increases. Most cold-related worker fatalities have resulted from failure to escape low environmental temperatures or from immersion in low temperature water. The single most important aspect of life-threatening hypothermia is a fall in the deep core temperature of the body.

Site workers should be protected from exposure to cold so that the deep core temperature does not fall below 97°F. Lower body temperatures will very likely result in reduced mental alertness, reduction in rational decision making or loss of consciousness with the threat of fatal consequences. To prevent such occurrence the following measures are recommended:

- Site workers shall wear warm clothing, such as mittens, heavy socks, etc. when the air temperature is below 45°F. Protective clothing or coveralls may be used to shield employees from the wind;
- When the air temperature is below 35°F, clothing for warmth, in addition to chemical protective clothing will be worn by employees. This will include:
- Insulated suits, such as whole-body thermal underwear;
- Wool socks or polypropylene socks to keep moisture off the feet;
- Insulated gloves and boots;
- Insulated head cover such as hard hat winter liner or knit cap; and
- Insulated jacket with wind and water-resistant outer layer.

At air temperatures below 35°F the following work practices are recommended:

- If the clothing of a site worker might become wet on the job site, the outer layer of clothing should be water impermeable;
- If a site worker's underclothing becomes wet in any way, they should change into dry clothing immediately. If the clothing becomes wet from sweating (and the employee is not comfortable) the employee may finish the task at hand prior to changing into dry clothing;
- Site workers should be provided with a warm (65°F or above) break area;
- Hot liquids such as soups or warm drinks should be provided in the break area. The intake of coffee and tea should be limited, due to their circulatory and diuretic effects;
- The buddy system shall be practiced at all times on site. Any site worker observed with severe shivering shall leave the work area immediately; and
- Site workers should be dressed in layers, with thinner lighter clothing next to the body.

5.0 PERSONNEL RESPONSIBILITIES

A Health and Safety Management Team has been developed for the site investigation field activities. The following responsibilities will be assigned to designated project personnel for all activities.

The Site Manager will act in a supervisory capacity over all employees who participate in the field activities specified in this work plan. The Site Manager is responsible for ensuring that health and safety responsibilities are carried out in conjunction with the work plan. As part of these responsibilities, the Site Manager will distribute the HASP to all field team personnel and discuss the HASP prior to the start of field activities. All field personnel will sign the Health and Safety Plan Review Record shown in Figure 5-1, verifying that they have read and are familiar with the contents of this HASP.

The Site Safety Officer (SSO) will be responsible for oversight, implementation and compliance of applicable health and safety regulations on-site. The SSO has the following authority and responsibilities:

- responsibility for the field implementation, evaluation and any necessary field modifications of this HASP;
- responsibility for maintaining adequate supplies of all personal protective equipment, as well as calibration and maintenance of all HASP monitoring instruments;
- authority to suspend field activities due to imminent danger situations;
- responsibility to initiate emergency response activities;
- presentation and documentation of field safety briefings;
- maintain daily log of all on-site safety activities; and
- oversight of health and safety practices for subcontractors;
- The SSO shall conduct daily tailgate safety meetings with site personnel and contractors prior to commencement of each day's activities.

Figure 5-1
HASP Plan Review Record
Amphion Piano Player BCP, 156 Solar Street, Syracuse, NY

HEALTH AND SAFETY PLAN REVIEW RECORD

I have read the Health and Safety Plan for the Site and have been briefed on the nature, level and degree of exposure likely as a result of participation in this project. I agree to follow all the requirements in the Health and Safety Plan.

Employee Signature	Date
Name	
Site Manager Signature	Date
Name	

Subcontractors will be provided with a copy of this HASP and will be informed of health and safety concerns, as well as environmental monitoring data collected during field activities. This information will be shared with the subcontractors to assist them in implementing the appropriate health and safety measures. Contractors will be required to prepare and implement their own HASP that is at least as stringent as this project HASP. The consultant/contractor is not responsible for the health and safety of subcontractors or other site or facility personnel.

6.0 HEALTH AND SAFETY TRAINING

All personnel working at the Site will participate in daily safety briefings. The SSO will also conduct daily briefings with all site employees covering the activities and safety procedures. The daily briefings shall review the days planned activities and discuss potential hazards and proper controls to minimize hazards. The content of briefings and personnel present shall be documented in field notes.

7.0 PERSONAL PROTECTIVE EQUIPMENT

7.1 PURPOSE/APPROACH

A critical aspect of field crew safety is appropriate personal protective equipment (PPE). PPE refers to the types of footwear, headwear, eyewear, ear wear, coveralls, gloves and respiratory protection each individual will wear while performing a specific task(s) and exposed to a particular chemical(s) at a given concentration(s). The levels of PPE are referred to as Level D, Level C and Level B; with Level D requiring the least amount of PPE and Level B the most.

The SSO will decide when it is necessary to upgrade, downgrade or modify the existing level of protection based on field monitoring and action levels described in Section 4.0. The SSO will make entries in the health and safety field book detailing each days PPE, task and if the level of PPE is modified, the reason for each change. Each level's PPE requirements may be modified by the SSO as needed. The different levels of PPE and equipment required at each level are described in the following sections and is based on 29 CFR 1910.120.

7.2 LEVEL D PROTECTION

Minimum level of protection for any field activities.

Level D PPE will consist of the following:

- Coveralls or a work uniform affording protection for nuisance contamination.
- Steel-toe, steel-shank work boots.
  Safety glasses.
- Hard hat (if working around equipment or machinery).

Note: Hand washing is imperative following any contact with soil, water and waste.

Optional Equipment or as Required by the SSO

- Disposal Tyvek® or rubber outer boots.
  Chemical resistant gloves (recommend nitrile or neoprene).
  Disposable outer chemical coveralls, such as Tyvek®, poly coated Tyvek® or Saranex®.
- Hearing protection.

No site activities where there is potential for contacting soils, waste or water may be conducted without proper gloves and/or other PPE as necessary.

7.3 LEVEL C PROTECTION

Minimum level of protection when respirators required.

Level C PPE will consist of:

- Full-face air purifying respirator (APR) equipped with appropriate P100 (HEPA equivalent) and/or organic vapor cartridges. Note: All personnel requiring respiratory protection must be medically approved and "fit-tested" with the respirator to be used. Appropriate powered air-purifying respirators (PAPR) may be utilized if specified by the SSO. Only with the approval of the SSO can half-mask air purifying respirators be donned. Chemical cartridges will be changed on a daily basis.
- Chemical-resistant clothing such as Tyvek®, poly-coated Tyvek® or Saranex®.
- Outer chemical-resistant (recommend nitrile or neoprene) gloves and inner latex surgical gloves. Outer gloves should be tapped to the clothing sleeve.
- Steel-toe, steel-shank work boots with Tyvek® or rubber boot coverings. Over boots should be taped to clothing leg.
- Hard hat (if working around equipment or machinery).

Optional Equipment as Required by the SSO

- Escape SCBA
- Hearing protection

7.4 LEVEL B PROTECTION

Level B PPE will consist of:

- Self-contained breathing apparatus (SCBA) in a pressure demand mode, or supplied air with escape SCBA in the pressure demand mode.
- Chemical-resistant clothing such as Tyvek®, poly-coated Tyvek® or Saranex®.
- Outer chemical-resistant (recommend nitrile or neoprene) gloves and inner latex surgical gloves. Outer gloves should be tapped to the clothing sleeve.
- Steel-toe, steel-shank work boots with rubber over boots. Over boots should be taped to clothing leg.
- Hard hat (if working around equipment or machinery).

8.0 SITE OPERATION AREAS AND DECONTAMINATION

Site operation areas will be formally set up for all field activities. Personal decontamination procedures will be closely adhered to upon entering or leaving all work areas. Section 8.1 describes the three zones used to control site operation areas and Section 9.0 describes decontamination procedures.

8.1 SITE OPERATION AREAS

A three-zone control system will be used during activities as determined necessary by the SSO. The purpose of the zones is to control the flow of personnel to or from potentially contaminated work areas. Guidelines for establishing these zone/areas are as follows:

Exclusion Zone (EZ): Primary exclusion zones will be established around each field activity and, at a minimum, this zone will radiate to a distance of 25 feet from the point of operations. Appropriate personal protective equipment must be worn in this zone. This zone will be separated from the contaminant reduction zone by cones or barrier tape to prevent personnel from entering the exclusion zone boundary without appropriate protective equipment or leaving without proper decontamination.

Contaminant Reduction Zone (CRZ): The CRZ is the transition area between the EZ and the Support Zone (clean area). All personnel and equipment must be decontaminated in the CRZ upon exiting the EZ and before entering the Support Zone. The CRZ will be set up along the perimeter of the EZ at a point upwind of field activities.

Support Zone (SZ): The support zone is considered to be uncontaminated; as such, protective clothing and equipment are not required but should be available for use in emergencies. All equipment and materials are stored and maintained within this zone. Protective clothing is donned in the support zone before entering the contaminant reduction zone.

9.0 DECONTAMINATION GUIDELINES

In the situation where work areas are controlled using the three-zone concept, all personnel must exit the EZ through an established CRZ. At a minimum, CRZ provisions will include a potable water supply, wash buckets or sprayers, cleaning tools, hand soap and clean towels. The applicable CRZ sequence of events should include:

- Wash outer boots, coveralls and outer gloves;
- Remove any outer boot or glove tape;
- Remove outer boots. Either store or properly dispose of outer boots;
- Re-clean and remove outer gloves. If gloves will be reused, inspect and stage the gloves; otherwise properly dispose of the gloves;
- Remove chemical resistant coveralls with care so that hands or inner clothing do not come in contact with any contaminated surfaces. Properly dispose of coveralls;
- Remove respirator and stage in CRZ area. Respirators shall be cleaned and disinfected with a sanitizing agent between uses;
- Remove and dispose of inner gloves; and
- Thoroughly wash hands and face.

All contaminated equipment (such as the drill rig, excavator/back-hoe, tools and sampling equipment, etc.) will be thoroughly decontaminated prior to leaving the EZ. The extent of the decontamination (such as a separate decontamination pad) will be determined by the SSO. The SSO will be responsible for inspecting the decontamination of all equipment prior to leaving the EZ and the Site.

For fieldwork not using the three-zone concept (e.g., soil and sediment sampling with hand-operated equipment), portable wash stations will be utilized for easy and efficient access. The wash station shall consist of a potable water supply, hand soap and clean

towels. Portable sprayer units filled with Alconox® solution and potable water will also be available to wash and rinse off grossly contaminated boots, gloves and equipment. The SSO will monitor decontamination procedures to ensure their effectiveness. Modifications of the decontamination procedure may be necessary as determined by the SSO.

9.1 MANAGEMENT OF GENERATED WASTES

All discarded health and safety equipment and discarded sampling equipment will be segregated and placed in appropriate containers, as required. These containers will be properly labeled and stored in a secure area on site while arrangements are made for disposal.

10.0 SITE ACCESS AND SITE CONTROL

Access to site activities will be limited to authorized personnel and should be coordinated with the site Owner. Such authorized personnel include contractor's employees, subcontractors and representatives of the site Owner. However, access into the established contaminant reduction and exclusion zones will be limited to those authorized personnel with required certifications and wearing appropriate personal protective equipment. The exclusion zones will be monitored by the SSO to ensure personnel do not enter without proper personal protection equipment.

All work zones will be clearly marked with barrier tap and/or cones to ensure that non-authorized personnel are kept at a safe distance. Excavations or trenches/ditches will be secured during off-hours and any stockpiled soils will be covered with plastic.

11.0 EMERGENCY RESPONSE

In the event of an emergency, the SSO will coordinate response activities. Appropriate authorities will be notified immediately of the nature and extent of the emergency. Table 11-1 provides emergency telephone numbers that will be posted within the support zone or any other visible location. Directions to the nearest hospital are also included on Table 11-1.

11.1 RESPONSIBILITIES

The SSO will be responsible for initiating response to all emergencies, and will:

1. Notify appropriate individuals, authorities and health care facilities of the activities and hazards of the field activities.

2. Ensure that the following safety equipment is available: eyewash provisions, first aid supplies and fire extinguisher.

3. Have working knowledge of all safety equipment.

4. Ensure that directions of the most direct route to the nearest hospital is present with the emergency telephone numbers.

5. For a release incident or major vapor emission, determine safe distances and places of refuge.

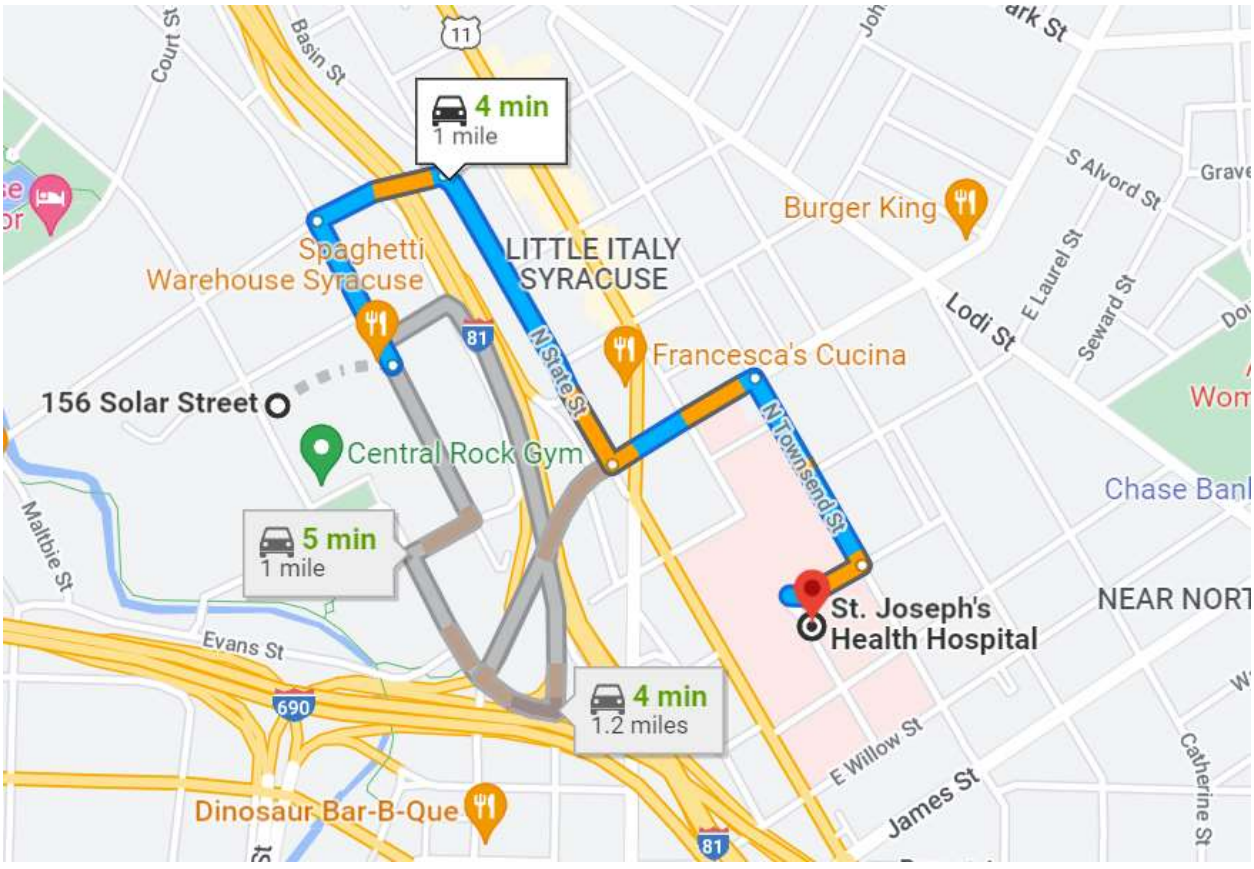
6. For a release incident or major vapor emission, contact the local emergency response coordinator (Fire Department) and NYSDEC Spill Response (if appropriate).

Table 11-1
Emergency Contacts
Amphion Piano Player BCP Site, 156 Solar Street, Syracuse, NY

Project Health and Safety Coordinator: Rachel Oltmer	(607) 341-5404
Project Director: James F. Blasting, P.G.	(315) 263-3388
Project Manager: Luke McKenney	(315) 439-0772
Ambulance (Rural/Metro Medical Services)	911 or (315) 471-0102
Hospital (St. Joseph's Hospital)	(315) 448-5111
Fire Dept. (Syracuse Fire Station – **EMERGENCY**)	911 or (315) 475-5525
NYSDEC Spill Hotline	1-800-457-7362
Police (Syracuse Police Department)	911 or (315) 442-5200

Directions to Hospital: From 156 Solar Street, Syracuse

Figure 11-1 Directions to Hospital



From:	156 Solar Street Syracuse, NY
To:	Prospect Ave Syracuse, NY 13203

Directions	**Distance**
1: Head northwest on N Clinton St W Division St	0.1 miles
2: Turn right onto Spencer St	0.1 miles
3: Turn right onto N State St	0.3 miles
4: Turn left onto Butternut St	0.1 miles
5: Turn right onto N Townsend St	0.2 miles
6: Turn right onto Union Ave	299 feet
7: Slight right at Prospect Ave	79 feet
8: Arrive	

Total Distance:	1.1 miles

11.2 ACCIDENTS AND INJURIES

In case of a safety or health emergency at the Site, appropriate emergency measures will immediately be taken to assist those who have been injured or exposed and to protect others from hazards. The SSO will be immediately notified and will respond according to the seriousness of the injury.

11.3 SITE COMMUNICATIONS

Telephones (either temporary landlines or cellular) will be located prior to the start-up of field activities, and will be used as the primary off-site communication network. Radios will be used at the Site, as needed.

11.4 RESPONSE EVALUATION

The effectiveness of response actions and procedures will be evaluated by the SSO. Improvements will be identified and incorporated into this and future plans.

12.0 ADDITIONAL SAFETY PRACTICES

The following safety precautions will be enforced during the field activities:

1. Eating, drinking, chewing gum or tobacco, smoking or any practice that increases potential hand-to-mouth transfer and possible ingestion of material is prohibited in areas designated as contaminated by the SSO.

2. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking or any other activity.

3. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

4. No facial hair that may interfere with the effectiveness of a respirator will be permitted on personnel required to wear tight fitting respiratory protection. The respirator must seal against the face so that the wearer receives air only through the air purifying cartridges. Fit-testing shall be performed prior to respirator use to ensure a proper seal is obtained.

5. Even when wearing protective clothing, contact with potentially contaminated surfaces should be avoided when possible. One should not walk through puddles; mud or other discolored surfaces; kneel on ground; lean, sit or place equipment on drums, containers, vehicles or the ground.

6. Medicine and alcohol can enhance the effect from exposure to certain compounds. Alcoholic beverages will not be consumed during work hours by personnel involved in the project. Personnel using prescription drugs during the project may be precluded from performing specific tasks (e.g. operating heavy equipment) without authorization from a physician.

7. Personnel and equipment in the work areas will be minimized.

8. Work areas and decontamination procedures will be established based on prevailing site conditions.

9. Respirators will be issued for the exclusive use of one worker and will be cleaned and disinfected after each use.

10. Cartridges for air-purifying respirators in use will be changed on a frequency determined by the SSO, with detectable odor/breathing resistance or after each day's use, whichever is shorter.

ATTACHMENT A

COMMUNITY AIR MONITORING PROGRAM

Community Air Monitoring Plan

(Intrusive Activities)

The community air monitoring plan (CAMP) will be implemented during all exterior ground intrusive work during the remedial investigation activities. Continuous monitoring will be performed for all exterior ground intrusive activities including, but are not limited to, demolition of contaminated or potentially contaminated structures, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells. Continuous air monitoring will be conducted when work is taking place near potentially exposed individuals, such as near a busy street or residence, and the CAMP equipment will be capable of calculating 15-minute running average concentrations.

Real-time air monitoring for VOCs and particulate levels at the perimeter of the exclusion zone or work area will be necessary.

Continuous monitoring will be conducted for all exterior 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 conducted 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 will 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.

<u>VOC Monitoring, Response Levels, and Actions</u>

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified by the Site Safety Officer (SSO). Upwind concentrations will be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. Monitoring work will be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment will be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment will 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 will 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 will 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 will be shut down and corrective measures will be implemented before work resumes.

4. All 15-minute readings will 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 will be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring will 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 will be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration will be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques will be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m3 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 mcg/m3 above the upwind level, work will 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/m3 of the upwind level and in preventing visible dust migration.

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