Remedial Alternatives Analysis
113-117 North Clinton Avenue
Rochester, New York
NYSDEC BCP Site #C828159

Location:

113-117 North Clinton Avenue
Rochester, New York

Prepared for:

Clinton North Development Corporation
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LaBella Project No. 2161120

April 2019

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CERTIFICATION

I DANIEL P. NOLL certify that I am currently a NYS registered professional engineer and that this Remedial Alternatives Analysis was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plans and any DER-approved modifications.

081996	4/21/19	
NYS Professional Engineer #	Date	Signature

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1.0 INTRODUCTION

This Remedial Alternatives Analysis (RAA) provides an evaluation of remedial alternatives and selects remedial actions to be implemented at 113-117 North Clinton Avenue, City of Rochester, Monroe County, New York, hereinafter referred to as "the Site". The Site is part of the Brownfield Cleanup Program (BCP) and designated as Site #C828195. The Volunteer entered into a Brownfield Cleanup Agreement with the New York State Department of Environmental Conservation (NYSDEC) dated April 26, 2017 (Index number C828095-01-17). A Site Location Map is included as Figure 1.

LaBella Associates, D.P.C. ("LaBella") completed a Remedial Investigation (RI) on behalf of Clinton North Development Corporation at the Site in August 2018. Prior to entering the BCP program a soil vapor intrusion (SVI) study was completed at the Site by the NYSDEC in November 2015. The remedial alternatives were evaluated based on the data obtained during pre-BCP activities and the RI. This RAA summarizes the findings of the RI Report; however, the RI Report should be referenced for greater details on the nature and extent of impacts.

1.1 *Site Description*

The Site is comprised of an approximately 0.11± acre tax parcel (SBL 106-790-1-30) developed with a five (5) story, 21,317-square foot (sq.ft.) building. The Site Building is primarily utilized as a residential hotel (i.e. boarding house) with several small businesses located on the first floor. The current tenants of the first floor commercial properties facing North Clinton Avenue are the "Quik MiniMart" (convenience store) and a barber shop. Figures 1 and 2 illustrate the Site location and surrounding area as well as the basement features. The Site Building covers the majority of the Site/tax parcel.

The Site is bordered by a lot fronting on Andrews Street to the north, North Clinton Avenue to the east, the Former Silver Cleaners property (#C828186) to the northeast and the Clinton Avenue Learning Center School to the south.. Our Lady of Victory/St. Joseph Church and various commercial properties are located to the west/southwest. Commercial properties and a restaurant are located to the east across North Clinton Avenue and an office building with first floor commercial properties is located to the north across Andrews Street.

1.2 *Site History*

The Site appears to have been first developed prior to 1875. Historical mapping indicates that the Site was developed with an apparent residential dwelling and a separate commercial structure from at least 1875 until the 1910s or 1920s. The current five-story, 21,317-sq. ft. building with a full basement appears to have been constructed in the mid-1920s. The Site Building appears to have been utilized as a boarding house with several small commercial businesses operating on the first floor from the mid-1920s to the present day. These businesses have varied since first construction but appear to have included: a jewelry store; pharmacy; shoe store; liquor store; book store; men's clothing store; and a hair salon.

The northern adjacent property, addressed as 245 Andrews Street was occupied by Silver Cleaners (a dry cleaning facility) from approximately 1946 until approximately 2011. The vacant asphalt parking lot directly to the north of the Site (and to the east of the Silver Cleaners property) addressed as 159-169 Pleasant Street, was historically utilized as a gasoline filling station (Mid City Service

Station) from at least 1935 to 1955. The 245 Andrews Street property, once occupied by Silver Cleaners and the gasoline station, was listed under NYSDEC Inactive Hazardous Waste Disposal Site (IHWDS) #828186 and NYSDEC BCP #C828186 after a Phase I ESA and Phase II ESA were conducted at the 245 Andrews Street property. The Phase I ESA identified possible abandoned 1,000-gallon and 500-gallon underground storage tanks (USTs), the potential release of petroleum products, and the potential release of dry cleaning solvents (tetrachloroethylene) at the property. A Phase II ESA reportedly included an electromagnetic survey to locate potential abandoned USTs and the collection of soil and groundwater samples at the property. Strong petroleum odors and elevated photo-ionization detector (PID) readings were reportedly noted within a soil boring on the property. Subsequently, NYSDEC Spill #1213777 (currently active) was opened for the property. According to the NYSDEC BCP listing, soil sample analytical results indicated exceedances of tetrachloroethylene (PCE) and petroleum related compounds in the groundwater and soil at the property. Remediation efforts conducted by the NYSDEC at the northern adjacent property reportedly are on-going.

The eastern adjacent property addressed as 130 and 134 North Clinton Avenue, currently occupied by the Red Front Restaurant was historically occupied by a gasoline filling station from at least 1935 until approximately 1950.

In April 2017, the Site was entered into the NYSDEC Brownfield Cleanup Program (BCP) as Site #C828195. Subsequent to entering the Site in the BCP, an Interim Remedial Action and a remedial investigation (RI) have been completed at the Site. The RI report was completed in August 2018 and the Construction Completion Report (CCR) associated with the Interim Remedial Action (installation of a sub-slab depressurization system) was completed in January 2019.

Refer to Figure 2 which depicts the Site features and boundaries.

1.3 *Previous Investigations*

Confirmatory Phase II Environmental Site Assessment (ESA) 245 Andrews Street, 159-169 Pleasant Street – Leader Professional Services, Inc. ("Leader"), January 2013;

This assessment was completed for the property adjacent to the north of the Site (former Silver Dry Cleaners/gasoline station). An electromagnetic (EM) survey was conducted on December 8, 2012; electromagnetic anomalies indicative of buried metal objects were identified beneath the parking lot east of 245 Andrews Street, i.e., directly north of the Site. Several of these anomalies were suspected to be indicative of underground storage tanks (USTs) dating back to when the property was used as a gasoline filling station. Soil and groundwater samples collected on December 20, 2012 indicated that petroleum compounds are present in soils at concentrations greater than NYSDEC Part 375 Soil Cleanup Objectives (SCO) for Unrestricted Use and in groundwater at concentrations greater than Technical and Operational Guidance Series (TOGS) 1.1.1 Groundwater Standards in the location of the historical gas station at the east side of the parking lot. PCE (a common dry cleaning chemical) was identified in groundwater beneath the floor slab in both the eastern and western portions of the building at 245 Andrews Street at concentrations greater than TOGS 1.1.1 Groundwater Standards.

Phase I ESA 113-117 North Clinton Avenue – LaBella Associates, D.P.C. ("LaBella"), August 2015

LaBella's Phase I ESA identified that the northern adjacent property, addressed as 245 Andrews Street, was occupied by Silver Cleaners (a dry cleaning facility) from approximately 1946 until

approximately 2011, and that the eastern adjoining vacant asphalt parking lot, addressed as 159-169 Pleasant Street, was historically utilized as a gasoline filling station (Mid City Service Station) from at least 1935 to at least 1955. Based on the long term historical use of the northern adjacent property as a dry cleaner and a gasoline filling station and the known petroleum and PCE contamination present at that property, LaBella identified a Recognized Environmental Condition (REC) associated with the northern adjacent property and potential impacts to the Site from contamination originating from the northern adjacent property.

Former Silver Cleaners 245 Andrews Street, Site No. 828186 Preliminary Data – NYSDEC, November 2015

The NYSDEC performed a groundwater and soil study at the adjacent 245 Andrews Street property (Former Silver Cleaners Site #828186) as well as a petroleum tank removal. Laboratory analysis of soil and groundwater samples identified volatile organic compounds present at concentrations above applicable comparison criteria.

Former Silver Cleaners 245 Andrews Street, Site No. 828186 Preliminary Soil Vapor Intrusion Data – NYSDEC, November 2015

Based on the contamination at the northern adjacent property, the NYSDEC conducted a soil vapor intrusion study at 113-117 North Clinton Avenue (i.e., the BCP Site) and collected two (2) collocated sub-slab and indoor air samples. All samples were collected from the Site building basement; samples from the upper, occupied floors were not collected. The objective of this study was to determine if contamination from the northern adjacent property was impacting indoor air quality at the Site. PCE (the dry cleaning chemical identified in groundwater at the northern adjacent property) was detected in sub-slab vapor as well as indoor air samples at the Site at levels that warrant the mitigation of SVI impacts as directed by the NYSDOH.

At the same time as the SVI testing was completed, the NYSDEC collected a groundwater sample from the Sump located on the southern portion of the Site (NC-SUMP-01) and submitted the sample for analysis of VOCs. No VOCs were detected above laboratory MDLs in the sample.

Remedial Investigation 113-117 North Clinton Avenue, NYSDEC BCP Site #: C828195 – LaBella, August 2018

A remedial investigation was conducted at the Site due to the presence of PCE in sub-slab and indoor samples believed to be related to the northern adjacent property. The RI consisted of an overburden soil evaluation and overburden groundwater evaluation to evaluate the nature and extent of any contamination in these media. The remedial investigation is described in greater detail in Section 3.0.

Construction Completion Report 113-117 North Clinton Avenue, NYSDEC BCP Site #: C828195 – LaBella, January 2019

The CCR documents the installation of the sub-slab depressurization system (SSDS) within the Site building. This Interim Remedial Action was completed in accordance with the NYSDEC-approved Interim Remedial Action Work Plan (IRAWP) dated October 2017 and associated amendment dated August 2018. The SSDS was installed to mitigate chlorinated VOC impacts identified in soil vapor

intrusion samples collected from the building's basement by the NYSDEC in November 2015. The SSDS creates a vacuum below the building's floor slab, preventing infiltration of these chemicals into the building's ambient air.

Between October 10, 2018 and November 30, 2018, three (3) depressurization points (designated DP-01 through DP-03) and one (1) rooftop fan (Festa Radon Technologies FRT "Force") were installed at the Site. Refer to Appendix 1 for fan specifications and Appendix 5 for a photographic log. Points DP-01 and DP-02 were installed vertically through the building's basement floor slab while DP-03 was installed horizontally through the western wall of the basement into a partial void space which underlies the western-most portion of the building's first floor. A swimming pool was reportedly previously located in this area but was filled and a concrete floor slab (i.e., the first floor slab in this portion of the building) was poured over it.

As part of system installation, several cracks in the basement floor slab were sealed to prevent loss of vacuum during system operation.

Following SSDS installation, a total of six (6) pressure field extension (PFE) points (designated PFE-01 through PFE-06) were installed to measure pressure differentials between the sub-slab and ambient air pressure, thus measuring system influence. Measurements from the PFE points indicated the system was working properly and thus mitigating soil vapor intrusion concerns.

2.0 STANDARDS, CRITERIA AND GUIDANCE

This section identifies the Standards, Criteria and Guidance (SCGs) for the Site. The SCGs identified are used in order to quantify the extent of contamination at the Site that may require remedial work based on the cleanup goal. It should be noted that these SCGs are applied based on the current and anticipated continued Site use (Restricted Residential).

Soil SCGs:

- New York Codes, Rules, and Regulations (NYCRR) Subpart 375-6.8(b) Soil Cleanup Objectives (SCOs) for Restricted Residential Use;
- NYCRR Subpart 375-6.8(a) SCOs for Unrestricted Use; and,
- NYCRR Subpart 375-6.8(b) SCOs for the Protection of Groundwater.

Groundwater SCGs:

- NYCRR Part 703 Groundwater Standards; and
- Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values.

Soil Vapor SCGs:

- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York and associated updates.

3.0 SUMMARY OF REMEDIAL INVESTIGATION

This section summarizes the investigation work and the IRMs completed at the Site. Based on the data obtained from this work, the Areas of Concern (AOCs) remaining at the Site are presented.

These AOCs will be subsequently evaluated for remedial alternatives. Figure 3 presents these AOCs on-Site.

3.1 *Remedial Investigation Work*

A Remedial Investigation Work Plan was approved by the NYSDEC in January 2018. RI activities completed on February 8 consisted of the advancement of two (2) soil borings and installation of two (2) overburden groundwater monitoring wells. All soil borings and groundwater monitoring wells completed during the RI were located in the basement of the Site Building (refer to Figure 4).

As discussed in Section 1.3, pre-BCP sampling activities consisted of the collection of two (2) SVI samples and one sump water sample by the NYSDEC. All samples completed during the pre-BCP sampling activities were also located in the basement of the Site building. The lowest point in the basement is approximately 12-ft below the elevation of the streets and parking lots surrounding the property.

To evaluate conditions at the Site as part of the RI, the following soil and groundwater samples were submitted for laboratory testing. Also listed are samples submitted prior to the Site entering the BCP program.

Sample Type		Pre-BCP	RI	TOTAL
Soil Borings	# Locations	0	2	2
	# Samples	0	2	2
Groundwater Monitoring Wells	# Locations	0	2	2
	# Samples	0	2	2
Soil Vapor Intrusion	# Locations	2	0	2
	# Samples	4	0	4
Sump Sample	# Locations	1	0	0
	# Samples	1	0	0

Note: Quality assurance/quality control (QA/QC) samples are not accounted for in the above table.

All RI samples were submitted for analysis of the following parameters:

- USEPA TCL and NYSDEC CP-51 list VOCs including TICs using USEPA Method 8260;
- USEPA TCL SVOCs including TICs using USEPA method 8270;
- NYSDEC CP-51 list SVOCs using USEPA method 8270;
- USEPA TAL metals using USEPA Methods 6010/7470;
- Pesticides using USEPA Method 8081;
- PCBs using USEPA Method 8082; and,
- Cyanide using USEPA Method 9010.

Pre-BCP SVI samples were submitted for analysis of the following:

- VOCs via USEPA Method TO-15.

The pre-BCP sump sample was submitted for analysis of the following:

- USEPA TCL and NYSDEC CP-51 list VOCs using USEPA Method 8260.

3.2 *Remedial Investigation Findings*

As previously noted, the RI included the advancement of two (2) soil borings within the Site building footprint and installation of two (2) groundwater monitoring wells. During soil boring advancement, fill materials were observed in each boring. Fill materials were present generally from immediately beneath the floor slab to refusal (i.e. 4.6-ft bgs. and 3.6-ft. bgs.) and primarily consisted of varying amounts of silt, sand, and pea gravel with lesser amounts of brick concrete and black stained soil. Saturated soils were generally encountered directly beneath the Site Building sub-slab and the bottom of each boring.

No visual or olfactory evidence of impairment was noted in soils from SB-01 or SB-02. A PPBrae 3000 handheld photoionization detection meter (PID) was used to screen Site soils during the advancement of soil borings. Maximum PID readings were 0.2 parts per million (ppm) above PID background levels in SB-01 and 0.1 ppm above background levels in SB-02. No staining or odors were detected from soils beneath the Site Building

The following table summarizes the PID readings observed in each soil boring, associated depths and depth of samples relinquished for laboratory analysis.

Table A - Summary of PID Readings in Soil Borings

SOIL BORING	Depth Interval of Elevated PID Readings (feet bgs)	Range of PID Readings Observed (ppm)	Peak PID Reading & Depth (ppm & ft bgs)	Depth of Soil Sample (feet bgs)
SB-01	2.5	0.00 to 0.2	0.2 at 2.5	1.0-4.6
SB-02	3.2-3.6	0.00 to 0.05	0.05 at 3.6	2.0-3.6

The greatest PID reading of 0.2 ppm was encountered in SB-01 on the western portion of the Site Building at approximately 2.5-ft. bgs. The minor elevated PID readings may be indicative of moisture-related background reading fluctuations rather than the presence of targeted VOCs.

3.2.1 Soil Boring Sample Results

One (1) soil sample was collected from each of the two (2) borings and analyzed for the following parameters as part of the RI:

- USEPA TCL and NYSDEC CP-51 list VOCs including TICs using USEPA Method 8260;
- USEPA TCL SVOCs including TICs using USEPA method 8270;
- NYSDEC CP-51 list SVOCs using USEPA method 8270;
- USEPA TAL metals using USEPA Methods 6010/7470;
- Pesticides using USEPA Method 8081;
- PCBs using USEPA Method 8082; and,
- Cyanide using USEPA Method 9010.

One (1) duplicate and one (1) matrix spike/ matrix spike duplicate (MS/MSD) were also collected for quality assurance/quality control (QA/QC) purposes. Soil samples for VOC analysis were collected using USEPA Method 5035.

Targeted VOCs, SVOCs, pesticides, PCBs and cyanide were either not detected above NYCRR Part 375 Unrestricted Use SCOs or were not detected above laboratory method detection limits (MDLs).

Two (2) metals were detected above NYCRR Part 375 Unrestricted Use SCOs in the sample collected from boring SB-02. Specifically, lead (87.2 mg/Kg) and zinc (109 mg/Kg) exceed or meet their respective Unrestricted Use SCOs; however, both detections are below NYCRR Part 375 Restricted Residential Use and Protection of Groundwater SCOs. Metals were not detected above applicable SCOs in SB-02.

3.2.2 Overburden Groundwater Sample Results

The two (2) soil borings, SB-01 and SB-02, were converted to overburden groundwater monitoring wells. Wells were constructed of 1-inch diameter PVC with 3.6-ft and 4.6-ft, respectively, of 0.010-slot PVC well screen connected to a solid PVC riser. The annulus of each well was sand packed with quartz sand, a bentonite seal was placed above the sand pack to several inches bgs and the wells were finished with flush-mounted curb boxes.

Wells were designated MW-01 (boring SB-01) and MW-02 (boring SB-02).

Samples were collected using low-flow techniques and the following water quality parameters were collected at 5-minute intervals until stabilized within the ranges specified:

- Water level drawdown (<0.3')
- Temperature (+/- 3%)
- pH (+/- 0.1 unit)
- Dissolved oxygen (+/- 10%)
- Specific conductivity (+/- 3%)
- Oxidation reduction potential (+/- 10 millivolts)
- Turbidity (+/- 10%, <50 NTU for metals)

One (1) groundwater sample was collected from each of the two (2) monitoring wells and analyzed for the following parameters as part of the RI:

- USEPA TCL and NYSDEC CP-51 list VOCs including TICs using USEPA Method 8260;
- USEPA TCL SVOCs including TICs using USEPA method 8270;
- NYSDEC CP-51 list SVOCs using USEPA method 8270.
- USEPA TAL metals using USEPA Methods 6010/7470/7471;
- Pesticides using USEPA Method 8081;
- PCBs using USEPA Method 8082; and,
- Cyanide using USEPA Method 9010.

One (1) duplicate and one (1) MS/MSD were collected for QA/QC purposes. One (1) trip blank was submitted with this groundwater sample set for analysis of USEPA TCL and NYSDEC CP-51 VOCs.

Targeted VOCs, SVOCs, pesticides, PCBs and cyanide were either not detected above NYCRR Part 703 Groundwater Standards or were not detected above laboratory MDLs. Select metals were detected in each of the two (2) groundwater samples analyzed for metals above NYCRR Part 703 Groundwater Standards. Metals exceeding Part 703 standards include magnesium, manganese and sodium. Note that these compounds are commonly found at "elevated" concentrations throughout Monroe County and thus their presence may be indicative of regional background concentrations as well as the heavy use of road salt rather than a release at the Site.

3.2.3 Pre-BCP Sump Sample Results

A sump pump in the building's basement was sampled for TCL and CP-51 VOCs as part of a preliminary investigation conducted by the NYSDEC in 2015. The sump sample was collected from the sump in the southern portion of the Site basement and labeled as NC-SUMP-01 (refer to Figure 4). The sample was analyzed for TCL VOCs using USEPA Method 8260. Targeted VOCs were not detected above laboratory MDLs in the sample collected from the sump. Note that this is based on un-validated data obtained from the NYSDEC.

3.2.4 Pre-BCP SVI Results

As summarized in Section 1.3, the NYSDEC collected two (2) collocated sub-slab vapor and indoor air samples from the Site building's basement in November 2015. All samples were collected from the Site building basement; samples from the upper, occupied floors were not collected.

The SVI data identified PCE in sub-slab vapor samples NC-SS-01 and NC-SS-02 at concentrations of 49.0 ug/m^3 and 140 ug/m^3, respectively. PCE was identified in both indoor air samples at concentrations of 170 ug/m^3. Based on applicable NYSDOH guidance documents, these concentrations indicated mitigation of soil vapor intrusion impacts should be completed. As described in Sections 1.3 and 3.4, a SSDS was successfully installed in the Site building as part of an Interim Remedial Action to mitigate the soil vapor intrusion impacts identified by the 2015 sampling. The CCR documenting the system installation has been submitted to the NYSDEC under separate cover.

3.3 *Areas of Concern*

The cumulative findings of the pre-BCP testing and the RI identified the following two (2) AOCs at the Site.

AOC 1: Soil Vapor Impacts*:*
This AOC is associated with the NYSDEC 2015 SVI investigation which identified PCE in sub-slab vapor and indoor air samples at the Site at levels that warrant the mitigation of SVI impacts as directed by the NYSDOH. These impacts appear to be migrating to the Site from the northern adjacent property (former Silver Cleaners; NYSDEC BCP#C828186) and were mitigated as part of a previously completed Interim Remedial Action (refer to Sections 1.3 and 3.4).

AOC#2 – Elevated Metals in Soil in SB-02:
This AOC is associated with the identification of lead and zinc at concentrations that exceed Unrestricted Use SCOS in SB-02. The concentrations do not exceed Restricted Residential SCOs (i.e., the current and intended future use of the Site). Based on the lack of impacts identified that exceed Restricted Residential SCOs and the presence of the building concrete floor slab and/or asphalt pavement over the entire Site, these minor impacts will be adequately addressed by the institutional control (Environmental Easement) restricting the use of the BCP Site to restricted residential, commercial and industrial uses consistent with zoning.

3.4 *Interim Remedial Action*

IRA (Interim Remedial Action): Sub-Slab Depressurization System

The primary objective of this IRA was to mitigate chlorinated VOC impacts identified in SVI samples collected by the NYSDEC in November 2015 from the basement of an occupied building. The building contains multiple tenant spaces that are fully utilized. The SSDS was installed to create negative sub-slab pressure beneath the basement floor slab, thus mitigating soil vapor intrusion issues within these areas of the Site building. The SSDS was installed according to the IRAWP dated October 2017as well as the NYSDOH's *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York* dated October 2006. The SSDS was installed between October 10, 2018 and November 20, 2018. The construction of the SSDS is summarized below:

- Installation of 3 depressurization points (designated DP-01 through DP-03).
- Two of the points (DP-01 and DP-02) were installed vertically into the building floor and the third (DP-03) was installed horizontally through the western wall of the basement into a partial void space which underlies the western-most portion of the buildings first floor.
- Installation of one (1) rooftop fan (Festa Radon Technologites FRT "Force").
- Several cracks in basement floor slab were sealed to prevent loss of vacuum during system operation.
- Pressure field extension (PFE) points were temporarily installed to measure pressure differentials between the sub-slab and ambient air pressure to measure the system influence. Following measurements which indicated the SSDS to be operating properly, these PFE points were sealed with grout.

Full details of the completed SSDS are included in the CCR dated January 2019, submitted under separate cover. The Environmental Easement will require continued use and maintenance of the SSDS.

3.5 *Geology & Hydrology*

The Site is located within a predominantly urban area. According to the 7.5-minute Rochester East, New York quadrangle USGS map, the Site consists of generally level land. The two (2) soil borings (SB-01 and SB-02) advanced at the Site were located in the Site Building basement. The lowest point of the basement is approximately 12-ft. below the surrounding street level. The soil borings were advanced to terminal depths of 3.6 and 4.6-ft. bgs, respectively, where jackhammer boring refusal was encountered due to apparent bedrock. Soils beneath the slab consisted of various fill materials including sand, gravel, and C&D material. Native material was not encountered. Native soils beneath the Site Building sub-slab were most likely removed during the construction of the Site Building.

Determination of Site specific groundwater flow direction typically requires installing at least three (3) groundwater monitoring wells, surveying the wells and collecting groundwater elevation data. Based on the limited RI scope, site size, and well configuration, a groundwater flow study was not completed as part of the RI. According to the USGS map, the nearest water body is the Genesee River, located approximately 930 feet west of the Site. Based on the interpretation of the USGS topographic map and the Generalized Groundwater Contour Map of Monroe County, the groundwater flow at the Site appears to be to the northwest. Hydrologic information provided by the NYSDEC for the northern adjacent property indicates that depth to groundwater is approximately 6-ft. to 9-ft.

below ground surface and that local groundwater flow direction is to the northwest towards the Genesee River.
Sources:

- NYSDEC Former Silver Cleaners Report (245 Andrews Street)
- Leader Confirmatory Phase II ESA (245 Andrews Street)
- New York State Museum
- USGS Quadrangle Mapping
- National Resource Conservation Service Website
- Generalized Groundwater Contour Map of Monroe County dated 1984.

4.0 OBJECTIVE

The objective of this RAA is to identify, evaluate and select remedies to address the contamination identified by the RI, as summarized in the AOC's presented above. As defined in NYSDEC DER-10 (Section 4.0), remedial alternatives will be evaluated based on the following criteria:

1.) Overall Protection of Public Health and the Environment: This criterion evaluates exposure and residual risks to human health and the environment during or subsequent to implementation of the alternative.

2.) Compliance with SCGs: This criterion evaluates whether the remedial alternative will ultimately result in compliance with SCGs, to the extent practicable.

3.) Long-Term Effectiveness and Permanence: This criterion evaluates if the remedy is effective in the long-term after implementation (e.g., potential rebound). In the event that residual impacts will remain as part of the alternative, then the risks and adequacy/reliability of the controls are also evaluated.

4.) Reduction of Toxicity, Mobility, or Volume with Treatment: This criterion evaluates the reduction of contaminant toxicity, mobility or volume as a result of the remedial alternative. In addition, the reversibility of the contaminant destruction or treatment is evaluated.

5.) Short-Term Effectiveness: This criterion evaluates if the remedial alternative protects the community, workers and the environment during implementation.

6.) Implementability: This criterion evaluates the remedial alternative based on its suitability, implementability at the specific site, and availability of services and materials that will be required.

7.) Cost: This criterion evaluates the capital, operation, maintenance, and monitoring costs for the remedial alternative. The estimated costs are presented on a present worth basis.

8.) Land Use: This criterion evaluates of the current, intended and reasonably anticipated futures use of the Site and its surroundings, as it relates to an alternative or remedy, when unrestricted levels would not be achieved. The Land Use Evaluation is included as Appendix A.

9.) Community Acceptance: Any public comments concerns and overall perception are addressed as part of the criteria. The criterion will be evaluated after the public review of the remedy selection process.

10.) Green Remediation: This criterion considers all environmental effects of remedy implementation and incorporates alternatives that minimize the environmental footprint of cleanup actions.

5.0 REMEDIAL ACTION OBJECTIVES

Remedial action objectives (RAOs) are medium-specific objectives for the protection of public health and the environment and are developed based on contaminant-specific standards, criteria, and guidance (SCGs) established by NYSDEC and/or New York State Department of Health (NYSDOH). The following have been defined for this Site based on the current, intended and reasonably anticipated future use of the Site and its surroundings. An assessment of future use was completed based on requirements of Part 375 1.8(f)(9) and is provided in Appendix A.

Soil RAOs

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation exposure to contaminants volatilizing from soil

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in (include all appropriate media: groundwater, surface water, or sediment) contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Groundwater RAOs

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Prevent the discharge of contaminants to surface water (if appropriate add: and sediment).
- Remove the source of ground or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

6.0 DEVELOPMENT OF REMEDIAL ALTERNATIVES

This section develops the remedial alternatives being considered for addressing the Remedial AOCs (RAOCs) identified for the Site. For each RAOC, an alternative that will result in Unresticted Use (Track 1) was evaluated as required by the BCP regulations, as well as an alternative for Track 2. Specifically, the following RAOCs are included in the assessment.

1. RAOC #1 – Soil Vapor Impacts

2. RAOC #2 – Elevated Metals in Soil in SB-02

6.1 *Evaluation of Alternatives*

This alternatives analysis evaluates two (2) remedial alternatives for each RAOC. Since the alternatives are evaluated separately for each RAOC there are some tasks which overlap each analysis (e.g., reporting, etc.). Based on this, the alternatives are evaluated separately initially but the total cost and scope for the selected remedies will be adjusted for the final site wide remedial approach (refer to Section 9.0). The following alternatives were evaluated for use at the Site.

a) Alternative 1: Track 1 Cleanup (Unrestricted Use): This alternative requires that the Site meet Unrestricted Use criteria which would allow for the Site to be used for any purpose without any restrictions. This alternative would require that all soils exceeding SCGs be removed from the Site and that the soil vapor impacts be remediated without the use of long-term (greater than 5 years) institutional or engineering controls.

b) Alternative 2: Track 2 Cleanup (Restricted Use with generic soil cleanup objectives): This alternative would require that the Site meet Restricted Use criteria for a residential Site without the use of long-term engineering controls. Use of long-term institutional or engineering controls can be used to remediate all other media which for this project is soil vapor.

The two (2) abovementioned alternatives were evaluated for each RAOC and are listed below.

1. RAOC #1 – Soil Vapor Impacts

Alternative 1: Elimination of Soil Vapor Intrusion (BCP Track 1): VOCs were detected in indoor air and soil vapor during a pre-BCP investigation that warrant mitigation; however, VOCs were not identified at elevated concentrations in on-Site groundwater and soil. As such, it appears that impacted soil vapor has migrated on-Site from the northern adjacent property (the former dry cleaner with known VOC impacts). The entire Site and surrounding area is covered by asphalt and building footprints. Shallow bedrock may have allowed the contaminants in soil and groundwater from 245 Andrews Street (i.e., former Silver Cleaners, NYSDEC BCP#C828186) to migrate onto the 113-117 North Clinton Avenue Parcel (i.e., the Site) via soil vapor. The soil vapor may be loosely confined between

shallow bedrock and impervious surfaces (i.e., asphalt parking lot, roadway, building slab), facilitating the migration of soil vapor. The historical use of PCE in dry cleaning operations at the northern adjacent property appears to be the source of the PCE found in the indoor air and sub-slab samples collected from the Site. A BCP Track 1 cleanup would require that no long term institutional or engineering controls can be implemented to achieve unrestricted use of the Site. As such, the source of PCE in the soil vapor cannot be prevented by any remediation at the Site. Preventing VOCs in soil vapor on the Site would require the northern adjacent property, the source of VOCs, to be remediated. Under this alternative, the currently active SSDS installed as part of the IRA would be considered a long-term engineering control and any other form of control to prevent reoccurring contamination of soil vapor would require some type engineering or institutional control. The length of time these controls would be needed would be directly dependent on when impacts at the northern adjacent property are addressed. As such, the Track 1 alternative for RAOC #1 would not be technically feasible.

Alternative 2: On-Site Management (BCP Track 2): Under this restricted-use alternative, an Environmental Easement and development of a Site Management Plan (SMP) would be implemented to control future Site use and protect against human exposure to soil vapor intrusion in the current or future Site buildings. This would include continued operation of the SSDS in the current Site building that was installed as part of the Interim Remedial Action and detailed in the previously submitted CCR. The SMP would include an operation and maintenance plan for the SSDS.

2. RAOC #2 – Elevated Metals in Soil in SB-02

Alternative 1: Remedial Excavation (BCP Track 1): This alternative would consist of excavation of soils that exceed Unrestricted Use SCOs. The RI identified one location (that were not naturally occurring) of soils below the floor slab to 3.6-ft bgs in which zinc and lead were detected at or above Unrestricted Use SCOs. To the extent that the contaminants in this soil are due to natural conditions or are widespread regionally and not attributable to the BCP Site, no action is required. If due to some prior use of the Site, this material would be excavated and disposed of off-Site at a NYSDEC Part 360 permitted landfill and this alternative would require the following actions:

- Saw cutting a 5-ft by 5-ft area of the basement floor slab.
- Excavation and off-site disposal of approximately 3 yd^3 of impacted material.
- Importation of approximately 3 yd^3 of material that meets NYSDEC DER-10 importation requirements and proper backfill and compaction of this material.
- Re-pouring of the concrete slab in this area.

Although a Track 1 cleanup appears feasible for this specific RAOC, the Track 1 alternative for soil vapor impacts at the Site (RAOC #1) is technically infeasible. Therefore, even though achieving BCP Track 1 cleanup levels for soils at the Site would be possible (if elevated concentrations of the contaminants were not naturally occurring), the Site would still not meet BCP Track 1 as a whole.

Alternative 2: On-Site Management (BCP Track 2 – Restricted Use Cleanup, Restricted Residential): Under this restricted-use alternative, an Environmental Easement and development of a SMP including an Excavation Work Plan (EWP) and a Health and Safety Plan (HASP) would be implemented to control future Site use and protect against human exposure to soil remaining on-Site

that contained contaminants above the Unrestricted Use SCO but below the Restricted Residential Use SCO.

7.0 ANALYSIS OF ALTERNATIVES

Remedial alternatives detailed in Section 6.0 were evaluated based on the criteria listed in Section 4.0 with the exception of community acceptance which cannot be evaluated prior to initiating a public comment period. Note that although the SCGs determined in the RI report indicated Unrestricted Use and Protection of Groundwater SCOs are applicable, it is anticipated that the current and future use of the Site will be consistent with Restricted Residential Use.

7.1 *RAOC #1: Soil Vapor Impacts*

Alternative 1 – Elimination of Soil Vapor Intrusion (BCP Track 1)

In order to prevent soil vapor intrusion into the on-Site building without the use of engineering and institutional controls for completely unrestricted use of the Site, the northern adjacent property would need to be remediated to a level that would prevent soil vapor migration to the Site. Such a remedy is out of the control of the Volunteer and therefore cannot be compared to criteria for evaluating alternatives.

Estimated Capital Cost ..... NA
Estimated Annual Cost (Year 1-30) ..... NA
Estimated Total Present Worth Cost ..... NA

Alternative 2 – On-Site Management (BCP Track 2)

Alternative 2 includes the on-Site management of soil vapor impacts. ICs and ECs would be implemented for the Site to manage these impacts as part of this Alternative. The SSDS (an engineering control) would run indefinitely or until the source of VOCs in the soil vapor phase migrating to the Site and entering the indoor air is remediated.

This alternative will be protective to human health and the environment because the SMP would require the operation and maintenance of the currently active SSDS, thus eliminating soil vapor intrusion of VOCs exceeding the NYSDOH Guidance. This alternative will meet SCGs in the indoor air of the Site building. The alternative would not reduce the toxicity, mobility, or volume of impacted soil vapor at the Site (i.e., below the floor slab), although any impacts in the building would be addressed by this alternative. In the short-term and long-term, this alternative would be effective because the ICs and ECs identified in the SMP would require operation and maintenance of the SSDS. This alternative would be easily implemented (the SSDS has already been installed), cost-effective, and consistent with the future land use (i.e., Restricted Residential). This alternative would be “green” due to the limited resources required, although electricity to run the fans for the SSDS will be required.

The cost for this alternative is summarized below. A detailed cost summary is included in Table 1.

Estimated Capital Cost	$2,600
Estimated Annual Cost (Year 1-30)	$4,000
Estimated Total Present Worth Cost	$71,768

7.2 *RAOC #2: Elevated Metals in Soil in SB-02*

Alternative 1: Remedial Excavation (BCP Track 1)

Alternative 1 would include excavation of all subsurface soils that exceed Unrestricted Use SCOs and backfilling the excavation with material that meets DER-10 requirements for importation. An approximately 25-sq ft area would be saw cut in the basement floor slab in the vicinity of SB-02 and soil would be excavated to top of bedrock (approximately 3.6-ft bgs). Excavated soils would be disposed of at a NYSDEC Approved Part 360 Landfill. Backfill material would be imported, placed in the excavation and compacted and the concrete floor slab would be restored.

This alternative would be protective of human health because subsurface soil impacts will be removed from the Site, thus reducing potential for exposure during any future subsurface work in this area. SCGs will be met with this alternative as soil concentrations will meet Unrestricted Use SCOs. On-site toxicity, mobility, and volumes of contaminated subsurface soil will be reduced because impacted soil will be removed from the Site. In the short-term and long-term, this alternative will be effective by removing impacted soil. This alternative would be moderately difficult to implement and not cost effective because the AOC is located in the basement of the Site building, beneath the existing concrete floor slab. The alternative would be consistent with land use as it will meet Unrestricted Use criteria (the intended continued land use for this Site is Restricted Residential). This alternative is not considered “green” due to the contribution of impacted soil to the landfill and trucking to haul soils to the landfill.

The cost for this alternative is summarized below. A detailed cost summary is included in Table 2.

Estimated Capital Cost	$35,956
Estimated Annual Cost (Year 1-30)	$0
Estimated Total Present Worth Cost	$35,956

Alternative 2: On-Site Management (BCP Track 2 – Restricted Use Cleanup, Restricted Residential)

Alternative 2 would consist of on-Site management of subsurface soil impacts in accordance with an SMP. The SMP would detail ICs and ECs. The SMP will also require proper screening and management of subsurface soils during ground intrusive work that may disturb impacted subsurface soil. Specific details for subsurface soils management will be outlined in the SMP.

This alternative would be protective of human health and the environment, because the SMP would require proper screening and management of soils during any future ground intrusive work. On-Site management would meet all SCGs because contaminants of concern in soils are already below Restricted Residential Use criteria. This alternative would not reduce toxicity, mobility or volume of

impacted soil. In the short-term and long-term, this alternative would be effective because the ICs and ECs detailed in the SMP would limit exposure to contaminants. This alternative would be easily implemented, cost effective, and consistent with future land use (Restricted Residential). This alternative would be "green" due to limited use of resources and thus limited harm to the environment.

The cost for this alternative based on the assumed areas is summarized below. A detailed cost summary is included in Table 3.

Estimated Capital Cost $2,600
Estimated Annual Cost (Year 1-30) $60,522
Estimated Total Present Worth Cost $63,122

8.0 COMPARATIVE EVALUATION OF ALTERNATIVE AND RECOMMENDED ACTIONS

The following table compares the remedial alternatives proposed for each RAOC and presents the recommended action for each RAOC. The total estimated cost for the proposed alternatives is included in Table 4.

	Protection of Human Health & the Environment	Compliance with SCGs	Reduction of Toxicity, Mobility or Volume	Short-Term Effectiveness	Long-Term Effectiveness	Ease of Implementation	Cost Effective	Appropriate based on Future Anticipated Land Use	Green
RAOC #1: Soil Vapor Impacts									
Alternative 1: Elimination of SVI	NA	NA	NA	NA	NA	NA	NA	NA	NA
Alternative 2: On-Site Management	X	X		X	X	X	X	X	X
RAOC #2: Elevated Metals in Soil in SB-02									
Alternative 1: Remedial Excavation	X	X	X	X	X			X	
Alternative 2: On-Site Management	X	X		X	X	X	X	X	X

Note that the "community acceptance" criterion cannot be assessed at this time but will be evaluated after the public review of the remedy selection process.

The recommended alternative for both RAOC #1 and RAOC #2 is Alternative 2: On-Site Management. These alternatives represent a Track 2, restricted use with generic SCOs remedy.

Refer to Section 9.0 for additional information regarding this recommendation.

9.0 RECOMMENDED REMEDIAL ALTERNATIVES

Based on the results of the investigations at the Site, a Track 2, restricted use with generic SCOs remedy, is proposed for the Site. Alternatives 2 for both RAOCs represent the Track 2 cleanup. The proposed remedy consists of institutional and engineering controls (the SSDS) and on-site management of the impacted soils beneath the building floor slab.

RAOC #1 – Soil Vapor Impacts

An SSDS is already installed at the property to prevent soil vapor intrusion from impacting indoor air in the Site building. On-site management of this SSDS is recommended for this RAOC. Based on the investigations completed on-Site and the known PCE impacts on the northern adjacent property, there does not appear to be an on-Site source of PCE. The SSDS is an engineering control put in place to prevent VOC-containing vapors from entering the building by infiltrating the floor slab. An SMP would include institutional controls which require the Site to maintain and operate the SSDS while there are impacts to soil vapor present and while the building is occupied. Institutional controls would also limit future use of the Site to Restricted Residential, Commercial or Industrial uses. An operation and maintenance plan for the SSDS will also be included in the SMP.

RAOC #2 – Elevated Metals in Soil in SB-02

Metals impacts in soil are already below Restricted-Residential Use and covered with the concrete floor slab of the Site building. The building floor slab acts as a cover system at the Site. Soils will be managed according to an SMP which will include an excavation work plan for use if ground intrusive work will occur. Institutional controls would also limit future use of the Site to Restricted Residential, Commercial or Industrial uses.

The elements of the remedy are summarized in Sections 9.1, 9.2 and 9.3.

9.1 *Engineering Controls*

Sub-slab depressurization system

A SSDS was installed as part of the Interim Remedial Action to mitigate soil vapor intrusion into the Site building (refer to Sections 1.3 and 3.4). Operation and maintenance requirements for this system will be specified in the SMP.

9.2 *Institutional Controls*

An environmental easement will be implemented that includes the following ICs:

- The property may be used for restricted residential use;
- All ECs must be operated and maintained as specified in the SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP.
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in the SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with the SMP;
- Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.
- Vegetable gardens and farming on the site are prohibited; and

- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP.

9.3 *Site Management Plan*

A SMP is required which includes the following:

a) An Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the Site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

   Institutional Controls: The Environmental Easement discussed above in 9.2.

   Engineering Controls: The SSDS previously installed as the Interim Remedial Action.

   The SMP includes, but may not be limited to:

   - an Excavation Work Plan which details the provisions for management of future excavations in areas of remaining contamination that addresses soil/fill and any groundwater that may be encountered;
   - descriptions of the provisions of the environmental easement including any land use, and groundwater use restrictions;
   - provisions for the management and inspection of identified engineering controls;
   - maintaining site access controls and Department notification; and
   - steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b) A monitoring plan to assess the performance and effectiveness of the remedy. The plan will include, but may not be limited to:

   - A schedule of performance monitoring/inspections and frequency of submittals to the Department; and,
   - Because an engineering evaluation of monitoring or operational data is not necessary and there will not be a reevaluation of design parameters, the periodic review report certification may be signed by a qualified environmental professional (QEP).

10.0 DELIVERABLES

A SMP will be developed, as discussed in Section 9.3. Additional work beyond what has already been documented in the previously submitted CCR will not be required to implement the remedy. As such, a Final Engineering Report (FER) will not be submitted.

FIGURES

Legend

BCP Boundary/Site Tax Parcel

SITE

ROCHESTER

RIVER

Notes:
1) Tax parcel data obtained from City of Rochester Real Property.
2) Topographic map obtained from USGS.

Document Path: I:\Clinton North Development Corp\2161120 - BCP Application - 113-117 N. Clinton Avenue, Rochester, NY\Drawings\RAA\Figure 1 - Site Location.mxd

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Feet

1 inch = 1,000 feet

INTENDED TO PRINT AS 11" X 17".

BROWNFIELD CLEANUP PROGAM
SITE #C828195

REMEDIAL ALTERNATIVES ANALYSIS

113-117 NORTH CLINTON AVENUE, ROCHESTER NEW YORK

VOLUNTEER: CLINTON NORTH DEVELOPMENT CO.

DRAWING NAME:

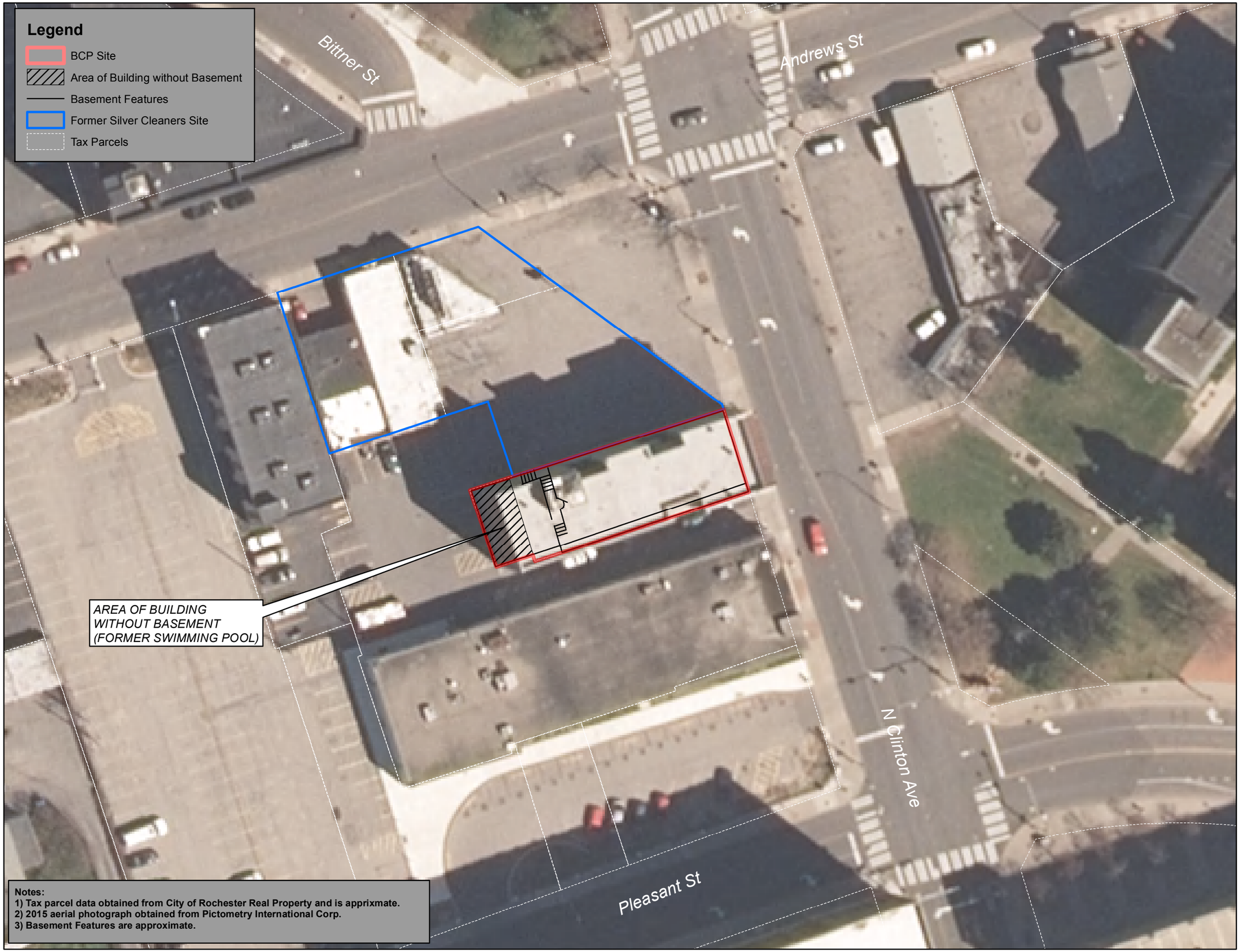
SITE LOCATION MAP

PROJECT/DRAWING NUMBER:

2161120

FIGURE 1

4/8/2019



Notes:
1) Tax parcel data obtained from City of Rochester Real Property and is apprixmate.
2) 2015 aerial photograph obtained from Pictometry International Corp.
3) Basement Features are approximate.

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1 inch = 40 feet

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BROWNFIELD CLEANUP PROGAM
SITE #C828195

REMEDIAL ALTERNATIVES ANALYSIS

113-117 NORTH CLINTON AVENUE, ROCHESTER NEW YORK

VOLUNTEER: CLINTON NORTH DEVELOPMENT CO.

DRAWING NAME:

SITE FEATURES

PROJECT/DRAWING NUMBER:

2161120

FIGURE 2

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1 inch = 20 feet

INTENDED TO PRINT AS 11" X 17".

BROWNFIELD CLEANUP PROGAM
SITE #C828195

REMEDIAL ALTERNATIVES ANALYSIS

113-117 NORTH CLINTON AVENUE, ROCHESTER NEW YORK

VOLUNTEER: CLINTON NORTH DEVELOPMENT CO.

DRAWING NAME:

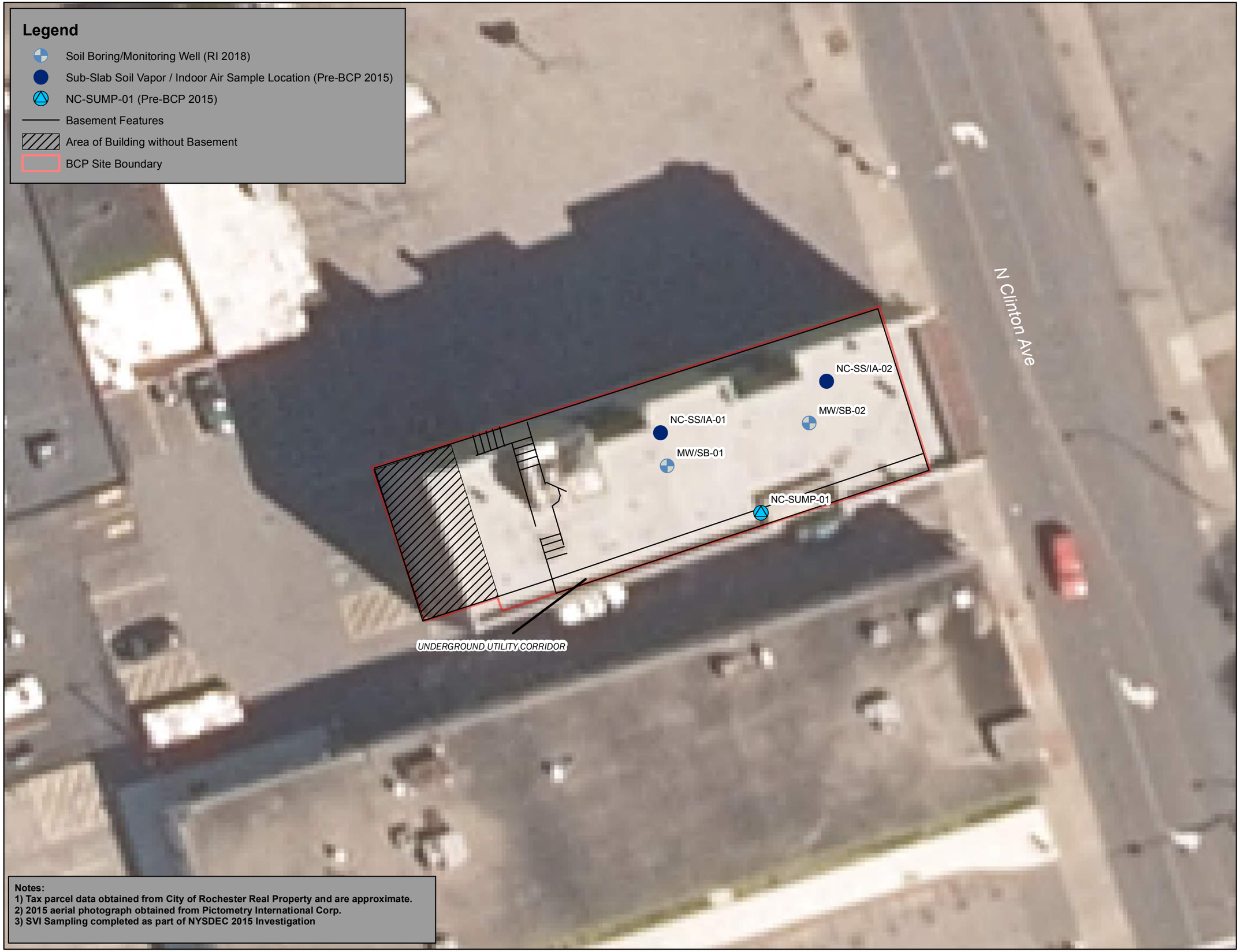
AREAS OF CONCERN

PROJECT/DRAWING NUMBER:

2161120

FIGURE 3

Document Path: I:\Clinton North Development Corp\2161120 - BCP Application - 113-117 N. Clinton Avenue, Rochester, NY\Drawings\RAA\Figure 3 - Areas of concern.mxd



Notes:
1) Tax parcel data obtained from City of Rochester Real Property and are approximate.
2) 2015 aerial photograph obtained from Pictometry International Corp.
3) SVI Sampling completed as part of NYSDEC 2015 Investigation

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1 inch = 20 feet

INTENDED TO PRINT AS 11" X 17".

BROWNFIELD CLEANUP PROGAM
SITE #C828195

REMEDIAL ALTERNATIVES ANALYSIS

113-117 NORTH CLINTON AVENUE, ROCHESTER NEW YORK

VOLUNTEER: CLINTON NORTH DEVELOPMENT CO.

DRAWING NAME:

INVESTIGATION LOCATIONS

PROJECT/DRAWING NUMBER:

2161120

FIGURE 4

Document Path: I:\Clinton North Development Corp\2161120 - BCP Application - 113-117 N. Clinton Avenue, Rochester, NY\Drawings\RAA\Figure 4 RI Testing Locations.mxd

TABLES

Table 1
113-117 North Clinton Avenue BCP# C828159
RAOC #1- Soil Vapor Impacts
Alternative 2- On-Site Management (Track 2)

Capital Cost		Annual Cost	Present Worth
Reporting			
	Site Management Plan	-	$ 2,600
	Total Capital Cost		**$ 2,600**

Operation and Maintenance		Annual Cost	Present Worth
SSDS Annual Inspection		$ 1,000	
SSDS Operation and Maintenance		$ 500	
Reporting		$ 2,500	
	Total Annual Cost Years 1-30	**$ 4,000**	**$ 69,168**
	Total Estimated Present Worth Cost		**$ 71,768**

Assumptions:

Present worth analysis based on 4% interest rate over estimated project timeframe.

SSDS fan will need to be replaced on average every five (5) years.

Table 2
113-117 North Clinton Avenue BCP# C828159
RAOC #2- Elevated Metals in Soil in SB-02
Alternative 1- Remedial Excavation (Track 1)

Capital Cost		Annual Cost	Present Worth
Reporting			
	Remedial Action Work Plan	-	$ 2,500
	Site Management Plan	-	$ 2,600
	Final Engineering Report	-	$ 5,000
	Meetings and Project Management	-	$ 2,500
Subcontractor Fees			
	Mob/Demob	-	$ 500
	Equipment and labor (excavation, restoration)	-	$ 5,000
	Transportation and disposal of non-hazardous material	-	$ 3,200
	Imported Stone Backfill	-	$ 1,000
	Concrete Restoration	-	$ 1,000
	Tax (8%)	-	$ 856
Professional Services			
	Coordination	-	$ 1,000
	Field Oversight and Air Monitoring	-	$ 3,000
	Monitoring Equipment	-	$ 1,400
Analytical			
	Waste Characterization	-	$ 500
	Documentation Sampling	-	$ 460
	DUSR/EDD	-	$ 750
	Contingency (15%)		$ 4,689.90
	Total Capital Cost		**$ 35,956**

Operation and Maintenance		Annual Cost	Present Worth
		$ -	-
	Total Estimated Present Worth Cost		**$ 35,956**

Assumptions:

Present worth analysis based on 4% interest rate over estimated project timeframe.

Additional remedial excavation not required.

Cost based on estimated removal of 3.33 cybic yards (5.3 tons) of non-hazardous material.

Table 3
113-117 North Clinton Avenue BCP# C828159
RAOC #2- Elevated Metals in Soil in SB-02
Alternative 2- On-Site Management (Track 2)

Capital Cost		Annual Cost	Present Worth
Reporting			
Site Management Plan		-	$ 2,600
	Total Capital Cost		**$ 2,600**
Operation and Maintenance		Annual Cost	Present Worth
Annual Inspection		$ 1,000	
Reporting		$ 2,500	
	Total Annual Cost Years 1-30	**$ 3,500**	**$ 60,522**
	Total Estimated Present Worth Cost		**$ 63,122**

Assumptions:
Present worth analysis based on 4% interest rate over estimated project timeframe.

Table 4
113-117 North Clinton Avenue BCP# C828159
Total Estimated Costs for Recommended Remedy
Track 2

Capital Cost	Annual Cost	Present Worth
Reporting		
Site Management Plan	-	$ 2,600
Total Capital Cost		**$ 2,600**

Operation and Maintenance	Annual Cost	Present Worth
Annual Inspections	$ 1,000	
Operation and Maintenance	$ 500	
Reporting	$ 2,500	
Total Annual Cost Years 1-30	**$ 4,000**	**$ 69,168**
Total Estimated Present Worth Cost		**$ 71,768**

Assumptions:
Present worth analysis based on 4% interest rate over estimated project timeframe.
SSDS fan will need to be replaced on average every five (5) years.

APPENDIX 1:
Land Use Evaluation

APPENDIX A

LAND USE EVALUATION

The below reasonably anticipated future land use evaluation has been completed for the Site based on the 16 consideration criteria identified in the DER-10 Technical Guidance for Site Investigation and Remediation. These criteria and how they apply to the Site are summarized below.

1. *Current use and historical and/or recent development patterns:* The Project Site is currently utilized for residential (i.e., a boarding house) and commercial purposes. Commercial uses are primarily limited to the ground floor. The Site is zoned as the City of Rochester "Center City District" (CCD). Surrounding properties are also zoned CCD and are utilized for a combination of residential and/or commercial purposes or are unoccupied. According to the City of Rochester Zoning Code, "The CCD is intended to foster a vibrant, safe, twenty-four-hour Center City by encouraging residential development while retaining and further developing a broad range of commercial, office, institutional, public, cultural and entertainment uses and activities. The regulations are intended to define and promote the Center City as the anchor for the region and as a desirable place to live, work and recreate." This definition appears to be consistent with the current, historical and reasonably anticipated future use of the Site for residential and commercial purposes.

2. *Applicable zoning laws:* The Site's current and reasonably anticipated future usage is intended to remain the same and is consistent with applicable zoning laws.

3. *Brownfield Opportunity Areas:* The Site is not currently located within a BOA.

4. *Consistency of proposed use with applicable land-use plans formally adopted by a municipality:* The Site's current and reasonably anticipated future usage is consistent with the City of Rochester Center City 2014 Master Plan. For instance, the plan calls for buildings in the vicinity of Main Street (i.e., the Project Site) which are "vacant, deteriorating, or underutilized [to be] renovated and reoccupied." The plan also calls for ground floor retail development in this area to create a critical mass of street-based retail.

5. *Proximity to real property currently utilized for residential use and to urban, commercial, industrial, agricultural and recreational areas:* The Site itself and adjacent properties are currently being utilized for residential and commercial purposes. The Site is located in the center of the City of Rochester and the nearest agricultural land is over 5-miles from the Site. The Genesee River is located approximately 1,000-feet to the west of the Site. The current and reasonably anticipated future usage of the Site is not anticipated to have any new effect on other land uses or areas.

6. *Any written or oral comments submitted by members of the public on the proposed use as part of citizen participation activities*: No comments have been received as part of citizen participation activities.

7. *Environmental justice concerns*: The Site usage is intended to remain the same and currently serves low-income communities.

8. *Federal or state land-use designations:* The Site is designated as Urban Land by the U.S. Department of Agriculture, Monroe County Soil Survey obtained from the Natural Resource

Conservation Service (NRCS) website. Reuse in a restricted capacity (consistent with the reasonably anticipated future use of the Site) is typical in urban areas where background conditions sometimes preclude achieving unrestricted use SCOs.

9. *Population growth patterns and projections*:

The Site is currently utilized for residential and commercial purposes and these uses are not intended to change. As such, future use of the Site for restricted residential purposes is not anticipated to disrupt population growth patterns or projections.

10. *Accessibility to existing infrastructure*: The Site is located in an urban area and surrounded by numerous utilities (gas, electric, sewer, water, etc.). In addition, the Site is already tied into these utilities. As such, the existing infrastructure appears to be more than adequate to support the intended continued use of the Site for restricted residential and commercial purposes.

11. *Proximity of the Site to important cultural resources*: Based on a review of the New York State Historic Preservation Office's (SHPO) Cultural Resource Information System (CRIS), the entire Site is located within an Archeologically Sensitive Area. However, the Site is already heavily developed and has been since the 1920's. As such, the reasonably anticipated future use of the Site is unlikely to affect important cultural resources.

12. *Proximity of Site to important federal, state or local natural resources*: The Genesee River is located approximately 1,000-feet to the west of the Site. No other natural resources including wildlife refuges, wetlands, or critical habitats of endangered or threatened species are known to exist in the vicinity. As such, the reasonably anticipated future use of the Site is unlikely to affect any important federal, state or local natural resources.

13. *Potential vulnerability of groundwater contamination that might migrate from the Site:* Groundwater contamination has not been identified at the Site. In addition, according to the Monroe County Water Authority, drinking water in Monroe County is mainly supplied from Lake Ontario, with contributions from Canadice Lake and Hemlock Lake. Furthermore, private drinking water wells are banned in the City of Rochester. As such, the anticipated cleanup to restricted use conditions does not pose a drinking water threat.

14. *Proximity to floodplains:* Floodplains are not present at the Site. As such, the anticipated cleanup to restricted use conditions does not pose a threat to surface waters.

15. *Geography and Geology*: The Site is located in an urban area and has been developed with the current building since the 1920s. According to information obtained from the National Resource Conservation Service (NRCS) website, soils at the Site consist mainly of urban land. Soils observed beneath the building floor slab during the RI consisted of various fill materials including sand, gravel and construction & demolition debris. Native materials were not encountered. Based on information obtained from the New York State Museum, bedrock beneath the Site appears to consist of Guelph Dolostone from the Upper Silurian. Based on information from the United States Geologic Survey, this rock is reported to generally consist of medium-gray to dark gray, light-gray to tan weathering, laminated, fine-grained, commonly oolitic dolomite. During the RI, bedrock was encountered

between 3.6-ft and 4.6-ft below the basement floor slab, or approximately 18.6-ft to 19.6-ft below ground surface.

16. *Current institutional controls applicable to the Site*: Institutional controls are currently not in place at the Site.

Based on the above evaluation of the current, intended and reasonably anticipated future use of the Site and surrounding area, a cleanup to restricted residential use standards does not appear to pose additional environmental or human health risks.