BENCHMARK
ENVIRONMENTAL
ENGINEERING &
SCIENCE, PLLC

March 26, 2014

Mr. Anthony Lopes, P.E.
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 9
270 Michigan Avenue
Buffalo, New York 14203-2999

Re: Final RI/IRM/AA Report
154 South Ogden Street Site (BCP Site No. C915268)
Buffalo, New York

Dear Mr. Lopes:

On behalf of our client, 154 South Ogden, LLC, Benchmark Environmental Engineering & Science, PLLC has prepared the enclosed Remedial Investigation/Interim Remedial Measures/Alternatives Analysis (RI/IRM/AA) Report for your review and approval. A complete electronic copy of the Report is included on the CD in Appendix F of the hard copy. In addition, one hard copy (with electronic version on CD) will be placed at the Lafayette Square and the East Clinton Branches of the Buffalo & Erie County Public Library system for public review.

Please do not hesitate to contact me with any questions.

Sincerely,
TurnKey Environmental Restoration, LLC

Bryan Hann
Project Manager

c: J. Neimeier (154 South Ogden, LLC)
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File: 0249-012-005

Remedial Investigation/ Interim Remedial Measures/ Alternatives Analysis Report

154 South Ogden Street Site
BCP Site No. C915268
Buffalo, New York

December 2013
Revised March 2014

0249-012-005

Prepared For:

154 South Ogden, LLC

Prepared By:

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REMEDIAL INVESTIGATION/ INTERIM REMEDIAL MEASURES/ ALTERNATIVES ANALYSIS REPORT

154 SOUTH OGDEN STREET SITE
BCP SITE NO. C915268
BUFFALO, NEW YORK

April 2013 0249-012-005
Revised March 2014

Prepared for:

154 South Ogden, LLC

Prepared by:

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RI/IRM/AA REPORT
154 SOUTH OGDEN STREET SITE
BCP SITE NO. C915268

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RI/IRM/AA REPORT
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BCP SITE NO. C915268

Certification

I, Thomas H. Forbes, certify that I am currently a NYS registered Professional Engineer as defined in 6 NYCRR Part 375 and that this RI/IRM/AA Report 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 plan and any DER-approved modifications.

_____

Signature of Environmental Professional

Seal

1.0 INTRODUCTION

154 South Ogden, LLC has elected to pursue cleanup and redevelopment of the 154 South Ogden Street Site under the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program. 154 South Ogden Street, LLC was accepted into the BCP as a "Volunteer" and entered into a Brownfield Cleanup Agreement (BCA) with NYSDEC on November 13, 2012 (BCP Site No. C915268).

1.1 Purpose and Scope

This Remedial Investigation/Interim Remedial Measures/Alternatives Analysis (RI/IRM/AA) Report has been prepared by Benchmark Environmental Engineering and Science, PLLC (Benchmark), in association with TurnKey Environmental Restoration, LLC (TurnKey), on behalf of 154 South Ogden Street, LLC to present historic and recent RI findings, describe environmental conditions across the Site, summarize IRM activities, and evaluate remedial alternatives for the Site.

This RI/IRM/AA Report contains the following sections.

- Sections 1.2 and 1.3 present a description of the Site and summarizes the Site's environmental history.
- Section 2.0 presents a discussion of the RI sampling and methodology.
- Section 3.0 describes the Site's natural physical characteristics and remaining infrastructure.
- Section 4.0 presents the RI findings.
- Section 5.0 presents the Supplemental RI findings.
- Section 6.0 summarizes the IRM activities.
- Section 7.0 describes potential chemical constituent migration pathways.
- Section 8.0 provides a qualitative human health exposure assessment, and fish and wildlife resources impact assessment.
- Section 9.0 develops remedial action objectives; evaluates the future use of the Site; develops and screens remedial alternatives; and presents the preferred remedial alternative for the Site.
- Section 10.0 describes the final remedial measures for the Site.
- Section 11.0 identifies post-remedial requirements that will be followed to assure the efficacy of the remedy.

- Section 12.0 lists the cited references.

1.2 Site Description

The BCP Site is comprised of an approximate 21-acre portion of a greater 26.6-acre parcel located on South Ogden Street in the City of Buffalo, New York (see Figures 1 and 2). The Site is currently vacant and, as evidenced by a 1927 aerial photograph and the USDA Erie County Soil Map, was formerly traversed by the Buffalo River. Figures 2 and 3 present the approximate former location of the River presented by these referenced sources. In addition, Figure 3 presents an earlier approximate former River location based on the October 2011 Bissell Stone Survey, which portrays the surveyed River location (pre-1900) in a slightly different configuration across the Site. Both former River locations are shown for completeness. The stretch of the Buffalo River along the northern boundary of the Site was ultimately modified to its current configuration by the U.S. Army Corp. of Engineers (USACE) sometime in the 1930's or 1940's.

1.3 Site Environmental History

Previous environmental investigations completed at the Site have revealed evidence of elevated photoionization detector (PID) readings and volatile organic compounds (VOCs) associated with an apparent historic petroleum release, and the presence of fill material containing semi-volatile organic compounds (SVOCs), primarily polycyclic aromatic hydrocarbons (PAHs), and select heavy metals. A NYSDEC Spill file (No. 1112887) is currently open for the Site due to the previously-discovered petroleum impacted soils: however, this spill number will be administratively closed with remediation of the Site under the BCP. The following assessments and investigations have been completed on the Site and are included in Appendix A.

1.3.1 July 2011 – Phase I Environmental Site Assessment

LCS, Inc. completed a Preliminary Environmental Site Assessment (ESA) for the Site (Ref. 1). The Phase I ESA identified the following recognized environmental conditions:

- Railroad tracks located adjacent to and west of the Site
- Multiple debris piles dumped on-site.

1.3.2 December 2011 - Geotechnical Report and Test Pit Investigation

EmpireGeo Services, Inc. completed a subsurface geotechnical and test pit investigation of the Site from November 30 to December 2, 2011 (Ref. 2). The geotechnical investigation included the advancement of 6 geotechnical borings, 10 soil borings, and 22 test pits. The three phase investigation noted fill material, some of an industrial nature, ranging in depth from 3.5 to 23.5 feet below ground surface (fbgs). The report noted elevated PID readings, petroleum-like odors, and black sandy material. Analytical results from two soil/fill samples indicated the presence of select heavy metal concentrations exceeding 6NYCRR Part 375 Industrial Soil Cleanup Objectives (SCOs), as well as elevated VOCs and SVOCs.

1.3.3 March 2012 - Supplemental Phase II Site Investigation Report

Benchmark completed a Supplemental Phase II Site Investigation of the Site from February 7 to 9, 2012 (Ref. 3). The investigation included excavation of 20 test pits (TP-1-2012 through TP-20-2012) and installation of three temporary groundwater wells (TW-01 through TW-03) from soil borings SB-1, SB-2, and SB-4. Phase II Investigation locations are summarized on Table 1 and shown on Figure 3. Soil boring SB-4 was converted to temporary well TW-03 for the purposes of characterizing the groundwater within the apparent petroleum-impacted Area of Concern (AOC). Subsequently, five additional boreholes, designated as SB-3 and SB-5 through SB-8, were completed in the vicinity of SB-4 in order to delineate the horizontal and vertical extents of these petroleum impacts. Soil/fill samples collected from 10 of the 20 test pits were analyzed for VOCs, SVOCs, metals, and polychlorinated biphenyls (PCBs).

The results of the Phase II Site Investigation indicated that on-site soil/fill contains elevated levels of SVOCs (primarily PAHs) and select heavy metals. No PCBs were detected in Site soil/fill. VOC concentrations above the NYSDEC Class "GA" Groundwater Quality Standards and Guidance Values (GWQSs/GVs) (Ref. 4) were detected in samples collected from temporary well locations TW-02 and TW-03. During the investigation, petroleum-impacted soils were encountered necessitating a call to the NYSDEC Spills Hotline and subsequent opening of Spill File No. 1112887 for the Site. Appendix A includes tables summarizing the results of the soil/fill and groundwater sampling. Appendix B includes soil boring logs, and Appendix C includes well completion logs for this investigation. The

Supplemental Phase II Investigation Report was submitted to the NYSDEC under separate cover dated March 2012.

1.3.4 May 2012 – Geotechnical Evaluation Report

EmpireGeo Services, Inc. completed a subsurface geotechnical evaluation of the Site between April 25 and May 4, 2012 (Ref. 5). The geotechnical site evaluation included the advancement of 22 geotechnical borings, identified as B-1 through B-22 and one groundwater observation well completed in test boring B-1. Nine borings (B-1 thru B-9) were advanced within the area of the proposed school building through the unconsolidated overburden into the bedrock approximately 5 feet. Auger refusal (or assumed top of bedrock) ranged between 43.3 and 50.0 fbgs. Top of bedrock elevations ranged from 538.6 feet above mean sea level (fmsl) at boring B-3 to 545.2 fmsl at boring B-9. The remaining 13 borings (B-10 thru B-22) were advanced through fill and native overburden to depths between 10 and 18 fbgs. The groundwater observation well was installed at boring B-1 to confirm depth to shallow groundwater at the Site.

Unconsolidated overburden at the Site, in order of depth from ground surface, included: topsoil; miscellaneous fill soils; native soil consisting predominantly of sand, gravel, silty clay, and clayey silt; and Onondaga Limestone bedrock. Fill soils were typically present at 21 of the 22 borings between approximately 6 and 18 fbgs. Fill soils were identified at 2 fbgs at boring B-19. Native soils were described as medium to very soft consistency clay deposits and loose to very loose sand and gravel deposits. The upper portion of native soils contained organic silt and clayey silt soils with seams of peat (i.e., organic alluvial sediments).

Static shallow groundwater was observed at approximately 13.9 fbgs (or an elevation of 573.6 fmsl) on May 18, 2012. The Buffalo River measured 571.0 fmsl on that same day.

The report recommended a deep foundation system (e.g., driven piles) bearing on the Limestone bedrock instead of a conventional spread foundation system to support the foundation system for the school building structure due to the presence of fill, soft/loose, and organic soils. No environmental analysis was performed.

1.4 Primary Constituents of Potential Concern (COPCs)

Based on the findings described above, the Constituents of Potential Concern (COPCs) for the Site by media were:

- ***Surface Soil/Fill:*** SVOCs (PAHs), RCRA metals
- ***Subsurface Soil/Fill:*** Organics (elevated PID), SVOCs (PAHs), RCRA metals
- ***Groundwater:*** VOCs, SVOCs (PAHs), RCRA metals

1.5 Summary of Field Work Activities

Field activities performed to complete the work described herein were conducted by Benchmark in accordance with the approved RI Work Plan (Ref. 6). Field activities included an initial RI followed by five Supplemental Remedial Investigations (SRIs) (two soil/fill and three groundwater), and an IRM composed of nine AOCs. Expediting the completion of the IRMs was necessary in order to comply with the aggressive redevelopment schedule established for this project and a September 2014 completion date. The details of each work element are presented in this report.

2.0 SITE PHYSICAL CHARACTERISTICS

2.1 Site Topography and Drainage

At the time RI, SRI, and IRM field activities were undertaken, the surface of the Site was characterized as undulating with depression areas and apparent historical dumping areas. The lowest depression of up to 10 feet below surrounding grade occurred in the central portion of the Site. Multiple debris piles were also present on-site. The Site is currently vacant, and precipitation was observed to temporarily accumulate in depression areas of the Site prior to infiltration.

A portion of the redevelopment included the installation of a storm water management system, which incorporates an interconnected system of three bio-retention units, numerous surface level drop inlets, and multiple building roof drains across the Site. The system is designed to eventually discharge to a State Pollutant Discharge Elimination System (SPDES) permitted outfall along the Buffalo River. The storm water management system was being constructed concurrent with the investigation and IRM activities, however it was not operational.

2.2 Geology, Hydrogeology, & Hydrology

2.2.1 Unconsolidated Overburden

The U.S. Department of Agriculture Soil Conservation Service soil survey map of Erie County (Ref. 7) describes the general soil type at the Site as Dump Material (Dp), Smoothed Undorthents (Uc), and Wayland Silt Loam (Wd).

The geology and hydrogeology of the Site was investigated as part of the RI and SRI activities. The upper layers across the Site consist of sandy lean clay, sandy silt, or organic soil mixed with various fill materials including ash, cinders, glass, concrete, brick fragments, coal pieces, wood fragments, and asphalt. In boring SB-35, fill materials were observed at a depth of 20 fbgs, which is the suspected location of the former River channel shown on Figure 3. Native soil underlying the soil/fill, when encountered, was generally described as Poorly Graded Sand with Silt or Silty Sand, and was observed anywhere from 2 to 19 fbgs. No fill materials were observed in borings SB-21, SB-22, and SB-26, which are located in the central portion of the Site. Lean clay with sand was encountered in monitoring well borings

MW-1 (at 24 fbgs), MW-2 (at 23 fbgs), MW-4 (at 21.5 fbgs), and MW-5 (at 24 fbgs) as well as replacement well MW-2R (25.5 fbgs). Building construction performed concurrent with investigation and IRM activities in the eastern portion of the Site included driving 415 pile beams, which confirmed the depths to this dense Lean Clay unit as well as depth to bedrock. The entire Site is underlain with this dense Lean Clay unit which is believed to be at least a semi-confining (if not a bonafide confining) unit based on visual soil descriptions, driven pile resistance observations, and estimated unit thickness following pile installation to top of bedrock.

Figures 4 and 5 present north-south (A-A') and east-west (B-B') hydrogeologic cross-sections of the Site, respectively, with interpolated fill thickness and depth to native soil and bedrock. As confirmed in the field, fill materials were not observed within 60 to 100 feet of the Buffalo River along the northern boundary of the Site. Anthropogenic fill material thickness varied from not present to approximately 20 feet in the western portion of the Site (e.g., SB-35 vicinity). This area of thicker fill material is suspected to be the former River channel presented in Figure 3.

2.2.2 Bedrock

Based on the bedrock geologic map of Erie County (Ref. 8), the Site is situated over the Onondaga Formation of the Middle Devonian Series. The Onondaga Formation is comprised of a varying texture from coarse to very finely crystalline with a dark gray to tan color and chert and fossils within. The unit has an approximate thickness of 110 to 160 feet. Bedrock was not encountered during any activity associated with this investigation; however, it was encountered during concurrent building pile installation activities at an approximate depth of 40-45 fbgs in the eastern portion of the Site.

2.2.3 Hydrogeology

The Site is located in the Erie-Niagara River Basin where the major areas of groundwater are within coarser overburden deposits and limestone bedrock. Unconfined Site groundwater was observed during this investigation in shallow unconsolidated fluvial and anthropogenic deposits with a north-northwest flow direction toward the Buffalo River. Groundwater flow and hydraulic gradient are discussed in more detail in Section 3.2.3.

2.2.4 Hydrology

The Buffalo River is located approximately 90 feet north of the BCP boundary and drains a 447 square mile watershed, emptying into the eastern end of Lake Erie at the City of Buffalo. The River has three major tributaries (or subwatersheds): Cayuga Creek, Buffalo Creek, and Cazenovia Creek; all located upstream of the Site. The Buffalo River begins where Buffalo Creek and Cayuga Creek meet, approximately eight miles east of Lake Erie and approximately one mile east of the Site. The River flows westward from the point of confluence, passing through residential and heavily industrialized parts of the City. Approximately 6.2 miles of the River are a federal navigation channel maintained by the USACE at a depth of 23 feet below lake level (along with an additional 1.4 miles of the City Ship Canal) well downstream of the Site. The Buffalo River has a very low hydraulic gradient and in conjunction with the maintenance dredging gives the river an estuarine-like character. Much of the shoreline is hardened by riprap, bulkheads, and other structures, and little vegetation remains along the banks.

2.3 Climate

Western New York has a cold continental climate, with moisture from Lake Erie causing increased precipitation. The ground, lakes, creeks, and rivers typically remain frozen from December to March. The average annual precipitation in Buffalo is 38.6 inches and snowfall is 91.3 inches. Average monthly temperatures range from 23.6 degrees Fahrenheit in January to 71.1 degrees Fahrenheit in July. Winds are generally from the southwest (240 degrees) with a mean velocity of 11.9 miles per hour. (Ref. 9)

2.4 Population and Land Use

The City of Buffalo encompasses 40.38 square miles and has a population of 261,310 (Ref. 10). The Site is located within Census Tract 11, in a mixed commercial, vacant, and residential area of the City of Buffalo. Residential areas are located directly across South Ogden Street to the east and the Buffalo River to the north.

2.5 Utilities and Groundwater Use

The Site has access to all major public and private utilities, including potable water (Buffalo Water Authority), sanitary and storm sewers (Buffalo Sewer Authority), electric (National Grid), and natural gas (National Fuel Gas). High pressure gas mains (20-inch and

24-inch) within a 25-foot easement exist on-site and run parallel to the northern BCP Site boundary.

Currently, there are no known deed restrictions on the use of groundwater nor are there any groundwater supply wells on the property. Regionally, groundwater has not been developed for industrial, agriculture, or public supply purposes, primarily due to the close proximity and easy access to nearby Lake Erie. Municipal potable water service is provided on-site and off-site.

2.6 Wetlands and Floodplains

There are no State or Federal wetlands located on-site. The northern portion of the greater parcel is located within the 100-yr floodplain. The Buffalo River is located adjacent to the greater parcel along the northern boundary. A NYSDEC regulated freshwater wetland (BU-13) is located approximately 2 miles southeast of the Site, as indicated by Erie County's on-line GIS mapping system.

3.0 REMEDIAL INVESTIGATION APPROACH

The RI was designed to focus on: further defining the nature and extent of contamination within the BCP Site boundary, identifying the source of contamination, defining chemical constituent migration pathways, qualitatively assessing human health and ecological risks (if necessary), and obtaining data of sufficient quantity and quality to evaluate the potential feasibility and efficacy of reasonable remedial alternatives to support a NYSDEC-approvable remedial action plan for the Site.

This section of the report presents a discussion of the rationale for the data collection program, including the methods employed to collect samples and make field measurements and observations, and the methods used to chemically analyze the environmental samples during the RI.

The RI included the following field activities to delineate and characterize on-site soil/fill and assess groundwater quality:

- Visual, olfactory, and PID characterization of subsurface soil/fill through advancement of exploratory borings.
- Collection of surface soil/fill (0-6 inches) samples for analysis of Target Compound List (TCL) SVOCs and Target Analyte List (TAL) metals, PCBs, pesticides, and herbicides.
- Collection of near-surface (0-2 fbgs) and subsurface (below 2 feet) soil/fill samples for analysis of TCL plus CP-51 VOCs, TCL SVOCs, TAL metals, PCBs, pesticides, and herbicides.
- Advancement of on-site soil borings completed as groundwater monitoring wells located at up-gradient (2 wells) and down-gradient (3 wells) BCP Site boundaries.
- Measurement of groundwater levels in all on-site monitoring wells.
- Collection and analysis of groundwater samples from the newly installed monitoring wells for analysis of TCL plus CP-51 list VOCs, TCL SVOCs, TAL Total Metals, PCBs, pesticides and herbicides.

RI field activities were conducted by Benchmark in accordance with the approved RI Work Plan (Ref. 6). Environmental sample collection was performed in accordance with Benchmark's Field Operating Procedures (FOPs); USEPA- and NYSDEC-approved sample collection and handling techniques were used. Samples for chemical analysis were analyzed in accordance with USEPA SW-846 methodology with equivalent NYSDEC Category B

deliverables to allow for independent third-party data usability assessment. Analytical results were evaluated by a third-party data validation expert in accordance with provisions described in the RI Work Plan. Each sampling location was surveyed via GPS and plotted on the Site base map. Tables 1 and 2 summarize the analytical testing program for soil and groundwater, respectively, followed for the RI.

3.1 Soil/Fill Investigation

A soil/fill investigation was completed to assess potential impacts related to the historic use of the Site. The soil/fill investigation included the collection of surface (0 to 6 inches below ground surface), near-surface (0 to 2 feet below ground surface or fbgs), and subsurface (2 to 16 fbgs) soil/fill samples. Based on the planned redevelopment of the Site as a school, additional focus was placed within the area slated for construction of the new building (e.g., the eastern portion of the Site).

Figure 3 shows the RI soil/fill boring/sample locations for the Site. Appendix B includes the boring logs, photo log, and community air monitoring data for the soil/fill investigation.

3.1.1 Surface Soil/Fill Sampling

Eight surface soil/fill samples were collected from the upper 6 inches of soil/fill across the BCP Site to supplement the seven previously collected surface soil/fill samples (during the Phase II Investigation) for a total of 15 surface soil/fill samples. RI surface soil/fill samples were analyzed for TCL SVOCs and TAL metals, PCBs, pesticides and herbicide.

3.1.2 Near-Surface Soil/Fill Sampling

The subsurface boring locations described in the next section were also used to evaluate the near-surface interval (0-2 fbgs). Ten near-surface soil/fill samples were collected and analyzed for TCL plus CP-51 VOCs, TCL SVOCs, TAL Metals, PCBs, pesticides, and herbicides. Near-surface soil/fill sampling targeted those locations with visual/olfactory evidence of impacts and/or elevated PID readings above 5 ppm in excess of background.

3.1.3 Subsurface Soil/Fill Sampling

A total of 30 subsurface (below 2 fbgs) soil/fill exploratory boring locations were advanced during the RI. The 30 subsurface locations were used to supplement the 20 previously completed test pits (during the Phase II Investigation) for a total of 50 subsurface investigation locations.

Each boring was advanced from existing grade to native soils (approximately 12 to 16 fbgs) or refusal, whichever occurred first, using 4.25-inch I.D. hollow stem augers (HSA) and continuous split-spoon sampling drilling methods. Recovered samples were described in the field by qualified Benchmark personnel by visual-manual observation in accordance with ASTM Method D2488, Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), scanned for total volatile organic vapors with a calibrated MiniRAE 2000 PID equipped with a 11.7 eV lamp, and characterized for impacts via visual and/or olfactory observations in approximate two-foot depth intervals.

Upon reaching the completion of each boring, field results including PID, visual, and olfactory results were reviewed and recorded. The sample interval identified as the most impacted (i.e., greatest PID scan result and/or evidence of visual/olfactory impacts) were selected for analysis. In the event that either the impacts were ubiquitous from grade to final depth or no impacts were identified, a representative sample interval was selected based on the discretion of the field scientist and at times in consultation with the NYSDEC.

At each boring location, one subsurface soil/fill sample was collected and analyzed for TCL plus CP-51 VOCs, TCL SVOCs, TAL metals, PCBs, pesticides, and herbicides.

3.1.4 Soil/Fill Sample Analyses

Samples were transferred to laboratory supplied, pre-cleaned sample containers for analysis, stored on ice in a cooler, and transported via chain of custody command to Alpha Analytical (Alpha). Alpha is an independent, NY State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified facility approved to perform the analyses prescribed for this RI. Alpha also has NYSDOH Contract Laboratory Program (CLP) certification while maintaining ASP accreditation. Alpha employed analytical testing methods described in USEPA Test Methods for Evaluating Solid Wastes contained in SW-846 (revised 1991).

3.2 Groundwater Investigation

Benchmark conducted a groundwater investigation program at the Site to better assess groundwater quality, flow direction, and hydraulic gradient to determine potential groundwater contaminant migration pathways. Figure 3 shows the location of the RI monitoring wells MW-1 thru MW-5. Table 3 presents the monitoring well construction details and Table 4 presents depth to groundwater measurements and calculated groundwater elevations used to generate the isopotential maps discussed in Section 2.2.4. Appendix C includes the boring and monitoring well construction logs. The following sections describe the groundwater investigation and sampling methodology. Monitoring well installation, well development, and groundwater sample collection details are also discussed.

3.2.1 Monitoring Well Installation and Development

In January 2013, Benchmark installed two upgradient (MW-2 and MW-4) and three downgradient (MW-1, MW-3, and MW-5) groundwater monitoring wells. The five boring/monitoring well locations were advanced into the unconsolidated overburden material (soil/fill and/or native soils) as described in Section 3.1.3 to depths between 22 and 26 fbgs; these depths were at least 5 feet below the first encountered groundwater. Recovered soil/fill samples were visually described and scanned for total volatile organic vapors with a PID. PID measurements did not exceed 0.0 ppm with two minor exceptions; well MW-3 at a depth of 13 fbgs (3.2 ppm) and well MW-5 at a depth of 15 fbgs (5.8 ppm).

Subsequent to boring completion, each monitoring well was constructed of 2-inch I.D. flush-joint Schedule 40 PVC solid riser and machine slotted screen (0.010-inch slot size). The monitoring well screen was a minimum of 5 feet in length. The well screen and attached riser was placed within the borehole and the filter sand pack was installed within the borehole annulus to a level of 2- to 3-feet above the top of the well screen. A bentonite seal 2- to 3-feet thick was installed immediately above the sand layer. Medium bentonite chips were used for the seal and allowed to hydrate sufficiently. Due to the shallow nature of these wells, bentonite chips were used in lieu of cement/bentonite grout to complete well construction to within one-foot below ground surface.

The top of the well riser pipe was extended approximately 3 feet above grade, fitted with a lockable J-plug, and protected by a vented, 4-inch diameter protective steel casing. The steel casing was installed to a depth of approximately 2 fbgs and anchored in a 2-foot by

2-foot concrete surface pad. The concrete surface pad was placed around the protective steel casing and sloped to allow surface water to drain away from the well.

The five RI wells were developed to remove the fines from the filter pack and well casing using a dedicated disposable polyethylene bailer for surging and a peristaltic pump for purging in accordance with NYSDEC and Benchmark FOPs prior to sampling.

3.2.2 Groundwater Sample Collection & Analysis – Round 1

During the first round of groundwater sample collection on January 22-23, 2013, the five RI wells were purged and sampled using a non-dedicated submersible pump with dedicated pump tubing following low-flow/minimal drawdown purge and sample collection procedures. Appendix C includes the well sampling logs. Prior to and immediately following collection of groundwater samples, field measurements pH, temperature, turbidity, DO, ORP, specific conductance, and water level were monitored for stabilization. These field parameters as well as visual and olfactory observations were recorded on groundwater field data sheets (Appendix C).

All collected groundwater samples were placed in pre-cleaned, pre-preserved laboratory provided sample bottles, cooled to 4°C in the field, and transported under chain-of-custody command to Alpha for analysis TCL plus CP-51 VOC, TCL SVOC, TAL metal, PCB, pesticide, and herbicide analysis in accordance with USEPA SW-846 methodology (see Table 2). The sample collected from MW-5 was field filtered and analyzed for dissolved metals due to a turbidity measurement above 50 NTUs. Alpha provided equivalent NYSDEC Category B deliverables to allow for independent third-party data usability assessment of groundwater data.

Round 2 groundwater sampling and analysis is discussed in Section 5.2.1.

3.2.3 Groundwater Elevation & Flow

Static depth to groundwater were measured in all five RI wells on February 2, 2013 and August 5, 2013. The February measurements were necessary as the River staff gauge was not established at the time of the January 2013 monitoring event. Table 4 summarizes the groundwater elevations and Figures 6 and 7 present the isopotential maps for those two events. Groundwater elevations were surveyed relative to a catch basin located on the east

side of South Ogden approximately 125 feet north of southern Site boundary, which has an established elevation of 585.78 per site layout survey performed by C&S Engineering.

Examination of the isopotential maps indicates that shallow groundwater generally flows to the north-northwest toward the Buffalo River. Between February and August 2013, the Buffalo River level dropped over three feet, which is not uncommon for the Buffalo River as it receives a tremendous amount of upstream seasonal overland runoff from snowmelt and high precipitation events, as well as numerous contributions from the combined City of Buffalo sewer overflows, two of which are located on the west side of the Ogden Street bridge.

Upon comparison of the February and August 2013 events (see Figures 6 and 7, respectively), it is apparent that the Buffalo River, along the northern portion of the Site, influences upland groundwater flow depending on water levels of the River (e.g., losing or gaining). Figure 6 (February 2013) illustrates the Buffalo River during a high water event acting as a losing water body, temporarily "backing up" upland groundwater flow adjacent to the River (i.e., tightly spaced contours). Conversely and as illustrated on Figure 7 (August 2013), once the River water level subsides below flood stage (i.e., gaining), the upland groundwater flow returns to a more "typical" condition across the Site (i.e., wider spaced contours).

As expected, the hydraulic gradient toward the River between wells MW-4 (south) and MW-5 (north) fluctuates relative to River levels ranging from 0.001 ft/ft during low River levels (August 2013) to 0.002 ft/ft when River levels are elevated (February 2013). Approximately a one foot difference in groundwater elevations along the River were observed between February and August of 2013 due to elevated River levels.

3.3 Field Specific Quality Assurance/Quality Control Sampling

In addition to the soil/fill and groundwater samples described above, field-specific quality assurance/quality control (QA/QC) samples were collected and analyzed to ensure the reliability of the generated data as described in the QAPP and to support the required third-party data usability assessment. Site-specific QA/QC samples included matrix spikes, matrix spike duplicates, blind duplicates, equipment blanks, and trip blanks collected at a frequency of 1 per 20 samples for each environmental media (see Table 1).

3.4 Data Usability Summary Report

In accordance with the Work Plan, the laboratory analytical data was independently assessed and, as required, submitted for independent review. Ms. Judy Harry of Data Validation Services (DVS) located in North Creek, New York performed the data usability summary assessment for the soil/fill and groundwater samples collected between 01/03/13 and 12/26/13. The validation involved a review of the summary form information and sample raw data, and a limited review of associated QC raw data. Specifically, the following items were reviewed:

- Laboratory Narrative Discussion
- Custody Documentation
- Holding Times
- Surrogate and Internal Standard Recoveries
- Matrix Spike Recoveries/Duplicate Recoveries
- Field Duplicate Correlation
- Preparation/Calibration Blanks
- Control Spike/Laboratory Control Samples
- Instrumental Tunes
- Calibration/Low Level Standards
- ICP Serial Dilution
- Instrument Detection Limits
- Sample Result Verification

Data evaluation was performed by DVS using the most current methods and quality control criteria from the USEPA's Contract Laboratory Program (CLP) *National Functional Guidelines for Organic Data Review*, and Contract Laboratory Program, *National Functional Guidelines for Inorganic Data Review*, as well as professional judgment. Appendix D includes the Data Usability Summary Report (DUSR) that was prepared in accordance with Appendix 2B of NYSDEC's DER-10 guidance. Those items listed above that demonstrated deficiencies are discussed in detail in the DUSR.

In summary, most sample results are usable either as reported, or with qualification. However, the following results are rejected and not usable:

- One volatile analyte (1,4-dioxane) in all samples due to low responses inherent with the methodology.
- One semi-volatile analyte (benzoic acid) in seven samples due to processing issues.

In general, data completeness and representativeness are acceptable, and sample accuracy and precision are good. Analytical results that were edited or qualified per the DUSR have been modified appropriately on the summary tables. Appendix E includes the analytical data packages for the RI.

3.5 Site Mapping

All sample locations, monitoring wells, and relevant Site features are located on the Site base map developed during the RI. Benchmark employed a Trimble GeoXT handheld GPS unit to identify the locations of all soil borings and newly installed wells relative to New York State planar grid coordinates. Additional geospatial data related to debris piles, structure locations, and subsurface structures was collected. Monitoring well riser and protective casing elevations were measured by ground elevation survey on January 24, 2013.

4.0 REMEDIAL INVESTIGATION FINDINGS

This section describes pertinent field observations and analytical results in Site soil/fill and groundwater reported during the RI.

For the purpose of comparison, the soil/fill analytical data summary tables include Unrestricted Use Soil Cleanup Objectives (USCOs) as published in 6NYCRR Part 375-6 "Remedial Program Soil Cleanup Objectives." USCOs (Track 1) are deemed protective of human health and groundwater irrespective of end use of the property. Accordingly, the USCOs represent conservative soil/fill cleanup objectives that are often difficult to achieve on former urbanized or historic fill sites. Nevertheless, USCOs for soil/fill are presented on Table 5 per NYSDEC policy, as a basis for comparison against the concentrations that might be expected in virgin soils not affected by anthropogenic activities or biased by fill containing non-soil materials.

The soil/fill data is also compared to Restricted-Residential Use SCOs (RRSCOs) per 6NYCRR Part 375-6 (see Table 6). For the subject property, redevelopment as a charter school with outdoor ball fields is contemplated. While there are presently no SCOs specific to property used as a school, the NYSDEC in consultation with the New York State Department of Health (NYSDOH) have established the RRSCO values as protective of adults and children where the potential for and types of exposure to site soils would be similar to that experienced in a residential setting such as an apartment or condominium having lawn or playground areas for child residents. The NYSDEC and NYSDOH have also deemed the RRSCOs appropriate objectives for active recreational activities, such as those involving contact sports.

The soil/fill data is also compared to Industrial SCOs (ISCOs) per 6NYCRR Part 375-6 (see Table 7). The NYSDEC and NYSDOH have also deemed the ISCOs appropriate objectives for intrusive activities by adult workers, such as those involving construction or maintenance personnel. In addition, as further described herein the ISCOs in combination with other DEC guidance and field observations were later employed as screening criteria in evaluating a "Track 4" cleanup alternative whereby the Site would have hardscape and/or clean soil cover incorporated as part of the remedy. Exceedance of these criteria was considered indicative of an "Area of Concern (AOC)" that may require remedial action beyond the cover placement.

The proposed school development will incorporate outdoor ball field areas, but will not be a boarding school (i.e., children and staff will only be on the property during school and/or business days as opposed to a true residential scenario involving continuous lifelong occupancy). Therefore, employment of RRSCOs as comparative criteria is appropriate for the ball field area and represents a conservative approach for the remaining school grounds.

The following discussions concerning soil data are limited to soil/fill quality as indicated by the more meaningful comparison to RRSCOs. To the extent RRSCOs are exceeded, USCOs would be exceeded as well.

4.1 Surface Soil/Fill

4.1.1 Field Observations

The surface of the Site is vegetated with grasses; extensive stands of knot weed as well as other invasive species including common reed, purple loosestrife, and tree of heaven; and emergent trees. Near-surface lithology is typically comprised of Sandy Lean Clay with apparent ash, gravel, and cinders intermingled with fragments of brick, wood, coal, and glass. No fill materials were observed in borings SB-21, SB-22, and SB-26, which are located in the central portion of the Site.

4.1.2 SVOCs

Six SVOCs, all PAHs, were detected at concentrations slightly above RRSCOs in 3 of the 8 surface soil/fill samples analyzed (SS-4, SS-5, and SS-8). Specifically, exceedances of the RRSCOs were identified for certain PAHs, which are by-products of incomplete combustion typically found in ash, cinders and asphalt materials such as pavement and roofing shingles. The PAHs detected at concentrations above the RRSCOs include: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

4.1.3 Inorganic Compounds

Three metals were detected at concentrations above the RRSCOs: arsenic in two samples [SS-6 (qualified as estimated) and SS-7], cadmium in one sample (SS-7), and lead in two samples [SS-7 and SS-8 (both qualified as estimated)].

4.1.4 Pesticides/Herbicides

No surface soil/fill samples contained pesticides at concentrations above the RRSCOs. Herbicides were not detected in surface soil/fill samples.

4.1.5 PCBs

PCBs were not detected in surface soil/fill at concentrations above the RRSCO.

4.2 Near-Surface Soil/Fill

4.2.1 Field Observations

The top two feet of overburden across the Site has been designated as near-surface soil/fill and is typically comprised of Sandy Lean Clay with varying degrees of fill material similar to those observed in the surface samples. No fill materials were observed in borings SB-21, SB-22, and SB-26, which are located in the central portion of the Site.

4.2.2 SVOCs

Similar to the surface samples, PAHs were detected at a concentration above RRSCOs in 3 of the 10 near-surface soil/fill samples analyzed [SB-17 (all qualified as estimated); SB-19; and SB-36].

4.2.3 Inorganic Compounds

Four metals were detected in near-surface soil/fill at concentrations above the RRSCOs; barium in two samples (SB-27 and SB-36), copper in one sample (SB-34), mercury in one sample (SB-36), and lead in two samples (SB-27 and SB-36).

4.2.4 Pesticides/Herbicides

No near-surface soil/fill samples contained pesticides at concentrations above the RRSCOs. Herbicides were not detected in near-surface soil/fill samples.

4.2.5 PCBs

PCBs were not detected in near-surface soil/fill at concentrations above the RRSCO.

4.3 Subsurface Soil/Fill

4.3.1 Field Observations

Native soil underlying the soil/fill, when encountered, was generally described as Poorly Graded Sand with Silt or Silty Sand. Lean clay with sand was encountered below 21 fbgs during advancement of the borings for installation of the monitoring wells. Water was encountered between 12 and 19 fbgs during advancement of the borings; with the exception of borings SB-21 and SB-22 where water was encountered at 8 fbgs (these borings were advanced within the lowest depression on-site).

An elevated PID reading of 50.3 ppm was measured in boring SB-39 from 13-17 fbgs (within the silty sand), which was located within the vicinity of Phase II Investigation boring SB-4; an area of suspected petroleum impact. The soil was characterized as dark grey/black with a petroleum-like odor and groundwater was encountered at 16 fbgs. PID readings above background were also measured in boring SB-14 at 5 fbgs (12 ppm) and 9 fbgs (17 ppm); a slight non-descript odor was noted at 9 fbgs.

Phase II boring SB-4 was delineated during that investigation as described in Section 1.3.3. Supplemental investigation activities for SB-14 are discussed in Section 5.1.1.

4.3.2 VOCs

No VOCs were detected in subsurface soil/fill samples at concentrations above RRSCOs.

4.3.3 SVOCs

One or more PAHs were detected above the RRSCOs in approximately half of the subsurface soil/fill samples analyzed.

4.3.4 Inorganic Compounds

Metals detected in subsurface soil/fill at concentrations above the RRSCOs included arsenic in three samples, barium in 11 samples, cadmium in three samples, copper in two samples, mercury in five samples, and lead in 15 samples.

4.3.5 Pesticides/Herbicides

No pesticides were detected in subsurface soil/fill at concentrations above RRSCOs. Herbicides were not detected in subsurface soil/fill samples.

4.3.6 PCBs

No PCBs were detected in subsurface soil/fill at concentrations above RRSCOs.

4.3.7 Waste Characterization

In anticipation of off-site disposal of the petroleum-impacted soil/fill encountered at Phase II sample location SB-4, RI boring SB-39 was advanced in this same AOC. A sample from the 13-17 fbgs interval was collected and analyzed for waste profile parameters, including Toxicity Characteristic Leaching Procedure (TCLP) VOCs, TCLP metals, PCBs, and ignitability. With the exception of low concentrations of barium (0.71 mg/L) and lead (0.03 J), all other TCLP results were reported as non-detect and the soil/fill was deemed not ignitable. These results indicated the soil/fill from SB-39 (and Petroleum-Impacted AOC SB-4) did not exhibit hazardous waste characteristics.

4.4 Groundwater – Round 1

During the RI, a groundwater monitoring event was conducted in order to assess groundwater quality at the Site, upgradient, and downgradient. As such, five monitoring wells, identified as MW-1 through MW-5, were sampled on January 22, 2013 (Round 1).

Table 8 compares the groundwater analytical data to the NYSDEC Class "GA" GWQS/GVs, which are deemed protective of human health when groundwater is used as a drinking water source. Although municipal supplied water is available and will be provided and used as a potable source for the school redevelopment, the Class GA GWQS/GVs are conservatively used as a measure of the environmental impacts to groundwater per NYSDEC policy.

4.4.1 Field Observations

No odors or sheen were noted during well development or sampling.

4.4.2 VOCs

Three VOCs were detected in groundwater at concentrations above GWQS/GVs: chlorobenzene (MW-2); 1,2-dichlorobenzene (MW-2); and cis-1,2-dichloroethene (MW-4).

4.4.3 SVOCs

No SVOCs in groundwater were detected at a concentration above the GWQSs/GVs.

4.4.4 Inorganic Compounds

Inorganic compounds were detected in groundwater at concentrations above GWQS/GVs were generally limited to naturally occurring minerals such as iron, magnesium, manganese, and/or sodium. The groundwater sample from MW-5 was analyzed for dissolved inorganic compounds (due to an elevated turbidity greater than 50 NTU) and found to contain concentrations of dissolved iron, manganese, and sodium above GWQSs/GVs. Total lead was detected in MW-5 at a concentration above the GWQS; however, dissolved lead was not detected indicating the lead is associated with suspended solids.

4.4.5 Pesticides/Herbicides

Pesticides and herbicides were not detected in the groundwater samples.

4.4.6 PCBs

PCBs were not detected in the groundwater samples.

4.5 Summary of Remedial Investigation Findings

Consistent with the initial findings of the Phase II Investigation, RI soil/fill sample results exceeded RRSCOs for certain contaminants (PAHs and metals) and contained weathered petroleum constituents. In addition, groundwater samples indicated minor exceedances of Class GA GWQSs/GVs for certain parameters.

Exceedances of the RRSCOs were identified for certain PAHs, which are products of incomplete combustion typically found in ash, cinders and asphalt materials such as pavement and roofing shingles. Select metals detected in soil/fill at concentrations above RRSCOs at one or more location include arsenic, barium, copper, mercury, and lead.

Petroleum-based compounds were detected in well MW-2 at relatively low concentrations but above GWQSs; well MW-2 is located in the vicinity of the petroleum-impacted soil/fill area. The only other analyte (cis-1,2-dichloroethene in MW-4) detected above GWQSs was at a relatively low concentration and located several hundred feet away from the proposed school building. Inorganic compounds detected in groundwater at concentrations above GWQS/GVs were generally limited to naturally occurring minerals such as iron, magnesium, manganese, and sodium. No odors or sheen were noted during monitoring well development or sampling of groundwater.

5.0 SUPPLEMENTAL REMEDIAL INVESTIGATIONS

During the January 2013 RI, PAHs were identified in Site soil/fill within localized areas of the Site, and VOCs were detected in groundwater at two upgradient locations (e.g., wells MW-2 and MW-4). Based on the results of the RI, and in consultation with the NYSDEC, Benchmark completed a Supplemental Remedial Investigation (SRI) of the Site in March 2013. The purpose of the SRI was to provide necessary additional soil/fill and groundwater quality information for potential AOCs identified during the January 2013 RI that required further delineation and to expedite the BCP process to avoid any unnecessary construction delays.

Additionally, in June 2013, NYSDEC requested a second round of groundwater sampling and additional soil/fill sampling in the western portion of the Site. On June 18, 2013, Benchmark submitted to NYSDEC a Supplemental RI Sampling Plan (Ref. 11) for additional near-surface soil/fill sampling in the western portion of the Site. The second round of groundwater sampling was completed in August 2013, with the additional near-surface soil/fill sampling in the western portion of the Site completed in November 2013. The results of each SRI sampling event are detailed in the following sections.

5.1 Supplemental Soil/Fill Investigations

5.1.1 March 2013 Subsurface Soil/Fill Sampling

The March 2013 SRI focused on the following soil/fill AOCs:

- Boring SB-14 Soil/Fill: Four delineation borings (identified as SB-40 thru SB-43) were advanced approximately 15 feet away from RI boring SB-14 at the locations shown on Figure 8. Each boring was advanced to 12 fbgs and screened with a PID for the presence of volatile organics. Initially during the RI, elevated PID readings (max. 12 ppm) were observed at boring SB-14; however, all PID measurements during the SRI were 0.0 ppm in all four delineation borings. No field evidence of impact (e.g., visual/ olfactory, elevated PID, staining, stressed vegetation, etc.) was observed in any of the supplemental borings therefore no samples were submitted for VOC or SVOC analysis. Upon NYSDEC consultation and per their request, the supplemental soil/fill samples (8-10 fbgs interval) were analyzed for total lead due to the elevated lead concentration in SB-14 (3,700 mg/kg). As indicated on Table 9, the supplemental lead concentrations were an order of magnitude lower than boring SB-14. In addition to the delineation borings, an additional boring (SB-58) was collected adjacent to the

original SB-14 location in anticipation of off-site disposal of soils from this potential AOC. A waste characterization sample was collected from SB-58 and analyzed for TCLP metals. All four soil/fill samples did not exhibit hazardous waste characteristics for metals. Table 9 includes the waste characterization results. Remediation of this AOC is discussed in Section 6.0.

- Boring SB-16 Soil/Fill: Four delineation borings (identified as SB-44 thru SB-47) were advanced approximately 10 feet away from RI boring SB-16 (total PAH = 591.6 mg/kg in the 6-8 fbgs interval) at the locations shown Figure 8. Each boring was advanced to approximately 12 fbgs and representative soil/fill samples were collected from each location (6-8 fbgs interval) for TCL SVOC analysis. No field evidence of impact (e.g., visual/olfactory, elevated PID, staining, stressed vegetation, etc.) was observed in any of the supplemental borings. As indicated on Table 9, all supplemental borings contained total PAH concentrations below the CP-51 total PAH guidance for non-residential sites of 500 ppm. Five additional borings, identified as SB-53 thru SB-57, were also advanced approximately 10 feet away from borings SB-44 thru SB-47 in anticipation of additional delineation analysis; it was determined these samples were not needed and were therefore not analyzed. They are however shown on Table 1 and Figure 8 for completeness. Remediation of this AOC is discussed in Section 6.0.

5.1.2 November 2013 Near-Surface Soil/Fill Sampling

On June 18, 2013, Benchmark submitted an SRI Sampling Plan to NYSDEC to further characterize the near-surface subgrade soils to remain in the western portion of the Site beneath the planned demarcation layer and 2-foot final cover system which is being considered as the final remedial measure (see Section 11.0). The scope of work involved collecting one near-surface (0-2 fbgs) soil/fill grab sample per acre for a total of 12 samples identified as SB-59 thru SB-70. The locations shown in red on Figure 8 were sampled on November 12, 2013 following clearing/grubbing, removal of all nine impacted soil/fill AOCs (see Section 6.0), as well as final grading to design subgrade elevations. Sample locations were positioned equidistant between existing sample locations to provide thorough coverage of the western portion of the Site. Based on discussions with the NYSDEC and in accordance with the Sampling Plan, the samples were analyzed for TCL SVOCs (base-neutrals only) via Method 8270 and total RCRA metals via Methods 6010/7470.

As indicated on Table 10, three near-surface soil/fill sample locations detected individual PAHs above ISCOs; however, total PAH concentrations were well below the CP-51 guidance for non-residential sites of 500 ppm at each location. One near-surface soil/fill

sample (SB-69; 0-2 fbgs) and its blind duplicate, however, contained arsenic concentrations above the SSAL and lead concentrations approaching the Industrial SCOs. Remediation of this AOC is discussed in Section 6.0.

5.2 Supplemental Groundwater Investigations

Based on groundwater analytical results of Round 1 (see Section 3.2.2) and in order to determine if the minor impacts to groundwater quality observed in wells MW-2 and MW-4 from that sampling event were migrating downgradient of those locations, a supplemental downgradient groundwater investigation was conducted March 12-13, 2013. Specifically, both supplemental groundwater investigations focused on downgradient groundwater quality from these two well locations in order to determine if these impacts had migrated downgradient of each location toward the planned school building. The investigation approach and findings are discussed in Sections 5.2.1 and 5.2.2 below.

As per a NYSDEC request, a second round of groundwater sampling was performed on all five Site monitoring wells (MW-1 thru MW-5) on August 15, 2013 (e.g., Round 2). Groundwater results are discussed in Section 5.2.3 below.

5.2.1 Downgradient Groundwater Investigation of Well MW-2

Following consultation with the NYSDEC and on March 13, 2013, two temporary wells, identified as TW-4 (SB-48) and TW-5 (SB-49), were installed adjacent to the proposed school building footprint at the locations shown on Figure 8. The locations were selected based on their proximity to the school as well as being downgradient from well MW-2 where two petroleum-related VOCs (chlorobenzene and 1,2-dichlorobenzene) were detected at concentrations above their respective NYSDEC GWQSs. Each boring was advanced into the unconsolidated overburden material (soil/fill and/or native soils) as described in Section 3.1.3 to approximately 24 fbgs. Recovered soil/fill samples were visually described and scanned for total volatile organic vapors with a PID, which did not exceed 0.0 ppm at either location.

Subsequent to boring completion, each temporary well was constructed of 1-inch I.D. flush-joint Schedule 40 PVC solid riser and machine slotted screen (0.010-inch slot size). The monitoring well screens measured 10 feet in length. The well screen and attached riser was placed within the borehole and the filter sand pack was installed within the

borehole annulus to a level of approximately 3-feet above the top of the well screen. A sufficiently hydrated bentonite seal was installed immediately above the sand layer up to existing grade. Due to the temporary nature of these wells, permanent protective well casings were not necessary.

Immediately following installation, groundwater samples were collected from each temporary well utilizing dedicated ¾-inch disposable polyethylene bailers for TCL VOC analysis via Method 8260 in order to assess the groundwater quality in the vicinity of the school footprint. No odors or sheen were noted during monitoring well sampling. As indicated on Table 11, all VOC concentrations are below GWQSs/GVs.

Appendix C includes boring and well completion logs as well as the groundwater sampling field forms for each temporary well.

5.2.2 Downgradient Groundwater Investigation of Well MW-4

Following consultation with the NYSDEC and on March 12, 2013, three temporary wells, identified as TW-6 (SB-50), TW-7 (SB-51), and TW-8 (SB-52), were installed at equidistance locations from well MW 4 as shown on Figure 8: one adjacent to the proposed school building (TW-6); one approximately half way between the planned school and RI monitoring well MW-4 (TW-7); and a third temporary well immediately downgradient of well MW-4 (TW-8). These locations were selected based on their proximity to the school as well as being cross-gradient and/or downgradient of RI monitoring well MW-4 where one VOC (1,2-dichloroethene, a chlorinated breakdown compound) was detected at a concentration above the NYSDEC GWQS/GV. Each boring was advanced into the unconsolidated overburden material (soil/fill and/or native soils) as described in Section 3.1.3 to approximately 20 to 24 fbgs. Recovered soil/fill samples were visually described and scanned for total volatile organic vapors with a PID, which did not exceed 0.0 ppm at any location.

Subsequent to boring completion, each temporary well was constructed of 1-inch I.D. flush-joint Schedule 40 PVC solid riser and machine slotted screen (0.010-inch slot size). The monitoring well screens measured 10 feet in length. The well screen and attached riser was placed within the borehole and the filter sand pack was installed within the borehole annulus to a level of approximately 3-feet above the top of the well screen. A sufficiently hydrated bentonite seal was installed immediately above the sand layer up to

existing grade. Due to the temporary nature of these wells, permanent protective well casings were not necessary.

Immediately following installation, groundwater samples were collected from each temporary well utilizing dedicated ¾-inch disposable polyethylene bailers for TCL VOC analysis via Method 8260 in order to assess the groundwater quality downgradient of impacted well MW-4 toward the planned school building. No odors or sheen were noted during monitoring well sampling. As indicated on Table 11, all VOC concentrations are below GWQSs/GVs.

Appendix C includes boring and well completion logs as well as the groundwater sampling field forms for each temporary well.

5.2.3 Groundwater Sample Collection & Analysis – Round 2

A second round of groundwater sampling was performed on August 15, 2013 (Round 2). Monitoring wells MW-1 through MW-5 were again sampled for analysis of TCL plus CP-51 VOCs, TCL SVOCs, and RCRA metals. Appendix E includes the analytical data package. As indicated on Table 8, the constituent concentrations detected in MW-2 and MW-4 declined significantly from the January 2013 sampling event and are only slightly above GWQS/GVs. The August 2013 constituent concentrations in the remaining wells are either non-detect or well below GWQS/GVs.

5.3 Field Specific Quality Assurance/Quality Control Sampling

As stated in Section 3.3, SRI field-specific QA/QC samples were collected and analyzed to ensure the reliability of the generated data as described in the QAPP and to support the required third-party data usability assessment.

5.4 Data Usability Summary Report

All SRI data was independently assessed and submitted for independent review as described in Section 3.4. Appendix D includes the DUSR that was prepared in accordance with Appendix 2B of NYSDEC's DER-10 guidance. In general, data completeness and representativeness are acceptable, and sample accuracy and precision are good. Analytical results that were edited or qualified per the DUSR have been modified appropriately on the summary tables. Appendix E includes the analytical data packages for the SRI.

5.5 Site Mapping

All SFI sample locations and the replacement monitoring well MW-2R are located on the Site base map developed during the RI (see Figure 8). Field survey of these locations was performed as described in Section 3.5. Replacement well MW-2R top of riser and ground surface elevations were surveyed on March 18, 2014.

5.6 Well Decommissioning & Replacement

During Site construction, it became apparent that well MW-2 was located within the center of a bio-retention basin and needed to be relocated. As such, on August 16, 2013, well MW-2 was decommissioned in accordance with NYSDEC CP-43. The well decommissioning report is included in Appendix C. Subsequently on February 21, 2014 and following consultation with the NYSDEC, replacement well MW-2R was installed at the location shown on Figure 3.

Replacement well MW-2R was advanced into the unconsolidated overburden material (soil/fill and/or native soils) as described in Section 3.1.3 to a depth of 25.5 fbgs; approximately 9.5 feet below the first encountered groundwater. Recovered samples were visually described and scanned for total volatile organic vapors with a PID; no measurements exceeded 0.0 ppm. Well MW-2R was constructed similar to the RI wells as described in Section 3.2.1 above with a 2-inch I.D. flush-joint Schedule 40 PVC solid riser and 5-foot machine slotted screen (0.010-inch slot size).

Well MW-2R was subsequently developed on February 24, 2014 to remove the fines from the filter pack and well casing using a dedicated disposable polyethylene bailer for surging and a peristaltic pump for purging in accordance with NYSDEC and Benchmark FOPs prior to post-remedial sampling. No odors or sheen were noted during monitoring well sampling. Post-remedial activities and results will be presented in the Final Engineering Report.

5.7 Summary of Supplemental Remedial Investigation Findings

The two soil/fill AOCs associated with SB-14 and SB-16 were delineated based on the results of the March 2013 supplemental soil/fill sampling. The groundwater impacts identified at wells MW-2 and MW-4 are considered localized to those locations as evidenced in downgradient groundwater quality which was reported non-detect or at concentrations

well below the GWQSs/GVs from temporary wells (TW-4 thru TW-8). Localized impacts identified at decommissioned well MW-2 are related to the petroleum-impacted AOC discussed in Section 6.0. Based on the August 2013 groundwater data, these two localized areas have already attenuated in the seven months between groundwater sampling events and will most likely be further mitigated through natural attenuation as a result of the petroleum-impacted soil/fill removal in the vicinity of well MW-2 and/or cover system placement in the vicinity of well MW-4.

The November 2013 sampling of the western portion near-surface soil/fill indicated an isolated area of soil/fill (0-2 fbgs) in the southwestern corner of the Site (i.e., at SB-69) where arsenic was identified at a concentration above the SSAL and lead at a concentration approaching the Industrial SCO. Remediation of the AOCs associated with the locations discussed above is discussed in Section 6.0.

6.0 INTERIM REMEDIAL MEASURES

In accordance with the NYSDEC-approved IRM Work Plan (Ref. 12), IRM field activities were conducted May 3, 2013 through January 24, 2014. As stated in the approved IRM Work Plan, the redevelopment plan includes construction of a Charter School slated to open in the fall of 2014. In order for the building shell to be enclosed prior to the onset of winter weather, contractor mobilization and construction work needed to begin early in the 2013 construction season. To expedite remedial measures on the Site, the IRM addressed the soil/fill AOCs across the Site, prioritizing excavation of the AOCs on the eastern portion of the Site where the building was to be constructed. Expedited completion of soil/fill AOC cleanup work was intended to satisfy anticipated requirements for remediation of these AOCs and render the Site "shovel ready" for this fast-track redevelopment project. Specific elements of the IRM, as implemented, are summarized below and shown on Figure 9.

6.1 IRM Rationale

Soil/fill AOCs were defined as containing non-ubiquitous constituents significantly exceeding Industrial SCOs[1] within the 0-5 fbgs interval (i.e., the common buried utility/foundation depth), and/or have notable field observations that indicate gross contamination (i.e., free product, significant staining, excessive odor, high PID readings). More specifically, the following criteria were employed as site-specific action levels (SSALs) used to define and remediate AOCs under the IRM:

- Total PAHs = 500 mg/kg (i.e., NYSDEC CP-51 total PAH guidance for non-residential sites); the only exception being the sample collected from soil boring SB-36 (0-2 fbgs) with a total PAH concentration of 391.5 mg/kg. Although this concentration was below 500 mg/kg, soil/fill within this AOC was voluntarily removed to a 2-foot depth during the IRM primarily due to the proximity of the impact to the proposed finish grade and its location beneath a proposed active recreational area (baseball field).

[1] The Industrial SCOs are deemed protective of human health for outdoor workers who contact soils on a routine basis (twice per week), and are therefore conservative when considered as an initial screening criterion for subsurface AOCs under a Track 4 scenario. Table 7 provides a comparison of the soil/fill data to Industrial SCOs. For PAHs, the alternative Soil Cleanup Level of 500 mg/kg total PAHs for non-residential sites was employed in lieu of individual Industrial SCOs per NYSDEC CP-51 Soil Cleanup Guidance on the premise that the Track 4 cleanup will include institutional controls (Environmental Easement and Site Management Plan).

- Arsenic = 16 mg/kg; with the following exceptions, which upon consultation with the NYSDEC, the concentrations of which were considered de minimis when depth below final grade was considered and therefore did not require further remediation.
    - AOC SS-6 east sidewall sample SS-6-SW-2 with arsenic concentration of 37 mg/kg.
    - Surface soil/fill sample SS-7 with a total arsenic concentration of 18 mg/kg.
    - AOC SB-20 west sidewall sample SB-20-SW-4 (1-5') with a concentration of 44 mg/kg.
    - AOC SB-27 east sidewall sample SB-27-SW-2 (3-4') with a concentration of 19 mg/kg and west sidewall sample SB-27-SW-4 (3-4') with a concentration of 17 mg/kg.
    - The sample collected from soil boring SB-32 (2-4') with a total arsenic concentration of 17 mg/kg.
    - The sample collected from soil boring SB-33 (10-12 fbgs) with a total arsenic concentration of 48 mg/kg.
    - AOC SB-36 bottom sample SB-36-B-2 (3-5') with an arsenic concentration of 38 mg/kg and east sidewall sample SB-36-SW-6 (0-2') with an arsenic concentration of 19 mg/kg.
- Lead = 3,900 ppm (0-5 fbgs); two exceptions being the sample collected from soil boring SB-20 (2-4 fbgs) with a total lead concentration of 3,400 mg/kg and confirmation samples collected from AOC SB-69 (see Table 19), most of which were elevated, but at concentrations below 3,900 mg/kg. Although these concentrations met the screening criteria for lead (Industrial SCO of 3,900 mg/kg), NYSDEC expressed concern over the elevated lead concentrations. Therefore, the soil/fill associated with SB-20 and AOC SB-69 was voluntarily removed as part of the IRM activities.
- A PID concentration of 5 ppm and/or visual and olfactory evidence of impact were the criteria used to delineate an AOC via field screening.

Based on these criteria several AOCs were identified and addressed during the IRM as presented below:

<u>Petroleum-Impacted Soil/Fill AOC</u>

- During the Supplemental Phase II investigation, five borings (SB-3 and SB-5 through SB-8) were advanced in the vicinity of SB-4 to delineate vertical and horizontal impacts identified at that location; the PID reading in the saturated interval (14-15 fbgs) of SB-4 was 134 ppm, which was accompanied by sheen and petroleum-like odor. Based on the visual and olfactory observations in the five

surrounding borings, the petroleum-impacted area measured approximately 90 feet by 100 feet and was generally present within the 12 to 14 fbgs saturated interval. Waste characterization data from boring SB-39 (13-17 fbgs) located within the SB-4 AOC showed impacted soil/fill did not exhibit hazardous waste characteristics.

Building Footprint Soil/Fill AOC

- One soil boring SB-14 located within the proposed building footprint contained slightly elevated PID readings at 5 fbgs (12 ppm) and 9 fbgs (17 ppm); a slight odor was noted at 9 fbgs. The only constituent detected at a concentration above Industrial SCOs in the sample collected from the 6-8 fbgs interval was benzo(a)pyrene. During the SRI, four borings (SB-40 through SB-43) were advanced in the vicinity of SB-14 to delineate vertical and horizontal impacts identified at that location; no field evidence of impact was observed, all PID measurements were 0.0 ppm, and no odors or staining were identified. Although these observations do not suggest a soil/fill AOC as defined herein, the SB-14 area was conservatively addressed as such due to its location beneath the building footprint.

PAH-Impacted Soil/Fill AOCs

- Soil boring SB-16 (6-8 fbgs) contained a total PAH concentration of 591.6 mg/kg, which is above the CP-51 total PAH guidance for non-residential sites of 500 ppm. During the SRI, four borings (SB-44 through SB-47) were advanced in the vicinity of SB-16 to delineate vertical and horizontal impacts identified at that location; no field evidence of impact was observed, and all supplemental borings contained total PAH concentrations below the 500 mg/kg criteria.
- The sample collected from soil boring SB-36 (0-2 fbgs) met the screening criteria and was therefore not considered a soil/fill AOC; however, the total PAH concentration of 391.5 mg/kg was marginal. Due to the proximity to the surface and its location beneath a proposed active recreational area (baseball field), soil/fill within this area was addressed during the IRM.

Metals-Impacted Soil/Fill AOCs

- Surface soil sample SS-6 only slightly exceeded the arsenic screening criteria and was therefore not a considered a soil/fill AOC. However, due to its location near the recreational areas, soil/fill within this area was addressed during the IRM.
- Soil boring SB-20 contained a lead concentration of 3,400 mg/kg in the 2-4 fbgs interval. Although this concentration met the screening criteria for lead (e.g., ISCO) and was therefore not considered a soil/fill AOC, NYSDEC had

expressed concern over the location of this sample during construction of the proposed parking lot and was therefore addressed during the IRM

- Soil boring SB-27 contained concentrations of arsenic and lead above ISCOs from 3-4 fbgs.
- SB-69 contained concentrations of arsenic above the SSAL and lead approaching the ISCO from 0-2 fbgs.

Asphalt Debris AOC

- While excavating sheet pile location "Column Line M5," a localized area of asphalt debris mixed with subsurface soil/fill material was observed. Upon consultation with the NYSDEC, this material was voluntarily removed from the Site and transported to a NYSDEC-permitted landfill.

6.2 IRM Implementation

Per the NYSDEC-approved Work Plan, IRM activities involved excavation and offsite disposal of nine soil/fill AOCs at a permitted disposal facility followed by confirmatory sampling and backfilling of deeper excavations. AOCs are shown on Figure 9. Analytical data from IRM confirmation samples used to delineate each AOC were reviewed and qualified by a third party data validator. Each AOC was considered complete when either the confirmation sample concentrations met the SSALs or, upon consultation with the NYSDEC, were at concentrations considered de minimis when depth below final grade was considered. Excavated material was transported off-site for disposal at the NYSDEC-permitted Chautauqua County Landfill located in Jamestown, New York. IRM quantities based on landfill scale receipts are summarized below and confirmatory sample results are summarized on Tables 12 thru 19.

- Excavation of 906.85 tons of non-hazardous petroleum- and VOC-impacted soil/fill was removed from AOCs SB-4 and SB-14, respectively. Post-excavation soil samples were analyzed for TCL VOCs, TCL SVOCs, and total RCRA metals.
- Excavation of 267.55 tons of non-hazardous metals-impacted soil/fill was removed from AOCs SS-6, SB-20, and SB-27. Post-excavation soil samples were analyzed for TCL SVOCs and total RCRA metals.
- Excavation of 202.83 tons of non-hazardous PAH-impacted soil/fill was removed from AOCs SB-16 and SB-36 AOCs. Post-excavation soil samples were analyzed for TCL SVOCs and total RCRA metals.

- Excavation of 409.01 tons of metals-impacted near-surface soil/fill was removed from AOC SB-69. Based on discussions with the NYSDEC, post-excavation soil sample analysis was limited to total arsenic and lead.

- Excavation of 23.67 tons of asphalt mixed with soil/fill debris was removed from AOC Column Pile Line M5. Based on discussions with the NYSDEC, no post-excavation soil/fill samples were required.

Due to the shallow nature of most of these excavations and the anticipated generation of excess spoil materials from building foundation and other Site work, imported backfill was limited to AOC SB-4. Because this AOC was located in the center of the southern entrance access road, approximately 80 tons of imported virgin clean stone (2") from Buffalo Crushed Stone and approximately 270 tons of imported virgin screened gravel (2") from Gernatt Asphalt Products, Inc. were used as structural backfill per the recommendation from the Project Engineer (Cannon Design). For both backfill products, NYSDEC was provided specifications indicating the material was exempt from analytical testing due to minimal fines content in accordance with DER-10 Section 5.4(e)(5)(i). In addition, AOC SB-69 was backfilled with approximately 450 tons of NYSDEC-approved imported clean soil since subgrade work was already completed at the time this AOC was remediated. Post-excavation confirmatory soil laboratory data packages for the IRM are presented in Appendix E.

6.3 Other IRM Support Activities

In addition to the AOC soil/fill removal work, other relevant activities performed concurrently or in advance of the IRM are listed below:

- NYSDEC-approved decommissioning of well MW-2 on August 16, 2013 due to its location within the proposed storm water bio-retention area for the redeveloped site. Installation of replacement well MW-2R was completed on February 21, 2014 at the location shown on Figure 9. A detailed discussion of well decommissioning and well replacement is provided in Section 5.6.

- Construction of the Site access road, which included removal of soil/fill within the footprint of the proposed bus turnaround. Upon reaching design elevations (approximately 4.5 inches bgs), exposed Site soil/fill was graded and compacted per design specifications (prepared by others) followed by placement of a geotextile fabric and 12 inches of sub-base material (e.g., NYSDOT Type 1, run of crush) to allow truck access for loading of clearing/grubbing material, loading

of impacted IRM soil/fill, building construction activities, and staging of construction materials. The soil/fill spoils removed from this area were placed in a pre-existing depression located in the south central portion of the Site. In order to control Site soils from being tracked onto South Ogden Street, dump trucks used to remove clearing/grubbing materials and/or excavated IRM soil/fill as well as deliver clean backfill soils remained on the constructed gravel access road to the extent practicable.

- Scrap metal materials on the surface of the Site were removed and transported off-site for recycling.
- Upon completion of IRM and final clearing/grubbing activities, Site grading to design elevations was performed (by others) in accordance with the Interim Excavation Work Plan (Appendix B of the IRM Work Plan). Benchmark provided Community Air Monitoring Plan (CAMP) and environmental oversight during site grading activities to ensure conformance with the Interim Excavation Work Plan.

7.0 SAMPLE DENSITY

Based on the summary of the sampling and analysis program presented in Table 1, 80 soil/fill samples had been collected and analyzed during the initial Phase II ESA, the RI, and the SRI. This quantity of collected samples resulted in approximately 3.8 samples per acre (80 samples/21-acres). Following the implementation of the IRMs, an additional 69 soil/fill samples had been collected and analyzed (see Table 1). These IRM samples plus the 80 Phase II/RI/SRI samples resulted in 149 samples collected across the approximate 21-acre site for a sample density of approximately 7.1 samples per acre (see Table 1). All sample quantities were exclusive of QA/QC samples.

8.0 FATE AND TRANSPORT OF SITE CONTAMINANTS

Soil/fill sample results exceeded RRSCOs for certain contaminants (PAHs and metals) and contained weathered petroleum constituents. In addition, groundwater samples indicated minor exceedances of Class "GA" GWQSs/GVs for certain parameters in several wells. Accordingly, the RI and SRI data were incorporated with the physical characterization of the Site to evaluate the fate and transport of contaminants in Site media. The mechanisms by which the contaminants can migrate to other areas or media are briefly outlined below. In all instances, the potential pathways are evaluated in the context of post-IRM conditions.

8.1 Fugitive Dust Generation

Contaminants present in soil/fill can be released to ambient air as a result of fugitive dust generation. Impacted soil/fill and sediments were excavated/removed and disposed of off-site as part of the IRM activities. Fugitive dust may be generated during excavation activities associated with redevelopment. Therefore, this migration pathway is potentially relevant under the current land use scenario. Under the planned future land use scenario, the majority of the Site would be covered by the school building, asphalt driveway and parking areas, sidewalks, and ball fields with remaining small areas covered by grass and/or ornamental landscaping.

Based on the IRMs completed, the future land use, and the majority of the Site being covered by buildings, concrete, asphalt, and maintained playing fields; this migration pathway is not relevant under the reasonably anticipated future land use (i.e., restricted-residential), as long as paved (i.e. asphalt and concrete) and soil covered areas across the Site are maintained.

8.2 Volatilization

Volatile chemicals, when present in soil/fill and/or groundwater at elevated levels, may be released to ambient air or future building indoor air through volatilization from or through the soil/fill pore space. Volatile chemicals typically have a low organic-carbon partition coefficient (K_{oc}), low molecular weight, and a high Henry's Law constant.

VOCs were not detected in surface, near-surface, or subsurface soil/fill at concentrations above RRSCOs; however, PID readings were measured above background in isolated areas of the Site (i.e., AOCs SB-4 and SB-14). Groundwater samples from two

temporary and two permanent monitoring wells contained concentrations of VOCs above Class GA GWQS/GVs. Therefore, both the soil-to-air and groundwater-to-air pathways are potentially relevant.

8.3 Surface Water Runoff

The northern portion of the greater parcel (outside the BCP boundary) is located within the 100-yr floodplain of the Buffalo River. However, under the current use scenario, the potential for soil particle transport with surface water runoff is low, as Site redevelopment is being conducted in strict accordance with a Storm Water Pollution Prevention Plan (SWPPP) provided by others. Under the reasonably anticipated future use scenario, the Site will be covered by the school building, asphalt driveway and parking areas, sidewalks, ball fields, landscaping, and a soil cover system, mitigating transport of subsurface (i.e., soil/fill under cover) soil/fill via storm water runoff. Although storm water runoff during excavation activities is possible, during the future use scenario, erosion controls are typical construction practices and would be implemented as a component of the Site Management Plan required for BCP Sites that do not achieve Unrestricted-Use SCOs.

8.4 Leaching

VOCs were not detected at concentrations above RRSCOs in surface, near-surface, or subsurface soil/fill across the Site. PID readings above background were observed within the vicinity of soil boring SB-4 (petroleum-impacted area) and within soil boring SB-14; however, the impacted soil/fill within these areas has been excavated and disposed off-site. Minor VOC impacts were identified in samples collected from groundwater monitoring wells MW-2, TW-03, and TW-02 (all in the vicinity of the petroleum-impacted area) and well MW-4. The completed IRM excavation/removal and off-site disposal of impacted soil/fill from the Site mitigates potential leaching of chemicals to groundwater. Furthermore, the majority of the Site will be covered by impermeable surfaces (i.e., asphalt, concrete, and buildings) that limit infiltration of precipitation. As such, leaching is not considered a relevant migration pathway.

8.5 Groundwater Transport

As illustrated by Figures 6 and 7, shallow groundwater at the Site migrates to the north-northwest toward the Buffalo River. Contaminants present in on-site groundwater

may be transported across the Site via this pathway. However, the VOCs detected in the groundwater monitoring well within the petroleum-impacted area (i.e., well MW-2) as well as the one VOC detected in well MW-4 were not detected in downgradient temporary wells during the SRI (see Section 5.2). In addition, the petroleum-impacted soil/fill has been excavated and transported off-site, which removes the contaminant source from the vicinity of well MW-2.

The Site and surrounding area are serviced by a municipal (supplied) water service, with no evidence of potable wells in the area. As such, transport off-site via groundwater migration is a relevant migration pathway; however, contaminants present would not reach receptors at significant exposure point concentrations.

8.6 Exposure Pathways

Based on the fate and transport analysis provided above, the pathways through which contaminants detected on-site could potentially migrate to other areas or media are fugitive dust emissions via physical disturbance of soil particles during redevelopment activities, vapor-to-air volatilization, and, to a lesser extent, groundwater transport.

However, given the completed IRM activities; the anticipated Environmental Easement that will restrict groundwater for potable use; the vapor barrier and passive subslab depressurization system piping network beneath the school building; and NYSDEC/NYSDOH requirements for a Site Management Plan that addresses soil handling and dust controls during future excavation at remedial program construction sites, it is unlikely that site-related contaminants would reach off-site receptors at significant exposure point concentrations.

9.0 QUALITATIVE HUMAN HEALTH & WILDLIFE ASSESSMENT

9.1 Human Health Exposure Assessment

A qualitative exposure assessment consists of characterizing the exposure setting (including the physical environment and potentially exposed human populations), identifying exposure pathways, and evaluating chemical fate and transport.

An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements:

- A receptor population
- A contaminant source
- A contaminant release and transport mechanism
- A point of exposure
- A route of exposure

The *receptor population* is the people who are or may be exposed to contaminants at a point of exposure. The *contaminant source* is defined as either the source of contaminant release to the environment (such as a waste disposal area or point of discharge) or the impacted environmental medium (soil, air, biota, water) at the point of exposure. *Contaminant release and transport mechanisms* carry contaminants from the source to points where people may be exposed. The *point of exposure* is a location where actual or potential human contact with a contaminated medium may occur. The *route of exposure* is the manner in which a contaminant actually enters or contacts the body (i.e., ingestion, inhalation, dermal absorption).

An exposure pathway is *complete* when all five elements listed above are documented. A *potential* exposure pathway exists when one or more of the five elements comprising an exposure pathway is not documented but could reasonably occur. An exposure pathway may be *eliminated* from further evaluation when any one of the five elements comprising an exposure pathway does not exist in the present and will not exist in the future.

9.1.1 Potential Receptors

The identification of potential human receptors is based on the characteristics of the Site, the surrounding land uses, and the probable future land uses. The Site is currently being redeveloped as a Charter School. As such, under current Site use conditions, receptors would

be limited to trespassers who may traverse the Site and construction workers that access the Site to install subsurface utilities and construct new facilities. Trespassers might be comprised of adolescents and adults, whereas construction workers would be limited to adults.

The reasonably anticipated future use of the Site is for a restricted-residential-like purpose, which is consistent with surrounding property use and zoning. The receptors to be considered under the future use scenario would therefore include indoor occupants/workers (students and faculty), outdoor recreational users (students and faculty), outdoor workers (e.g., adult groundskeepers or maintenance staff), and to a lesser extent adult construction workers who may be employed at or perform work on the property. Consideration of these receptors would also be conservatively protective of the future Site visitor or trespasser.

9.1.2 Contaminant Sources

Sections 4.0 and 5.0 discuss the contaminants present in unremediated Site media at elevated concentrations. In general, these are limited to select inorganic compounds and PAHs in surface, near-surface, and subsurface soil/fill; and VOCs in groundwater.

9.1.3 Contaminant Release and Transport Mechanisms

Contaminant release and transport mechanisms are specific to the type of contaminant and site use. For the non-volatile contaminants present in site-wide soil/fill, contaminant release and transport mechanisms will generally be limited to fugitive dust migration and direct contact during intrusive work (e.g., during construction and grounds keeping activities), as the Site will be covered by buildings, parking lots, driveways, and a soil cover system consisting of playing fields and landscaping after redevelopment.

For volatile contaminants present in groundwater, the potential exists for exposure through pathways associated with soil gas migration. This would include both the outdoor pathway (primarily to construction workers involved in subsurface activities where volatiles are present at elevated concentration) as well as the indoor vapor intrusion pathway, also referred to as "soil vapor intrusion."

Concerning the indoor air pathway, the NYSDOH has issued a guidance document for assessing potential impacts to indoor air via soil vapor intrusion (Ref. 13). This document presently provides guidance criteria for seven chlorinated aliphatic VOCs, of which one (cis-

1,2-dichloroethene or cis-1,2-DCE) was detected at an elevated concentration in groundwater at well MW-4; however, cis-1,2-DCE was not detected in groundwater downgradient and cross-gradient of this location. The concentration of cis-1,2-DCE detected in MW-4 decreased from 75 ug/L in January 2013 to 9.4 ug/L in August 2013, slightly above the GWQS/GV of 5 ug/L. The other VOCs detected above GWQS/GVs in Site groundwater (well MW-2) were petroleum-based compounds limited to benzene, chlorobenzene, 1,2-dichlorobenzene, and isopropylbenzene; these compounds were not detected in downgradient groundwater. Weathered petroleum impacts present in Site soil/fill as evidenced by PID readings were removed from the Site during the IRM (see Section 6.0).

As such, under the future (un-remediated) use scenario, the potential exists for soil vapor migration of residual impacts. The chlorinated VOC detected in MW-4 is localized to that location at a relatively low concentration (9.4 ug/L) and is located cross-gradient as well as several hundred feet away from the proposed school building; therefore, this pathway is highly unlikely. Concerning the outdoor air pathway, the potential exists for exposure to VOCs under the current and future use scenarios for construction workers in select areas of the Site. For the reasonably anticipated future use of the Site, vapor migration under the proposed building is not a concern due to the absence of chlorinated VOC impacts in groundwater beneath or proximate to the building as well as removal of petroleum-impacted soil/fill during the IRM.

9.1.4 Point of Exposure

Based on the widespread exceedances of RRSCOs for certain ubiquitous parameters (i.e., metals and PAHs), the point of exposure is defined as the overall Site. For both the current and future use scenarios, groundwater is not considered to pose a relevant mechanism due to the isolated and localized groundwater impacts, the removal of impacted soil/fill during the IRM, the availability of a local municipal potable water source, the depth to groundwater (greater than 4.5 feet; the standard depth of utilities and foundation footers), and the anticipated Environmental Easement that will not allow the use of Site groundwater without treatment.

9.1.5 Route of Exposure

Based on the types of receptors and points of exposure identified above, potential routes of exposure are listed below:

Current Use Scenario

- Construction Worker/Trespasser – skin contact, inhalation, and incidental ingestion.

Future Use Scenario

- Indoor Occupants – inhalation.
- Outdoor Recreational User, Construction Worker, and Outdoor Worker – skin contact, inhalation and incidental ingestion.

9.1.6 Exposure Assessment Summary

Based on the above assessment, the potential exposure pathways for the current and future use conditions are listed below.

Current Use Scenario

- Construction Worker – direct contact, incidental ingestion, and inhalation of non-volatile contaminants present in site-wide soil/fill, and inhalation of volatile organics present in petroleum-impacted soil/fill during intrusive activities.

Future Use Scenario

- Indoor Occupant – inhalation of volatile contaminants present in petroleum-impacted soil/fill and groundwater via indoor air migration.
- Construction and Outdoor Worker – direct contact, incidental ingestion and inhalation of non-volatile contaminants present in site-wide soil/fill, and inhalation of volatile contaminants present in petroleum-impacted soil/fill during intrusive activities.

These exposures have already been substantially remedied through the IRM activities undertaken to date and can be fully mitigated during and following redevelopment through proper soil/fill management and engineering controls including placement of asphalt, building, and landscape cover; and construction of vapor barriers.

9.2 Fish and Wildlife Impact Assessment (FWIA)

Although the Site has not been historically developed, it has undergone significant fill import associated with rerouting of the former Buffalo River channel and apparent non-soil fill (e.g., construction material) dumping activities, limiting the ecological value of the property. The Site was mainly populated by low-lying vegetation (grasses and invasive weeds) and small stature early successional trees (e.g., eastern cottonwood and poplar) consistent with properties where historic filling and related anthropogenic activities have occurred.

The northern boundary of the Site is proximate to the Buffalo River, a Significant Coastal Fish and Wildlife Habitat; however, redevelopment plans under the BCP do not involve the approximate 100-foot buffer area between the BCP Site redevelopment (60-feet to the BCP boundary) and the river bank.

The majority of fauna found on the Site are avian and small mammal species. No endangered fish or wildlife species were identified for the Site (Ref. 14) at the time the BCP application was filed in 2012. The close proximity of the surrounding suburbanized areas further detracts from habitat and foraging.

The Site is currently undergoing redevelopment into a new approximately 100,000 square foot Charter School for grades K through 8. The redevelopment plan includes driveways, parking lots, and recreational areas consistent with surrounding residential and recreational land use. Buildings, parking lots, driveways, recreational areas, and maintained ornamental landscaping will substantially limit availability of suitable cover type for reestablishment of biota.

Based on these factors the Fish and Wildlife Resource Impact Analysis Decision Key, included as Appendix F (Ref. 14; Appendix 3C), indicates no fish and wildlife resources impact analysis is warranted.

10.0 REMEDIAL ALTERNATIVES EVALUATION

This section provides an analysis of the selected remedial approach by media using the Remedy Selection Evaluation Criteria identified in Section 4.2 of Guidance Document DER-10: Technical Guidance for Site Investigation and Remediation (Ref. 15). In accordance with DER-10 Section 4.4(d)2, remedial alternatives for soil/fill will be developed and comparatively assessed for the Site against the following NYSDEC defined cleanup tracks:

- Track 1, 6NYCRR Part 375-3.8(e)(1) allows the site to be used for any purpose without restriction (i.e., unrestricted use) provided site media meets 6 NYCRR Part 375 SCOs. The soil cleanup must achieve the unrestricted use criteria at any depth above bedrock.
- Track 2, 6NYCRR Part 375-3.8(e)(2) soil cleanups may consider the current, intended, or reasonably anticipated future use in determining the appropriate cleanup levels for soil. This track requires that the remedial party implement a cleanup that achieves the SCOs in the tables in 6 NYCRR 375-6.7(b) for the top 15 feet of soil (or bedrock if less than 15 feet). Institutional and engineering controls are allowed for soil (for the top 15 feet of soil or bedrock if less than 15 feet) for less than five years (defined as short-term controls). Institutional and engineering controls that limit site use and the use of on-site groundwater can be used without regard to duration. Track 2 cleanups at restricted-residential, commercial, or industrial use sites require site management plans to ensure that material removed from the site (post-remedial action) is managed appropriately and to ensure that any buffer zone protecting adjacent residential use sites or ecological resources is maintained.
- Track 4, 6NYCRR Part 375-3.8(e)(4) soil cleanups uses site-specific information to identify site-specific SCOs (or site-specific action levels; SSALs) that are protective of public health and the environment under a restricted use scenario. For Track 4 remedies, restrictions can be placed on the use of the property in the form of institutional and engineering controls if they can be realistically implemented and maintained in a reliable and enforceable manner. For restricted-residential use, the top two feet of all exposed surface soil that are not otherwise covered by the components of the development of the site (e.g. buildings, pavement) shall not exceed the RRSCOs. Areas that exceed the RRSCOs must be covered by material meeting the requirements of the generic soil cleanup table contained in 6NYCRR Part 375-6.7(d) for restricted-residential future Site use.

10.1 Standards, Criteria, and Guidance

According to DER-10 Section 1.3(b)71, Standards, Criteria, and Guidance (SCGs) mean standards and criteria that are generally applicable, consistently applied, and officially promulgated, that are either directly applicable or not directly applicable but are relevant and appropriate, unless good cause exists why conformity should be dispensed with, and with consideration being given to guidance determined, after the exercise of scientific and engineering judgment, to be applicable. This term incorporates both the CERCLA concept of "applicable or relevant and appropriate requirements" (ARARs) and the USEPA's "to be considered" (TBCs) category of non-enforceable criteria or guidance. For purposes of this Guidance, "soil SCGs" mean the SCOs and supplemental soil cleanup objectives (SSCOs) identified in 6NYCRR 375-6.8 and the Commissioner Policy CP-51 on Soil Cleanup Guidance (Ref. 16).

Additional discussions concerning the specific chemical-, action-, and location-specific SCGs that may be applicable, relevant, or appropriate to remedy selection at the Site are presented below. In each case, the identified SCGs are generally limited to regulations or technical guidance in lieu of the environmental laws from which they are authorized, as the laws are typically less prescriptive in nature and are inherently considered in the regulatory and guidance evaluations. Table 20 summarizes the SCGs by media that may be applicable or relevant and appropriate to the Sites.

10.1.1 Chemical-Specific SCGs

Chemical-specific SCGs are usually health- or risk-based concentrations in environmental media (e.g., air, soil, water), or methodologies that when applied to site-specific conditions, result in the establishment of concentrations of a chemical that may be found in, or discharged to, the ambient environment. The determination of potential chemical-specific SCGs for a site is based on the nature and extent of contamination; potential migration pathways and release mechanisms for site contaminants; the reasonably anticipated future site use; and the likelihood that exposure to site contaminants will occur.

RI sampling included the collection and analysis of surface, near-surface, and subsurface soil/fill. This data was compared to the Part 375 SCOs for unrestricted, restricted-residential, and restricted-industrial use (see Tables 5, 6, and 7, respectively). SRI and IRM sampling included the collection and analysis of surface, near-surface, and

subsurface soil/fill compared to the Part 375 ISCOs (see Tables 9, 10, 12 thru 19). Groundwater samples collected during the RI and SRI were compared to Class "GA" GWQSs/GVs (see Tables 8 and 11, respectively).

10.1.2 Location-Specific SCGs

Location-specific SCGs are restrictions placed on the concentration of hazardous substances or the conduct of activities solely because they are in a specific location. Some examples of these unique locations include: floodplains, wetlands, historic places, and sensitive ecosystems or habitats. The location of the Site is a fundamental determinant of its impact on human health and the environment.

10.1.3 Action-Specific SCGs

Action-specific SCGs are restrictions placed on particular treatment or disposal technologies. Examples of action-specific SCGs are effluent discharge limits and hazardous waste manifest requirements.

10.2 Remedial Action Objectives

The development of an appropriate remedial approach begins with definition of site-specific Remedial Action Objectives (RAOs) to address substantial public health and ecological risk or other significant environmental issues identified during remedial investigations.

In developing the RAOs, consideration is given to the reasonably anticipated future use of the Site (i.e., restricted-residential use) and the applicable SCGs. Accordingly, appropriate RAOs for the Site have been defined as:

10.2.1 Soil/Fill RAOs

- Remove or treat soil/fill areas of concern (i.e., soil/fill deemed unacceptable to remain on-site, even under a Track 4 approach) as necessary to protect public health and the environment.
- Prevent ingestion/direct contact with soil/fill where contaminant levels exceed RRSCOs.
- Prevent migration of contaminants that may result in unacceptable off-site concentration.

- Prevent inhalation of or exposure to contaminants potentially volatilizing from contaminated soil/fill.
- Implement and maintain engineering and institutional controls to assure that the Site is not used in a manner inconsistent with the reasonably anticipated future use scenario.

10.2.2 Groundwater RAOs

- Remove or treat potential sources of groundwater contamination.
- Prevent ingestion of groundwater containing contaminant levels exceeding NYSDEC Class GA GWQS/GVs.
- Prevent contact with or inhalation of volatile compounds emanating from contaminated groundwater.
- Prevent degradation of off-site groundwater quality.
- Implement and maintain engineering and institutional controls to assure that the Site is not used in a manner inconsistent with the reasonably anticipated future use scenario.

10.3 General Response Actions

General Response Actions (GRAs) are broad classes of actions that are developed to achieve the RAOs and form the foundation for the identification and screening of remedial technologies and alternatives.

10.3.1 Soil/Fill

The GRAs available to address the RAOs for surface/near-surface soil/fill include:

- Institutional controls (e.g., Site Management Plan, Environmental Easement)
- Engineering controls (e.g., cover system)
- Treatment (e.g., in situ or ex situ)
- Excavation and off-site disposal

10.3.2 Groundwater

The GRAs available to address the RAOs for groundwater include:

- Monitored natural attenuation
- Institutional controls
- Engineering controls (e.g., pump-and-treat)

- Treatment (e.g., in situ or ex situ)

10.4 Evaluation of Alternatives

NYSDEC's Brownfield Cleanup Program calls for remedy evaluation in accordance with DER-10 Technical Guidance for Site Investigation and Remediation (Ref. 15). In addition to achieving RAOs, the remedial alternatives are evaluated against the following criteria consistent with 6NYCRR Part 375-1.8(f):

- **Overall Protectiveness of Public Health and the Environment**. This criterion is an evaluation of the remedy's ability to protect public health and the environment, assessing how risks posed through each existing or potential pathway of exposure are eliminated, reduced, or controlled through removal, treatment, engineering controls, or institutional controls.
- **Compliance with Standards, Criteria, and Guidance (SCGs)**. Compliance with SCGs addresses whether a remedy will meet applicable environmental laws, regulations, standards, and guidance as described in Section 8.1.
- **Long-Term Effectiveness and Permanence**. This criterion evaluates the long-term effectiveness of the remedy after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: (i) the magnitude of the remaining risks (i.e., will there be any significant threats, exposure pathways, or risks to the community and environment from the remaining wastes or treated residuals), (ii) the adequacy of the engineering and institutional controls intended to limit the risk, (iii) the reliability of these controls, and (iv) the ability of the remedy to continue to meet RAOs in the future.
- **Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment**. This criterion evaluates the remedy's ability to reduce the toxicity, mobility, or volume of Site contamination. Preference is given to remedies that permanently and significantly reduce the toxicity, mobility, or volume of the wastes at the Site.
- **Short-Term Impacts and Effectiveness**. Short-term effectiveness is an evaluation of the potential short-term adverse impacts and risks of the remedy upon the community, the workers, and the environment during construction and/or implementation. This includes a discussion of how the identified adverse impacts and health risks to the community or workers at the Site will be controlled, and the effectiveness of the controls. This criterion also includes a discussion of engineering controls that will be used to mitigate short term impacts

(i.e., dust control measures), and an estimate of the length of time needed to achieve the remedial objectives.

- **Implementability**. The implementability criterion evaluates the technical and administrative feasibility of implementing the remedy. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc.
- **Cost-Effectiveness**. Capital, operation, maintenance, and monitoring costs are estimated for each remedial alternative and presented on a present worth basis. The estimated soil/fill areas and volumes presented are estimates of the maximum in-place extent of impacted soil/fill. The cost estimates developed for the remedial alternatives include contingencies for excavation inefficiencies as well as volume to weight assumptions; therefore, the quantities in the cost tables differ from those presented in the report text.
- **Community Acceptance**. This criterion evaluates the public's comments, concerns, and overall perception of the remedy. The Community Acceptance criterion incorporates public concerns into the evaluation of the remedial alternatives. Therefore, Community Acceptance of the remedy will be evaluated after the public review of the remedy selection process as part of the final NYSDEC remedy selection/approval.
- **Land Use**. In addition to the above criteria, 6NYCRR Part 375-1 specifies that the criterion of Land Use (i.e., the current, intended, and reasonably anticipated future land uses of the Site and its surroundings) be considered in the selection of the remedy. The reasonably anticipated future use of the Site, as initially submitted to the NYSDEC via the BCP application, is in a restricted-residential capacity. Appendix G presents the land use evaluation for the Site.

10.4.1 Comparison to Unrestricted SCOs (Track 1 Cleanup)

Exceedances of the Part 375 unrestricted use SCOs were noted in the majority of soil/fill samples collected, primarily for PAHs and select metals (primarily arsenic, barium, cadmium, copper, lead, mercury, and zinc); and, to a lesser extent, pesticides. Due to the highly ubiquitous nature of the constituents observed in Site soil/fill and the extent to which they exceeded the unrestricted use SCO values, it is likely that the entire 21-acre BCP Site defines the impacted soil/fill area. Exceedances of the unrestricted SCOs were observed up to 12 fbgs and native clean soil was encountered at approximately 16 fbgs. Therefore, this alternative will conservatively assume a depth of impact of 16 fbgs, which is coincidentally

the depth the water table was encountered. Thus, the volume of impacted soil/fill requiring remediation under a Track 1 cleanup is approximately 545,000 cubic yards (871,500 tons).

10.4.2 Comparison to Restricted Use SCOs (Track 2 Cleanup)

The soil/fill data indicated widespread exceedances of the Part 375 RRSCOs for several ubiquitous constituents. Specifically, the majority of samples collected exhibited exceedances of the RRSCOs for PAHs, with many samples also exhibiting an exceedance of the RRSCOs for barium, lead, and mercury. Based on the data, it is likely that the majority of the Site contains soil/fill concentrations that exceed one or more of the RRSCO criteria. Since a Track 2 cleanup is essentially the same as a Track 1 cleanup, this alternative has not been evaluated further.

10.4.3 Comparison to Restricted-Use SCOs (Track 4 Cleanup)

Under a Track 4 cleanup for the Site, soil/fill with concentrations above RRSCOs would require a 2-foot soil or impervious (hardscape) cover system to be protective of human health for the typical property user (i.e., students, faculty recreational users of the property). The Track 4 cleanup also must consider: 1) the less common exposure scenario of the construction or maintenance worker who may need to perform periodic grounds keeping or other subsurface work (e.g., utility repairs) involving work beneath the cover system, and 2) the need to remediate grossly impacted soil/fill (such as those exhibiting petroleum impact) where feasible per NYSDEC cleanup policy. As these concerns were substantially addressed via the IRM activities described in Section 6.0, the remaining Track 4 cleanup activities would include institutional controls (e.g., groundwater and land use restrictions, Site Management Plan and Environmental Easement) and engineering controls (e.g., cover systems, vapor barrier) as components of the final remedy to reduce future potential exposure to impacted soil/fill and groundwater.

10.4.4 Groundwater

Within the petroleum-impacted soil/fill AOC (at temporary well TW-03), two VOCs (benzene and isopropylbenzene) and one SVOC (naphthalene) were detected at concentrations above their respective GWQSs. Decommissioned RI monitoring well MW-2, located upgradient of the petroleum-impacted soil/fill AOC, contained chlorobenzene and 1,2-dichlorobenzene at concentrations above GWQSs in January 2013 with significantly

reduced concentrations in August 2013. All VOC concentrations in the samples collected from temporary wells TW-4 and TW-5 during the SRI are below GWQS/GVs. Therefore, the impacts to groundwater are isolated, associated with the petroleum-impacted soil/fill within this area, and are expected decrease significantly in the wake of the petroleum-impacted soil/fill AOC (i.e., SB-4 AOC) excavation work.

The only other organic analyte detected above GWQSs was cis-1,2-DCE in well MW-4. The cis-1,2-DCE concentration detected in MW-4 in August 2013 (9.4 ug/L) was significantly reduced compared to the concentration detected in January 2013 (75 ug/L) and only slightly above its GWQS (5 ug/L). The groundwater downgradient of (TW-08) and cross-gradient to (TW-06 and TW-07) well MW-4 was characterized through installation and sampling of three temporary wells during the March 2013 SRI; all VOC concentrations in the samples collected during the SRI are below GWQS/GVs. Since this is an isolated and localized detection in an area not slated for building development, no remedial measures to address cis-1,2-DCE will be undertaken other than potential post-remedial groundwater monitoring to verify no significant increase in concentrations.

The inorganic compounds detected in groundwater monitoring wells at concentrations above GWQS/GVs were limited to iron, magnesium, manganese, and sodium, which are considered ubiquitous groundwater constituents for this area. Total lead was detected in MW-5 at a concentration (25.4 ug/L) slightly above the GWQS (25 ug/L); however, dissolved lead was not detected, indicating the lead is associated with suspended solids that would likely be caught within the soil matrix as groundwater flows downgradient. Total lead was detected at a concentration of 8.52 ug/L during the August 2013 sampling event, which is well below the GWQS.

10.4.5 Identification of Remedial Alternatives

Since an IRM has already been completed for the Site, the following remedial alternatives have been developed in accordance with the RAOs, GRAs, and NYSDEC regulation and policy:

- Alternative 1: No Further Action (beyond the IRM)
- Alternative 2: Unrestricted Use (Track 1) Cleanup
- Alternative 3: Restricted-Use (Track 4) Cleanup

10.4.5.1 Alternative 1: No Further Action

The no-action alternative is defined as performing no additional remedial actions beyond removal of on-site impacted soil/fill during the IRM. In addition, no engineering or institutional controls would be put in place under this alternative.

Overall Protectiveness of Public Health and the Environment – This alternative would not protect public health and the environment as there would be areas of the Site with exposed surface soil/fill that are not otherwise covered by the components of the development of the Site (e.g. buildings, pavement) containing contaminant concentrations above the RRSCOs. This alternative would not meet the RAOs for the Site.

Compliance with SCGs – This alternative has addressed soil/fill AOCs through removal; however, exposure to contaminants in excess of the RRSCOs remains. Therefore, this alternative does not comply with SCGs per 6NYCRR Part 375, which requires the top two feet of all exposed surface soil to meet the RRSCOs.

Long-Term Effectiveness and Permanence – This alternative provides no long-term maintenance measures and, as such, provides no reliable long-term control against exposure to remaining surface soil/fill above RRSCOs.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – The IRM completed at the Site has reduced the toxicity, mobility, or volume of contaminants in soil/fill. Reduction of petroleum-related constituent concentrations in groundwater will likely be reduced with time as a result of removal of the soil/fill sources.

Short-Term Impacts and Effectiveness – There would be no additional risks posed to the community, Site workers, or the environment associated with implementation of the no further action alternative.

Implementability – No technical implementability issues or action-specific administrative implementability issues are associated with the no further action alternative.

Cost-Effectiveness – The capital cost of the completed IRM was approximately $250,000. There are no capital or operation, maintenance, and monitoring (OM&M) costs associated with the no further action alternative.

Community Acceptance – Since this alternative is not protective of public health and the environment, the community would not accept the no further action alternative for the designated Site use.

Land Use – This alternative is not consistent with the reasonably anticipated future use of the Site in a restricted-residential capacity as it is not protective of public health and the environment.

10.4.5.2 Alternative 2: Unrestricted Use (Track 1) Cleanup

Alternative 2 consists of excavation and off-site disposal of all soil/fill that contains chemical constituents at concentrations greater than 6NYCRR Part 375 SCOs for unrestricted use and/or has evidence of grossly contaminated media. Achieving these Track 1 remediation goals (Section 4 and Part 4.4 (d)(2) of DER-10) obviates the need for engineering and institutional controls. For unrestricted use scenarios, excavation and off-site disposal of impacted soil/fill is generally regarded as the most applicable remedial measure, because engineering controls cannot be used to supplement the remedy.

Due to the highly ubiquitous nature of the constituents observed in Site soil/fill and the extent to which they exceeded the unrestricted use SCO values, it is likely that the entire 21-acre BCP Site defines the impacted soil/fill area. Exceedances of the unrestricted SCOs were observed up to 12 fbgs and native clean soil was encountered at approximately 16 fbgs. Therefore, this alternative will conservatively assume a depth of impact of 16 fbgs, which is coincidentally the depth the water table was encountered. Thus, the volume of impacted soil/fill requiring excavation and off-site disposal is approximately 545,000 cubic yards (est. 871,500 tons). Since approximately 1,400 tons of impacted soil/fill were removed from the Site during the IRM, Alternative 2 assumes that the remaining 544,000 cubic yards (est. 870,100 tons) would be excavated and disposed off-site.

Based on TCLP testing at one AOC during the RI and one AOC during the SRI, the excavated soil/fill is assumed not to be characteristically hazardous and would therefore be transported to a commercial solid waste disposal facility. Excavated materials would require

handling and preparation for off-site transportation and disposal. If necessary, a dewatering system would be installed to facilitate excavation activities. Water generated during the dewatering activities would be treated on-site via temporary water treatment system and then discharged to the sanitary sewer under a temporary discharge permit. Excavated areas would be backfilled with material meeting the BCP criteria presented in DER-10 and 6NYCRR Part 375 to the pre-excavation elevations and grades, and all disturbed areas would be restored with topsoil and grass seeding, or hardscape if redevelopment activities have been approved.

Based on the removal of all impacted soil/fill, the already low groundwater concentrations would be expected to decrease over time. A restriction on groundwater use may be included as a component of the remedial program per 6NYCRR Part 375-3.8(e)(1)(iii).

Overall Protectiveness of Public Health and the Environment – Excavation and off-site disposal to unrestricted use SCOs would be protective of public health under any reuse scenario. However, this alternative would permanently use and displace approximately 544,000 cubic yards of valuable landfill airspace, causing ancillary environmental issues due to reduced landfill capacity, and would require excavating, transporting, and placing 544,000 cubic yards of clean soil from an off-site borrow source to backfill the excavation, also contributing to significant detrimental off-site environmental issues.

Compliance with SCGs – Similar to the IRM soil/fill removal activities, the additional excavation and off-site disposal would need to be performed in accordance with applicable, relevant, and appropriate SCGs. Soil excavation activities would necessitate preparation of and adherence to a community air monitoring plan (CAMP) in accordance with Appendices 1A and 1B of DER-10.

Long-Term Effectiveness and Permanence – This alternative would remove all impacted soil/fill and therefore provide long-term effectiveness and permanence.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – Through removal of all impacted soil/fill, this alternative would permanently and significantly reduce the toxicity, mobility, and volume of contamination on the Site.

However, since this alternative transfers Site soil/fill from one environment to another, an overall reduction of toxicity and volume would not occur, although mobility of soluble constituents would be reduced in the commercial landfill with a liner, leachate collection, and a cover system.

Short-Term Impacts and Effectiveness – The principal advantage of a large-scale excavation to achieve unrestricted SCOs is reliability of effectiveness in the long-term. The short-term adverse impacts and risks to the community, workers, and environment during implementation of this alternative are significant. Site workers would be at greater risk of injury due to the depth of the excavation and increased use of heavy equipment. Other physical hazards, primarily related to potential accidents from heavy truck traffic, would be expected as the excavation work would require removal of approximately 40,000 truckloads of soil/fill and import of a similar number of clean loads from the borrow source. Dust control methods would be required to limit the release of particulates during placement of the backfill soils; however, substantial disruption of the neighboring community would occur due to material transport and deliveries and noise from heavy equipment used to construct the remedy. This action would result in storm water impacts at the borrow source(s) and on-site; diesel fuel consumption on the order of 325,000 gallons (assuming 65 miles round trip to a local landfill; 8 miles per gallon), with several thousands of gallons also consumed by excavation and grading equipment. The USEPA's estimated CO_2 generation rate for diesel engines is approximately 22.2 pounds per gallon of diesel consumed. Accordingly, this alternative would produce over 7 million pounds of greenhouse gas.

This alternative represents a significant adverse effect in the short-term; however, the RAOs would be achieved once the soil/fill is removed from the Site and backfill soils are in place (est. 6 months).

Implementability – Significant technical and administrative implementability issues would be encountered in construction of this unrestricted use alternative. Technical implementability issues may include, but are not limited to: shoring/stabilizing excavation sidewalls to prevent sloughing during excavation; the need for construction, maintenance, and operation of dewatering facilities; groundwater and/or storm water handling, treatment and/or discharge/disposal; and traffic coordination for trucks entering and exiting the Site.

In addition, construction of the school building following deep excavation of native material will result in geotechnical and safety issues relating to structural integrity of building foundation. Administrative implementability issues may include: the need to coordinate and secure disposal contracts with numerous permitted off-site landfills, as no single location would be able to accept the volume of soil/fill generated under this alternative; and difficulty locating local borrow sources for such a large volume of backfill.

Cost-Effectiveness – The remedial costs for implementation of Alternative 2 are estimated at $61 million. Table 21 provides a breakdown of these remedial costs.

Community Acceptance – Since this alternative is protective of public health and the environment, the community would likely accept the unrestricted use alternative; however, significant short-term disruption may result in complaints by neighbors.

Land Use – This alternative is consistent with the reasonably anticipated future use of the Site.

10.4.5.3 Alternative 3: Restricted-Use (Track 4) Cleanup

Under a Track 4 cleanup for the Site, no additional soil/fill would need to be excavated beyond the soil/fill AOCs removed during the IRM; however, a cover system comprised of 2 feet of clean soil would need to be placed in areas not otherwise covered by impervious (hardscape) cover (i.e., buildings, paved driveways and parking, etc.). As such, Alternative 3 would include the following components:

- Grading of remaining soil/fill to achieve desired sub-grade elevations.
- Excavation (and placement on-site in an area designated for cover) of soil/fill within the building footprint for installation of the capped pile building foundation system. For the proposed school building, the capped pile foundation will incorporate pile-driven steel columns spaced at approximately 20 feet on center. The columns will terminate approximately 8 inches below the finished concrete floor elevation and be surrounded by reinforced concrete caps having dimensions of approximately 4 feet by 4 feet by 3 feet deep. Concrete grade beams will run from cap to cap, resulting in a honeycomb-like subgrade support system. Between the grade beams, a 6-inch layer of select fill will be placed to support the floor slab.

- AOC source removal and downgradient groundwater and soil/fill analytical data indicate that soil vapor will not be an issue within the school building at the Site. However as a precaution, a vapor barrier (greater than 10-mil) will be placed above the building sub-base aggregate prior to pouring the concrete floor slab as a passive secondary engineering control and to assist in maintaining a sub-slab pressure differential.
- In addition to the vapor barrier, and per a NYSDOH request, the piping components of an Active Sub-slab Depressurization (ASD) system will be installed within the aggregate below the vapor barrier and the building foundation. The sub-slab portion of the ASD system will consist of a 4-inch Schedule 40 perforated PVC piping network that will run laterally under the entire structure to several vertical 90 degree elbows as shown on Figure 10. In the event the ASD system is required, vertical piping will be connected to these elbows each fitted with an appropriately sized roof fan to provide negative pressure in the sub-slab soil.
- Placement of a soil cover system, including a demarcation layer (e.g., orange plastic netting) and at least two feet of approved cover material in areas not covered by impervious/hardscape materials such as asphalt driveways and parking lots, and concrete slabs or walkways. Hardscape cover outside the building footprint will be a minimum of 6 inches thick.
- Implementation of a Site Management Plan (SMP). For any BCP Site not remediated to meet NYSDEC Part 375 unrestricted SCOs, preparation of an SMP that describes site-specific Institutional Controls and/or Engineering Controls (IC/EC) is a required component of the final remedy. The SMP will include the following components: IC/EC Plan; Operations and Maintenance (O&M) Plan; Excavation Work Plan; Site Monitoring Plan; and Environmental Easement.

Overall Protectiveness of Public Health and the Environment – This alternative meets NYSDEC requirements for a Track 4 cleanup under the BCP regulations and is protective of public health and the environment. The RAOs for the Site would be satisfied through the completed and planned remedial activities, including: removal and off-site disposal of soil/fill AOCs; placement of a vapor barrier beneath the school building floor slab (and future buildings) to mitigate potential on-site VOC vapor intrusion concerns; installation of cover systems (soil and imperious) across the Site; and the use of IC/ECs to prevent potential future exposure and limit the future Site use to restricted-residential.

Compliance with SCGs – The remedial activities completed under the IRM were performed in accordance with applicable, relevant, and appropriate SCGs (see Table 20). Imported cover material would need to meet backfill quality criteria per DER-10 and 6NYCRR Part 375. Vegetative cover stripping and cover placement will be performed under the BCP in accordance with a SWPPP and SPDES General Permit prepared in support of the overall site redevelopment plan. Subgrade preparation activities adhered to a CAMP in accordance with Appendices 1A and 1B of DER-10. The completed IRM and additional planned remedial actions are fully protective of public health and the environment, and achieve all RAOs for the Site.

Long-Term Effectiveness and Permanence – Removal of soil/fill AOCs under the IRM as well as construction of a cover system will prevent direct contact with soil/fill exceeding the RRSCOs. Periodic inspection and maintenance of the soil cover as well as the hardscape cover (e.g., asphalt roads, concrete walkways, and parking areas, etc.) will be required to assure long-term cover integrity. Placement of a vapor barrier and ASD system piping beneath the school building and future buildings will mitigate potential on-site VOC vapor intrusion concerns. The SMP will include: an O&M Plan to confirm that engineering controls, including the cover systems, are operating and being maintained in accordance with the SMP; an Excavation Work Plan to address any impacted soil/fill encountered during post-development maintenance activities; and a Site-wide inspection program to assure that the IC/ECs placed on the Site have not been altered and remain effective. Furthermore, an Environmental Easement for the Site will be filed with Erie County, which will limit the future use of the Site to restricted-residential use, restrict groundwater use, and reference the NYSDEC-approved SMP. As such, this alternative will provide long-term effectiveness and permanence.

Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment – Removal of soil/fill AOCs followed by placement of cover systems will permanently and significantly reduce the toxicity, mobility, and volume of the soil/fill that could potentially be contacted or produce localized areas of environmental impact at the Site. Accordingly, this alternative satisfies this criterion.

Short-Term Effectiveness and Impacts – During intrusive remedial activities (e.g., IRM soil/fill excavation), air monitoring was performed to assure conformance with community air monitoring action levels. The potential for chemical exposures and physical injuries were reduced through safe work practices; proper personal protection equipment; environmental monitoring; establishment of work zones and Site control; and appropriate decontamination procedures. Excavation of the soil/fill AOCs was completed within a 2-month period thereby limiting short-term adverse effects. Remedial activities were performed in accordance with the approved IRM Work Plan, including health and safety plan (HASP), CAMP, and soil erosion measures. All of the above mentioned controls will be in place during cover system placement. This alternative achieves the RAOs for the Site.

Implementability – No significant technical or administrative implementability issues are associated with this alternative.

Cost-Effectiveness – The estimated capital cost for Alternative 3 is $1.7285 million, including: placement of a vapor barrier beneath the school building; installation of the ASD system piping; construction of a 2-foot soil cover system; and development of an FER and SMP. Annual OM&M costs for cover maintenance and annual certifications are estimated to be $11,000. Therefore, the 30-year present worth of the remedial cost to implement Alternative 3 is estimated at $1.944 million. Table 22 provides a breakdown of these remedial costs.

Land Use – Based on the land use evaluation discussed in Section 8.4 and presented in Appendix G, reuse of the Site in a restricted-residential capacity is consistent with past and current development and zoning on-site and within the vicinity of the Site, and does not pose additional environmental or public health risks.

Community Acceptance – Community acceptance will be evaluated based on comments to be received from the public in response to Fact Sheets and other planned Citizen Participation activities.

10.4.6 Comparison of Remedial Alternatives

The previous sections describe and evaluate the remedial alternatives for the Site against the screening criteria. Table 23 provides a comparison of the alternatives to identify appropriate remedial measures that will achieve the RAOs for the Site.

10.4.7 Preferred Remedial Alternative

The proposed remedial approach for the Site is *Alternative 3; Restricted-Use (Track 4) Cleanup* because it is fully protective of public health and the environment; is significantly less disruptive to the community; is consistent with current and future land use; and represents a more cost-effective approach than Alternative 2 while fully satisfying the RAOs for the Site. Alternative 3 would constitute the final remedy for the Site.

In summary, Alternative 3 would involve:

- Grading of remaining soil/fill to achieve desired sub-grade elevations.
- Excavation and on-site placement of non-impacted soil/fill from beneath the building footprint for construction of the building foundation as previously described.
- Placement of a vapor barrier (greater than 10-mil) beneath the 8-inch reinforced concrete floor slab of the school building and future buildings to prevent against potential vapor intrusion.
- Installation of the piping components of an ASD system within the aggregate below the building foundation. The sub-slab portion of the ASD system will consist of a 4-inch Schedule 40 perforated PVC piping network that will run laterally under the entire structure to several vertical 90 degree elbows as shown on Figure 10. In the event the ASD system is required, vertical piping will be connected to these elbows each fitted with an appropriately sized roof fan to provide negative pressure in the sub-slab soil.
- Placement of a soil cover system, including a demarcation layer and at least two feet of approved cover material or impervious materials such as asphalt driveways and parking lots, and concrete building foundations, slabs, or walkways. Approved soil cover material will meet NYSDEC DER-10 standards for restricted-residential sites (i.e., lower of Part 375 public health or groundwater protection values for restricted-residential use sites). Hardscape material outside of the building footprint will be at least 6 inches thick. Section 10 includes the final cover system details.
- Implementation of a SMP that will include:

- Institutional Controls and Engineering Controls (IC/EC) Plan. Engineering controls include any physical barrier or method employed to actively or passively contain, stabilize, or monitor contaminants; restrict the movement of contaminants; or eliminate potential exposure pathways to contaminants. Institutional controls at the Site will include restrictions on groundwater use and Site use to restricted-residential.
- Excavation Work Plan to assure that future intrusive activities and soil/fill handling at the Site are completed in a safe and environmentally responsible manner.
- Site Monitoring Plan that includes provisions for a Site-wide inspection program to assure that the IC/ECs have not been altered and remain effective.
- Environmental Easement filed with Erie County.

The components and details of the IRM are summarized in Section 6.0 and will be more fully described in the Final Engineering Report. With concurrence from the NYSDEC, Section 11.0 has been included to describe the final remedial measures for the Site in lieu of submitting a separate Remedial Action Work Plan (RAWP) for NYSDEC approval.

11.0 FINAL REMEDIAL MEASURES

The final remedial measures to be constructed at the Site include: placing a vapor barrier beneath the concrete floor slab of the building and installation of the demarcation layer and final cover systems over the remainder of the Site.

This section presents the scope of work and procedures for placement of the final cover system, and has been prepared in accordance with Section 5.3.b of NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation (May 2010) (Ref. 15). As such, it addresses the following items:

- The location and description of any temporary construction facilities and dust controls.
- A description of the cover system placement requirements.
- Health, safety, and community air monitoring procedures.
- Project documentation requirements.
- Anticipated construction schedule.

11.1 Pre-Mobilization Tasks

11.1.1 Pre-Construction Meeting

A project coordination meeting will be held with key representatives of the Project Team before placement of cover materials. Attendees at the initial meeting will include the Property Owner's representative, Benchmark's Project Manager, and representation by the remediation subcontractor. The designated NYSDEC Project Manager and NYSDOH representative will also be notified and invited to attend. Agenda items will include:

- Construction schedule.
- Work sequencing.
- Designation of responsibilities, contact personnel, and pager/phone numbers.
- Project documentation requirements.
- Staging of equipment.
- Transportation routes/site egress.
- Health and safety requirements.
- Temporary controls (dust suppression, storm water management).

- Work hours.
- Site security.

Benchmark will prepare meeting minutes for distribution to attendees following the project coordination meeting.

11.1.2 Progress Meetings

Progress meetings will be conducted on a regular basis throughout the construction period. Progress meetings will be attended by Benchmark and subcontractor field management personnel. NYSDEC and NYSDOH will have access to all progress meetings.

11.1.3 Pre-Excavation Survey and Underground Utilities Location

Prior to initiating cover system placement, the base elevation across the Site will be surveyed. Field verification of cover thickness will be monitored during the work; however, final confirmation will be made by post-cover survey.

11.2 Temporary Facilities and Controls

11.2.1 Mobilization and Site Preparation

The remediation contractor's field operations at the Site will commence with mobilization, which will include mobilizing equipment and materials to the Site; setting up and connecting temporary utilities; and erecting safety fencing and other temporary controls.

11.2.2 Temporary Construction Facilities

A field office for the personnel involved in the remedial work will be established onsite.

11.2.3 Dust Suppression and Control

Dust suppression will be an integral component of cover placement activities. During re-grading work, water will be sprayed across the surface of the work area as necessary to mitigate airborne dust formation and migration and assure conformance with community air monitoring thresholds. Water will also be sprayed as needed to control visible dust during cover placement and to flush into the subsurface any fine-grained solids that may be

generated during placement and compaction of the cover material. Other dust suppression techniques that may be used to supplement the water spray include:

- Applying water on haul roads.
- Hauling materials in properly tarped containers or vehicles.
- Restricting vehicle speeds on-site.

All reasonable attempts will be made to keep visible and/or fugitive dust to a minimum and adhere to particulate emissions limits identified in the Community Air Monitoring Plan.

11.3 Construction of Cover System

11.3.1 Subgrade Preparation

Site grading to design elevations was described in the IRM Work Plan (Ref. 12). Following sub-grade preparation work, all equipment will be cleaned free of any soil clods, mud, or clinging debris prior to removal from the Site or use in cover placement activities.

11.3.2 Demarcation Layer

A demarcation layer will be placed following grading of the Site and prior to import of cover system material. Demarcation will be constructed and placed so as to easily identify the existing Site sub-grade from the cover system material, and prevent the potential for inadvertent removal of sub-grade material during other Site work. The demarcation material will be comprised of an orange ¾-inch plastic industrial netting material that will be rolled across the sub-grade and overlapped by approximately one foot at the seams.

11.3.3 Cover System Placement

Construction of the cover system will follow re-grading activities and placement of the demarcation layer. School building and hardscape construction in addition to the two-foot cover soils across the remainder of the Site encompass the Track 4 cleanup components of the Site. In areas that will not be covered with buildings or hardscape, the cover system will consist of a minimum 2-foot layer of imported soil followed by seeding. Cover material shall be compacted to mitigate potential for settlement. Figure 11 outline the types and general locations of cover system materials to be placed. Cover material depth will be

verified by Benchmark through survey or grade stake level measurements as discussed in Section 10.1.3. Depth verification measurements will be included in the Final Engineering Report discussed in Section 11.1. Details on the cover system materials are provided below.

11.3.3.1 School Building Construction

The school building is a steel frame construction with joists and columns set on pile caps with piles driven to bedrock. Pile caps are connected by a series of grade beams. Exterior walls are masonry clad with glass curtain wall, punched window openings, and metal panel accents. Roof system is rubber membrane of insulation and metal deck.

As described in Section 9.4.4, AOC source removal and downgradient groundwater and soil/fill analytical data indicate that soil vapor is not (and will not be in the future) an issue within the school building at the Site. However as a precaution, a minimum 10-mil vapor barrier will be placed above the building sub-base aggregate prior to pouring the reinforced concrete floor slab (ranging from 10- to 12-inchs thick) as a passive secondary engineering control and to assist in maintaining a sub-slab pressure differential.

In addition to the vapor barrier, and per a NYSDOH request, the piping components of an ASD system will be installed within the aggregate below the building foundation. The sub-slab portion of the ASD system will consist of eight, 4-inch solid Schedule 80 laterals each connected to a separate perforated Schedule 80 PVC section at the locations shown on Figure 10. The piping network will run laterally under the entire structure to eight vertical 90 degree elbows located outside the building footprint. Each ASD piping section will be terminated below grade within an 8-inch, flush-mount road-box. In the event the ASD system is required, vertical piping will be connected to these elbows each fitted with an appropriately sized roof fan to provide negative pressure in the sub-slab soil.

11.3.3.2 Asphalt and Concrete Covered Areas

Asphalt areas include the bus entrance, parking, and turnaround area located at the north end of the BCP Site. This heavy duty asphalt includes: graded and compacted subgrade, geotextile fabric, 12 inches of sub-base course material (Type 1), 3.5 inches of asphalt binder course, followed by 1 inch of asphalt top course. The remaining asphalt covered areas include a front parking lot (east of the building), access driveway (south of the building), and rear parking lot (west of the building). These standard duty asphalt areas include: graded and compacted subgrade, geotextile fabric, 10 inches of sub-base course

material (Type 1), 2.5 inches of asphalt binder course, followed by 1 inch of asphalt top course.

Concrete sidewalks and driveways include: graded and compacted subgrade; minimum 4-inch thick (sidewalk)/5-inch thick (driveway) sub-base course material; and minimum 4-inch thick (sidewalk)/5-inch thick (driveway) concrete (4,000 psi).

11.3.3.3 Soil Cover

Areas not covered by the school building and/or asphalt parking/roadway improvements (i.e., hardscape) will require a minimum of 2 feet of clean soil cover under the Track 4 cleanup. A minimum 2-foot thick layer of soil capable of sustaining vegetative growth will be placed with the upper 4 inches of soil cover of suitable quality to support vegetation. In general, this would be well-graded topsoil with a pH of 5.5 to 7.6, a minimum organic content of 2.5%, and a soluble salt content not greater than 500 ppm. Topsoil shall be placed in an approximate 6-inch thick lift and raked to remove large stones, sticks, etc. Off-site sources intended for use as topsoil must be approved by Benchmark and the NYSDEC prior to acceptance at the Site as discussed in Section 11.4.

11.3.3.4 Seeding

Seeding will be performed immediately following topsoil placement. The application rate of seed, fertilizer, and additives will be monitored during the restoration period. Benchmark field personnel will ensure that the application equipment is appropriate for the job. The rate of seed application; amount and uniformity of coverage; and initial watering instructions will follow the manufacturer's recommendations. After germination, all areas will be examined and bare spots or sparse growth will be re-seeded by hand and covered with mulch.

Timing of seeding, particularly for grasses, is important. Grass seed will not be placed when weather conditions will impede good coverage or growth (i.e., it will not take place during high wind or rain, or when the soil is frozen). The seed mix quality will be a mixture of perennial grasses to be determined by the Contactor.

The seed will be placed with an appropriate starter fertilizer having not less than 4% phosphoric acid and not less than 2% potassium, with the percentage of nitrogen required to yield no less than 1.5 pounds of actual nitrogen per 1,000 square feet of seeded area.

Anti-erosion mulch will be applied over the seeded soils. Acceptable anti-erosion materials will be clean, seed-free salt hay or straw of wheat, rye, oats, or barley. Alternatively, hydro-seed may be applied (depending on weather conditions).

11.3.3.5 Baseball Field

The majority of the baseball field will receive topsoil and seed. The skinned surface along and outside the baselines will consist of NYSDEC-approved material on top of the 2-foot soil cover.

11.3.3.6 Walking Trail

The walking trail will consist of the graded and compacted subgrade; 6 inches of crushed stone sub-base course material; and a final 2-inch thick layer of either crusher run limestone course material or topsoil (seeded).

11.3.3.7 Bio-retention Area

Five bio-retention basins will be located within undisturbed, uncompacted in situ soil (see Figure 11). The bio-retention basins will be filled with 12 inches of pipe bedding followed by 30 inches of a well-blended mixture of homogeneous construction sand, organic leaf compost, and native topsoil. A 3-inch layer of shredded wood mulch will be placed on top surrounding the plantings.

11.4 Import Criteria

11.4.1 General

All materials proposed for import onto the Site must be approved by Benchmark and the NYSDEC. The criteria under which off-site material may be used as cover or backfill are presented below.

- **Off-Site Soil:** Off-Site soil may be used as backfill provided that it originates from: 1) an NYSDEC-approved borrow site; or 2) a known source having no evidence of disposal or releases of hazardous substances, hazardous, toxic or radioactive wastes, or petroleum. In both instances the imported soil must be tested and demonstrated to meet the criteria identified in Section 3.4.2 in accordance with Appendix 5 of DER-10. In addition, no off-site materials meeting the definition of a solid waste as defined in 6NYCRR, Part 360-1.2 (a) shall be used as backfill.

- **Other Off-Site Material:** Certain material may be imported as backfill or cover, without chemical testing, provided it contains less than 10% (by weight) material that would pass through a size 80 sieve: 1) Rock or stone, consisting of virgin material from a permitted mine or quarry; 2) steel slag under BUD#555-9-152; 3) Recycled concrete, brick, or asphalt from a NYSDEC-registered or permitted C&D debris processing facility (as specified in Section 360-16.1 of 6NYCRR Part 360) that conforms to Section 304 of the New York State Department of Transportation Standard Specifications Construction and Materials Volume 1 (2002). As stated in Section 360-16.4(b)(2), the facility may only accept recognizable, uncontaminated, non-pulverized C&D debris or C&D debris from other authorized C&D processing facilities. According to Section 360-16.2(c), "uncontaminated" means C&D debris that is not mixed or commingled with other solid waste at the point of generation, processing, or disposal, and that is not contaminated with spills of a petroleum product, hazardous waste, or industrial waste.

11.4.2 Quality Assurance Requirements

All imported soil sources, including general backfill soil and topsoil, will be subject to third party testing to verify that they meet the quality assurance requirements specified below. The contractor will be required to collect the specified number of samples and submit the samples to an independent, NYSDOH ELAP-certified laboratory for analysis. Benchmark will be notified of the sampling and provided an opportunity to observe the sample collection work.

All analyses will be in accordance with USEPA SW-846 methodology. The laboratory data package will be a Category A deliverable; however, the NYSDEC may request, at any time, to upgrade the deliverable to Category B. Each import soil source shall be analyzed for the following parameters as more specifically listed in 6NYCRR Part 375-6:

- VOCs – Method 8260
- SVOCs – Method 8270
- Organochlorine Pesticides and PCBs – Method 8081/8082
- Metals, excluding mercury – Method 6010
- Mercury – Method 7471
- Cyanide – Method 9013

Each import soil source shall be subject to testing in accordance with the following schedule per NYSDEC DER-10 Table 5.4(e)10:

Contaminant:	VOCs	SVOCs, Inorganics & PCBs/Pesticides	
Soil Quantity (cubic yards)	Discrete Samples	Composite	Discrete Samples/Composite
0-50	1	1	3-5 discrete samples from different locations in the fill being provided will comprise a composite sample for analysis
50-100	2	1	
100-200	3	1	
200-300	4	1	
300-400	4	2	
400-500	5	2	
500-800	6	2	
800-1,000	7	2	
1,000	Add an additional 2 VOC and 1 composite for each additional 1,000 cubic yards or consult with DER		

Grab samples will be collected for VOC analysis. For all other required analyses, a minimum of four grab samples will be collected to form a single composite sample. Approximately equal aliquots of the grab samples will be composited in the field using a stainless steel trowel and bowl. The trowel and bowl shall be decontaminated with a non-phosphate detergent (e.g., Alconox®) and potable water wash solution followed by a distilled water rinse between sampling locations).

Import criteria are RRSCOs as published in 6NYCRR Part 375-6.8(b).

11.5 Remedial Activities Support Documents

11.5.1 Community Air Monitoring

Real-time community air monitoring will be performed during all activities involving disturbance of soil/fill materials at the Site. A Community Air Monitoring Plan (CAMP) is included with Benchmark's HASP. Particulate monitoring will be performed at a distance of approximately 100 feet downwind of the work area during grading and soil/fill handling activities in accordance with this Plan. In addition, no visible dust will be allowed beyond the Site perimeter during these activities. The CAMP is consistent with the requirements for community air monitoring at remediation sites as established by the NYSDOH and NYSDEC. Accordingly, it follows procedures and practices outlined under DER-10

Appendix 1A (NYSDOH's Generic Community Air Monitoring Plan) and Appendix 1B (Fugitive Dust and Particulate Monitoring).

11.5.2 Health and Safety Protocols

The July 2012 Health and Safety Plan (HASP) for Remedial Investigation Activities (Ref. 12), prepared in accordance with the requirements of 40 CFR 300.150 of the National Contingency Plan (NCP) and 29 CFR 1910.120, and previously approved by the NYSDEC for IRM work, will be used for the remedial activities described herein. Benchmark will be responsible for the health and safety of its authorized site workers. All subcontractors and other parties involved in on-site construction will be required to develop a HASP as or more stringent than Benchmark's HASP.

11.5.3 Citizen Participation Activities

A Citizen Participation (CP) Plan has been prepared for the Site. Upon approval of this RI/IRM/AA Report, a fact sheet containing information about the remedial actions will be developed and submitted to the NYSDEC Region 9 Project Manager for review. After addressing any comments, the fact sheet will be finalized and transmitted, either electronically or by U.S. mail, to individuals on the CP Plan contact list who previously indicated a desire for such notification. The intent of this effort is to seek community cooperation; minimize disruption of nearby neighborhood residential and commercial activities; and facilitate a safe and secure work site. In addition, a copy of this RI/IRM/AA Report will be made available for public review at the NYSDEC Region 9 office and the East Clinton Branch of the Buffalo & Erie County Public Library.

11.6 Documentation, Reporting, and Schedule

Benchmark will be on-site during cover material placement to monitor and document remedial activities. Such monitoring and documentation will include, at a minimum: construction stake-out, surveying, and record drawings; daily reports of activities; community air monitoring results; and progress photographs and sketches.

Standard reporting procedures for Site activities will include preparation of a daily report and, when appropriate, problem identification and corrective measures reports. Appendix H contains sample project documentation forms. Information that may be included on the daily report form includes:

- Processes and locations of construction under way.
- Equipment and personnel working in the area, including subcontractors.
- A description of off-site materials received, including any quality verification (certification) documentation.

The completed reports will be available on-site and submitted to the NYSDEC as part of the FER. The NYSDEC will be promptly notified of problems requiring modifications to this RI/IRM/AA Report prior to proceeding or completing the construction item. Changes or additions will be noted in the FER.

Photo documentation of the remedial activities will be prepared by a field representative throughout the duration of the project as necessary to convey typical work activities and whenever changed conditions or special circumstances arise.

Figure 12 presents the anticipated project schedule for completion of the final remedial activities and the reporting described in Section 11.

12.0 POST-REMEDIAL REQUIREMENTS

12.1 Final Engineering Report

Following completion of the remedial measures, a Final Engineering Report (FER) will be submitted to the NYSDEC. The FER will include the following information and documentation, consistent with the NYSDEC regulations contained in 6NYCRR Part 375-1.6(c):

- Background and Site description.
- Summary of the Site remedy that satisfied the RAOs for the Site.
- Certification by a professional engineer to satisfy the requirements outlined in 6NYCRR Part 375-1.6(c)(4).
- Description of engineering and institutional controls at the Site.
- Site map showing the areas remediated.
- Documentation of imported materials.
- Documentation of materials disposed off-site.
- Copies of daily inspection reports and, if applicable, problem identification and corrective measure reports.
- Two rounds of post-remedial groundwater monitoring data.
- Sub-slab and ambient air monitoring data and reports.
- CAMP data and reports.
- Photo documentation of remedial activities.
- Text describing the remedial activities performed; a description of any deviations from the Work Plan and associated corrective measures taken; and other pertinent information necessary to document that the site activities were carried out in accordance with this Work Plan.
- Analytical data packages and DUSRs.

12.2 Site Management Plan

A Site Management Plan (SMP) covering the entire Site will be prepared and submitted concurrent with the FER. The purpose of the SMP is to assure that proper procedures are in place to provide for long-term protection of public health and the

environment after remedial construction is complete. The SMP is comprised of four main components:

- Engineering and Institutional Control Plan
- Site Monitoring Plan
- Operation and Maintenance Plan
- Inspections, Reporting, and Certifications

12.2.1 Engineering and Institutional Control Plan

An institutional control in the form of a new Environmental Easement will be necessary to limit future use of the Site to restricted-residential applications and prevent groundwater use for potable purposes.

The Engineering and Institutional Control (EC/IC) Plan will include a complete description of all institutional and/or engineering controls employed at the Site, including the mechanisms that will be used to continually implement, maintain, monitor, and enforce such controls. The EC/IC Plan will include:

- A description of all EC/ICs on the site.
- The basic implementation and intended role of each EC/IC.
- A description of the key components of the ICs set forth in the Environmental Easement.
- A description of the features to be evaluated during each required inspection and periodic review, including the EC/IC certification, reporting, and Site monitoring.
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the Site remedy, as determined by the NYSDEC.

12.2.2 Site Monitoring Plan

The Site Monitoring Plan will describe the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the Site, including:

- Sampling and analysis of all appropriate media (e.g., groundwater).
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards and Part 375 SCOs for soil.
- Assessing achievement of the remedial performance criteria.

- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment.
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Site Monitoring Plan will provide information on:

- Sampling locations, protocol, and frequency.
- Information on all designed monitoring systems (e.g., well logs).
- Analytical sampling program requirements.
- Reporting requirements.
- Quality Assurance/Quality Control (QA/QC) requirements.
- Inspection and maintenance requirements for monitoring wells.
- Monitoring well decommissioning procedures.
- Annual inspection and periodic certification.

The need for and frequency of post-remedial groundwater monitoring (if required) as well as types of analyses to assess overall reduction in contamination on-site and off-site will also be included in the Site Monitoring Plan.

12.2.3 Operation and Maintenance Plan

An Operation & Maintenance (O&M) plan governing maintenance of the cover system will:

- Include the operation and maintenance activities necessary to allow individuals unfamiliar with the Site to maintain the cover system.
- Include an O&M contingency plan.
- Evaluate Site information periodically to confirm that the remedy continues to be effective for the protection of public health and the environment. If necessary, the O&M Plan will be updated to reflect changes in Site conditions or the manner in which the cover system is maintained.

12.2.4 Inspections, Reporting, and Certifications

12.2.4.1 Inspections

Site-wide inspection will be conducted annually or as otherwise approved by the NYSDEC. All applicable inspection forms and other records, including all media sampling

data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format in a Periodic Review Report (PRR).

12.2.4.2 Reporting

The PRR will be submitted to the NYSDEC annually, or as otherwise approved, beginning 15 months after the Certificate of Completion or equivalent document is issued. The report will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. The PRR will include:

- Identification, assessment, and certification of all EC/ICs required by the remedy for the Site.
- Results of the required annual Site inspections and severe condition inspections, if applicable.
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format.
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media, which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends.
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format.
- A Site evaluation that includes the following:
  - The compliance of the remedy with the requirements of the site-specific RAWP, ROD, or Decision Document.
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications.
  - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Site Monitoring Plan for the media being monitored.
  - Recommendations regarding any necessary changes to the remedy and/or Site Monitoring Plan.

- The overall performance and effectiveness of the remedy.

12.2.4.3 Certification

The signed EC/IC Certification will be included in the PRR described in Section 9.2.4.2: For each institutional or engineering control identified for the Site, a Professional Engineer licensed to practice in New York State will certify that all of the following statements are true:

- The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction.
- The engineering and institutional controls employed at this Site are unchanged from the date the control was put in place, or last approved by the NYSDEC.
- Nothing has occurred that would impair the ability of the control to protect the public health and environment.
- Nothing has occurred that would constitute a violation or failure to comply with any Site Management Plan for this control.
- Access to the Site will continue to be provided to the NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control.
- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document.
- Use of the Site is compliant with the Environmental Easement.
- The engineering control systems are performing as designed and are effective.
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices.
- The information presented in this report is accurate and complete.

12.2.4.4 Corrective Measures Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a Corrective Measures Plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to

correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Plan until it is approved by the NYSDEC.

13.0 REFERENCES

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6. Benchmark Environmental Engineering and Science, PLLC. *Remedial Investigation Work Plan, 154 South Ogden Street Site, Buffalo, New York*. December 2012.
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9. www.climatezone.com
10. US Census Bureau. 2010.
11. Benchmark Environmental Engineering and Science, PLLC. *Supplemental RI Sampling Plan, 154 South Ogden Street Site (BCP Site No. C915268), Buffalo, New York*. June 18, 2013.
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13. New York State Department of Health. *Guidance for Evaluating Soil Vapor Intrusion in the State of New York*. October 2006. Expanded via June 25, 2007 memo.
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TABLES

TABLE 1

RI/IRM ANALYTICAL TESTING PROGRAM SUMMARY FOR SOIL

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Sample Identifier	Data Source	Depth to (fbgs)			Depth Sampled/ Screened (fbgs)	Analysis															Sampled (less QA/QC)	Laboratory Analytical Report No.	Date (Sampled or Advanced)	Validated	EQuIS	Comments
		Native	GW	TD		TCL + CP-51 VOCs	TCL VOCs	TCL SVOCs	TAL Metals (Total)	TAL Metals (Diss.)	RCRA Metals	Arsenic & Lead	Lead	TCLP VOCs	TCLP Metals	Total Cyanide	PCBs	Pesticides	Herbicides	Ignitability						
Surface Soil/Fill																										
SS-1	Remedial Investigation	NA	NA	0.5	0-0.5			X	X								X	X	X		X	L1300652	01/10/2013	X	09/04/13	MS/MSD
SS-1 (MS/MSD)	Remedial Investigation	NA	NA	0.5	0-0.5			X	X								X	X	X			L1300652	01/10/2013	X	09/04/13	
SS-2	Remedial Investigation	NA	NA	0.5	0-0.5			X	X								X	X	X		X	L1300652	01/10/2013	X	09/04/13	Blind Dup #2
SS-3	Remedial Investigation	NA	NA	0.5	0-0.5			X	X								X	X	X		X	L1300652	01/10/2013	X	09/04/13	
SS-4	Remedial Investigation	NA	NA	0.5	0-0.5			X	X								X	X	X		X	L1301121	01/17/2013	X	02/20/13	
SS-5	Remedial Investigation	NA	NA	0.5	0-0.5			X	X								X	X	X		X	L1301237	01/18/2013	X	02/20/13	
SS-6	Remedial Investigation	NA	NA	0.5	0-0.5			X	X								X	X	X		X	L1301121	01/17/2013	X	02/20/13	
SS-7	Remedial Investigation	NA	NA	0.5	0-0.5			X	X								X	X	X		X	L1300744	01/11/2013	X	09/04/13	
SS-8	Remedial Investigation	NA	NA	0.5	0-0.5			X	X								X	X	X		X	L1301237	01/18/2013	X	02/20/13	
Blind Dup #2	Remedial Investigation	NA	NA	0.5	0-0.5			X	X								X	X	X			L1300652	01/10/2013	X	09/04/13	SS-2
Near-Surface Soil/Fill (Soil Borings)																										
SB-14 (0-2)	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X		X	L1300139 L1300829	01/03/2013 01/14/2013 (voc)	X	09/03/13 09/04/13	
SB-15 (0-2)	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X		X	L1301022	01/16/2013	X	02/20/13	
SB-17 (0-2)	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X		X	L1300237 L1300829	01/04/2013 01/14/2013 (voc)	X	09/03/13 09/04/13	Blind Dup #1
SB-19 (0-2)	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X		X	L1300927	01/15/2013	X	09/04/13	
SB-23 (0-2)	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X		X	L1300237 L1300829	01/04/2013 01/14/2013 (voc)	X	09/03/13 09/04/13	
SB-24 (0-2)	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X		X	L1301022	01/16/2013	X	02/20/13	
SB-27 (0-2)	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X		X	L1300312 L1300829	01/07/2013 01/14/2013 (voc)	X	02/20/13 09/04/13	
SB-30 (0-2)	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X		X	L1300518	01/08/2013	X	09/04/13	
SB-34 (0-2)	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X		X	L1300829	01/14/2013	X	09/04/13	MS/MSD
SB-34 (MS/MSD)	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X			L1300829	01/14/2013	X	09/04/13	
SB-36 (0-2)	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X		X	L1300518	01/08/2013	X	09/04/13	
Blind Dup #1	Remedial Investigation	NA	NA	2.0	0-2	X		X	X								X	X	X			L1300237 L1300829	01/04/2013 01/14/2013 (voc)	X	09/03/13 09/04/13	SB-17 (0-2)
Subsurface Soil/Fill (Test Pits)																										
TP-01-2012	TurnKey Phase II	9.0	13.5	16.0	NA																	NA	02/08/2012	NA	NA	
TP-02-2012	TurnKey Phase II	11.0	14.0	16.0	NA																	NA	02/07/2012	NA	NA	
TP-03-2012	TurnKey Phase II	11.0	14.0	16.0	0.0 - 2.0		X	X			X						X				X	J16017	02/07/2012	NA	NA	
					11.0 - 13.0							X										J16567	02/07/2012	NA	NA	
TP-04-2012	TurnKey Phase II	15.0	13.0	16.0	0.0 - 2.0		X	X			X						X				X	J16017	02/07/2012	NA	NA	
					6.0 - 15.0							X										J16567	02/07/2012	NA	NA	
TP-05-2012	TurnKey Phase II	13.0	12.0	14.0	0.0 - 2.0		X	X			X						X				X	J16017	02/07/2012	NA	NA	
TP-06-2012	TurnKey Phase II	14.0+	11.0	14.0	NA																	NA	02/08/2012	NA	NA	
TP-07-2012	TurnKey Phase II	8.0	10.0	13.0	NA																	NA	02/08/2012	NA	NA	
TP-08-2012	TurnKey Phase II	5.0	12.0	12.0	NA																	NA	02/08/2012	NA	NA	
TP-09-2012	TurnKey Phase II	4.0	13.5	16.0	0.0 - 2.0		X	X			X						X				X	J16017	02/08/2012	NA	NA	
TP-10-2012	TurnKey Phase II	0.0	6.0	9.0	0.0 - 2.0		X	X			X						X				X	J16017	02/08/2012	NA	NA	
TP-11-2012	TurnKey Phase II	7.0	14.5	16.0	0.0 - 2.0		X	X			X						X				X	J16017	02/07/2012	NA	NA	
TP-12-2012	TurnKey Phase II	11.0	15.0	16.0	NA																	NA	02/07/2012	NA	NA	
TP-13-2012	TurnKey Phase II	7.0	15.5	16.5	NA																	NA	02/07/2012	NA	NA	
TP-14-2012	TurnKey Phase II	8.0	16.0	17.0	0.0 - 2.0		X	X			X				X	X	X	X			X	J16017	02/07/2012	NA	NA	MS/MSD
TP-14-2012 (MS/MSD)	TurnKey Phase II	8.0	16.0	17.0	0.0 - 2.0		X	X			X				X	X	X	X				J16017	02/07/2012	NA	NA	
TP-15-2012	TurnKey Phase II	11.0	13.0	14.0	0.0 - 2.0		X	X			X				X	X	X	X			X	J16017	02/08/2012	NA	NA	
TP-16-2012	TurnKey Phase II	12.0	13.5	14.0	NA																	NA	02/08/2012	NA	NA	
TP-17-2012	TurnKey Phase II	17.0+	17.0	17.0	0.0 - 2.0		X	X			X						X				X	J16017	02/07/2012	NA	NA	
					6.0 - 17.0							X										J16567	02/07/2012	NA	NA	
TP-18-2012	TurnKey Phase II	5.0	17.5	18.0	NA																	NA	02/07/2012	NA	NA	
TP-19-2012	TurnKey Phase II	3.0	none	17.0	NA																	NA	02/08/2012	NA	NA	
TP-20-2012	TurnKey Phase II	7.0	16.0	17.0	0.0 - 2.0		X	X			X						X				X	J16017	02/08/2012	NA	NA	
Subsurface Soil/Fill (Soil Borings)																										
SB-1	TurnKey Phase II	8.0	14.0	20.0	NA																	NA	02/08/2012	NA	NA	
SB-2	TurnKey Phase II	12.0	13.0	20.0	NA																	NA	02/09/2012	NA	NA	
SB-3	TurnKey Phase II	8.0	12.0	20.0	NA																	NA	02/08/2012	NA	NA	
SB-4	TurnKey Phase II	12.0	14.0	20.0	NA																	NA	02/08/2012	NA	NA	
SB-5	TurnKey Phase II	8.0	16.0	20.0	NA																	NA	02/08/2012	NA	NA	
SB-6	TurnKey Phase II	11.0	13.0	20.0	NA																	NA	02/08/2012	NA	NA	
SB-7	TurnKey Phase II	10.0	12.5	20.0	NA																	NA	02/08/2012	NA	NA	
SB-8	TurnKey Phase II	10.0	14.0	20.0	NA																	NA	02/08/2012	NA	NA	
SB-9 (4-6)	Remedial Investigation	12.0	15.5	19.0	4-6	X		X	X								X	X	X		X	L1301022	01/16/2013	X	02/20/13	
SB-10 (6-8)	Remedial Investigation	9.0	none	10.0	6-8	X		X	X								X	X	X		X	L1300139	01/03/2013	X	09/03/13	
SB-11 (8-10)	Remedial Investigation	14.0	14.0	18.0	8-10	X		X	X								X	X	X		X	L1300927	01/15/2013	X	09/04/13	Building Footprint
SB-12 (10-12)	Remedial Investigation	13.0	none	16.0	10-12	X		X	X								X	X	X		X	L1300927	01/15/2013	X	09/04/13	Building Footprint
SB-13 (4-5.8)	Remedial Investigation	9.0	none	13.0	4-5.8	X		X	X								X	X	X		X	L1300139	01/03/2013	X	09/03/13	Building Footprint
SB-14 (8-10)	Remedial Investigation	16.0	16.0	20.0	8-10	X		X	X								X	X	X		X	L1300139	01/03/2013	X	09/03/13	Building Footprint
SB-15 (2-4)	Remedial Investigation	11.0	none	16.0	2-4	X		X	X								X	X	X		X	L1301022	01/16/2013	X	02/20/13	

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Buffalo, New York

Sample Identifier	Data Source	Depth to (fbgs)			Depth Sampled/ Screened (fbgs)	Analysis															Sampled (less QA/QC)	Laboratory Analytical Report No.	Date (Sampled or Advanced)	Validated	EQuIS	Comments
		Native	GW	TD		TCL + CP-51 VOCs	TCL VOCs	TCL SVOCs	TAL Metals (Total)	TAL Metals (Diss.)	RCRA Metals	Arsenic & Lead	Lead	TCLP VOCs	TCLP Metals	Total Cyanide	PCBs	Pesticides	Herbicides	Ignitability						
SB-16 (6-8)	Remedial Investigation	12.0	none	16.0	6-8	X		X	X								X	X	X		X	L1300237	01/04/2013	X	09/03/13	Building Footprint
SB-17 (6-8)	Remedial Investigation	10.0	none	14.0	6-8	X		X	X								X	X	X		X	L1300237	01/04/2013	X	09/03/13	Building Footprint
SB-18 (2-4)	Remedial Investigation	8.0	15.5	16.0	2-4	X		X	X								X	X	X		X	L1300927	01/15/2013	X	09/04/13	Building Footprint
SB-19 (8-10)	Remedial Investigation	10.0	14.0	16.0	8-10	X		X	X								X	X	X		X	L1300927	01/15/2013	X	09/04/13	Building Footprint
SB-20 (2-4)	Remedial Investigation	6.0	12.0	14.0	2-4	X		X	X								X	X	X		X	L1300829	01/14/2013	X	09/04/13	
SB-21 (2-4)	Remedial Investigation	0.0	8.0	8.0	2-4	X		X	X								X	X	X		X	L1300312	01/07/2013	X	02/20/13	low area
SB-22 (2-4)	Remedial Investigation	0.0	8.0	10.0	2-4	X		X	X								X	X	X		X	L1300312	01/07/2013	X	02/20/13	Building Footprint; middle of low area
SB-23 (4-6)	Remedial Investigation	18.0	18.0	20.0	4-6	X		X	X								X	X	X		X	L1300237	01/04/2013	X	09/03/13	Building Footprint
SB-24 (2-4)	Remedial Investigation	14.0	17.0	20.0	2-4	X		X	X								X	X	X		X	L1301022	01/16/2013	X	02/20/13	
SB-25 (10-12)	Remedial Investigation	16.0	19.0	20.0	10-12	X		X	X								X	X	X		X	L1300518	01/08/2013	X	09/04/13	
SB-26 (6-8)	Remedial Investigation	0.0	none	10.0	6-8	X		X	X								X	X	X		X	L1300312	01/07/2013	X	02/20/13	
SB-27 (3-4)	Remedial Investigation	4.0	none	10.0	3-4	X		X	X								X	X	X		X	L1300312	01/07/2013	X	02/20/13	
SB-28 (2-4)	Remedial Investigation	2.0	none	10.0	2-4	X		X	X								X	X	X		X	L1300829	01/14/2013	X	09/04/13	
SB-29 (2-6)	Remedial Investigation	14.0	14.5	16.0	2-6	X		X	X								X	X	X		X	L1300518	01/08/2013	X	09/04/13	
SB-30 (2-6)	Remedial Investigation	6.0	none	10.0	2-6	X		X	X								X	X	X		X	L1300518	01/08/2013	X	09/04/13	
SB-31 (2-4)	Remedial Investigation	11.0	none	12.0	2-4	X		X	X								X	X	X		X	L1300744	01/11/2013	X	09/04/13	
SB-32 (2-4)	Remedial Investigation	7.0	14.0	16.0	2-4	X		X	X								X	X	X		X	L1300744	01/11/2013	X	09/04/13	
SB-33 (10-12)	Remedial Investigation	19.0	14.0	22.0	10-12	X		X	X								X	X	X		X	L1300829	01/14/2013	X	09/04/13	
SB-34 (4-5.5)	Remedial Investigation	5.5	14.0	16.0	4-5.5	X		X	X								X	X	X		X	L1300829	01/14/2013	X	09/04/13	MS/MSD
SB-34 (MS/MSD)	Remedial Investigation	5.5	14.0	16.0	4-5.5	X		X	X								X	X	X			L1300829	01/14/2013	X	09/04/13	
SB-35 (10-12)	Remedial Investigation	18.0	12.0	20.0	10-12	X		X	X								X	X	X		X	L1300744	01/11/2013	X	09/04/13	
SB-36 (6-10)	Remedial Investigation	13.5	14.0	16.0	6-10	X		X	X								X	X	X		X	L1300518	01/08/2013	X	09/04/13	
SB-37 (10-12)	Remedial Investigation	15.0	14.0	18.0	10-12	X		X	X								X	X	X		X	L1300652	01/10/2013	X	09/04/13	due to soil conditions, Encore's not used
SB-38 (10-12)	Remedial Investigation	12.0	13.0	16.0	10-12	X		X	X								X	X	X		X	L1300744	01/11/2013	X	09/04/13	Blind Dup #3
SB-39	Remedial Investigation	12.0	16.0	18.0	13-17									X	X		X			X	X	L1301023	01/16/2013	NA	NA	waste characterization of SB-4, sheen
Blind Dup #3	Remedial Investigation	12.0	13.0	16.0	10-12	X		X	X								X	X	X			L1300744	01/11/2013	X	09/04/13	SB-38 (10-12')
SB-40 (8-10)	Supplemental RI	NA	none	12.0	8-10								X								X	L1304270	03/12/2013	X	11/05/13	delineation of SB-14
SB-41 (8-10)	Supplemental RI	NA	none	12.0	8-10								X								X	L1304270	03/12/2013	X	11/05/13	delineation of SB-14
SB-42 (8-10)	Supplemental RI	NA	none	12.0	8-10								X								X	L1304270	03/12/2013	X	11/05/13	delineation of SB-14
SB-43 (6-8)	Supplemental RI	NA	none	12.0	8-10								X								X	L1304101	03/11/2013	X	11/05/13	delineation of SB-14
SB-44 (6-8)	Supplemental RI	NA	none	12.0	6-8			X													X	L1304101	03/11/2013	X	11/05/13	delineation of SB-16
SB-45 (6-8)	Supplemental RI	NA	none	12.0	6-8			X													X	L1304101	03/11/2013	X	11/05/13	delineation of SB-16
SB-46 (6-8)	Supplemental RI	NA	none	12.0	6-8			X													X	L1304101	03/11/2013	X	11/05/13	delineation of SB-16
SB-47 (6-8)	Supplemental RI	NA	none	12.0	6-8			X													X	L1304101	03/11/2013	X	11/05/13	delineation of SB-16
SB-53	Supplemental RI	NA	none	8.0	6-8			X														NA	03/11/2013	NA	NA	delineation of SB-16, was not analyzed
SB-54	Supplemental RI	NA	none	12.0	6-8			X														NA	03/11/2013	NA	NA	delineation of SB-16, was not analyzed
SB-55	Supplemental RI	NA	none	12.0	6-8			X														NA	03/11/2013	NA	NA	delineation of SB-16, was not analyzed
SB-56	Supplemental RI	NA	none	8.0	6-8			X														NA	03/11/2013	NA	NA	delineation of SB-16, was not analyzed
SB-57	Supplemental RI	NA	none	8.0	6-8				X													NA	03/11/2013	NA	NA	waste characterization of SB-16, was not analyzed
SB-58	Supplemental RI	NA	none	12.0	8-10										X						X	L1304272	03/11/2013	NA	NA	waste characterization of SB-14; TCLP lead only
IRM Confirmation Samples																										
SB-14-SW-1 (6-8')	IRM Confirmation	no	none	8.0	6-8			X			X										X	L1308034 (Pb) L1309521	5/6/2013 5/24/2013	X	03/03/14	sampled for Pb only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-14-SW-2 (6-8')	IRM Confirmation	no	none	8.0	6-8			X			X										X	L1308034 (Pb) L1309521	5/6/2013 5/24/2013	X	03/03/14	sampled for Pb only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-14-SW-3 (6-8')	IRM Confirmation	no	none	8.0	6-8			X			X										X	L1308034 (Pb) L1309521	5/6/2013 5/24/2013	X	03/03/14	sampled for Pb only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-14-SW-4 (6-8')	IRM Confirmation	no	none	8.0	6-8			X			X										X	L1308034 (Pb) L1309521	5/6/2013 5/24/2013	X	03/03/14	sampled for Pb only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-14-B-1 (10.0')	IRM Confirmation	no	none	10.0	10			X			X										X	L1308034 (Pb) L1309521	5/6/2013 5/24/2013	X	03/03/2014	sampled for Pb only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-16-SW-1 (5-9')	IRM Confirmation	no	none	9.0	5-9			X			X										X	L1308034 L1309520	5/6/2013 5/24/2013	X	07/26/13	sampled for TCL SVOC (BNs) only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-16-SW-2 (5-9')	IRM Confirmation	no	none	9.0	5-9			X			X										X	L1308034 L1309520	5/6/2013 5/24/2013	X	07/26/13	sampled for TCL SVOC (BNs) only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-16-SW-3 (5-9')	IRM Confirmation	no	none	9.0	5-9			X			X										X	L1308034 L1309520	5/6/2013 5/24/2013	X	07/26/13	sampled for TCL SVOC (BNs) only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-16-SW-4 (5-9')	IRM Confirmation	no	none	9.0	5-9			X			X										X	L1308034 L1309520	5/6/2013 5/24/2013	X	07/26/13	sampled for TCL SVOC (BNs) only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-16-B-1 (9.0')	IRM Confirmation	no	none	9.0	9			X			X										X	L1308034 L1309520	5/6/2013 5/24/2013	X	07/26/13	sampled for TCL SVOC (BNs) only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-20-SW-1 (1-5')	IRM Confirmation	no	none	5.0	1-5			X			X										X	L1308804 L1309435	05/15/2013	X	07/26/13	sampled for Pb only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-20-SW-2 (1-5')	IRM Confirmation	no	none	5.0	1-5			X			X										X	L1308804 L1309435	05/15/2013	X	07/26/13	sampled for Pb only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-20-SW-3 (1-5')	IRM Confirmation	no	none	5.0	1-5			X			X										X	L1308804 L1309435	05/15/2013	X	07/26/13	sampled for Pb only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-20-SW-4 (1-5')	IRM Confirmation	no	none	5.0	1-5			X			X										X	L1308804 L1309435	05/15/2013	X	07/26/13	sampled for Pb only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals

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		Native	GW	TD		TCL + CP-51 VOCs	TCL VOCs	TCL SVOCs	TAL Metals (Total)	TAL Metals (Diss.)	RCRA Metals	Arsenic & Lead	Lead	TCLP VOCs	TCLP Metals	Total Cyanide	PCBs	Pesticides	Herbicides	Ignitability						
SB-20-B-1 (5.0')	IRM Confirmation	5.0	none	5.0	5			X			X										X	L1308804 L1309435	05/15/2013	X	07/26/13	sampled for Pb only, NYSDEC requested TCL SVOC (BN only) and all RCRA Metals
SB-27-SW-1 (3-4)	IRM Confirmation	no	none	4.0	3-4			X			X										X	L1309891	05/31/2013	X	07/26/13	MS/MSD
SB-27-SW-1 (3-4) (MS/MSD)	IRM Confirmation	no	none	4.0	3-4			X			X											L1309891	05/31/2013	X	07/26/13	
SB-27-SW-2 (3-4)	IRM Confirmation	no	none	4.0	3-4			X			X										X	L1309891	05/31/2013	X	07/26/13	
SB-27-SW-3 (3-4)	IRM Confirmation	no	none	4.0	3-4			X			X										X	L1309891	05/31/2013	X	07/26/13	
SB-27-SW-4 (3-4)	IRM Confirmation	no	none	4.0	3-4			X			X										X	L1309891	05/31/2013	X	07/26/13	
SB-27-SW-5 (3-4')	IRM Confirmation	no	none	4.0	3-4			X			X										X	L1310953	06/14/2013	X	07/26/13	excavated additional 3' north, re-sampled
SB-27-SW-6 (3-4')	IRM Confirmation	no	none	4.0	3-4			X			X										X	L1311913	06/26/2013	X	07/30/13	excavated additional 3' north, re-sampled
SB-27-B-1 (5.0')	IRM Confirmation	5.0	none	5.0	5			X			X										X	L1309891	05/31/2013	X	07/26/13	Blind Dup #4
Blind Dup #4	IRM Confirmation	5.0	none	5.0	5			X			X											L1309891	05/31/2013	X	07/26/13	SB-27-B-1 (5.0')
SB-36-SW-1 (0-2')	IRM Confirmation	no	none	2.0	0-2			X			X										X	L1309891	05/31/2013	X	07/26/13	
SB-36-SW-2 (0-2')	IRM Confirmation	no	none	2.0	0-2			X			X										X	L1309891	05/31/2013	X	07/26/13	
SB-36-SW-3 (0-2')	IRM Confirmation	no	none	2.0	0-2			X			X										X	L1309891	05/31/2013	X	07/26/13	
SB-36-SW-4 (0-2')	IRM Confirmation	no	none	2.0	0-2			X			X										X	L1309891	05/31/2013	X	07/26/13	
SB-36-B-1 (2.0')	IRM Confirmation	no	none	2.0	2			X			X										X	L1309891	05/31/2013	X	07/26/13	
SS-6-SW-1 (2-0')	IRM Confirmation	no	none	2.0	0-2			X			X										X	L1309891	05/31/2013	X	07/26/13	
SS-6-SW-2 (2-0')	IRM Confirmation	no	none	2.0	0-2			X			X										X	L1309891	05/31/2013	X	07/26/13	
SS-6-SW-3 (2-0')	IRM Confirmation	no	none	2.0	0-2			X			X										X	L1309891	05/31/2013	X	07/26/13	
SS-6-SW-4 (2-0')	IRM Confirmation	no	none	2.0	2			X			X										X	L1309891	05/31/2013	X	07/26/13	
SS-6-B-1 (2.0')	IRM Confirmation	no	none	2.0	2			X			X										X	L1309891	05/31/2013	X	07/26/13	
SS-6-B-2 (2.0)	IRM Confirmation	no	none	2.0	2			X			X										X	L1310953	06/14/2013	X	07/26/13	
Blind Dup #5	IRM Confirmation	no	none	2.0	2			X			X											L1310953	06/14/2013	X	07/26/13	SS-6-B-2; Listed on COC as Blind Dup #2 (second BD collected during IRM)
SB-36-SW-5 (0-2')	IRM Confirmation	no	none	2.0	0-2			X			X										X	L1310953	06/14/2013	X	07/26/13	MS/MSD
SB-36-SW-5 (0-2') (MS/MSD)	IRM Confirmation	no	none	2.0	0-2			X			X											L1310953	06/14/2013	X	07/26/13	
SB-36-SW-6 (0-2')	IRM Confirmation	no	none	2.0	0-2			X			X										X	L1310953	06/14/2013	X	07/26/13	
SB-36-SW-7 (0-2')	IRM Confirmation	no	none	2.0	0-2			X			X										X	L1310953	06/14/2013	X	07/26/13	
SB-36-SW-8 (0-2')	IRM Confirmation	no	none	2.0	0-2			X			X										X	L1310953	06/14/2013	X	07/26/13	
SB-36-B-2 (3.5')	IRM Confirmation	no	none	3.5	3.5			X			X										X	L1310953	06/14/2013	X	07/26/13	
SB-4-SW-1 (13-14')	IRM Confirmation	no	none	14.0	13-14	X		X			X										X	L1313210 (voc) L1313612	07/15/2013	X	07/30/13 08/05/13	Listed on COC as SB-39-SW-1 (13-14')
SB-4-SW-2 (13-15')	IRM Confirmation	no	none	15.0	13-15	X		X			X										X	L1313395 (voc) L1313435	07/15/2013	X	07/31/13 08/02/13	Listed on COC as SB-39-SW-1 (13-14')
SB-4-SW-3 (11-15')	IRM Confirmation	no	none	15.0	11-15	X		X			X										X	L1313395 (voc) L1313435	07/15/2013	X	07/31/13 08/02/13	Listed on COC as SB-39-SW-1 (13-14')
SB-4-SW-4 (14-17')	IRM Confirmation	no	none	17.0	14-17	X		X			X										X	L1313480 (voc) L1313482	07/17/2013	X	08/02/13 08/05/13	Listed on COC as SB-39-SW-1 (13-14')
SB-4-SW-5 (14-17')	IRM Confirmation	no	none	17.0	14-17	X		X			X										X	L1313480 (voc) L1313482	07/17/2013	X	08/02/13 08/05/13	Listed on COC as SB-39-SW-1 (13-14')
SB-4-SW-6 (14-17')	IRM Confirmation	no	none	17.0	14-17	X		X			X										X	L1313480 (voc) L1313482	07/17/2013	X	08/02/13 08/05/13	Listed on COC as SB-39-SW-1 (13-14')
SB-4-SW-7 (14-17')	IRM Confirmation	no	none	17.0	14-17	X		X			X										X	L1313480 (voc) L1313482	07/17/2013	X	08/02/13 08/05/13	Listed on COC as SB-39-SW-1 (13-14')
SB-4-SW-8 (14-17')	IRM Confirmation	no	none	17.0	14-17	X		X			X										X	L1313480 (voc) L1313482	07/17/2013	X	08/02/13 08/05/13	Listed on COC as SB-39-SW-1 (13-14')
SB-4-SW-1 (13-14') (MS/MSD)	IRM Confirmation	no	none	14.0	13-14	X		X			X											L1313210 (voc) L1313612	07/15/2013	X	07/30/13 08/05/13	Listed on COC as SB-39-SW-1 (13-14')
Blind Dup #6	IRM Confirmation	no	none	17.0	14-17						X											L1313482	07/17/2013	X	08/02/13 08/05/13	SB-4-SW-4 (14-17'), a.k.a., SB-39-SW-4 (14-17'); Listed on COC as Blind Dup #3 (third BD collected during IRM)
SB-4-B-1 (17.0')	IRM Confirmation	no	none	17.0	17	X		X			X										X	L1313395 (voc) L1313435	07/15/2013	X	07/31/13 08/02/13	
SB-4-B-2 (17.0')	IRM Confirmation	no	none	17.0	17	X		X			X										X	L1313480 (voc) L1313482	07/17/2013	X	08/02/13 08/05/13	
Near-Surface Soil/Fill (Soil Borings) - Western Portion of Site																										
SB-59 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
SB-60 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
SB-61 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
SB-62 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
SB-63 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
SB-64 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
SB-65 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
SB-66 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
SB-67 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
SB-68 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
SB-69 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
SB-70 (0-2')	Supplemental Soil/Fill	no	none	2.0	0-2			X			X										X	L1323012	11/12/2013	X	01/28/14	
MS/MSD	Supplemental Soil/Fill	no	none	2.0	0-2			x			x											L1323012	11/12/2013	X	01/28/14	SB-70 (0-2')
Blind Dup #7	Supplemental Soil/Fill	no	none	2.0	0-2			x			x											L1323012	11/12/2013	X	01/28/14	SB-69 (0-2')
IRM Near-Surface Soil/Fill (Soil Borings) - AOC SB-69																										
SB-69-SW-1 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1324750	12/05/2013	X	01/28/14	EAST SW

TABLE 1

RI/IRM ANALYTICAL TESTING PROGRAM SUMMARY FOR SOIL

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Sample Identifier	Data Source	Depth to (fbgs)			Depth Sampled/ Screened (fbgs)	Analysis															Sampled (less QA/QC)	Laboratory Analytical Report No.	Date (Sampled or Advanced)	Validated	EQuIS	Comments
		Native	GW	TD		TCL + CP-51 VOCs	TCL VOCs	TCL SVOCs	TAL Metals (Total)	TAL Metals (Diss.)	RCRA Metals	Arsenic & Lead	Lead	TCLP VOCs	TCLP Metals	Total Cyanide	PCBs	Pesticides	Herbicides	Ignitability						
SB-69-SW-2 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1324750	12/05/2013	X	01/28/14	SOUTH SW
SB-69-SW-3 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1324750	12/05/2013	X	01/28/14	WEST SW
SB-69-SW-4 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1324750	12/05/2013	X	01/28/14	NORTH SW
SB-69-SW-5 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325093	12/10/2013	X	01/28/14	EAST SW
SB-69-SW-6 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325093	12/10/2013	X	01/28/14	SOUTH SW
SB-69-SW-7 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325093	12/10/2013	X	01/28/14	WEST SW
SB-69-SW-8 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325093	12/10/2013	X	01/28/14	NORTH SW
SB-69-SW-9 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325095	12/10/2013	X	03/03/14	EAST SW
SB-69-SW-10 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325095	12/10/2013	X	03/03/14	SOUTH SW
SB-69-SW-11 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325095	12/10/2013	X	03/03/14	WEST SW
SB-69-SW-12 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325095	12/10/2013	X	03/03/14	NORTH SW
SB-69-SW-13 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325094	12/10/2013	X	03/03/14	EAST SW
SB-69-SW-14 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325094	12/10/2013	X	03/03/14	SOUTH SW
SB-69-SW-15 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325094	12/10/2013	X	03/03/14	WEST SW
SB-69-SW-16 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1325094	12/10/2013	X	03/03/14	**NORTH SW - DELINEATED LIMIT**
SB-69-SW-17 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1326074	12/23/2013	X	03/03/14	**EAST SW - DELINEATED LIMIT**
SB-69-SW-18 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1326074	12/23/2013	X	03/03/14	**SOUTH SW - DELINEATED LIMIT**
SB-69-SW-19 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1326074	12/23/2013	X	03/03/14	WEST SW
SB-69-SW-20 (0-2')	IRM Confirmation	no	none	2.0	0-2																	NA	NA	NA	NA	EAST SW (NOT ANALYZED)
SB-69-SW-21 (0-2')	IRM Confirmation	no	none	2.0	0-2																	NA	NA	NA	NA	SOUTH SW (NOT ANALYZED)
SB-69-SW-22 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1326079	12/23/2013	X	03/04/14	WEST SW
SB-69-SW-23 (0-2')	IRM Confirmation	no	none	2.0	0-2																	NA	NA	NA	NA	EAST SW (NOT ANALYZED)
SB-69-SW-24 (0-2')	IRM Confirmation	no	none	2.0	0-2																	NA	NA	NA	NA	SOUTH SW (NOT ANALYZED)
SB-69-SW-25 (0-2')	IRM Confirmation	no	none	2.0	0-2							X									X	L1326077	12/23/2013	X	03/04/14	**WEST SW - DELINEATED LIMIT**
Phase II ESA, RI, & Supplemental Soil/Fill Totals:		*NA*	*NA*			*40*	*0*	*66*	*48*	*0*	*14*	*0*	*4*	*1*	*2*	*0*	*49*	*48*	*48*	*1*	*80*					
RI/Supplemental Soil/Fill MS/MSD:		*NA*	*NA*			*2*	*0*	*4*			*4*			*0*	*0*	*0*	*3*	*3*	*3*	*0*	*NA*					
RI/Supplemental Soil/Fill Blind Duplicates:		*NA*	*NA*			*2*	*0*	*4*			*4*			*0*	*0*	*0*	*3*	*3*	*3*	*0*	*NA*					
IRM Soil/Fill Totals:		*NA*	*NA*			*10*	*0*	*48*	*0*	*0*	*48*	*21*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*69*					
IRM Soil/Fill MS/MSD::		*NA*	*NA*			*1*	*0*	*3*			*3*			*0*	*0*	*0*	*0*	*0*	*0*	*0*	*NA*					
IRM Soil/Fill Blind Duplicates:		*NA*	*NA*			*0*	*0*	*2*			*3*			*0*	*0*	*0*	*0*	*0*	*0*	*0*	*NA*					
BCP Site Totals:		*NA*	*NA*			**50**		**114**			**131**			**1**	**2**	**0**	**49**	**48**	**48**	**1**	**149**					

T. Sample Locations (less QA/QC): **149**
BCP Acreage: **21**

Sample Density: **7.1 per acre**

TABLE 2

RI ANALYTICAL TESTING PROGRAM SUMMARY FOR GROUNDWATER

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Sample Identifier	Data Source	Depth to (fbgs)			Depth Sampled/ Screened (fbgs)	Analysis														Sampled (less QA/QC)	Laboratory Analytical Report No.	Date (Sampled or Advanced)	Validated	EQuIS	Comments
		Native	GW	TD		TCL + STARS VOCs	TCL VOCs	TCL SVOCs	TAL Metals (Total)	TAL Metals (Diss.)	RCRA Metals	Arsenic & Lead	Lead	TCLP Metals	Total Cyanide	PCBs	Pesticides	Herbicides	Ignitability						
Temporary Wells																									
TW-01 (SB-1)	TurnKey Phase II	8.0	14.0	20.0	15-20	X														x	J16020	02/09/2012	NA	NA	
TW-02 (SB-2)	TurnKey Phase II	12.0	13.0	20.0	15-20	X														x	J16020	02/09/2012	NA	NA	MS/MSD
TW-02 (SB-2) (MS)	TurnKey Phase II	12.0	13.0	20.0	15-20	X														x	J16020	02/09/2012	NA	NA	
TW-02 (SB-2) (MSD)	TurnKey Phase II	12.0	13.0	20.0	15-20	X														x	J16020	02/09/2012	NA	NA	
TW-03 (SB-4)	TurnKey Phase II	12.0	14.0	20.0	15-20	X		X												x	J16020	02/09/2012	NA	NA	
TW-04 (SB-48)	Supplemental RI	12.0	16.0	24.0	10-20	X														x	L1304328	03/13/2013	x	09/03/13	delineation of SB-16
TW-05 (SB-49)	Supplemental RI	16.0	16.0	24.0	12-22	X														x	L1304328	03/13/2013	x	09/03/13	delineation of SB-16
TW-06 (SB-50)	Supplemental RI	NA	9.0	20.0	9-19	X														x	L1304328	03/13/2013	x	09/03/13	delineation of SB-16
TW-07 (SB-51)	Supplemental RI	2.0	16.0	24.0	7-17	X														x	L1304328	03/13/2013	x	09/03/13	delineation of SB-16
TW-08 (SB-52)	Supplemental RI	16.0	16.0	24.0	9-19	X														x	L1304328	03/13/2013	x	09/03/13	delineation of SB-16
Monitoring Wells (Round 1)																									
MW-1	Remedial Investigation	12.0	17.0	28.0	14.5-24.5	X		X	X							X	X	X		x		01/21/2013			installed
																						01/21/2013			developed
																					L1301450	01/22/2013	x	09/05/13	sampled; BLIND DUP
MW-2	Remedial Investigation	10.0	16.0	24.0	13-23	X		X	X							X	X	X		x		01/17/2013			installed
																						01/18/2013			developed
																					L1301450	01/22/2013	x	09/05/13	sampled; MS/MSD
MW-2 (MS/MSD)	Remedial Investigation	10.0	16.0	24.0	13-23	X		X	X							X	X	X		x	L1301450	01/22/2013	x	09/05/13	sampled
MW-3	Remedial Investigation	11.0	17.5	26.0	16-26	X		X	X							X	X	X		x		01/18/2013			installed
																						01/21/2013			developed
																					L1301450	01/22/2013	x	09/05/13	sampled
MW-4	Remedial Investigation	15.0	13.0	22.0	12-22	X		X	X							X	X	X		x		01/17/2013			installed
																						01/18/2013			developed
																					L1301450	01/22/2013	x	09/05/13	sampled
MW-5	Remedial Investigation	16.0	16.0	24.0	12-22	X		X	X							X	X	X		x		01/18/2013			installed
																						01/18/2013			developed
																					L1301450	01/23/2013	x	09/05/13	sampled
Blind Dup	Remedial Investigation	12.0	17.0	28.0	14.5-24.5	X		X	X							X	X	X		x	L1301450	01/22/2013	x	09/05/13	sampled; MW-1
Trip Blank	Remedial Investigation	NA	NA	NA	NA	X														x	L1301450	01/22/2013	x	09/05/13	sampled
Equipment Blank	Remedial Investigation	NA	NA	NA	NA	X		X	X							X	X	X		x	L1301450	01/23/2013	x	09/05/13	sampled
Monitoring Wells (Round 2)																									
MW-1	Remedial Investigation	12.0	17.0	28.0	14.5-24.5	X		X			X									x	L1315920	08/15/2013	x	03/04/14	sampled; MS/MSD
MW-1 (MS/MSD)	Remedial Investigation	12.0	17.0	28.0	14.5-24.5	X		X			X									x	L1315920	08/15/2013	x	03/04/14	sampled
MW-2	Remedial Investigation	10.0	16.0	24.0	13-23	X		X			X									x	L1315920	08/15/2013	x	03/04/14	sampled
MW-3	Remedial Investigation	11.0	17.5	26.0	16-26	X		X			X									x	L1315920	08/15/2013	x	03/04/14	sampled; BLIND DUP
MW-4	Remedial Investigation	15.0	13.0	22.0	12-22	X		X			X									x	L1315920	08/15/2013	x	03/04/14	sampled
MW-5	Remedial Investigation	16.0	16.0	24.0	12-22	X		X			X									x	L1315920	08/15/2013	x	03/04/14	sampled
Blind Dup	Remedial Investigation	12.0	17.0	28.0	14.5-24.5	X		X			X									x	L1315920	08/15/2013	x	03/04/14	sampled; MW-3
Trip Blank	Remedial Investigation	NA	NA	NA	NA	X														x	L1315920	08/15/2013	x	03/04/14	sampled
Equipment Blank	Remedial Investigation	NA	NA	NA	NA	X		X			X									x	L1315920	08/15/2013	x	03/04/14	sampled
					Groundwater Totals:	*20*	*0*	*11*	*5*	*0*	*5*	*0*	*0*	*0*	*0*	*5*	*5*	*5*	*0*	*20*					
					MS/MSD:	*2*	*0*	*2*	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*1*	*1*	*1*	*0*	*NA*					
					Blind Duplicates:	*2*	*0*	*2*	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*1*	*1*	*1*	*0*	*NA*					
					Equipment Blanks:	*2*	*0*	*2*	*1*	*0*	*1*	*0*	*0*	*0*	*0*	*1*	*1*	*1*	*0*	*NA*					
					Trip Blanks:	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*NA*					

Notes:
1. Developed wells MW-2, MW-4, and MW-5 on 01/18/13.
2. Developed wells MW-1 and MW-3 on 01/21/13.

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TABLE 3

WELL CONSTRUCTION DETAILS

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Well Identification			Well Elevations [1, 2]						Well Diameter (inches)	Well Screen Data [1]						
Well Number	Well Type	Date Completed	TOR Elevation (fmsl)	Ground Elevation (fmsl)	Stick-up (feet)	Total Depth (fbgs)	Total Depth (fbTOR)	Bottom of Well Elevation (fmsl)		Length of Well Screen (feet)	Screen Interval (fmsl)			Screen Interval (fbTOR)		
Temporary Wells																
TW-01	OB	02/08/2012	NA	NA	0.33	19.87	20.20	NA	1	5	NA	to	NA	15.20	to	20.20
TW-02	OB	02/09/2012	NA	NA	0.67	19.55	20.22	NA	1	5	NA	to	NA	15.22	to	20.22
TW-03	OB	02/08/2012	NA	NA	0.75	19.48	20.23	NA	1	5	NA	to	NA	15.23	to	20.23
TW-04	OB	03/13/2013	NA	NA	3.02	19.81	22.83	NA	1	5	NA	to	NA	17.83	to	22.83
TW-05	OB	03/13/2013	NA	NA	3.03	22.10	25.13	NA	1	5	NA	to	NA	20.13	to	25.13
TW-06	OB	03/12/2013	NA	NA	2.90	18.18	21.08	NA	1	5	NA	to	NA	16.08	to	21.08
TW-07	OB	03/12/2013	NA	NA	3.38	16.70	20.08	NA	1	5	NA	to	NA	15.08	to	20.08
TW-08	OB	03/12/2013	NA	NA	3.53	18.75	22.28	NA	1	5	NA	to	NA	17.28	to	22.28
Monitoring Wells																
MW-1	OB	01/21/2013	593.34	590.84	2.50	24.63	27.13	566.21	2	10	583.34	to	566.21	14.63	to	27.13
MW-2	OB	01/17/2013	590.12	588.10	2.02	23.86	25.88	564.24	2	10	580.12	to	564.24	13.86	to	25.88
MW-2R [3]	OB	02/21/2014	591.02	588.98	2.04	26.04	28.08	562.94	2	10	581.02	to	562.94	16.04	to	28.08
MW-3	OB	01/18/2013	592.45	590.27	2.18	26.25	28.43	564.02	2	10	582.45	to	564.02	16.25	to	28.43
MW-4	OB	01/17/2013	587.63	585.37	2.26	22.47	24.73	562.90	2	10	577.63	to	562.90	12.47	to	24.73
MW-5	OB	01/18/2013	587.39	585.42	1.97	22.66	24.63	562.76	2	10	577.39	to	562.76	12.66	to	24.63
Staff Gauge - Buffalo River																
SG-1	OB	NA	595.94	595.94	NA	NA	NA	NA	NA	NA	NA	to	NA	NA	to	NA

Abbreviations:
DTW = depth to water
fbgs = feet below ground surface
fbTOR = feet below top of riser
fmsl = feet above mean sea level
OB: Indicates a well completed in shallow unconsolidated overburden
TOR = top of riser

Notes:
1. Elevations measured in feet; distance above mean sea level.
2. Top of riser (TOR) and ground elevation are based on a nearby catch basin elevation of 585.78 located on east side of South Ogden Street, approximately 125 feet north of southern property boundary provided by C&S Engineering, drawing Utility Plan East, Drawing No. CU-107.
3. Well location surveyed on March 3, 2014 and elevations surveyed on March 18, 2014 by Benchmark personnel.

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TABLE 4

SUMMARY OF GROUNDWATER ELEVATIONS

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Location	February 2, 2013			August 5, 2013		
	TOR Elevation [1] (fmsl)	DTW (fbTOR)	GWE [1] (fmsl)	TOR Elevation [1] (fmsl)	DTW (fbTOR)	GWE [1] (fmsl)
Monitoring Wells						
MW-1	593.34	21.64	571.70	593.34	20.92	572.42
MW-2	590.12	17.45	572.67	590.12	16.68	573.44
MW-2R [2]	591.02	NA	NA	591.02	NA	NA
MW-3	592.45	20.89	571.56	592.45	20.21	572.24
MW-4	587.63	15.14	572.49	587.63	15.08	572.55
MW-5	587.39	16.35	571.04	587.39	15.37	572.02
Buffalo River						
SG-1	595.94	21.50	574.44	595.94	24.55	571.39

Notes:
1. Top of Riser (TOR) elevation and Groundwater Elevation (GWE) are measured in feet; distance above mean sea level (fmsl).
2. Monitoring well MW-2R was installed February 21, 2014 to replace decommissioned well MW-2.
3. fbTOR = feet below top of riser or casing
4. fmsl = feet above mean sea level.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 5

SUMMARY OF SOIL/FILL ANALYTICAL RESULTS COMPARED TO UNRESTRICTED SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	USCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																									
				SB-17 (0-2) BLIND DUP #1 1/4/2013	Qual	SS-2 (0-0.5) BLIND DUP #2 1/10/2013	Qual	SB-38 (10-12) BLIND DUP #3 1/11/2013	Qual	SB-9 (4-6) 1/16/2013	Qual	SB-10 (6-8) 1/3/2013	Qual	SB-11 (8-10) 1/15/2013	Qual	SB-12 (10-12) 1/15/2013	Qual	SB-13 (4-5.8) 1/3/2013	Qual	SB-14 (0-2) 1/3/2013	Qual	SB-14 (8-10) 1/3/2013	Qual	SB-15 (0-2) 1/16/2013	Qual	SB-15 (2-4) 1/16/2013	Qual	SB-16 (6-8) 1/4/2013	Qual	SB-17 (0-2) 1/4/2013	Qual	SB-17 (6-8) 1/4/2013	Qual
General Chemistry - Westborough Lab																															
Solids, Total	NONE		%	86		76		65		83		84		77		87		81		89		52		83		81		79		84		87	
Volatile Organics by 8260C/5035																															
Acetone	67-64-1	0.05	mg/kg	0.0099	U	-		0.026	U	0.01	U	0.011	U	0.038	J	0.06		0.017	U	0.017	U	0.21		0.018	U	0.016	U	0.026	J	0.013	U	0.011	UJ
2-Butanone	78-93-3	0.12	mg/kg	0.0099	U	-		0.02	J	0.01	U	0.011	U	0.032	U	0.014		0.017	U	0.017	U	0.03		0.018	U	0.016	U	0.013	UJ	0.013	U	0.011	UJ
Carbon Disulfide	75-15-0		mg/kg	0.099	U	-		0.026	U	0.01	U	0.011	U	0.032	U	0.012	U	0.017	U	0.017	U	0.03	U	0.018	U	0.016	U	0.013	U	0.013	U	0.011	U
Cyclohexane	110-82-7		mg/kg	0.02	U	-		0.051	U	0.02	U	0.022	U	0.065	U	0.025	U	0.00043	J	0.033	U	0.014	J	0.036	U	0.032	U	0.025	U	0.026	U	0.022	U
Ethylbenzene	100-41-4	1	mg/kg	0.0099	U	-		0.0026	U	0.001	U	0.0011	U	0.0032	U	0.0012	U	0.0017	U	0.0017	U	0.003	U	0.0018	U	0.0016	U	0.0013	U	0.0013	U	0.0011	U
p-Isopropyltoluene	99-87-6		mg/kg	0.00099	U	-		0.0026	U	0.001	U	0.0011	U	0.0032	U	0.0012	U	0.0017	U	0.0017	U	0.48		0.0018	U	0.0016	U	0.088		0.0013	U	0.0011	U
Methyl cyclohexane	108-87-2		mg/kg	0.004	U	-		0.01	U	0.004	U	0.0043	U	0.013	U	0.005	U	0.0067	U	0.0067	U	0.024		0.0073	U	0.0065	U	0.0051	U	0.0052	U	0.0044	U
Methylene chloride	75-09-2	0.05	mg/kg	0.0099	U	-		0.026	U	0.01	U	0.011	U	0.032	U	0.0034	J	0.017	U	0.017	U	0.03	U	0.018	U	0.016	U	0.013	U	0.013	U	0.011	U
Toluene	108-88-3	0.7	mg/kg	0.0015	U	-		0.0038	U	0.0015	U	0.0011	U	0.0049	U	0.0019	U	0.0025	U	0.0025	U	0.0042		0.0027	U	0.0024	U	0.0019	U	0.002	U	0.0016	U
Semivolatile Organics by 8270D																															
2-Methylnaphthalene	91-57-6		mg/kg	0.23	U	0.26	U	0.6	U	0.2	J	1.2	U	0.26	U	0.22	U	0.24	U	0.44	U	3.8	U	0.24	U	0.1	J	3		0.22	J	0.22	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	0.33	mg/kg	0.27	U	0.31	U	0.72	U	0.29	U	1.4	U	0.31	U	0.27	U	0.29	U	0.53	U	4.5	U	0.28	U	0.29	U	3	U	0.56	U	0.27	U
Acenaphthene	83-32-9	20	mg/kg	0.046	J	0.17	U	0.4	U	0.67		0.77	U	0.17	U	0.13	J	0.16	U	0.29	U	2.5	U	0.16	U	0.16	U	12		0.62	J	0.15	U
Acenaphthylene	208-96-8	100	mg/kg	0.16	J	0.17	U	0.66		0.23		0.77	U	0.17	U	0.15	U	0.16	U	0.29	U	1.3	J	0.16	U	0.16	U	2		0.31	UJ	0.15	U
Anthracene	120-12-7	100	mg/kg	0.22	J	0.13	U	0.37		2		0.41	J	0.086	J	0.26		0.12	U	0.06	J	2.8		0.12	U	0.068	J	28		1.1	J	0.11	U
Benzo(a)anthracene	56-55-3	1	mg/kg	0.65	J	0.13	U	0.49	J	3.2		1.2		0.22		0.55		0.057	J	0.18	J	7		0.12	U	0.25	NJ	47		3.1	J	0.11	UJ
Benzo(a)pyrene	50-32-8	1	mg/kg	0.58	J	0.17	U	1.4	J	2.8		1.2		0.15	J	0.5		0.051	J	0.18	J	6.4		0.16	U	0.22		41		2.9	J	0.15	UJ
Benzo(b)fluoranthene	205-99-2	1	mg/kg	0.87	J	0.13	U	1.2	J	3.9		1.6		0.24		0.65		0.061	J	0.22		8.1		0.12	U	0.35		53		4.2	J	0.11	UJ
Benzo(ghi)perylene	191-24-2	100	mg/kg	0.33	J	0.17	U	0.84	J	1.6		0.65	J	0.11	J	0.33		0.16	U	0.1	J	3.8		0.16	U	0.18		20		1.6	J	0.15	U
Benzo(k)fluoranthene	207-08-9	0.8	mg/kg	0.32	J	0.13	U	0.36	J	1.2		0.49	J	0.088	J	0.24		0.034	J	0.1	J	3.6		0.12	U	0.15		19		1.5	J	0.11	U
Benzoic Acid	65-85-0		mg/kg	0.61	U	0.7	U	1.6	U	0.64	U	3.1	U	0.7	U	0.6	U	0.66	U	1.2	U	10	U	0.64	U	0.66	U	6.6	U	1.2	U	0.6	U
Benzyl Alcohol	100-51-6		mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Bis(2-Ethylhexyl)phthalate	117-81-7		mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Butyl benzyl phthalate	85-68-7		mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Carbazole	86-74-8		mg/kg	0.079	J	0.21	U	0.19	J	0.78		0.18	J	0.052	J	0.16	J	0.2	U	0.36	U	1.4	J	0.2	U	0.047	J	11		1.1	J	0.18	U
Chrysene	218-01-9	1	mg/kg	0.65	J	0.13	U	0.7	J	3		1.1		0.21		0.55		0.055	J	0.17	J	6.6		0.12	U	0.3		45		3.5	J	0.11	UJ
Di-n-butylphthalate	84-74-2		mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Dibenzo(a,h)anthracene	53-70-3	0.33	mg/kg	0.097	J	0.13	U	0.29	NJ	0.37		0.58	U	0.13	U	0.067	J	0.12	U	0.22	U	0.97	J	0.12	U	0.041	J	6.2		0.44	J	0.11	U
Dibenzofuran	132-64-9	7	mg/kg	0.063	J	0.21	U	0.5	U	0.62		0.97	U	0.22	U	0.081	J	0.2	U	0.36	U	0.71	J	0.2	U	0.048	J	8.4		0.53	J	0.18	U
Fluoranthene	206-44-0	100	mg/kg	1.2	J	0.13	U	0.75	J	8.6	D	2.7		0.48		1.5		0.12		0.36		15		0.12	U	0.58		100	D	10	J	0.11	UJ
Fluorene	86-73-7	30	mg/kg	0.072	J	0.21	U	0.5	U	1		0.97	U	0.047	J	0.16	J	0.2	U	0.36	U	1	J	0.2	U	0.2	U	15		0.76	J	0.18	U
Hexachlorobenzene	118-74-1	0.33	mg/kg	0.11	U	0.13	U	0.3	U	0.12	U	0.58	U	0.13	U	0.11	U	0.12	U	0.22	U	1.9	U	0.12	U	0.12	U	1.2	U	0.23	U	0.11	U
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	mg/kg	0.41	J	0.17	U	0.73		1.9		0.64	J	0.11	J	0.32		0.16	U	0.096	J	3.4		0.16	U	0.2		25		2.1	J	0.15	U
Naphthalene	91-20-3	12	mg/kg	0.081	J	0.21	U	0.5	U	0.31		0.97	U	0.22	U	0.091	J	0.2	U	0.36	U	3.1	U	0.2	U	0.089	J	6.4		0.34	J	0.18	U
Phenanthrene	85-01-8	100	mg/kg	0.6	J	0.13	U	0.53	J	7.4		1.6		0.4		1.3		0.09	J	0.2	J	11		0.12	U	0.38		92	D	7.5	J	0.11	UJ
Phenol	108-95-2	0.33	mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Pyrene	129-00-0	100	mg/kg	0.92	J	0.13	U	0.8	J	7		2.2		0.38		1.2		0.098	J	0.28		12		0.12	U	0.44		80		7.4	J	0.11	UJ
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**7.206**	**J**	**ND**		**9.12**		**45.18**		**13.79**		**2.521**		**7.848**		**0.566**		**1.946**		**82.97**		**ND**		**3.248**		**591.6**		**47.06**		**ND**	
Organochlorine Pesticides by 8081B																															
4,4'-DDD	72-54-8	0.0033	mg/kg	0.00177	UJ	0.00203	UJ	0.0327	J	0.00187	UJ	0.00226	J	0.00655	UJ	0.00971	J	0.00267	J	0.00178	UJ	1.73	J	0.00184	UJ	0.00186	UJ	0.0195	UJ	0.00181	UJ	0.00177	UJ
4,4'-DDE	72-55-9	0.0033	mg/kg	0.00281	UJ	0.00361	J	0.0482	U	0.00187	UJ	0.00411		0.00988	UJ	0.009	UJ	0.00185	UJ	0.00374	NJ	0.213	J	0.000797	J	0.00327	J	0.0195	UJ	0.0045	NJ	0.00177	UJ
4,4'-DDT	50-29-3	0.0033	mg/kg	0.00819	J	0.00242	J	0.0422	J	0.00351	UJ	0.0103	J	0.0185	UJ	0.00858	J	0.00247	J	0.0098	NJ	1.98	J	0.00345	UJ	0.00315	UJ	0.0366	UJ	0.0111	J	0.00331	UJ
Alpha-BHC	319-84-6	0.02	mg/kg	0.000739	UJ	0.000844	UJ	0.0201	U	0.00078	UJ	0.000772	UJ	0.00412	UJ	0.00375	UJ	0.000771	UJ	0.000744	UJ	0.00126	UJ	0.000766	UJ	0.000776	UJ	0.00814	UJ	0.000753	UJ	0.000736	UJ
Chlordane	57-74-9		mg/kg	0.0311	J	0.0165	UJ	0.392	U	0.0152	UJ	0.0151	UJ	0.0803	UJ	0.0731	UJ	0.015	UJ	0.0164	UJ	2.12	J	0.0149	UJ	0.0151	UJ	0.159	UJ	0.0504	J	0.0144	UJ
cis-Chlordane	5103-71-9	0.094	mg/kg	0.00206	UJ	0.00253	UJ	0.0602	U	0.00234	UJ	0.00232	UJ	0.0124	UJ	0.0112	UJ	0.000771	NJ	0.00208	UJ	0.112	J	0.0023	UJ	0.00233	UJ	0.0244	UJ	0.00308	UJ	0.00221	UJ
Dieldrin	60-57-1	0.005	mg/kg	0.00111	UJ	0.00127	UJ	0.0301	U	0.00117	UJ	0.00116	UJ	0.00618	UJ	0.00562	UJ	0.00116	UJ	0.00112	UJ	0.0509	NJ	0.00115	UJ	0.00116	UJ	0.0122	UJ	0.00113	UJ	0.0011	UJ
Endrin ketone	53494-70-5		mg/kg	0.00177	UJ	0.00203	UJ	0.0482	UJ	0.00187	UJ	0.00185	UJ	0.00988	UJ	0.009	UJ	0.00185	UJ	0.00178	UJ	0.00303	UJ	0.00184	UJ	0.00186	UJ	0.0195	UJ	0.00181	UJ	0.00177	UJ
Heptachlor	76-44-8	0.042	mg/kg	0.000886	UJ	0.00101	UJ	0.0241	U	0.000936	UJ	0.000927	UJ	0.00494	UJ	0.0045	UJ	0.000925	UJ	0.000893	UJ	0.00152	UJ	0.00092	UJ	0.000932	UJ	0.00977	UJ	0.000904	UJ	0.000884	UJ
Lindane	58-89-9	0.1	mg/kg	0.000739	UJ	0.000844	UJ	0.0827	J	0.00078	UJ	0.000772	UJ	0.00412	UJ	0.00375	UJ	0.000771	UJ	0.000744	UJ	0.00126	UJ	0.000766	UJ	0.000776	UJ	0.00814	UJ	0.000753	UJ	0.000736	UJ
Methoxychlor	72-43-5		mg/kg	0.00332	UJ	0.0038	UJ	0.0904	UJ	0.00351	UJ	0.00348	UJ	0.0185	UJ	0.0169	UJ	0.00347	UJ	0.00335	UJ	0.00569	UJ	0.00345	UJ	0.00349	UJ	0.0366	UJ	0.00339	UJ	0.00331	UJ
trans-Chlordane	5103-74-2		mg/kg	0.00222	UJ	0.00253	UJ	0.0602	U	0.00234	UJ	0.00232	UJ	0.0124	UJ	0.0112	UJ	0.00231	UJ	0.00134	UJ	0.0563	J	0.0023	UJ	0.00233	UJ	0.0244	UJ	0.00586	J	0.00221	UJ
Polychlorinated Biphenyls by 8082A																															
Aroclor 1254	11097-69-1	0.1	mg/kg	0.0378	UJ	0.0421	UJ	0.049	U	0.0125	J	0.0386	UJ	0.0421	UJ	0.037	UJ	0.0397	UJ	0.0359	UJ	0.0616	UJ	0.0391	UJ	0.0397	UJ	0.0594	J	0.0372	UJ	0.0362	UJ
Aroclor 1260	11096-82-5	0.1	mg/kg	0.0181	J	0.0421	UJ	0.0451	J	0.0398	UJ	0.0386	UJ	0.0421	UJ	0.037	UJ	0.0397	UJ	0.0359	UJ	0.0616	UJ	0.0391	UJ	0.025	J	0.0252	J	0.0161	J	0.0362	UJ
Total Metals by 6010C/7471B (Mercury)																															
Aluminum, Total	7429-90-5		mg/kg	14000		11000	J	13000		8500		8900		11000		7200		13000		9000		5300		7900		14000		11000		14000		6200	
Antimony, Total	7440-36-0		mg/kg	5.4	J	4.2	J	4.3	J	18	J	3.9	J	3.3	J	2.1	J	3.4	J	3.1	J	9.4	J	1.6	J	4.1	J	15	J	4.5	J	1.9	J
Arsenic, Total	7440-38-2	13	mg/kg	12		7.6	J	7.7		7.6	J	7.2		7.2		3.8		8		7.6		12		4.5	J	11		9.2		8.7		3	
Barium, Total	7440-39-3	350	mg/kg	92		76	J	130	J	94		89		77		50		78		66		870		47		110		390		91		43	
Beryllium, Total	7440-41-7	7.2	mg/kg	0.71		0.6		0.63		0.42	J	0.48		0.56		0.36	J	0.65		0.52		0.41	J	0.37	J	0.67		0.52		0.7		0.31	J
Cadmium, Total	7440-43-9	2.5	mg/kg	0.14	J	1	U	0.63	J	0.55	J	0.71	J	0.19	J	0.09	J	0.97	U	0.84	U	3.5		0.18	J	0.11	J	1.3		0.12	J	0.89	U
Calcium, Total	7440-70-2		mg/kg	51000		32000	J	20000		18000		15000		16000		5200		38000		67000		86000		48000		36000		45000		57000		3400	
Chromium, Total	7440-47-3		mg/kg	24	J	17	J	47	J	14		18	J	19	J	9.8	J	19	J	15	J	51	J	10		23		25	J	30	J	9.6	J
Cobalt, Total	7440-48-4		mg/kg	10		8		10		7.4		8.2		9.7		5.8		11		7.2		7.2		6.5		12		6.1		9.2		5.4	
Copper, Total	7440-50-8	50	mg/kg	48	J	22	J	50		33		57	J	30		17		27	J	23	J	120	J	18		74		150	J	41	J	15	J
Iron, Total	7439-89-6		mg/kg	28000		21000	J	24000		17000		22000		22000		13000		24000		18000		22000		14000		30000		19000		28000		12000	
Lead, Total	7439-92-1	63	mg/kg	97	J	17	J	220	J	840	J	220	J	50	J	22	J	53	J	45	J	3700	J	13	J	120		480	J	73	J	10	J
Magnesium, Total	7439-95-4		mg/kg	13000		7800		8500	J	6300		6400		7900		3200		13000		16000		7800		5500		15000		6800		13000		2600	
Manganese, Total	7439-96-5	1600	mg/kg	460		280		340		300	J	430		310		240		440		420		620		240	J	510		320		680		240	
Mercury, Total	7439-97-6	0.18	mg/kg	0.48		0.03	J	0.47		0.23		0.14		0.19	J	0.02	J	0.09	J	0.05	J	0.51		0.04	J	0.08		3.3		0.28		0.04	J
Nickel, Total	7440-02-0	30	mg/kg	27		22	J	33		22		24		26		16		27		20		20		18		34		19		26		15	
Potassium, Total	7440-09-7		mg/kg	3000	J	2000	J	1700		990		1100	J	1800		900		2300	J	1400	J	870	J	1100		2400		1200	J	2600	J	700	J
Selenium, Total	7782-49-2	3.9	mg/kg	2.3		0.79	J	1.2	J	1.4	J	1.3	J	0.84	J	0.66	J	0.94	J	1.3	J	2.8	J	0.28	J	2.2		2.4		2.5		1.1	J
Silver, Total	7440-22-4	2	mg/kg	0.27	J	0.23	J	0.46	J	0.91	U	0.9	U	0.99	U	0.88	U	0.97	U	0.84	U	1	J	0.92	U	0.94	U	1		0.19	J	0.89	U
Sodium, Total	7440-23-5		mg/kg	310		220		200	J	280		170	J	150	J	240		680		260		540		120	J	360		320		380		110	J
Vanadium, Total	7440-62-2		mg/kg	28		22	J	24		17		19		21		14		24		19		20		14		25		25		29		13	
Zinc, Total	7440-66-6	109	mg/kg	120		69	J	210		190	J	470		120	J	56	J	84		87		1400		61	J	190		320		110		45	

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 5

SUMMARY OF SOIL/FILL ANALYTICAL RESULTS COMPARED TO UNRESTRICTED SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	USCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																									
				SB-18 (2-4) 1/15/2013	Qual	SB-19 (0-2) 1/15/2013	Qual	SB-19 (8-10) 1/15/2013	Qual	SB-20 (2-4) 1/14/2013	Qual	SB-21 (2-4) 1/7/2013	Qual	SB-22 (2-4) 1/7/2013	Qual	SB-23 (0-2) 1/4/2013	Qual	SB-23 (4-6) 1/4/2013	Qual	SB-24 (0-2) 1/16/2013	Qual	SB-24 (2-4) 1/16/2013	Qual	SB-25 (10-12') 1/8/2013	Qual	SB-26 (6-8) 1/7/2013	Qual	SB-27 (0-2) 1/7/2013	Qual	SB-27 (3-4) 1/7/2013	Qual	SB-28 (2-4) 1/14/2013	Qual
General Chemistry - Westborough Lab																															
Solids, Total	NONE		%	85		89		89		80		80		81		74		82		85		83		74		90		70		68		83	
Volatile Organics by 8260C/5035																															
Acetone	67-64-1	0.05	mg/kg	0.015	U	0.014	U	0.02	J	0.018	U	0.024	U	0.019	U	0.012	UJ	0.0049	J	0.0066	J	0.012	U	0.014		0.0088	U	0.015	J	0.052	U	0.012	U
2-Butanone	78-93-3	0.12	mg/kg	0.015	U	0.014	U	0.018	U	0.018	U	0.024	U	0.019	U	0.012	UJ	0.014	UJ	0.015	U	0.012	U	0.013	U	0.0088	U	0.037	U	0.052	U	0.012	U
Carbon Disulfide	75-15-0		mg/kg	0.015	U	0.014	U	0.018	U	0.018	U	0.024	U	0.019	U	0.012	U	0.014	U	0.015	U	0.012	U	0.013	U	0.008	U	0.037	U	0.052	U	0.012	U
Cyclohexane	110-82-7		mg/kg	0.00074	J	0.027	U	0.0003	J	0.037	U	0.048	U	0.038	U	0.024	U	0.027	U	0.0014	J	0.00057	J	0.026	U	0.018	U	0.074	U	0.1	U	0.025	U
Ethylbenzene	100-41-4	1	mg/kg	0.0015	U	0.0014	U	0.0018	U	0.0018	U	0.0024	U	0.0019	U	0.0012	U	0.0014	U	0.0015	U	0.0012	U	0.0013	U	0.0088	U	0.0037	U	0.0052	U	0.0012	U
p-Isopropyltoluene	99-87-6		mg/kg	0.0015	U	0.0014	U	0.0018	U	0.0018	U	0.0024	U	0.0019	U	0.0012	U	0.0014	U	0.0015	U	0.0012	U	0.0019		0.00088	U	0.0037	U	0.0052	U	0.0012	U
Methyl cyclohexane	108-87-2		mg/kg	0.001	J	0.0055	U	0.0072	U	0.0074	U	0.0096	U	0.0077	U	0.0048	U	0.0054	U	0.002	J	0.00084	J	0.0053	U	0.0035	U	0.015	U	0.021	U	0.005	U
Methylene chloride	75-09-2	0.05	mg/kg	0.015	U	0.0042	J	0.0058	J	0.018	U	0.024	U	0.019	U	0.012	U	0.014	U	0.015	U	0.012	U	0.013	U	0.0088	U	0.037	U	0.052	U	0.012	U
Toluene	108-88-3	0.7	mg/kg	0.0023	U	0.002	U	0.0018	J	0.0019	U	0.0036	U	0.0029	U	0.0018	U	0.002	U	0.0023	U	0.0018	U	0.0013	U	0.0013	U	0.0055	U	0.0079	U	0.0019	U
Semivolatile Organics by 8270D																															
2-Methylnaphthalene	91-57-6		mg/kg	0.23	U	1.1	U	6.7	U	2.5	U	0.25	U	0.24	U	2.7	U	4.8	U	0.23	U	0.24	U	6.6	U	0.22	U	0.28	U	0.29	U	0.24	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	0.33	mg/kg	0.28	U	1.3	U	8	U	3	U	0.3	U	0.29	U	3.2	U	5.8	U	0.28	U	0.28	U	7.9	U	0.26	U	0.33	U	0.35	U	0.29	U
Acenaphthene	83-32-9	20	mg/kg	0.15	U	1.1		4.4	U	1.1	J	0.16	U	0.16	U	1.8	U	3.2	U	0.16	U	0.16	U	4.4	U	0.14	U	0.19	U	0.19	U	0.16	U
Acenaphthylene	208-96-8	100	mg/kg	0.15	U	0.74	U	4.4	U	1.6	U	0.16	U	0.16	U	1.8	U	1.1	J	0.16	U	0.16	U	4.7		0.14	U	0.19	U	0.19	U	0.16	U
Anthracene	120-12-7	100	mg/kg	0.11	U	2.3		3	J	3		0.12	U	0.12	U	1.3	U	3.3		0.12	U	0.12	U	6.7		0.11	U	0.14	U	0.14	U	0.12	U
Benzo(a)anthracene	56-55-3	1	mg/kg	0.11	U	3.5		10		6.1		0.12	U	0.12	U	1.3	U	8.1		0.12	U	0.12	U	25		0.11	U	0.14	U	0.14	U	0.12	U
Benzo(a)pyrene	50-32-8	1	mg/kg	0.15	U	2.8		9.5		5		0.16	U	0.16	U	1.8	U	7		0.16	U	0.16	U	23		0.14	U	0.19	U	0.19	U	0.16	U
Benzo(b)fluoranthene	205-99-2	1	mg/kg	0.041	J	3.6		12		6.4		0.045	J	0.12	U	1.3	U	8		0.061	J	0.12	U	30		0.11	U	0.14	U	0.14	U	0.12	U
Benzo(ghi)perylene	191-24-2	100	mg/kg	0.15	U	1.5		6		2.7		0.16	U	0.16	U	1.8	U	4		0.16	U	0.16	U	15		0.14	U	0.19	U	0.19	U	0.16	U
Benzo(k)fluoranthene	207-08-9	0.8	mg/kg	0.11	U	1.5		4.6		2.8		0.12	U	0.12	U	1.3	U	3.5		0.12	U	0.12	U	13		0.11	U	0.14	U	0.14	U	0.12	U
Benzoic Acid	65-85-0		mg/kg	0.62	U	3	U	18	U	6.7	U	0.66	U	0.65	U	7.2	U	13	U	0.63	U	0.63	U	18	U	0.59	U	0.75	U	0.78	U	0.65	U
Benzyl Alcohol	100-51-6		mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Bis(2-Ethylhexyl)phthalate	117-81-7		mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Butyl benzyl phthalate	85-68-7		mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Carbazole	86-74-8		mg/kg	0.19	U	1.2		5.6	U	1.3	J	0.2	U	0.2	U	2.2	U	0.79	J	0.19	U	0.2	U	1.6	J	0.18	U	0.23	U	0.24	U	0.2	U
Chrysene	218-01-9	1	mg/kg	0.039	J	3.2		10		5.7		0.043	J	0.12	U	1.3	U	8		0.049	J	0.12	U	26		0.11	U	0.14	U	0.14	U	0.12	U
Di-n-butylphthalate	84-74-2		mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.098	J	0.24	U	0.2	U
Dibenzo(a,h)anthracene	53-70-3	0.33	mg/kg	0.11	U	0.39	J	1.5	J	0.81	J	0.12	U	0.12	U	1.3	U	1.1	J	0.12	U	0.12	U	4.3		0.11	U	0.14	U	0.14	U	0.12	U
Dibenzofuran	132-64-9	7	mg/kg	0.19	U	0.84	J	5.6	U	0.64	J	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Fluoranthene	206-44-0	100	mg/kg	0.054	J	7.5		22		13		0.061	J	0.12	U	0.53	J	15		0.058	J	0.043	J	42		0.11	U	0.06	J	0.061	J	0.12	U
Fluorene	86-73-7	30	mg/kg	0.19	U	1.3		1.1	J	1.2	J	0.2	U	0.2	U	2.2	U	0.98	J	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Hexachlorobenzene	118-74-1	0.33	mg/kg	0.11	U	0.55	U	3.3	U	1.2	U	0.12	U	0.12	U	1.3	U	2.4	U	0.12	U	0.12	U	3.3	U	0.11	U	0.14	U	0.14	U	0.12	U
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	mg/kg	0.15	U	1.7		6		2.5		0.16	U	0.16	U	1.8	U	4.6		0.16	U	0.16	U	13		0.14	U	0.19	U	0.19	U	0.16	U
Naphthalene	91-20-3	12	mg/kg	0.19	U	0.48	J	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.12	J	0.2	U
Phenanthrene	85-01-8	100	mg/kg	0.041	J	8		12		10		0.12	U	0.12	U	0.4	J	10		0.048	J	0.12	U	15		0.11	U	0.14	U	0.068	J	0.12	U
Phenol	108-95-2	0.33	mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Pyrene	129-00-0	100	mg/kg	0.041	J	5.4		19		10		0.049	J	0.12	U	0.44	J	12		0.049	J	0.035	J	38		0.11	U	0.054	J	0.05	J	0.12	U
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**0.216**		**44.27**		**116.7**		**70.31**		**0.198**		**ND**		**1.37**		**86.68**		**0.265**		**0.078**		**255.7**		**ND**		**0.114**		**0.299**		**ND**	
Organochlorine Pesticides by 8081B																															
4,4'-DDD	72-54-8	0.0033	mg/kg	0.00901	UJ	0.00176	UJ	0.0228	NJ	0.00232	J	0.00189	UJ	0.00192	UJ	0.00211	UJ	0.071	J	0.0018	UJ	0.00182	UJ	0.0264	NJ	0.000645	J	0.0022	UJ	0.00232	UJ	0.00186	U
4,4'-DDE	72-55-9	0.0033	mg/kg	0.00901	UJ	0.00176	UJ	0.0147	J	0.00198	UJ	0.00189	UJ	0.00192	UJ	0.00409	J	0.0332	J	0.00278	J	0.00204	J	0.0323	J	0.00128	UJ	0.0022	UJ	0.00196	J	0.00186	U
4,4'-DDT	50-29-3	0.0033	mg/kg	0.00852	J	0.00331	UJ	0.0657	NJ	0.0276	J	0.00354	UJ	0.00361	UJ	0.00287	UJ	0.0621	J	0.00229	J	0.00215	J	0.0666	UJ	0.00322	UJ	0.00413	UJ	0.00223	J	0.0035	U
Alpha-BHC	319-84-6	0.02	mg/kg	0.00375	UJ	0.000735	UJ	0.000724	UJ	0.000827	UJ	0.000787	UJ	0.000802	UJ	0.00088	UJ	0.00776	UJ	0.000751	UJ	0.000761	UJ	0.00848	UJ	0.000717	UJ	0.000918	UJ	0.000966	UJ	0.000777	U
Chlordane	57-74-9		mg/kg	0.0732	UJ	0.0143	UJ	0.0141	UJ	0.0161	UJ	0.0153	UJ	0.0156	UJ	0.0172	UJ	0.341	NJ	0.0146	UJ	0.0148	UJ	0.225	J	0.014	UJ	0.0179	UJ	0.0188	UJ	0.0151	U
cis-Chlordane	5103-71-9	0.094	mg/kg	0.0113	UJ	0.00221	UJ	0.00217	UJ	0.00248	UJ	0.00236	UJ	0.00241	UJ	0.00264	UJ	0.0285	NJ	0.00225	UJ	0.00228	UJ	0.0198	J	0.00215	UJ	0.00275	UJ	0.0029	UJ	0.00233	U
Dieldrin	60-57-1	0.005	mg/kg	0.00563	UJ	0.0011	UJ	0.00461	NJ	0.00124	UJ	0.00118	UJ	0.0012	UJ	0.00132	UJ	0.0116	UJ	0.00113	UJ	0.00114	UJ	0.0127	UJ	0.00108	UJ	0.00138	UJ	0.00145	UJ	0.00116	U
Endrin ketone	53494-70-5		mg/kg	0.00901	UJ	0.00176	UJ	0.00174	UJ	0.00198	UJ	0.00189	UJ	0.00192	UJ	0.00211	UJ	0.0186	UJ	0.0018	UJ	0.00182	UJ	0.0203	UJ	0.00172	UJ	0.0022	UJ	0.00232	UJ	0.00186	U
Heptachlor	76-44-8	0.042	mg/kg	0.0045	UJ	0.000882	UJ	0.000869	UJ	0.00213	NJ	0.000944	UJ	0.000963	UJ	0.00106	UJ	0.00931	UJ	0.000901	UJ	0.000913	UJ	0.0102	UJ	0.00086	UJ	0.0011	UJ	0.00116	UJ	0.000932	U
Lindane	58-89-9	0.1	mg/kg	0.00375	UJ	0.000735	UJ	0.000724	UJ	0.000827	UJ	0.000787	UJ	0.000802	UJ	0.00088	UJ	0.00776	UJ	0.000751	UJ	0.000761	UJ	0.00848	UJ	0.000717	UJ	0.000918	UJ	0.000966	UJ	0.000777	U
Methoxychlor	72-43-5		mg/kg	0.0169	UJ	0.00331	UJ	0.00326	UJ	0.00687	J	0.00354	UJ	0.00361	UJ	0.00396	UJ	0.0349	UJ	0.00338	UJ	0.00342	UJ	0.0381	UJ	0.00322	UJ	0.00413	UJ	0.00435	UJ	0.0035	U
trans-Chlordane	5103-74-2		mg/kg	0.0113	UJ	0.00221	UJ	0.00217	UJ	0.00248	UJ	0.00236	UJ	0.00241	UJ	0.00264	UJ	0.0395	J	0.00225	UJ	0.00228	UJ	0.0301	NJ	0.00215	UJ	0.00275	UJ	0.0029	UJ	0.00233	U
Polychlorinated Biphenyls by 8082A																															
Aroclor 1254	11097-69-1	0.1	mg/kg	0.0374	UJ	0.0358	UJ	0.0355	UJ	0.367	J	0.0412	UJ	0.04	UJ	0.0261	J	0.135	J	0.0374	UJ	0.0386	UJ	0.0874	UJ	0.0354	UJ	0.0467	UJ	0.048	UJ	0.0394	UJ
Aroclor 1260	11096-82-5	0.1	mg/kg	0.0276	J	0.00795	J	0.117	J	0.153	J	0.0412	UJ	0.04	UJ	0.0344	J	0.12	J	0.0374	UJ	0.0386	UJ	0.0316	J	0.0354	UJ	0.0467	UJ	0.048	UJ	0.0394	UJ
Total Metals by 6010C/7471B (Mercury)																															
Aluminum, Total	7429-90-5		mg/kg	13000		5400		5900		6200		8000		7800		6000		8700		10000		8700		4400		6700		6700		10000		7300	
Antimony, Total	7440-36-0		mg/kg	2.1	J	4.4	UJ	1.8	J	4.8	UJ	2.3	J	2.3	J	1.5	J	45	J	2.1	J	2.3	J	9.1	J	2.2	J	21	J	52	J	4.7	UJ
Arsenic, Total	7440-38-2	13	mg/kg	6.8		5.8		7.9		12		6.6		4		3.2		9.7		6	J	5.9	J	10		4.3		12		60		4.4	
Barium, Total	7440-39-3	350	mg/kg	97		48		980		510		68		56		45		450		66		61		630		46		580		1900		44	
Beryllium, Total	7440-41-7	7.2	mg/kg	0.66		0.31	J	0.37	J	0.32	J	0.41	J	0.38	J	0.36	J	0.72		0.47		0.41	J	0.32	J	0.33	J	0.54		0.31	J	0.33	J
Cadmium, Total	7440-43-9	2.5	mg/kg	0.89	U	0.1	J	1.1		1.7		0.37	J	0.07	J	0.35	J	1.7		0.1	J	0.12	J	4.3		0.13	J	0.46	J	2.9		0.68	J
Calcium, Total	7440-70-2		mg/kg	38000		100000		38000		38000		48000		3900		70000		62000		21000		5600		55000		4300		8400		33000		7800	
Chromium, Total	7440-47-3		mg/kg	19	J	10	J	27	J	24	J	14		12		11	J	120	J	14		12		29		9.8		16		83		10	J
Cobalt, Total	7440-48-4		mg/kg	9.6		3.6		4.2		5.2		7.8		7.1		3.8		5.7		7.8		7.7		5		6.5		7.3		22		6.7	
Copper, Total	7440-50-8	50	mg/kg	24		14		82		52		20		20		39	J	120	J	25		22		110		18		120		10000		20	
Iron, Total	7439-89-6		mg/kg	22000		10000		9200		15000		17000	J	16000	J	11000		27000		18000		17000		32000	J	14000	J	37000	J	190000	J	16000	
Lead, Total	7439-92-1	63	mg/kg	24	J	36	J	1600	J	3400	J	30		10		50	J	1700	J	26	J	24	J	4900		14		960		4500		15	J
Magnesium, Total	7439-95-4		mg/kg	9300		10000		6600		8600		12000		3900		10000		9600		7700		4300		5300		3700		440		2200		4300	
Manganese, Total	7439-96-5	1600	mg/kg	560		280		200		320		420		310		250		1000		350	J	410	J	370		340		280		1200		370	
Mercury, Total	7439-97-6	0.18	mg/kg	0.09	J	0.07	J	0.48	J	1.6	J	0.1	U	0.04	J	0.19		1.8		0.07	J	0.05	J	0.67	J	0.03	J	0.1	J	0.18	J	0.04	J
Nickel, Total	7440-02-0	30	mg/kg	26		13		9.2		14		19		21		11		44		22		21		12		18		23		100		19	
Potassium, Total	7440-09-7		mg/kg	2400		1200		690		880		1500		590		1400	J	1000	J	1400		880		500		600		800		2000		750	
Selenium, Total	7782-49-2	3.9	mg/kg	1.1	J	0.58	J	1.2	J	0.71	J	1.4	J	0.95	J	1.5	J	3		1.4	J	1.5	J	3.1		0.98	J	2.5		10		1.9	U
Silver, Total	7440-22-4	2	mg/kg	0.89	U	0.87	U	0.22	J	0.24	J	0.94	U	0.93	U	1	U	0.54	J	0.91	U	0.91	U	0.41	J	0.88	U	1.2		9.2		0.95	U
Sodium, Total	7440-23-5		mg/kg	280		130	J	420		99	J	240		140	J	250		710		210		180		390		100	J	390		2600		190	U
Vanadium, Total	7440-62-2		mg/kg	25		14		23		18		20		14		15		45		18		15		19		12		26		24		13	
Zinc, Total	7440-66-6	109	mg/kg	77	J	57	J	460	J	470	J	97		57		110		670		81	J	82	J	1600		61		380		3300		130	J

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 5

SUMMARY OF SOIL/FILL ANALYTICAL RESULTS COMPARED TO UNRESTRICTED SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	USCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																											
				SB-29 (2-6') 1/8/2013	Qual	SB-30 (0-2') 1/8/2013	Qual	SB-30 (2-6') 1/8/2013	Qual	SB-31 (2-4) 1/11/2013	Qual	SB-32 (2-4) 1/11/2013	Qual	SB-33 (10-12) 1/14/2013	Qual	MS/MSD SB-34 (0-2) 1/14/2013	Qual	MS/MSD SB-34 (4-5.5) 1/14/2013	Qual	SB-35 (10-12) 1/11/2013	Qual	SB-36 (0-2') 1/8/2013	Qual	SB-36 (6-10') 1/8/2013	Qual	SB-37 (10-12) 1/10/2013	Qual	SB-38 (10-12) 1/11/2013	Qual	MS/MSD SS-1 1/10/2013	Qual	SS-2 1/10/2013	Qual	SS-3 1/10/2013	Qual
General Chemistry - Westborough Lab																															
Solids, Total	NONE		%	86		81		81		77		72		82		81		72		69		69		83		69		70		70		70		62	
Volatile Organics by 8260C/5035																															
Acetone	67-64-1	0.05	mg/kg	0.06		0.0042	J	0.71	U	0.011	U	0.027	U	0.011	J	0.0061	J	0.019	U	0.049		0.0056	J	0.12		0.14	J	0.014	U	-		-		-	
2-Butanone	78-93-3	0.12	mg/kg	0.012		0.012	U	0.71	U	0.011	U	0.027	U	0.034	U	0.011	UJ	0.019	U	0.01	J	0.015	U	0.024		0.014	U	0.014	U	-		-		-	
Carbon Disulfide	75-15-0		mg/kg	0.098	U	0.012	U	0.71	U	0.011	U	0.027	U	0.034	U	0.011	U	0.019	U	0.022	U	0.015	U	0.0036	J	0.0071	J	0.014	U	-		-		-	
Cyclohexane	110-82-7		mg/kg	0.02	U	0.023	U	1.4	U	0.023	U	0.053	U	0.068	U	0.022	UJ	0.038	U	0.044	U	0.03	U	0.023	U	0.029	J	0.029	U	-		-		-	
Ethylbenzene	100-41-4	1	mg/kg	0.0098	U	0.0012	U	0.071	U	0.0011	U	0.0027	U	0.0034	U	0.0011	U	0.0019	U	0.0022	U	0.0015	U	0.0012	U	0.00033	J	0.0014	U	-		-		-	
p-Isopropyltoluene	99-87-6		mg/kg	0.00073	J	0.0012	U	0.071	U	0.0011	U	0.0027	U	0.0034	U	0.0011	UJ	0.0019	U	0.0022	U	0.0015	U	0.00081	J	0.094	J	0.0014	U	-		-		-	
Methyl cyclohexane	108-87-2		mg/kg	0.0039	U	0.0046	U	0.28	U	0.0046	U	0.011	U	0.014	U	0.0043	UJ	0.0075	U	0.0088	U	0.0059	U	0.0046	U	0.0058	U	0.0058	U	-		-		-	
Methylene chloride	75-09-2	0.05	mg/kg	0.0098	U	0.012	U	0.71	U	0.011	U	0.027	U	0.034	U	0.011	UJ	0.019	U	0.022	U	0.015	U	0.012	U	0.0059	J	0.014	U	-		-		-	
Toluene	108-88-3	0.7	mg/kg	0.0015	U	0.0017	U	0.049	J	0.0011	U	0.0027	U	0.0051	U	0.0016	U	0.0028	U	0.0033	U	0.0022	U	0.0017	U	0.0028	J	0.0028	U	-		-		-	
Semivolatile Organics by 8270D																															
2-Methylnaphthalene	91-57-6		mg/kg	0.46	U	0.24	U	4.9		0.26	U	1.4	U	1.2	U	0.25	U	0.28	U	2.8	U	2.8	U	0.86		2.9	U	2.8	U	0.56	U	0.28	U	0.32	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	0.33	mg/kg	0.55	U	0.29	U	1.1	J	0.31	U	1.6	U	1.4	U	0.3	U	0.33	U	3.4	U	3.4	U	0.56	U	3.4	U	3.4	U	0.68	U	0.34	U	0.38	U
Acenaphthene	83-32-9	20	mg/kg	0.24	J	0.071	J	3.3		0.17	U	0.91	U	0.81	U	0.16	U	0.18	U	1.9	U	2.5		3.5		2.3		1.9	U	0.38	U	0.19	U	0.21	U
Acenaphthylene	208-96-8	100	mg/kg	0.41		0.094	J	5.4		0.17	U	0.91	U	0.81	U	0.16	U	0.18	U	1.9	U	3.1		0.78		1.9	U	1.1	J	0.38	U	0.19	U	0.21	U
Anthracene	120-12-7	100	mg/kg	0.87		0.22		9.2		0.033	J	0.68	U	0.61	U	0.12	U	0.14	U	0.73	J	12		8.1		3.7		1.2	J	0.13	J	0.14	U	0.16	U
Benzo(a)anthracene	56-55-3	1	mg/kg	2.7		0.64		15		0.084	J	0.68	U	0.61	U	0.12	U	0.14	U	2.5		37		14		7.1		3.7	J	0.36		0.14	U	0.16	U
Benzo(a)pyrene	50-32-8	1	mg/kg	2.8		0.56		14		0.082	J	0.91	U	0.81	U	0.16	U	0.18	U	2.6		32		14		6.2		3.8	J	0.28	J	0.19	U	0.21	U
Benzo(b)fluoranthene	205-99-2	1	mg/kg	3.8		0.8		17		0.097	J	0.68	U	0.61	U	0.12	U	0.14	U	3		44		17	D	8		4.5	J	0.41		0.14	U	0.16	U
Benzo(ghi)perylene	191-24-2	100	mg/kg	1.7		0.35		8.5		0.064	J	0.91	U	0.81	U	0.16	U	0.18	U	1.5	J	19		9.5		4		1.9	J	0.18	J	0.19	U	0.21	U
Benzo(k)fluoranthene	207-08-9	0.8	mg/kg	1.2		0.29		7		0.04	J	0.68	U	0.61	U	0.12	U	0.14	U	1.5		15		6.3		3.3		2.2	J	0.15	J	0.14	U	0.16	U
Benzoic Acid	65-85-0		mg/kg	1.2	U	0.66	U	6.5	U	0.7	U	3.7	U	3.3	U	0.66	U	0.74	U	7.7	U	7.7	U	1.3	U	7.8	U	7.6	U	1.5	U	0.76	U	0.86	U
Benzyl Alcohol	100-51-6		mg/kg	0.38	U	0.2	U	2	U	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	2.4	U	2.3	U	0.47	U	0.23	U	0.26	U
Bis(2-Ethylhexyl)phthalate	117-81-7		mg/kg	0.38	U	0.2	U	0.85	NJ	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.42	NJ	14		2.3	U	0.47	U	0.23	U	0.26	U
Butyl benzyl phthalate	85-68-7		mg/kg	0.38	U	0.2	U	2	U	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	17		2.3	U	0.47	U	0.23	U	0.26	U
Carbazole	86-74-8		mg/kg	0.67		0.16	J	5.1		0.22	U	1.1	U	1	U	0.2	U	0.23	U	0.52	J	3.2		4.8		2	J	1.4	J	0.47	U	0.23	U	0.26	U
Chrysene	218-01-9	1	mg/kg	2.9		0.68		15		0.082	J	0.68	U	0.61	U	0.12	U	0.14	U	2.6		37		16	D	6.9		4.3	J	0.34		0.14	U	0.16	U
Di-n-butylphthalate	84-74-2		mg/kg	0.38	U	0.2	U	2	U	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	5.6		2.3	U	0.47	U	0.23	U	0.26	U
Dibenzo(a,h)anthracene	53-70-3	0.33	mg/kg	0.55		0.098	J	2.6		0.13	U	0.68	U	0.61	U	0.12	U	0.14	U	1.4	U	6.4		2.4		1	J	0.69	J	0.28	U	0.14	U	0.16	U
Dibenzofuran	132-64-9	7	mg/kg	0.26	J	0.063	J	6		0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	1.5	J	3.6		1.1	J	0.67	J	0.47	U	0.23	U	0.26	U
Fluoranthene	206-44-0	100	mg/kg	6		1.4		31		0.17		0.25	J	0.61	U	0.12	U	0.032	J	5.1		69		40	D	17		8.5	J	0.79		0.14	U	0.16	U
Fluorene	86-73-7	30	mg/kg	0.36	NJ	0.089	J	7		0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	3.5		6.5		1.8	J	0.95	J	0.47	U	0.23	U	0.26	U
Hexachlorobenzene	118-74-1	0.33	mg/kg	0.23	U	0.12	U	1.2	U	0.13	U	0.68	U	0.61	U	0.12	U	0.14	U	1.4	U	1.4	U	0.23	U	1.4	U	1.4	U	0.28	U	0.14	U	0.16	U
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	mg/kg	1.6		0.31		7.7		0.17	U	0.91	U	0.81	U	0.16	U	0.18	U	1.4	J	17		8.2		3.4		1.7	J	0.16	J	0.19	U	0.21	U
Naphthalene	91-20-3	12	mg/kg	0.15	J	0.2	U	19		0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	1	J	2		1.5	J	0.9	J	0.47	U	0.23	U	0.26	U
Phenanthrene	85-01-8	100	mg/kg	3.8		1.1		36		0.14		0.68	U	0.61	U	0.12	U	0.14	U	2.8		37		35	D	14		9.9	J	0.56		0.14	U	0.16	U
Phenol	108-95-2	0.33	mg/kg	0.38	U	0.2	U	0.66	J	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	2.4	U	2.3	U	0.47	U	0.23	U	0.26	U
Pyrene	129-00-0	100	mg/kg	4.6		1.1		25		0.14		0.19	J	0.61	U	0.12	U	0.14	U	4.1		56		31	D	13		7.3	J	0.6		0.14	U	0.16	U
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**33.68**		**7.802**		**222.7**		**0.932**		**0.44**		**ND**		**ND**		**0.032**		**27.83**		**391.5**		**214.28**		**93.2**		**52.64**		**3.96**		**ND**		**ND**	
Organochlorine Pesticides by 8081B																															
4,4'-DDD	72-54-8	0.0033	mg/kg	0.0175	NJ	0.000857	J	0.00518	J	0.00279	NJ	0.00108	UJ	0.00183	U	0.00196	U	0.00211	U	0.0214	U	0.0328	J	0.0367	UJ	0.218	NJ	0.0103	J	0.00224	U	0.00218	UJ	0.0025	UJ
4,4'-DDE	72-55-9	0.0033	mg/kg	0.00333	J	0.00608	NJ	0.0102	NJ	0.00673		0.0122	NJ	0.00506	J	0.00196	U	0.00391		0.00226	U	0.0228	UJ	0.0367	UJ	0.0437	U	0.00224	U	0.00768	NJ	0.00314	J	0.00268	J
4,4'-DDT	50-29-3	0.0033	mg/kg	0.00204	UJ	0.0141	NJ	0.0084	NJ	0.0191	NJ	0.0293	NJ	0.00342	U	0.00367	U	0.0123	NJ	0.0074	U	0.0705	J	0.0688	UJ	0.0849	J	0.0042	UJ	0.00725	J	0.00239	J	0.00256	J
Alpha-BHC	319-84-6	0.02	mg/kg	0.00074	UJ	0.000779	UJ	0.000804	UJ	0.000841	U	0.00392	J	0.000761	U	0.00235	J	0.00088	U	0.000944	U	0.0095	UJ	0.0153	UJ	0.0182	U	0.000934	U	0.000934	U	0.000909	UJ	0.00104	UJ
Chlordane	57-74-9		mg/kg	0.0144	UJ	0.0152	UJ	0.0157	UJ	0.0164	U	0.017	UJ	0.0148	U	0.0159	U	0.0172	U	0.0184	U	0.3	J	0.298	UJ	0.319	U	0.0182	U	0.0182	U	0.0177	UJ	0.0203	UJ
cis-Chlordane	5103-71-9	0.094	mg/kg	0.00222	UJ	0.00234	UJ	0.00241	UJ	0.00265	J	0.00262	UJ	0.00228	U	0.00245	U	0.00264	U	0.00283	U	0.019	UJ	0.0459	UJ	0.0335	J	0.0028	U	0.0028	U	0.00273	UJ	0.00312	UJ
Dieldrin	60-57-1	0.005	mg/kg	0.00111	UJ	0.00117	UJ	0.00121	UJ	0.0024	NJ	0.00131	UJ	0.00114	U	0.00122	U	0.00132	U	0.00142	U	0.0142	UJ	0.0229	UJ	0.0273	U	0.0014	U	0.0014	U	0.00136	UJ	0.00156	UJ
Endrin ketone	53494-70-5		mg/kg	0.00178	UJ	0.00187	UJ	0.00193	UJ	0.00202	UJ	0.00209	UJ	0.00183	U	0.00196	U	0.00211	U	0.00226	U	0.0228	UJ	0.0367	UJ	0.0437	UJ	0.00224	U	0.00224	UJ	0.00218	UJ	0.0025	UJ
Heptachlor	76-44-8	0.042	mg/kg	0.000888	UJ	0.000935	UJ	0.000965	UJ	0.00101	U	0.00105	UJ	0.000913	U	0.000979	U	0.00106	U	0.00113	U	0.0114	UJ	0.0184	UJ	0.0219	U	0.00112	U	0.00112	U	0.00109	UJ	0.00125	UJ
Lindane	58-89-9	0.1	mg/kg	0.00074	UJ	0.000779	UJ	0.000804	UJ	0.000841	U	0.000872	UJ	0.000761	U	0.000816	U	0.00088	U	0.000944	U	0.0095	UJ	0.0153	UJ	0.0182	U	0.000934	UJ	0.000934	U	0.000909	UJ	0.00104	UJ
Methoxychlor	72-43-5		mg/kg	0.00333	UJ	0.0035	UJ	0.00362	UJ	0.00378	UJ	0.00392	UJ	0.00342	U	0.00367	U	0.00396	U	0.00425	U	0.0428	UJ	0.0688	UJ	0.082	UJ	0.0042	U	0.0042	UJ	0.00409	UJ	0.00468	UJ
trans-Chlordane	5103-74-2		mg/kg	0.00222	UJ	0.00234	UJ	0.00241	UJ	0.00252	U	0.00262	UJ	0.00228	U	0.00245	U	0.00264	U	0.00283	U	0.0174	J	0.0459	UJ	0.0355	NJ	0.0028	U	0.0028	U	0.00273	UJ	0.00312	UJ
Polychlorinated Biphenyls by 8082A																															
Aroclor 1254	11097-69-1	0.1	mg/kg	0.038	UJ	0.0396	UJ	0.0706	J	0.0164	J	0.0443	U	0.0384	UJ	0.0387	UJ	0.0456	UJ	0.032	J	0.0671	NJ	0.0382	UJ	0.229	UJ	0.0449	U	0.0461	UJ	0.0453	UJ	0.0521	UJ
Aroclor 1260	11096-82-5	0.1	mg/kg	0.038	UJ	0.00824	J	0.0382	J	0.00827	J	0.0111	J	0.0384	UJ	0.0387	UJ	0.0456	UJ	0.0464	U	0.0837	J	0.0447	J	0.229	UJ	0.0119	J	0.0108	J	0.0453	UJ	0.0521	UJ
Total Metals by 6010C/7471B (Mercury)																															
Aluminum, Total	7429-90-5		mg/kg	5800		5500		5300		6600		12000		5500		11000		8500		7400		6300		4400		4200		13000		6000		5200	J	14000	
Antimony, Total	7440-36-0		mg/kg	1.3	J	4.8	UJ	2.5	J	3.6	J	5.4	J	9.2	UJ	5.5	J	5.2	UJ	3.9	J	7.2	J	4	J	2.9	J	4	J	3.1	J	4	J	3.1	J
Arsenic, Total	7440-38-2	13	mg/kg	3.4		4.3		7.8		5.4		17		48		7.5		9.4		7.4		14		7.1		8.6		6.1		5.5		4.5	J	7.6	
Barium, Total	7440-39-3	350	mg/kg	83		81		530		660	J	540	J	1600		100		230		630	J	700		300		360	J	100	J	72		42	J	110	
Beryllium, Total	7440-41-7	7.2	mg/kg	0.29	J	0.28	J	0.31	J	0.34	J	1.1		0.09	J	0.59		0.7		0.41	J	0.4	J	0.21	J	0.25	J	0.61		0.37	J	0.33	J	1.1	
Cadmium, Total	7440-43-9	2.5	mg/kg	0.18	J	0.77	J	2		0.83	J	1.2		12		0.06	J	0.6	J	1.1		2.5		8.9		3.1		0.77	J	0.77	J	2.7	U	0.26	J
Calcium, Total	7440-70-2		mg/kg	7000		4000		34000		9400		11000		31000		4500		5200		43000		29000		20000		30000		20000		67000		190000	J	45000	
Chromium, Total	7440-47-3		mg/kg	9.5		9.7		24		26		30		110	J	21	J	12	J	19		26		13		30		25	J	13		10	J	19	
Cobalt, Total	7440-48-4		mg/kg	5.6		5.5		5.1		6.4		12		28		11		8.5		4.5		6.8		5.1		5.4		11		5.5		5.3	J	8.8	
Copper, Total	7440-50-8	50	mg/kg	18		21		27		24		110		820		410		45		25		55		90		48		40		21		12	J	27	
Iron, Total	7439-89-6		mg/kg	12000	J	13000	J	12000	J	18000		18000		340000		24000		8800		10000		52000	J	27000	J	16000		27000		14000		10000	J	22000	
Lead, Total	7439-92-1	63	mg/kg	300		140		1700		2500	J	450	J	2600	J	43	J	73	J	2000	J	3600		590		1200	J	78	J	77	J	13	J	45	J
Magnesium, Total	7439-95-4		mg/kg	3600		2800		6000		4200	J	1400	J	1500		4500		440		6300	J	4600		2800		4600	J	8600	J	15000		7400		13000	
Manganese, Total	7439-96-5	1600	mg/kg	280		280		300		270		240		1600		540		120		210		610		250		230		460		320		250		670	
Mercury, Total	7439-97-6	0.18	mg/kg	0.07	J	0.09	J	0.36	J	0.13		0.09	J	0.12	J	0.08	J	0.03	J	0.86		1.1	J	0.43	J	1.9		0.51		0.1	J	0.03	J	0.09	J
Nickel, Total	7440-02-0	30	mg/kg	15		16		19		17		31		190		30		18		11		16		16		13		33		16	J	12	J	21	J
Potassium, Total	7440-09-7		mg/kg	610		720		770		960		1300		1300		1600		890		1200		700		520		670		1800		1400	J	1200	J	3000	J
Selenium, Total	7782-49-2	3.9	mg/kg	0.98	J	0.93	J	1.6	J	1.3	J	2.5		3.7	U	0.75	J	0.48	J	1.1	J	2.5		1.4	J	1.8	J	1.7	J	1.1	J	1.7	J	1.4	J
Silver, Total	7440-22-4	2	mg/kg	0.88	U	0.96	U	0.31	J	0.21	J	0.6	J	6.7		0.7	J	1	U	0.28	J	1.4		0.44	J	1.1	U	0.27	J	0.69	J	2.7	U	1.2	U
Sodium, Total	7440-23-5		mg/kg	92	J	140	J	330		93	J	680		1400		170	J	370		160	J	560		1200		330		220		460		540	U	370	
Vanadium, Total	7440-62-2		mg/kg	12		12		21		15		41		1.6	J	24		28		23		28		15		15		23		15		13	J	24	
Zinc, Total	7440-66-6	109	mg/kg	91		120		630		410		550		2500	J	130	J	81	J	570		970		6300		950		180		140	J	45	J	160	J

TABLE 5

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

SUMMARY OF SOIL/FILL ANALYTICAL RESULTS COMPARED TO UNRESTRICTED SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	USCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier									
				SS-4 1/17/2013	Qual	SS-5 1/18/2013	Qual	SS-6 1/17/2013	Qual	SS-7 1/11/2013	Qual	SS-8 1/18/2013	Qual
General Chemistry - Westborough Lab													
Solids, Total	NONE		%	70		63		73		42		64	
Volatile Organics by 8260C/5035													
Acetone	67-64-1	0.05	mg/kg	-		-		-		-		-	
2-Butanone	78-93-3	0.12	mg/kg	-		-		-		-		-	
Carbon Disulfide	75-15-0		mg/kg	-		-		-		-		-	
Cyclohexane	110-82-7		mg/kg	-		-		-		-		-	
Ethylbenzene	100-41-4	1	mg/kg	-		-		-		-		-	
p-Isopropyltoluene	99-87-6		mg/kg	-		-		-		-		-	
Methyl cyclohexane	108-87-2		mg/kg	-		-		-		-		-	
Methylene chloride	75-09-2	0.05	mg/kg	-		-		-		-		-	
Toluene	108-88-3	0.7	mg/kg	-		-		-		-		-	
Semivolatile Organics by 8270D													
2-Methylnaphthalene	91-57-6		mg/kg	1.4	U	0.32	U	0.14	J	0.46	U	0.62	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	0.33	mg/kg	1.7	U	0.38	U	0.32	U	0.56	U	0.75	U
Acenaphthene	83-32-9	20	mg/kg	0.45	J	0.15	J	0.18	U	0.31	U	0.18	J
Acenaphthylene	208-96-8	100	mg/kg	1.2		0.14	J	0.18	U	0.31	U	0.19	J
Anthracene	120-12-7	100	mg/kg	2.4		0.49		0.04	J	0.086	J	0.92	
Benzo(a)anthracene	56-55-3	1	mg/kg	5.4		1.8		0.16		0.29		3.3	
Benzo(a)pyrene	50-32-8	1	mg/kg	5		1.5		0.16	J	0.31		2.3	
Benzo(b)fluoranthene	205-99-2	1	mg/kg	6.5		2.1		0.25		0.42		4	
Benzo(ghi)perylene	191-24-2	100	mg/kg	2.5		0.9		0.11	J	0.18	J	1.4	
Benzo(k)fluoranthene	207-08-9	0.8	mg/kg	2.7		0.67		0.089	J	0.13	J	1.2	
Benzoic Acid	65-85-0		mg/kg	3.8	U		R	0.74		0.48	J		R
Benzyl Alcohol	100-51-6		mg/kg	1.2	U	0.26	U	0.25		0.39	U	0.52	U
Bis(2-Ethylhexyl)phthalate	117-81-7		mg/kg	1.2	U	0.26	U	0.22	U	0.39	U	0.52	U
Butyl benzyl phthalate	85-68-7		mg/kg	1.2	U	0.26	U	0.22	U	0.39	U	0.52	U
Carbazole	86-74-8		mg/kg	0.59	J	0.36		0.038	J	0.39	U	0.57	
Chrysene	218-01-9	1	mg/kg	4.7		1.7		0.19		0.31		3.5	
Di-n-butylphthalate	84-74-2		mg/kg	1.2	U	0.26	U	0.22	U	0.066	J	0.52	U
Dibenzo(a,h)anthracene	53-70-3	0.33	mg/kg	0.83		0.25		0.13	U	0.23	U	0.58	
Dibenzofuran	132-64-9	7	mg/kg	0.34	J	0.096	J	0.22	U	0.39	U	0.14	J
Fluoranthene	206-44-0	100	mg/kg	13		3.3		0.33		0.6		6	
Fluorene	86-73-7	30	mg/kg	0.94	J	0.15	J	0.22	U	0.39	U	0.26	J
Hexachlorobenzene	118-74-1	0.33	mg/kg	0.7	U	0.16	U	0.13	U	0.23	U	0.31	U
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	mg/kg	3.2		1.1		0.12	J	0.16	J	1.6	
Naphthalene	91-20-3	12	mg/kg	1.2	U	0.26	U	0.14	J	0.39	U	0.52	U
Phenanthrene	85-01-8	100	mg/kg	7.1		1.9		0.22		0.37		4.2	
Phenol	108-95-2	0.33	mg/kg	1.2	U	0.26	U	0.22	U	0.39	U	0.52	U
Pyrene	129-00-0	100	mg/kg	9.2		2.6		0.27		0.49		4.4	
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**65.12**		**18.75**		**2.079**		**3.346**		**34.03**	
Organochlorine Pesticides by 8081B													
4,4'-DDD	72-54-8	0.0033	mg/kg	0.0022	U	0.00248	U	0.00209	U	0.00361	U	0.00244	U
4,4'-DDE	72-55-9	0.0033	mg/kg	0.0022	U	0.0185	J	0.00212		0.0127	NJ	0.00817	NJ
4,4'-DDT	50-29-3	0.0033	mg/kg	0.00413	U	0.0319		0.00454	J	0.0154		0.0378	J
Alpha-BHC	319-84-6	0.02	mg/kg	0.000918	U	0.00104	U	0.00087	U	0.0015	U	0.00126	NJ
Chlordane	57-74-9		mg/kg	0.0179	U	0.0202	U	0.017	U	0.0293	U	0.122	
cis-Chlordane	5103-71-9	0.094	mg/kg	0.00364	NJ	0.00311	U	0.00261	U	0.00451	U	0.00774	NJ
Dieldrin	60-57-1	0.005	mg/kg	0.00138	U	0.00155	U	0.0013	U	0.00226	U	0.00152	U
Endrin ketone	53494-70-5		mg/kg	0.0022	U	0.00782	NJ	0.00209	U	0.00361	U	0.00881	NJ
Heptachlor	76-44-8	0.042	mg/kg	0.0011	U	0.00124	U	0.00104	U	0.0018	U	0.00122	U
Lindane	58-89-9	0.1	mg/kg	0.000918	U	0.00104	U	0.00087	U	0.0015	U	0.00101	U
Methoxychlor	72-43-5		mg/kg	0.00413	U	0.00466	U	0.00391	U	0.00677	U	0.00456	UJ
trans-Chlordane	5103-74-2		mg/kg	0.00275	U	0.00311	U	0.00261	U	0.00451	U	0.00726	NJ
Polychlorinated Biphenyls by 8082A													
Aroclor 1254	11097-69-1	0.1	mg/kg	0.0457	UJ	0.102	UJ	0.0445	UJ	0.0344	J	0.1	UJ
Aroclor 1260	11096-82-5	0.1	mg/kg	0.0138	J	0.102	UJ	0.0127	J	0.0365	J	0.1	UJ
Total Metals by 6010C/7471B (Mercury)													
Aluminum, Total	7429-90-5		mg/kg	10000		7500		12000		12000		5500	
Antimony, Total	7440-36-0		mg/kg	2.8	J	2.2	J	6.8		7.8	J	1.8	J
Arsenic, Total	7440-38-2	13	mg/kg	7.2	J	6.3	J	29	J	18		5.1	J
Barium, Total	7440-39-3	350	mg/kg	150		130		340		290		320	
Beryllium, Total	7440-41-7	7.2	mg/kg	0.43		0.37	J	1		1		0.27	J
Cadmium, Total	7440-43-9	2.5	mg/kg	0.41	J	0.73	J	2.5		6.9		1.6	
Calcium, Total	7440-70-2		mg/kg	42000		7000		7100		19000		19000	
Chromium, Total	7440-47-3		mg/kg	22		14		26		45		18	
Cobalt, Total	7440-48-4		mg/kg	8.2		6.7		7.8		11		6.1	
Copper, Total	7440-50-8	50	mg/kg	54		25		120		110		24	
Iron, Total	7439-89-6		mg/kg	22000		15000		44000		25000		11000	
Lead, Total	7439-92-1	63	mg/kg	280	J	330	J	280	J	660	J	950	J
Magnesium, Total	7439-95-4		mg/kg	5400		3200		1500		1600		4300	
Manganese, Total	7439-96-5	1600	mg/kg	680	J	340	J	280	J	620		270	J
Mercury, Total	7439-97-6	0.18	mg/kg	0.09	J	0.12	J	0.28		0.34	J	0.19	
Nickel, Total	7440-02-0	30	mg/kg	47		18		28		41	J	16	
Potassium, Total	7440-09-7		mg/kg	1800		1400		1000		2000	J	970	
Selenium, Total	7782-49-2	3.9	mg/kg	1	J	1.8	J	2.6		5.7		0.97	J
Silver, Total	7440-22-4	2	mg/kg	0.22	J	1.2	U	0.69		0.95	J	1.2	U
Sodium, Total	7440-23-5		mg/kg	590		230	J	720		360	J	300	
Vanadium, Total	7440-62-2		mg/kg	21		17		24		40		14	
Zinc, Total	7440-66-6	109	mg/kg	240	J	350	J	650	J	1100	J	580	J

TABLE 5

SUMMARY OF SOIL/FILL ANALYTICAL RESULTS COMPARED TO UNRESTRICTED SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Notes:
1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Unrestricted Use Soil Cleanup Objective per 6NYCRR Part 375.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.

Qualifier Key:

B	The analyte was detected above the reporting limit in the associated method blank.
NJ	The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated qantitative value.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
R	The data are unusable. The analyte may or may not be present.
D	Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
U	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
UJ	The analyte was not detected. The associated reported quantitation limit is an estimate and may be inaccurate or imprecise.
EMPC	The results do not meet all criteria for a confirmed identification. The quantitative value represents the Estimated Maximum Possible Concentration of the analyte in the sample

Color Code:

= concentration exceeds the individual Unrestricted Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.
= the analytical method detection limit reported exceeds or is equal to the individual SCO.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 6

SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED TO RESTRICTED- RESIDENTIAL SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	RRSCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																									
				SB-17 (6-8) BLIND DUP #1 1/4/2013	Qual	SS-2 (0-0.5) BLIND DUP #2 1/10/2013	Qual	SB-38 (10-12) BLIND DUP #3 1/11/2013	Qual	SB-9 (4-6) 1/16/2013	Qual	SB-10 (6-8) 1/3/2013	Qual	SB-11 (8-10) 1/15/2013	Qual	SB-12 (10-12) 1/15/2013	Qual	SB-13 (4-5.8) 1/3/2013	Qual	SB-14 (0-2) 1/3/2013	Qual	SB-14 (8-10) 1/3/2013	Qual	SB-15 (0-2) 1/16/2013	Qual	SB-15 (2-4) 1/16/2013	Qual	SB-16 (6-8) 1/4/2013	Qual	SB-17 (0-2) 1/4/2013	Qual	SB-17 (6-8) 1/4/2013	Qual
General Chemistry																															
Solids, Total	NONE	--	%	86		76		65		83		84		77		87		81		89		52		83		81		79		84		87	
Volatile Organics by 8260C/5035																															
Acetone	67-64-1	100	mg/kg	0.0099	U	-		0.026	U	0.01	U	0.011	U	0.038	J	0.06		0.017	U	0.017	U	0.21		0.018	U	0.016	U	0.026	J	0.013	U	0.011	UJ
2-Butanone	78-93-3	100	mg/kg	0.0099	U	-		0.02	J	0.01	U	0.011	U	0.032	U	0.014		0.017	U	0.017	U	0.03		0.018	U	0.016	U	0.013	UJ	0.013	U	0.011	UJ
Carbon Disulfide	75-15-0	--	mg/kg	0.099	U	-		0.026	U	0.01	U	0.011	U	0.032	U	0.012	U	0.017	U	0.017	U	0.03	U	0.018	U	0.016	U	0.013	U	0.013	U	0.011	U
Cyclohexane	110-82-7	--	mg/kg	0.02	U	-		0.051	U	0.02	U	0.022	U	0.065	U	0.025	U	0.00043	J	0.033	U	0.014	J	0.036	U	0.032	U	0.025	U	0.026	U	0.022	U
Ethylbenzene	100-41-4	41	mg/kg	0.0099	U	-		0.0026	U	0.001	U	0.0011	U	0.0032	U	0.0012	U	0.0017	U	0.0017	U	0.003	U	0.0018	U	0.0016	U	0.0013	U	0.0013	U	0.0011	U
p-Isopropyltoluene	99-87-6	--	mg/kg	0.00099	U	-		0.0026	U	0.001	U	0.0011	U	0.0032	U	0.0012	U	0.0017	U	0.0017	U	0.48		0.0018	U	0.0016	U	0.088		0.0013	U	0.0011	U
Methyl cyclohexane	108-87-2	--	mg/kg	0.004	U	-		0.01	U	0.004	U	0.0043	U	0.013	U	0.005	U	0.0067	U	0.0067	U	0.024		0.0073	U	0.0065	U	0.0051	U	0.0052	U	0.0044	U
Methylene chloride	75-09-2	100	mg/kg	0.0099	U	-		0.026	U	0.01	U	0.011	U	0.032	U	0.0034	J	0.017	U	0.017	U	0.03	U	0.018	U	0.016	U	0.013	U	0.013	U	0.011	U
Toluene	108-88-3	100	mg/kg	0.0015	U	-		0.0038	U	0.0015	U	0.0011	U	0.0049	U	0.0019	U	0.0025	U	0.0025	U	0.0042		0.0027	U	0.0024	U	0.0019	U	0.002	U	0.0016	U
Semivolatile Organics by 8270D																															
2-Methylnaphthalene	91-57-6	--	mg/kg	0.23	U	0.26	U	0.6	U	0.2	J	1.2	U	0.26	U	0.22	U	0.24	U	0.44	U	3.8	U	0.24	U	0.1	J	3		0.22	J	0.22	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	100	mg/kg	0.27	U	0.31	U	0.72	U	0.29	U	1.4	U	0.31	U	0.27	U	0.29	U	0.53	U	4.5	U	0.28	U	0.29	U	3	U	0.56	U	0.27	U
Acenaphthene	83-32-9	100	mg/kg	0.046	J	0.17	U	0.4	U	0.67		0.77	U	0.17	U	0.13	J	0.16	U	0.29	U	2.5	U	0.16	U	0.16	U	12		0.62	J	0.15	U
Acenaphthylene	208-96-8	100	mg/kg	0.16	J	0.17	U	0.66		0.23		0.77	U	0.17	U	0.15	U	0.16	U	0.29	U	1.3	J	0.16	U	0.16	U	2		0.31	UJ	0.15	U
Anthracene	120-12-7	100	mg/kg	0.22	J	0.13	U	0.37		2		0.41	J	0.086	J	0.26		0.12	U	0.06	J	2.8		0.12	U	0.068	J	28		1.1	J	0.11	U
Benzo(a)anthracene	56-55-3	1	mg/kg	0.65	J	0.13	U	0.49	J	3.2		1.2		0.22		0.55		0.057	J	0.18	J	7		0.12	U	0.25	NJ	47		3.1	J	0.11	UJ
Benzo(a)pyrene	50-32-8	1	mg/kg	0.58	J	0.17	U	1.4	J	2.8		1.2		0.15	J	0.5		0.051	J	0.18	J	6.4		0.16	U	0.22		41		2.9	J	0.15	UJ
Benzo(b)fluoranthene	205-99-2	1	mg/kg	0.87	J	0.13	U	1.2	J	3.9		1.6		0.24		0.65		0.061	J	0.22		8.1		0.12	U	0.35		53		4.2	J	0.11	UJ
Benzo(ghi)perylene	191-24-2	100	mg/kg	0.33	J	0.17	U	0.84	J	1.6		0.65	J	0.11	J	0.33		0.16	U	0.1	J	3.8		0.16	U	0.18		20		1.6	J	0.15	U
Benzo(k)fluoranthene	207-08-9	3.9	mg/kg	0.32	J	0.13	U	0.36	J	1.2		0.49	J	0.088	J	0.24		0.034	J	0.1	J	3.6		0.12	U	0.15		19		1.5	J	0.11	U
Benzoic Acid	65-85-0	--	mg/kg	0.61	U	0.7	U	1.6	U	0.64	U	3.1	U	0.7	U	0.6	U	0.66	U	1.2	U	10	U	0.64	U	0.66	U	6.6	U	1.2	U	0.6	U
Benzyl Alcohol	100-51-6	--	mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Bis(2-Ethylhexyl)phthalate	117-81-7	--	mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Butyl benzyl phthalate	85-68-7	--	mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Carbazole	86-74-8	--	mg/kg	0.079	J	0.21	U	0.19	J	0.78		0.18	J	0.052	J	0.16	J	0.2	U	0.36	U	1.4	J	0.2	U	0.047	J	11		1.1	J	0.18	U
Chrysene	218-01-9	3.9	mg/kg	0.65	J	0.13	U	0.7	J	3		1.1		0.21		0.55		0.055	J	0.17	J	6.6		0.12	U	0.3		45		3.5	J	0.11	UJ
Di-n-butylphthalate	84-74-2	--	mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Dibenzo(a,h)anthracene	53-70-3	0.33	mg/kg	0.097	J	0.13	U	0.29	NJ	0.37		0.58	U	0.13	U	0.067	J	0.12	U	0.22	U	0.97	J	0.12	U	0.041	J	6.2		0.44	J	0.11	U
Dibenzofuran	132-64-9	59	mg/kg	0.063	J	0.21	U	0.5	U	0.62		0.97	U	0.22	U	0.081	J	0.2	U	0.36	U	0.71	J	0.2	U	0.048	J	8.4		0.53	J	0.18	U
Fluoranthene	206-44-0	100	mg/kg	1.2	J	0.13	U	0.75	J	8.6	D	2.7		0.48		1.5		0.12		0.36		15		0.12	U	0.58		100	D	10	J	0.11	UJ
Fluorene	86-73-7	100	mg/kg	0.072	J	0.21	U	0.5	U	1		0.97	U	0.047	J	0.16	J	0.2	U	0.36	U	1	J	0.2	U	0.2	U	15		0.76	J	0.18	U
Hexachlorobenzene	118-74-1	1.2	mg/kg	0.11	U	0.13	U	0.3	U	0.12	U	0.58	U	0.13	U	0.11	U	0.12	U	0.22	U	1.9	U	0.12	U	0.12	U	1.2	U	0.23	U	0.11	U
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	mg/kg	0.41	J	0.17	U	0.73		1.9		0.64	J	0.11	J	0.32		0.16	U	0.096	J	3.4		0.16	U	0.2		25		2.1	J	0.15	U
Naphthalene	91-20-3	100	mg/kg	0.081	J	0.21	U	0.5	U	0.31		0.97	U	0.22	U	0.091	J	0.2	U	0.36	U	3.1	U	0.2	U	0.089	J	6.4		0.34	J	0.18	U
Phenanthrene	85-01-8	100	mg/kg	0.6	J	0.13	U	0.53	J	7.4		1.6		0.4		1.3		0.09	J	0.2	J	11		0.12	U	0.38		92	D	7.5	J	0.11	UJ
Phenol	108-95-2	100	mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Pyrene	129-00-0	100	mg/kg	0.92	J	0.13	U	0.8	J	7		2.2		0.38		1.2		0.098	J	0.28		12		0.12	U	0.44		80		7.4	J	0.11	UJ
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**7.396**	**J**	**ND**		**9.62**		**45.38**		**14.76**		**2.741**		**8.038**		**0.766**		**2.306**		**86.07**		**ND**		**3.448**		**593.6**		**47.45**		**ND**	
Organochlorine Pesticides by 8081B																															
4,4'-DDD	72-54-8	13	mg/kg	0.00177	UJ	0.00203	UJ	0.0327	J	0.00187	UJ	0.00226	J	0.00655	UJ	0.00971	J	0.00267	J	0.00178	UJ	1.73	J	0.00184	UJ	0.00186	UJ	0.0195	UJ	0.00181	UJ	0.00177	UJ
4,4'-DDE	72-55-9	8.9	mg/kg	0.00281	UJ	0.00361	J	0.0482	U	0.00187	UJ	0.00411		0.00988	UJ	0.009	UJ	0.00185	UJ	0.00374	NJ	0.213	J	0.000797	J	0.00327	J	0.0195	UJ	0.0045	NJ	0.00177	UJ
4,4'-DDT	50-29-3	7.9	mg/kg	0.00819	J	0.00242	J	0.0422	J	0.00351	UJ	0.0103	J	0.0185	UJ	0.00858	J	0.00247	J	0.0098	NJ	1.98	J	0.00345	UJ	0.00315	UJ	0.0366	UJ	0.0111	J	0.00331	UJ
Alpha-BHC	319-84-6	0.48	mg/kg	0.000739	UJ	0.000844	UJ	0.0201	U	0.00078	UJ	0.000772	UJ	0.00412	UJ	0.00375	UJ	0.000771	UJ	0.000744	UJ	0.00126	UJ	0.000766	UJ	0.000776	UJ	0.00814	UJ	0.000753	UJ	0.000736	UJ
Chlordane	57-74-9	--	mg/kg	0.0311	J	0.0165	UJ	0.392	U	0.0152	UJ	0.0151	UJ	0.0803	UJ	0.0731	UJ	0.015	UJ	0.0164	UJ	2.12	J	0.0149	UJ	0.0151	UJ	0.159	UJ	0.0504	J	0.0144	UJ
cis-Chlordane	5103-71-9	4.2	mg/kg	0.00206	UJ	0.00253	UJ	0.0602	U	0.00234	UJ	0.00232	UJ	0.0124	UJ	0.0112	UJ	0.000771	NJ	0.00208	UJ	0.112	J	0.0023	UJ	0.00233	UJ	0.0244	UJ	0.00308	UJ	0.00221	UJ
Dieldrin	60-57-1	0.2	mg/kg	0.00111	UJ	0.00127	UJ	0.0301	U	0.00117	UJ	0.00116	UJ	0.00618	UJ	0.00562	UJ	0.00116	UJ	0.00112	UJ	0.0509	NJ	0.00115	UJ	0.00116	UJ	0.0122	UJ	0.00113	UJ	0.0011	UJ
Endrin ketone	53494-70-5	--	mg/kg	0.00177	UJ	0.00203	UJ	0.0482	UJ	0.00187	UJ	0.00185	UJ	0.00988	UJ	0.009	UJ	0.00185	UJ	0.00178	UJ	0.00303	UJ	0.00184	UJ	0.00186	UJ	0.0195	UJ	0.00181	UJ	0.00177	UJ
Heptachlor	76-44-8	2.1	mg/kg	0.000886	UJ	0.00101	UJ	0.0241	U	0.000936	UJ	0.000927	UJ	0.00494	UJ	0.0045	UJ	0.000925	UJ	0.000893	UJ	0.00152	UJ	0.00092	UJ	0.000932	UJ	0.00977	UJ	0.000904	UJ	0.000884	UJ
Lindane	58-89-9	1.3	mg/kg	0.000739	UJ	0.000844	UJ	0.0827	J	0.00078	UJ	0.000772	UJ	0.00412	UJ	0.00375	UJ	0.000771	UJ	0.000744	UJ	0.00126	UJ	0.000766	UJ	0.000776	UJ	0.00814	UJ	0.000753	UJ	0.000736	UJ
Methoxychlor	72-43-5	--	mg/kg	0.00332	UJ	0.0038	UJ	0.0904	UJ	0.00351	UJ	0.00348	UJ	0.0185	UJ	0.0169	UJ	0.00347	UJ	0.00335	UJ	0.00569	UJ	0.00345	UJ	0.00349	UJ	0.0366	UJ	0.00339	UJ	0.00331	UJ
trans-Chlordane	5103-74-2	--	mg/kg	0.00222	UJ	0.00253	UJ	0.0602	U	0.00234	UJ	0.00232	UJ	0.0124	UJ	0.0112	UJ	0.00231	UJ	0.00134	UJ	0.0563	J	0.0023	UJ	0.00233	UJ	0.0244	UJ	0.00586	J	0.00221	UJ
Polychlorinated Biphenyls by 8082A																															
Aroclor 1254	11097-69-1	1	mg/kg	0.0378	UJ	0.0421	UJ	0.049	U	0.0125	J	0.0386	UJ	0.0421	UJ	0.037	UJ	0.0397	UJ	0.0359	UJ	0.0616	UJ	0.0391	UJ	0.0397	UJ	0.0594	J	0.0372	UJ	0.0362	UJ
Aroclor 1260	11096-82-5	1	mg/kg	0.0181	J	0.0421	UJ	0.0451	J	0.0398	UJ	0.0386	UJ	0.0421	UJ	0.037	UJ	0.0397	UJ	0.0359	UJ	0.0616	UJ	0.0391	UJ	0.025	J	0.0252	J	0.0161	J	0.0362	UJ
Total Metals by 6010C/7471B (Mercury)																															
Aluminum, Total	7429-90-5	--	mg/kg	14000		11000	J	13000		8500		8900		11000		7200		13000		9000		5300		7900		14000		11000		14000		6200	
Antimony, Total	7440-36-0	--	mg/kg	5.4	J	4.2	J	4.3	J	18	J	3.9	J	3.3	J	2.1	J	3.4	J	3.1	J	9.4	J	1.6	J	4.1	J	15	J	4.5	J	1.9	J
Arsenic, Total	7440-38-2	16	mg/kg	12		7.6	J	7.7		7.6	J	7.2		7.2		3.8		8		7.6		12		4.5	J	11	J	9.2		8.7		3	
Barium, Total	7440-39-3	400	mg/kg	92		76	J	130	J	94		89		77		50		78		66		870		47		110		390		91		43	
Beryllium, Total	7440-41-7	72	mg/kg	0.71		0.6		0.63		0.42	J	0.48		0.56		0.36	J	0.65		0.52		0.41	J	0.37	J	0.67		0.52		0.7		0.31	J
Cadmium, Total	7440-43-9	4.3	mg/kg	0.14	J	1	U	0.63	J	0.55	J	0.71	J	0.19	J	0.09	J	0.97	U	0.84	U	3.5		0.18	J	0.11	J	1.3		0.12	J	0.89	U
Calcium, Total	7440-70-2	--	mg/kg	51000		32000	J	20000		18000		15000		16000		5200		38000		67000		-		48000		36000		45000		57000		3400	
Chromium, Total	7440-47-3	180	mg/kg	24	J	17	J	47	J	14		18	J	19	J	9.8	J	19	J	15	J	51	J	10		23		25	J	30	J	9.6	J
Cobalt, Total	7440-48-4	--	mg/kg	10		8		10		7.4		8.2		9.7		5.8		11		7.2		7.2		6.5		12		6.1		9.2		5.4	
Copper, Total	7440-50-8	270	mg/kg	48	J	22	J	50		33		57	J	30		17		27	J	23	J	120	J	18		74		150	J	41	J	15	J
Iron, Total	7439-89-6	--	mg/kg	28000		21000	J	24000		17000		22000		22000		13000		24000		18000		22000		14000		30000		19000		28000		12000	
Lead, Total	7439-92-1	400	mg/kg	97	J	17	J	220	J	840	J	220	J	50	J	22	J	53	J	45	J	3700	J	13	J	120	J	480	J	73	J	10	J
Magnesium, Total	7439-95-4	--	mg/kg	13000		7800		8500	J	6300		6400		7900		3200		13000		16000		7800		5500		15000		6800		13000		2600	
Manganese, Total	7439-96-5	2000	mg/kg	460		280		340		300	J	430		310		240		440		420		620		240	J	510	J	320		680		240	
Mercury, Total	7439-97-6	0.81	mg/kg	0.48		0.03	J	0.47		0.23		0.14		0.19	J	0.02	J	0.09	J	0.05	J	0.51		0.04	J	0.08		3.3		0.28		0.04	J
Nickel, Total	7440-02-0	310	mg/kg	27		22	J	33		22		24		26		16		27		20		20		18		34		19		26		15	
Potassium, Total	7440-09-7	--	mg/kg	3000	J	2000	J	1700		990		1100	J	1800		900		2300	J	1400	J	870	J	1100		2400		1200	J	2600	J	700	J
Selenium, Total	7782-49-2	180	mg/kg	2.3		0.79	J	1.2	J	1.4	J	1.3	J	0.84	J	0.66	J	0.94	J	1.3	J	2.8	J	0.28	J	2.2		2.4		2.5		1.1	J
Silver, Total	7440-22-4	180	mg/kg	0.27	J	0.23	J	0.46	J	0.91	U	0.9	U	0.99	U	0.88	U	0.97	U	0.84	U	1	J	0.92	U	0.94	U	1		0.19	J	0.89	U
Sodium, Total	7440-23-5	--	mg/kg	310		220		200	J	280		170	J	150	J	240		680		260		540		120	J	360		320		380		110	J
Vanadium, Total	7440-62-2	--	mg/kg	28		22	J	24		17		19		21		14		24		19		20		14		25		25		29		13	
Zinc, Total	7440-66-6	10000	mg/kg	120		69	J	210		190	J	470		120	J	56	J	84		87		-		61	J	190	J	320		110		45	

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 6

SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED TO RESTRICTED- RESIDENTIAL SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	RRSCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																													
				SB-18 (2-4) 1/15/2013	Qual	SB-19 (0-2) 1/15/2013	Qual	SB-19 (8-10) 1/15/2013	Qual	SB-20 (2-4) 1/14/2013	Qual	SB-21 (2-4) 1/7/2013	Qual	SB-22 (2-4) 1/7/2013	Qual	SB-23 (0-2) 1/4/2013	Qual	SB-23 (4-6) 1/4/2013	Qual	SB-24 (0-2) 1/16/2013	Qual	SB-24 (2-4) 1/16/2013	Qual	SB-25 (10-12') 1/8/2013	Qual	SB-26 (6-8) 1/7/2013	Qual	SB-27 (0-2) 1/7/2013	Qual	SB-27 (3-4) 1/7/2013	Qual	SB-28 (2-4) 1/14/2013	Qual	SB-29 (2-6') 1/8/2013	Qual
General Chemistry																																	
Solids, Total	NONE	--	%	85		89		89		80		80		81		74		82		85		83		74		90		70		68		83		86	
Volatile Organics by 8260C/5035																																	
Acetone	67-64-1	100	mg/kg	0.015	U	0.014	U	0.02	J	0.018	U	0.024	U	0.019	U	0.012	UJ	0.0049	J	0.0066	J	0.012	U	0.014		0.0088	U	0.015	J	0.052	U	0.012	U	0.06	
2-Butanone	78-93-3	100	mg/kg	0.015	U	0.014	U	0.018	U	0.018	U	0.024	U	0.019	U	0.012	UJ	0.014	UJ	0.015	U	0.012	U	0.013	U	0.0088	U	0.037	U	0.052	U	0.012	U	0.012	
Carbon Disulfide	75-15-0	--	mg/kg	0.015	U	0.014	U	0.018	U	0.018	U	0.024	U	0.019	U	0.012	U	0.014	U	0.015	U	0.012	U	0.013	U	0.008	U	0.037	U	0.052	U	0.012	U	0.098	U
Cyclohexane	110-82-7	--	mg/kg	0.00074	J	0.027	U	0.0003	J	0.037	U	0.048	U	0.038	U	0.024	U	0.027	U	0.0014	J	0.00057	J	0.026	U	0.018	U	0.074	U	0.1	U	0.025	U	0.02	U
Ethylbenzene	100-41-4	41	mg/kg	0.0015	U	0.0014	U	0.0018	U	0.0018	U	0.0024	U	0.0019	U	0.0012	U	0.0014	U	0.0015	U	0.0012	U	0.0013	U	0.0088	U	0.0037	U	0.0052	U	0.0012	U	0.0098	U
p-Isopropyltoluene	99-87-6	--	mg/kg	0.0015	U	0.0014	U	0.0018	U	0.0018	U	0.0024	U	0.0019	U	0.0012	U	0.0014	U	0.0015	U	0.0012	U	0.0019		0.00088	U	0.0037	U	0.0052	U	0.0012	U	0.00073	J
Methyl cyclohexane	108-87-2	--	mg/kg	0.001	J	0.0055	U	0.0072	U	0.0074	U	0.0096	U	0.0077	U	0.0048	U	0.0054	U	0.002	J	0.00084	J	0.0053	U	0.0035	U	0.015	U	0.021	U	0.005	U	0.0039	U
Methylene chloride	75-09-2	100	mg/kg	0.015	U	0.0042	J	0.0058	J	0.018	U	0.024	U	0.019	U	0.012	U	0.014	U	0.015	U	0.012	U	0.013	U	0.0088	U	0.037	U	0.052	U	0.012	U	0.0098	U
Toluene	108-88-3	100	mg/kg	0.0023	U	0.002	U	0.0018	J	0.0019	U	0.0036	U	0.0029	U	0.0018	U	0.002	U	0.0023	U	0.0018	U	0.0013	U	0.0013	U	0.0055	U	0.0079	U	0.0019	U	0.0015	U
Semivolatile Organics by 8270D																																	
2-Methylnaphthalene	91-57-6	--	mg/kg	0.23	U	1.1	U	6.7	U	2.5	U	0.25	U	0.24	U	2.7	U	4.8	U	0.23	U	0.24	U	6.6	U	0.22	U	0.28	U	0.29	U	0.24	U	0.46	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	100	mg/kg	0.28	U	1.3	U	8	U	3	U	0.3	U	0.29	U	3.2	U	5.8	U	0.28	U	0.28	U	7.9	U	0.26	U	0.33	U	0.35	U	0.29	U	0.55	U
Acenaphthene	83-32-9	100	mg/kg	0.15	U	1.1		4.4	U	1.1	J	0.16	U	0.16	U	1.8	U	3.2	U	0.16	U	0.16	U	4.4	U	0.14	U	0.19	U	0.19	U	0.16	U	0.24	J
Acenaphthylene	208-96-8	100	mg/kg	0.15	U	0.74	U	4.4	U	1.6	U	0.16	U	0.16	U	1.8	U	1.1	J	0.16	U	0.16	U	4.7		0.14	U	0.19	U	0.19	U	0.16	U	0.41	
Anthracene	120-12-7	100	mg/kg	0.11	U	2.3		3	J	3		0.12	U	0.12	U	1.3	U	3.3		0.12	U	0.12	U	6.7		0.11	U	0.14	U	0.14	U	0.12	U	0.87	
Benzo(a)anthracene	56-55-3	1	mg/kg	0.11	U	3.5		10		6.1		0.12	U	0.12	U	1.3	U	8.1		0.12	U	0.12	U	25		0.11	U	0.14	U	0.14	U	0.12	U	2.7	
Benzo(a)pyrene	50-32-8	1	mg/kg	0.15	U	2.8		9.5		5		0.16	U	0.16	U	1.8	U	7		0.16	U	0.16	U	23		0.14	U	0.19	U	0.19	U	0.16	U	2.8	
Benzo(b)fluoranthene	205-99-2	1	mg/kg	0.041	J	3.6		12		6.4		0.045	J	0.12	U	1.3	U	8		0.061	J	0.12	U	30		0.11	U	0.14	U	0.14	U	0.12	U	3.8	
Benzo(ghi)perylene	191-24-2	100	mg/kg	0.15	U	1.5		6		2.7		0.16	U	0.16	U	1.8	U	4		0.16	U	0.16	U	15		0.14	U	0.19	U	0.19	U	0.16	U	1.7	
Benzo(k)fluoranthene	207-08-9	3.9	mg/kg	0.11	U	1.5		4.6		2.8		0.12	U	0.12	U	1.3	U	3.5		0.12	U	0.12	U	13		0.11	U	0.14	U	0.14	U	0.12	U	1.2	
Benzoic Acid	65-85-0	--	mg/kg	0.62	U	3	U	18	U	6.7	U	0.66	U	0.65	U	7.2	U	13	U	0.63	U	0.63	U	18	U	0.59	U	0.75	U	0.78	U	0.65	U	1.2	U
Benzyl Alcohol	100-51-6	--	mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U	0.38	U
Bis(2-Ethylhexyl)phthalate	117-81-7	--	mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U	0.38	U
Butyl benzyl phthalate	85-68-7	--	mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U	0.38	U
Carbazole	86-74-8	--	mg/kg	0.19	U	1.2		5.6	U	1.3	J	0.2	U	0.2	U	2.2	U	0.79	J	0.19	U	0.2	U	1.6	J	0.18	U	0.23	U	0.24	U	0.2	U	0.67	
Chrysene	218-01-9	3.9	mg/kg	0.039	J	3.2		10		5.7		0.043	J	0.12	U	1.3	U	8		0.049	J	0.12	U	26		0.11	U	0.14	U	0.14	U	0.12	U	2.9	
Di-n-butylphthalate	84-74-2	--	mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.098	J	0.24	U	0.2	U	0.38	U
Dibenzo(a,h)anthracene	53-70-3	0.33	mg/kg	0.11	U	0.39	J	1.5	J	0.81	J	0.12	U	0.12	U	1.3	U	1.1	J	0.12	U	0.12	U	4.3		0.11	U	0.14	U	0.14	U	0.12	U	0.55	
Dibenzofuran	132-64-9	59	mg/kg	0.19	U	0.84	J	5.6	U	0.64	J	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U	0.26	J
Fluoranthene	206-44-0	100	mg/kg	0.054	J	7.5		22		13		0.061	J	0.12	U	0.53	J	15		0.058	J	0.043	J	42		0.11	U	0.06	J	0.061	J	0.12	U	6	
Fluorene	86-73-7	100	mg/kg	0.19	U	1.3		1.1	J	1.2	J	0.2	U	0.2	U	2.2	U	0.98	J	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U	0.36	NJ
Hexachlorobenzene	118-74-1	1.2	mg/kg	0.11	U	0.55	U	3.3	U	1.2	U	0.12	U	0.12	U	1.3	U	2.4	U	0.12	U	0.12	U	3.3	U	0.11	U	0.14	U	0.14	U	0.12	U	0.23	U
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	mg/kg	0.15	U	1.7		6		2.5		0.16	U	0.16	U	1.8	U	4.6		0.16	U	0.16	U	13		0.14	U	0.19	U	0.19	U	0.16	U	1.6	
Naphthalene	91-20-3	100	mg/kg	0.19	U	0.48	J	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.12	J	0.2	U	0.15	J
Phenanthrene	85-01-8	100	mg/kg	0.041	J	8		12		10		0.12	U	0.12	U	0.4	J	10		0.048	J	0.12	U	15		0.11	U	0.14	U	0.068	J	0.12	U	3.8	
Phenol	108-95-2	100	mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U	0.38	U
Pyrene	129-00-0	100	mg/kg	0.041	J	5.4		19		10		0.049	J	0.12	U	0.44	J	12		0.049	J	0.035	J	38		0.11	U	0.054	J	0.05	J	0.12	U	4.6	
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**0.406**		**45.19**		**122.3**		**72.41**		**0.198**		**ND**		**3.57**		**90.68**		**0.455**		**0.078**		**261.2**		**ND**		**0.114**		**0.539**		**ND**		**34.06**	
Organochlorine Pesticides by 8081B																																	
4,4'-DDD	72-54-8	13	mg/kg	0.00901	UJ	0.00176	UJ	0.0228	NJ	0.00232	J	0.00189	UJ	0.00192	UJ	0.00211	UJ	0.071	J	0.0018	UJ	0.00182	UJ	0.0264	NJ	0.000645	J	0.0022	UJ	0.00232	UJ	0.00186	U	0.0175	NJ
4,4'-DDE	72-55-9	8.9	mg/kg	0.00901	UJ	0.00176	UJ	0.0147	J	0.00198	UJ	0.00189	UJ	0.00192	UJ	0.00409	J	0.0332	J	0.00278	J	0.00204	J	0.0323	J	0.00128	UJ	0.0022	UJ	0.00196	J	0.00186	U	0.00333	J
4,4'-DDT	50-29-3	7.9	mg/kg	0.00852	J	0.00331	UJ	0.0657	NJ	0.0276	J	0.00354	UJ	0.00361	UJ	0.00287	UJ	0.0621	J	0.00229	J	0.00215	J	0.0666	UJ	0.00322	UJ	0.00413	UJ	0.00223	J	0.0035	U	0.00204	UJ
Alpha-BHC	319-84-6	0.48	mg/kg	0.00375	UJ	0.000735	UJ	0.000724	UJ	0.000827	UJ	0.000787	UJ	0.000802	UJ	0.00088	UJ	0.00776	UJ	0.000751	UJ	0.000761	UJ	0.00848	UJ	0.000717	UJ	0.000918	UJ	0.000966	UJ	0.000777	U	0.00074	UJ
Chlordane	57-74-9	--	mg/kg	0.0732	UJ	0.0143	UJ	0.0141	UJ	0.0161	UJ	0.0153	UJ	0.0156	UJ	0.0172	UJ	0.341	NJ	0.0146	UJ	0.0148	UJ	0.225	J	0.014	UJ	0.0179	UJ	0.0188	UJ	0.0151	U	0.0144	UJ
cis-Chlordane	5103-71-9	4.2	mg/kg	0.0113	UJ	0.00221	UJ	0.00217	UJ	0.00248	UJ	0.00236	UJ	0.00241	UJ	0.00264	UJ	0.0285	NJ	0.00225	UJ	0.00228	UJ	0.0198	J	0.00215	UJ	0.00275	UJ	0.0029	UJ	0.00233	U	0.00222	UJ
Dieldrin	60-57-1	0.2	mg/kg	0.00563	UJ	0.0011	UJ	0.00461	NJ	0.00124	UJ	0.00118	UJ	0.0012	UJ	0.00132	UJ	0.0116	UJ	0.00113	UJ	0.00114	UJ	0.0127	UJ	0.00108	UJ	0.00138	UJ	0.00145	UJ	0.00116	U	0.00111	UJ
Endrin ketone	53494-70-5	--	mg/kg	0.00901	UJ	0.00176	UJ	0.00174	UJ	0.00198	UJ	0.00189	UJ	0.00192	UJ	0.00211	UJ	0.0186	UJ	0.0018	UJ	0.00182	UJ	0.0203	UJ	0.00172	UJ	0.0022	UJ	0.00232	UJ	0.00186	U	0.00178	UJ
Heptachlor	76-44-8	2.1	mg/kg	0.0045	UJ	0.000882	UJ	0.000869	UJ	0.00213	NJ	0.000944	UJ	0.000963	UJ	0.00106	UJ	0.00931	UJ	0.000901	UJ	0.000913	UJ	0.0102	UJ	0.00086	UJ	0.0011	UJ	0.00116	UJ	0.000932	U	0.000888	UJ
Lindane	58-89-9	1.3	mg/kg	0.00375	UJ	0.000735	UJ	0.000724	UJ	0.000827	UJ	0.000787	UJ	0.000802	UJ	0.00088	UJ	0.00776	UJ	0.000751	UJ	0.000761	UJ	0.00848	UJ	0.000717	UJ	0.000918	UJ	0.000966	UJ	0.000777	U	0.00074	UJ
Methoxychlor	72-43-5	--	mg/kg	0.0169	UJ	0.00331	UJ	0.00326	UJ	0.00687	J	0.00354	UJ	0.00361	UJ	0.00396	UJ	0.0349	UJ	0.00338	UJ	0.00342	UJ	0.0381	UJ	0.00322	UJ	0.00413	UJ	0.00435	UJ	0.0035	U	0.00333	UJ
trans-Chlordane	5103-74-2	--	mg/kg	0.0113	UJ	0.00221	UJ	0.00217	UJ	0.00248	UJ	0.00236	UJ	0.00241	UJ	0.00264	UJ	0.0395	J	0.00225	UJ	0.00228	UJ	0.0301	NJ	0.00215	UJ	0.00275	UJ	0.0029	UJ	0.00233	U	0.00222	UJ
Polychlorinated Biphenyls by 8082A																																	
Aroclor 1254	11097-69-1	1	mg/kg	0.0374	UJ	0.0358	UJ	0.0355	UJ	0.367	J	0.0412	UJ	0.04	UJ	0.0261	J	0.135	J	0.0374	UJ	0.0386	UJ	0.0874	UJ	0.0354	UJ	0.0467	UJ	0.048	UJ	0.0394	UJ	0.038	UJ
Aroclor 1260	11096-82-5	1	mg/kg	0.0276	J	0.00795	J	0.117	J	0.153	J	0.0412	UJ	0.04	UJ	0.0344	J	0.12	J	0.0374	UJ	0.0386	UJ	0.0316	J	0.0354	UJ	0.0467	UJ	0.048	UJ	0.0394	UJ	0.038	UJ
Total Metals by 6010C/7471B (Mercury)																																	
Aluminum, Total	7429-90-5	--	mg/kg	13000		5400		5900		6200		8000		7800		6000		8700		10000		8700		4400		6700		6700		10000		7300		5800	
Antimony, Total	7440-36-0	--	mg/kg	2.1	J	4.4	UJ	1.8	J	4.8	UJ	2.3	J	2.3	J	1.5	J	45	J	2.1	J	2.3	J	9.1	J	2.2	J	21	J	52	J	4.7	UJ	1.3	J
Arsenic, Total	7440-38-2	16	mg/kg	6.8		5.8		7.9		12		6.6		4		3.2		9.7		6	J	5.9	J	10		4.3		12		60		4.4		3.4	
Barium, Total	7440-39-3	400	mg/kg	97		48		980		510		68		56		45		450		66		61		630		46		580		1900		44		83	
Beryllium, Total	7440-41-7	72	mg/kg	0.66		0.31	J	0.37	J	0.32	J	0.41	J	0.38	J	0.36	J	0.72		0.47		0.41	J	0.32	J	0.33	J	0.54		0.31	J	0.33	J	0.29	J
Cadmium, Total	7440-43-9	4.3	mg/kg	0.89	U	0.1	J	1.1		1.7		0.37	J	0.07	J	0.35	J	1.7		0.1	J	0.12	J	4.3		0.13	J	0.46	J	2.9		0.68	J	0.18	J
Calcium, Total	7440-70-2	--	mg/kg	38000		100000		38000		38000		48000		3900		70000		62000		21000		5600		55000		4300		8400		33000		7800		7000	
Chromium, Total	7440-47-3	180	mg/kg	19		10	J	27	J	24	J	14		12		11	J	120	J	14		12		29		9.8		16		83		10	J	9.5	
Cobalt, Total	7440-48-4	--	mg/kg	9.6		3.6		4.2		5.2		7.8		7.1		3.8		5.7		7.8		7.7		5		6.5		7.3		22		6.7		5.6	
Copper, Total	7440-50-8	270	mg/kg	24		14		82		52		20		20		39	J	120	J	25		22		110		18		120		10000		20		18	
Iron, Total	7439-89-6	--	mg/kg	22000		10000		9200		15000		17000	J	16000	J	11000		27000		18000		17000		32000	J	14000	J	37000	J	190000	J	16000		12000	J
Lead, Total	7439-92-1	400	mg/kg	24		36	J	1600	J	3400	J	30		10		50	J	1700	J	26	J	24	J	4900		14		960		4500		15	J	300	
Magnesium, Total	7439-95-4	--	mg/kg	9300		10000		6600		8600		12000		3900		10000		9600		7700		4300		5300		3700		440		2200		4300		3600	
Manganese, Total	7439-96-5	2000	mg/kg	560		280		200		320		420		310		250		1000		350	J	410	J	370		340		280		1200		370		280	
Mercury, Total	7439-97-6	0.81	mg/kg	0.09		0.07	J	0.48	J	1.6	J	0.1	U	0.04	J	0.19		1.8		0.07	J	0.05	J	0.67	J	0.03	J	0.1	J	0.18	J	0.04	J	0.07	J
Nickel, Total	7440-02-0	310	mg/kg	26		13		9.2		14		19		21		11		44		22		21		12		18		23		100		19		15	
Potassium, Total	7440-09-7	--	mg/kg	2400		1200		690		880		1500		590		1400	J	1000	J	1400		880		500		600		800		2000		750		610	
Selenium, Total	7782-49-2	180	mg/kg	1.1	J	0.58	J	1.2	J	0.71	J	1.4	J	0.95	J	1.5	J	3		1.4	J	1.5	J	3.1		0.98	J	2.5		10		1.9	U	0.98	J
Silver, Total	7440-22-4	180	mg/kg	0.89	U	0.87	U	0.22	J	0.24	J	0.94	U	0.93	U	1	U	0.54	J	0.91	U	0.91	U	0.41	J	0.88	U	1.2		9.2		0.95	U	0.88	U
Sodium, Total	7440-23-5	--	mg/kg	280		130	J	420		99	J	240		140	J	250		710		210		180		390		100	J	390		2600		190	U	92	J
Vanadium, Total	7440-62-2	--	mg/kg	25		14		23		18		20		14		15		45		18		15		19		12		26		24		13		12	
Zinc, Total	7440-66-6	10000	mg/kg	77		57	J	460	J	470	J	97		57		110		670		81	J	82	J	1600		61		380		3300		130	J	91	

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 6

SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED TO RESTRICTED- RESIDENTIAL SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	RRSCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																									
				SB-30 (0-2') 1/8/2013	Qual	SB-30 (2-6') 1/8/2013	Qual	SB-31 (2-4) 1/11/2013	Qual	SB-32 (2-4) 1/11/2013	Qual	SB-33 (10-12) 1/14/2013	Qual	MS/MSD SB-34 (0-2) 1/14/2013	Qual	MS/MSD SB-34 (4-5.5) 1/14/2013	Qual	SB-35 (10-12) 1/11/2013	Qual	SB-36 (0-2') 1/8/2013	Qual	SB-36 (6-10') 1/8/2013	Qual	SB-37 (10-12) 1/10/2013	Qual	SB-38 (10-12) 1/11/2013	Qual	MS/MSD SS-1 1/10/2013	Qual	SS-2 1/10/2013	Qual	SS-3 1/10/2013	Qual
General Chemistry																															
Solids, Total	NONE	--	%	81		81		77		72		82		81		72		69		69		83		69		70		70		70		62	
Volatile Organics by 8260C/5035																															
Acetone	67-64-1	100	mg/kg	0.0042	J	0.71	U	0.011	U	0.027	U	0.011	J	0.0061	J	0.019	U	0.049		0.0056	J	0.12		0.14	J	0.014	U	-		-		-	
2-Butanone	78-93-3	100	mg/kg	0.012	U	0.71	U	0.011	U	0.027	U	0.034	U	0.011	UJ	0.019	U	0.01	J	0.015	U	0.024		0.014	U	0.014	U	-		-		-	
Carbon Disulfide	75-15-0	--	mg/kg	0.012	U	0.71	U	0.011	U	0.027	U	0.034	U	0.011	U	0.019	U	0.022	U	0.015	U	0.0036	J	0.0071	J	0.014	U	-		-		-	
Cyclohexane	110-82-7	--	mg/kg	0.023	U	1.4	U	0.023	U	0.053	U	0.068	U	0.022	UJ	0.038	U	0.044	U	0.03	U	0.023	U	0.029	J	0.029	U	-		-		-	
Ethylbenzene	100-41-4	41	mg/kg	0.0012	U	0.071	U	0.0011	U	0.0027	U	0.0034	U	0.0011	U	0.0019	U	0.0022	U	0.0015	U	0.0012	U	0.00033	J	0.0014	U	-		-		-	
p-Isopropyltoluene	99-87-6	--	mg/kg	0.0012	U	0.071	U	0.0011	U	0.0027	U	0.0034	U	0.0011	UJ	0.0019	U	0.0022	U	0.0015	U	0.00081	J	0.094	J	0.0014	U	-		-		-	
Methyl cyclohexane	108-87-2	--	mg/kg	0.0046	U	0.28	U	0.0046	U	0.011	U	0.014	U	0.0043	UJ	0.0075	U	0.0088	U	0.0059	U	0.0046	U	0.0058	U	0.0058	U	-		-		-	
Methylene chloride	75-09-2	100	mg/kg	0.012	U	0.71	U	0.011	U	0.027	U	0.034	U	0.011	UJ	0.019	U	0.022	U	0.015	U	0.012	U	0.0059	J	0.014	U	-		-		-	
Toluene	108-88-3	100	mg/kg	0.0017	U	0.049	J	0.0011	U	0.0027	U	0.0051	U	0.0016	U	0.0028	U	0.0033	U	0.0022	U	0.0017	U	0.0028	J	0.0028	U	-		-		-	
Semivolatile Organics by 8270D																															
2-Methylnaphthalene	91-57-6	--	mg/kg	0.24	U	4.9		0.26	U	1.4	U	1.2	U	0.25	U	0.28	U	2.8	U	2.8	U	0.86		2.9	U	2.8	U	0.56	U	0.28	U	0.32	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	100	mg/kg	0.29	U	1.1	J	0.31	U	1.6	U	1.4	U	0.3	U	0.33	U	3.4	U	3.4	U	0.56	U	3.4	U	3.4	U	0.68	U	0.34	U	0.38	U
Acenaphthene	83-32-9	100	mg/kg	0.071	J	3.3		0.17	U	0.91	U	0.81	U	0.16	U	0.18	U	1.9	U	2.5		3.5		2.3		1.9	U	0.38	U	0.19	U	0.21	U
Acenaphthylene	208-96-8	100	mg/kg	0.094	J	5.4		0.17	U	0.91	U	0.81	U	0.16	U	0.18	U	1.9	U	3.1		0.78		1.9	U	1.1	J	0.38	U	0.19	U	0.21	U
Anthracene	120-12-7	100	mg/kg	0.22		9.2		0.033	J	0.68	U	0.61	U	0.12	U	0.14	U	0.73	J	12		8.1		3.7		1.2	J	0.13	J	0.14	U	0.16	U
Benzo(a)anthracene	56-55-3	1	mg/kg	0.64		15		0.084	J	0.68	U	0.61	U	0.12	U	0.14	U	2.5		37		14		7.1		3.7	J	0.36		0.14	U	0.16	U
Benzo(a)pyrene	50-32-8	1	mg/kg	0.56		14		0.082	J	0.91	U	0.81	U	0.16	U	0.18	U	2.6		32		14		6.2		3.8	J	0.28	J	0.19	U	0.21	U
Benzo(b)fluoranthene	205-99-2	1	mg/kg	0.8		17		0.097	J	0.68	U	0.61	U	0.12	U	0.14	U	3		44		17	D	8		4.5	J	0.41		0.14	U	0.16	U
Benzo(ghi)perylene	191-24-2	100	mg/kg	0.35		8.5		0.064	J	0.91	U	0.81	U	0.16	U	0.18	U	1.5	J	19		9.5		4		1.9	J	0.18	J	0.19	U	0.21	U
Benzo(k)fluoranthene	207-08-9	3.9	mg/kg	0.29		7		0.04	J	0.68	U	0.61	U	0.12	U	0.14	U	1.5		15		6.3		3.3		2.2	J	0.15	J	0.14	U	0.16	U
Benzoic Acid	65-85-0	--	mg/kg	0.66	U	6.5	U	0.7	U	3.7	U	3.3	U	0.66	U	0.74	U	7.7	U	7.7	U	1.3	U	7.8	U	7.6	U	1.5	U	0.76	U	0.86	U
Benzyl Alcohol	100-51-6	--	mg/kg	0.2	U	2	U	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	2.4	U	2.3	U	0.47	U	0.23	U	0.26	U
Bis(2-Ethylhexyl)phthalate	117-81-7	--	mg/kg	0.2	U	0.85	NJ	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.42	NJ	14		2.3	U	0.47	U	0.23	U	0.26	U
Butyl benzyl phthalate	85-68-7	--	mg/kg	0.2	U	2	U	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	17		2.3	U	0.47	U	0.23	U	0.26	U
Carbazole	86-74-8	--	mg/kg	0.16	J	5.1		0.22	U	1.1	U	1	U	0.2	U	0.23	U	0.52	J	3.2		4.8		2	J	1.4	J	0.47	U	0.23	U	0.26	U
Chrysene	218-01-9	3.9	mg/kg	0.68		15		0.082	J	0.68	U	0.61	U	0.12	U	0.14	U	2.6		37		16	D	6.9		4.3	J	0.34		0.14	U	0.16	U
Di-n-butylphthalate	84-74-2	--	mg/kg	0.2	U	2	U	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	5.6		2.3	U	0.47	U	0.23	U	0.26	U
Dibenzo(a,h)anthracene	53-70-3	0.33	mg/kg	0.098	J	2.6		0.13	U	0.68	U	0.61	U	0.12	U	0.14	U	1.4	U	6.4		2.4		1	J	0.69	J	0.28	U	0.14	U	0.16	U
Dibenzofuran	132-64-9	59	mg/kg	0.063	J	6		0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	1.5	J	3.6		1.1	J	0.67	J	0.47	U	0.23	U	0.26	U
Fluoranthene	206-44-0	100	mg/kg	1.4		31		0.17		0.25	J	0.61	U	0.12	U	0.032	J	5.1		69		40	D	17		8.5	J	0.79		0.14	U	0.16	U
Fluorene	86-73-7	100	mg/kg	0.089	J	7		0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	3.5		6.5		1.8	J	0.95	J	0.47	U	0.23	U	0.26	U
Hexachlorobenzene	118-74-1	1.2	mg/kg	0.12	U	1.2	U	0.13	U	0.68	U	0.61	U	0.12	U	0.14	U	1.4	U	1.4	U	0.23	U	1.4	U	1.4	U	0.28	U	0.14	U	0.16	U
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	mg/kg	0.31		7.7		0.17	U	0.91	U	0.81	U	0.16	U	0.18	U	1.4	J	17		8.2		3.4		1.7	J	0.16	J	0.19	U	0.21	U
Naphthalene	91-20-3	100	mg/kg	0.2	U	19		0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	1	J	2		1.5	J	0.9	J	0.47	U	0.23	U	0.26	U
Phenanthrene	85-01-8	100	mg/kg	1.1		36		0.14		0.68	U	0.61	U	0.12	U	0.14	U	2.8		37		35	D	14		9.9	J	0.56		0.14	U	0.16	U
Phenol	108-95-2	100	mg/kg	0.2	U	0.66	J	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	2.4	U	2.3	U	0.47	U	0.23	U	0.26	U
Pyrene	129-00-0	100	mg/kg	1.1		25		0.14		0.19	J	0.61	U	0.12	U	0.14	U	4.1		56		31	D	13		7.3	J	0.6		0.14	U	0.16	U
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**8.002**		**223.36**		**1.152**		**0.44**		**ND**		**ND**		**0.032**		**30.23**		**393.9**		**214.67**		**95.6**		**54.94**		**4.43**		**ND**		**ND**	
Organochlorine Pesticides by 8081B																															
4,4'-DDD	72-54-8	13	mg/kg	0.000857	J	0.00518	J	0.00279	NJ	0.00108	UJ	0.00183	U	0.00196	U	0.00211	U	0.0214	U	0.0328	J	0.0367	UJ	0.218	P	0.0103	J	0.00224	U	0.00218	UJ	0.0025	UJ
4,4'-DDE	72-55-9	8.9	mg/kg	0.00608	NJ	0.0102	NJ	0.00673		0.0122	NJ	0.00506	J	0.00196	U	0.00391		0.00226	U	0.0228	UJ	0.0367	UJ	0.0437	U	0.00224	U	0.00768	NJ	0.00314	J	0.00268	J
4,4'-DDT	50-29-3	7.9	mg/kg	0.0141	NJ	0.0084	NJ	0.0191	NJ	0.0293	NJ	0.00342	U	0.00367	U	0.0123	NJ	0.0074	U	0.0705	J	0.0688	UJ	0.0849		0.0042	UJ	0.00725	J	0.00239	J	0.00256	J
Alpha-BHC	319-84-6	0.48	mg/kg	0.000779	UJ	0.000804	UJ	0.000841	U	0.00392	J	0.000761	U	0.00235	J	0.00088	U	0.000944	U	0.0095	UJ	0.0153	UJ	0.0182	U	0.000934	U	0.000934	U	0.000909	UJ	0.00104	UJ
Chlordane	57-74-9	--	mg/kg	0.0152	UJ	0.0157	UJ	0.0164	U	0.017	UJ	0.0148	U	0.0159	U	0.0172	U	0.0184	U	0.3	J	0.298	UJ	0.319	J	0.0182	U	0.0182	U	0.0177	UJ	0.0203	UJ
cis-Chlordane	5103-71-9	4.2	mg/kg	0.00234	UJ	0.00241	UJ	0.00265	J	0.00262	UJ	0.00228	U	0.00245	U	0.00264	U	0.00283	U	0.019	UJ	0.0459	UJ	0.0335	J	0.0028	U	0.0028	U	0.00273	UJ	0.00312	UJ
Dieldrin	60-57-1	0.2	mg/kg	0.00117	UJ	0.00121	UJ	0.0024	NJ	0.00131	UJ	0.00114	U	0.00122	U	0.00132	U	0.00142	U	0.0142	UJ	0.0229	UJ	0.0273	U	0.0014	U	0.0014	U	0.00136	UJ	0.00156	UJ
Endrin ketone	53494-70-5	--	mg/kg	0.00187	UJ	0.00193	UJ	0.00202	UJ	0.00209	UJ	0.00183	U	0.00196	U	0.00211	U	0.00226	U	0.0228	UJ	0.0367	UJ	0.0437	U	0.00224	U	0.00224	UJ	0.00218	UJ	0.0025	UJ
Heptachlor	76-44-8	2.1	mg/kg	0.000935	UJ	0.000965	UJ	0.00101	U	0.00105	UJ	0.000913	U	0.000979	U	0.00106	U	0.00113	U	0.0114	UJ	0.0184	UJ	0.0219	U	0.00112	U	0.00112	U	0.00109	UJ	0.00125	UJ
Lindane	58-89-9	1.3	mg/kg	0.000779	UJ	0.000804	UJ	0.000841	U	0.000872	UJ	0.000761	U	0.000816	U	0.00088	U	0.000944	U	0.0095	UJ	0.0153	UJ	0.0182	U	0.000934	UJ	0.000934	U	0.000909	UJ	0.00104	UJ
Methoxychlor	72-43-5	--	mg/kg	0.0035	UJ	0.00362	UJ	0.00378	UJ	0.00392	UJ	0.00342	U	0.00367	U	0.00396	U	0.00425	U	0.0428	UJ	0.0688	UJ	0.082	U	0.0042	U	0.0042	UJ	0.00409	UJ	0.00468	UJ
trans-Chlordane	5103-74-2	--	mg/kg	0.00234	UJ	0.00241	UJ	0.00252	U	0.00262	UJ	0.00228	U	0.00245	U	0.00264	U	0.00283	U	0.0174	J	0.0459	UJ	0.0355	J	0.0028	U	0.0028	U	0.00273	UJ	0.00312	UJ
Polychlorinated Biphenyls by 8082A																															
Aroclor 1254	11097-69-1	1	mg/kg	0.0396	UJ	0.0706	J	0.0164	J	0.0443	U	0.0384	UJ	0.0387	UJ	0.0456	UJ	0.032	J	0.0671	NJ	0.0382	UJ	0.229	U	0.0449	U	0.0461	UJ	0.0453	UJ	0.0521	UJ
Aroclor 1260	11096-82-5	1	mg/kg	0.00824	J	0.0382	J	0.00827	J	0.0111	J	0.0384	UJ	0.0387	UJ	0.0456	UJ	0.0464	U	0.0837	J	0.0447	J	0.229	U	0.0119	J	0.0108	J	0.0453	UJ	0.0521	UJ
Total Metals by 6010C/7471B (Mercury)																															
Aluminum, Total	7429-90-5	--	mg/kg	5500		5300		6600		12000		5500		11000		8500		7400		6300		4400		4200		13000		6000		5200	J	14000	
Antimony, Total	7440-36-0	--	mg/kg	4.8	UJ	2.5	J	3.6	J	5.4	J	9.2	UJ	5.5	J	5.2	UJ	3.9	J	7.2	J	4	J	2.9	J	4	J	3.1	J	4	J	3.1	J
Arsenic, Total	7440-38-2	16	mg/kg	4.3		7.8		5.4		17		48		7.5		9.4		7.4		14		7.1		8.6		6.1		5.5		4.5	J	7.6	
Barium, Total	7440-39-3	400	mg/kg	81		530		660	J	540	J	1600		100		230		630	J	700		300		360	J	100	J	72		42	J	110	
Beryllium, Total	7440-41-7	72	mg/kg	0.28	J	0.31	J	0.34	J	1.1		0.09	J	0.59		0.7		0.41	J	0.4	J	0.21	J	0.25	J	0.61		0.37	J	0.33	J	1.1	
Cadmium, Total	7440-43-9	4.3	mg/kg	0.77	J	2		0.83	J	1.2		12		0.06	J	0.6	J	1.1		2.5		8.9		3.1		0.77	J	0.77	J	2.7	U	0.26	J
Calcium, Total	7440-70-2	--	mg/kg	4000		34000		9400		11000		31000		4500		5200		43000		29000		20000		30000		20000		67000		190000	J	45000	
Chromium, Total	7440-47-3	180	mg/kg	9.7		24		26		30		110	J	21	J	12	J	19		26		13		30		25	J	13		10	J	19	
Cobalt, Total	7440-48-4	--	mg/kg	5.5		5.1		6.4		12		28		11		8.5		4.5		6.8		5.1		5.4		11		5.5		5.3	J	8.8	
Copper, Total	7440-50-8	270	mg/kg	21		27		24		110		820		410		45		25		55		90		48		40		21		12	J	27	
Iron, Total	7439-89-6	--	mg/kg	13000	J	12000	J	18000		18000		340000		24000		8800		10000		52000	J	27000	J	16000		27000		14000		10000	J	22000	
Lead, Total	7439-92-1	400	mg/kg	140		1700		2500	J	450	J	2600	J	43	J	73	J	2000	J	3600		590		1200	J	78	J	77	J	13	J	45	J
Magnesium, Total	7439-95-4	--	mg/kg	2800		6000		4200	J	1400	J	1500		4500		440		6300	J	4600		2800		4600	J	8600	J	15000		7400		13000	
Manganese, Total	7439-96-5	2000	mg/kg	280		300		270		240		1600		540		120		210		610		250		230		460		320		250		670	
Mercury, Total	7439-97-6	0.81	mg/kg	0.09	J	0.36	J	0.13		0.09	J	0.12	J	0.08	J	0.03	J	0.86		1.1	J	0.43	J	1.9		0.51		0.1	J	0.03	J	0.09	J
Nickel, Total	7440-02-0	310	mg/kg	16		19		17		31		190		30		18		11		16		16		13		33		16	J	12	J	21	J
Potassium, Total	7440-09-7	--	mg/kg	720		770		960		1300		1300		1600		890		1200		700		520		670		1800		1400	J	1200	J	3000	J
Selenium, Total	7782-49-2	180	mg/kg	0.93	J	1.6	J	1.3	J	2.5		3.7	U	0.75	J	0.48	J	1.1	J	2.5		1.4	J	1.8	J	1.7	J	1.1	J	1.7	J	1.4	J
Silver, Total	7440-22-4	180	mg/kg	0.96	U	0.31	J	0.21	J	0.6	J	6.7		0.7	J	1	U	0.28	J	1.4		0.44	J	1.1	U	0.27	J	0.69	J	2.7	U	1.2	U
Sodium, Total	7440-23-5	--	mg/kg	140	J	330		93	J	680		1400		170	J	370		160	J	560		1200		330		220		460		540	U	370	
Vanadium, Total	7440-62-2	--	mg/kg	12		21		15		41		1.6	J	24		28		23		28		15		15		23		15		13	J	24	
Zinc, Total	7440-66-6	10000	mg/kg	120		630		410		550		2500	J	130	J	81	J	570		970		6300		950		180		140	J	45	J	160	J

TABLE 6

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED TO RESTRICTED- RESIDENTIAL SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	RRSCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier									
				SS-4 1/17/2013	Qual	SS-5 1/18/2013	Qual	SS-6 1/17/2013	Qual	SS-7 1/11/2013	Qual	SS-8 1/18/2013	Qual
General Chemistry													
Solids, Total	NONE	--	%	70		63		73		42		64	
Volatile Organics by 8260C/5035													
Acetone	67-64-1	100	mg/kg	-		-		-		-		-	
2-Butanone	78-93-3	100	mg/kg	-		-		-		-		-	
Carbon Disulfide	75-15-0	--	mg/kg	-		-		-		-		-	
Cyclohexane	110-82-7	--	mg/kg	-		-		-		-		-	
Ethylbenzene	100-41-4	41	mg/kg	-		-		-		-		-	
p-Isopropyltoluene	99-87-6	--	mg/kg	-		-		-		-		-	
Methyl cyclohexane	108-87-2	--	mg/kg	-		-		-		-		-	
Methylene chloride	75-09-2	100	mg/kg	-		-		-		-		-	
Toluene	108-88-3	100	mg/kg	-		-		-		-		-	
Semivolatile Organics by 8270D													
2-Methylnaphthalene	91-57-6	--	mg/kg	1.4	U	0.32	U	0.14	J	0.46	U	0.62	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	100	mg/kg	1.7	U	0.38	U	0.32	U	0.56	U	0.75	U
Acenaphthene	83-32-9	100	mg/kg	0.45	J	0.15	J	0.18	U	0.31	U	0.18	J
Acenaphthylene	208-96-8	100	mg/kg	1.2		0.14	J	0.18	U	0.31	U	0.19	J
Anthracene	120-12-7	100	mg/kg	2.4		0.49		0.04	J	0.086	J	0.92	
Benzo(a)anthracene	56-55-3	1	mg/kg	5.4		1.8		0.16		0.29		3.3	
Benzo(a)pyrene	50-32-8	1	mg/kg	5		1.5		0.16	J	0.31		2.3	
Benzo(b)fluoranthene	205-99-2	1	mg/kg	6.5		2.1		0.25		0.42		4	
Benzo(ghi)perylene	191-24-2	100	mg/kg	2.5		0.9		0.11	J	0.18	J	1.4	
Benzo(k)fluoranthene	207-08-9	3.9	mg/kg	2.7		0.67		0.089	J	0.13	J	1.2	
Benzoic Acid	65-85-0	--	mg/kg	3.8	U		R	0.74		0.48	J		R
Benzyl Alcohol	100-51-6	--	mg/kg	1.2	U	0.26	U	0.25		0.39	U	0.52	U
Bis(2-Ethylhexyl)phthalate	117-81-7	--	mg/kg	1.2	U	0.26	U	0.22	U	0.39	U	0.52	U
Butyl benzyl phthalate	85-68-7	--	mg/kg	1.2	U	0.26	U	0.22	U	0.39	U	0.52	U
Carbazole	86-74-8	--	mg/kg	0.59	J	0.36		0.038	J	0.39	U	0.57	
Chrysene	218-01-9	3.9	mg/kg	4.7		1.7		0.19		0.31		3.5	
Di-n-butylphthalate	84-74-2	--	mg/kg	1.2	U	0.26	U	0.22	U	0.066	J	0.52	U
Dibenzo(a,h)anthracene	53-70-3	0.33	mg/kg	0.83		0.25		0.13	U	0.23	U	0.58	
Dibenzofuran	132-64-9	59	mg/kg	0.34	J	0.096	J	0.22	U	0.39	U	0.14	J
Fluoranthene	206-44-0	100	mg/kg	13		3.3		0.33		0.6		6	
Fluorene	86-73-7	100	mg/kg	0.94	J	0.15	J	0.22	U	0.39	U	0.26	J
Hexachlorobenzene	118-74-1	1.2	mg/kg	0.7	U	0.16	U	0.13	U	0.23	U	0.31	U
Indeno(1,2,3-cd)Pyrene	193-39-5	0.5	mg/kg	3.2		1.1		0.12	J	0.16	J	1.6	
Naphthalene	91-20-3	100	mg/kg	1.2	U	0.26	U	0.14	J	0.39	U	0.52	U
Phenanthrene	85-01-8	100	mg/kg	7.1		1.9		0.22		0.37		4.2	
Phenol	108-95-2	100	mg/kg	1.2	U	0.26	U	0.22	U	0.39	U	0.52	U
Pyrene	129-00-0	100	mg/kg	9.2		2.6		0.27		0.49		4.4	
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**66.32**		**19.01**		**2.299**		**3.736**		**34.55**	
Organochlorine Pesticides by 8081B													
4,4'-DDD	72-54-8	13	mg/kg	0.0022	U	0.00248	U	0.00209	U	0.00361	U	0.00244	U
4,4'-DDE	72-55-9	8.9	mg/kg	0.0022	U	0.0185	J	0.00212		0.0127	NJ	0.00817	NJ
4,4'-DDT	50-29-3	7.9	mg/kg	0.00413	U	0.0319		0.00454	J	0.0154		0.0378	J
Alpha-BHC	319-84-6	0.48	mg/kg	0.000918	U	0.00104	U	0.00087	U	0.0015	U	0.00126	NJ
Chlordane	57-74-9	--	mg/kg	0.0179	U	0.0202	U	0.017	U	0.0293	U	0.122	
cis-Chlordane	5103-71-9	4.2	mg/kg	0.00364	NJ	0.00311	U	0.00261	U	0.00451	U	0.00774	NJ
Dieldrin	60-57-1	0.2	mg/kg	0.00138	U	0.00155	U	0.0013	U	0.00226	U	0.00152	U
Endrin ketone	53494-70-5	--	mg/kg	0.0022	U	0.00782	NJ	0.00209	U	0.00361	U	0.00881	NJ
Heptachlor	76-44-8	2.1	mg/kg	0.0011	U	0.00124	U	0.00104	U	0.0018	U	0.00122	U
Lindane	58-89-9	1.3	mg/kg	0.000918	U	0.00104	U	0.00087	U	0.0015	U	0.00101	U
Methoxychlor	72-43-5	--	mg/kg	0.00413	U	0.00466	U	0.00391	U	0.00677	U	0.00456	UJ
trans-Chlordane	5103-74-2	--	mg/kg	0.00275	U	0.00311	U	0.00261	U	0.00451	U	0.00726	NJ
Polychlorinated Biphenyls by 8082A													
Aroclor 1254	11097-69-1	1	mg/kg	0.0457	UJ	0.102	UJ	0.0445	UJ	0.0344	J	0.1	UJ
Aroclor 1260	11096-82-5	1	mg/kg	0.0138	J	0.102	UJ	0.0127	J	0.0365	J	0.1	UJ
Total Metals by 6010C/7471B (Mercury)													
Aluminum, Total	7429-90-5	--	mg/kg	10000		7500		12000		12000		5500	
Antimony, Total	7440-36-0	--	mg/kg	2.8	J	2.2	J	6.8	J	7.8	J	1.8	J
Arsenic, Total	7440-38-2	16	mg/kg	7.2	J	6.3	J	29	J	18		5.1	J
Barium, Total	7440-39-3	400	mg/kg	150		130		340		290		320	
Beryllium, Total	7440-41-7	72	mg/kg	0.43		0.37	J	1		1		0.27	J
Cadmium, Total	7440-43-9	4.3	mg/kg	0.41	J	0.73	J	2.5		6.9		1.6	
Calcium, Total	7440-70-2	--	mg/kg	42000		7000		7100		19000		19000	
Chromium, Total	7440-47-3	180	mg/kg	22		14		26		45		18	
Cobalt, Total	7440-48-4	--	mg/kg	8.2		6.7		7.8		11		6.1	
Copper, Total	7440-50-8	270	mg/kg	54		25		120		110		24	
Iron, Total	7439-89-6	--	mg/kg	22000		15000		44000		25000		11000	
Lead, Total	7439-92-1	400	mg/kg	280	J	330	J	280	J	660	J	950	J
Magnesium, Total	7439-95-4	--	mg/kg	5400		3200		1500		1600		4300	
Manganese, Total	7439-96-5	2000	mg/kg	680	J	340	J	280	J	620		270	J
Mercury, Total	7439-97-6	0.81	mg/kg	0.09	J	0.12	J	0.28		0.34	J	0.19	
Nickel, Total	7440-02-0	310	mg/kg	47		18		28		41	J	16	
Potassium, Total	7440-09-7	--	mg/kg	1800		1400		1000		2000	J	970	
Selenium, Total	7782-49-2	180	mg/kg	1	J	1.8	J	2.6		5.7		0.97	J
Silver, Total	7440-22-4	180	mg/kg	0.22	J	1.2	U	0.69		0.95	J	1.2	U
Sodium, Total	7440-23-5	--	mg/kg	590		230	J	720		360	J	300	
Vanadium, Total	7440-62-2	--	mg/kg	21		17		24		40		14	
Zinc, Total	7440-66-6	10000	mg/kg	240	J	350	J	650	J	1100	J	580	J

TABLE 6

SUMMARY OF SOIL ANALYTICAL RESULTS COMPARED TO RESTRICTED- RESIDENTIAL SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Notes:
1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Restricted-Residential Use Soil Cleanup Objective per 6NYCRR Part 375.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.

Qualifier Key:

B	The analyte was detected above the reporting limit in the associated method blank.
NJ	The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated qantitative value.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
R	The data are unusable. The analyte may or may not be present.
D	Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
U	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
UJ	The analyte was not detected. The associated reported quantitation limit is an estimate and may be inaccurate or imprecise.
EMPC	The results do not meet all criteria for a confirmed identification. The quantitative value represents the Estimated Maximum Possible Concentration of the analyte in the sample

Color Code:

= concentration exceeds the individual Restricted-Residential Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.
= the analytical method detection limit reported exceeds or is equal to the individual SCO.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 7

SUMMARY OF SOIL/FILL ANALYTICAL RESULTS COMPARED TO INDUSTRIAL SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																									
				SB-17 (6-8) BLIND DUP #1 1/4/2013	Qual	SS-2 (0-0.5) BLIND DUP #2 1/10/2013	Qual	SB-38 (10-12) BLIND DUP #3 1/11/2013	Qual	SB-9 (4-6) 1/16/2013	Qual	SB-10 (6-8) 1/3/2013	Qual	SB-11 (8-10) 1/15/2013	Qual	SB-12 (10-12) 1/15/2013	Qual	SB-13 (4-5.8) 1/3/2013	Qual	SB-14 (0-2) 1/3/2013	Qual	SB-14 (8-10) 1/3/2013	Qual	SB-15 (0-2) 1/16/2013	Qual	SB-15 (2-4) 1/16/2013	Qual	SB-16 (6-8) 1/4/2013	Qual	SB-17 (0-2) 1/4/2013	Qual	SB-17 (6-8) 1/4/2013	Qual
General Chemistry																															
Solids, Total	NONE	--	%	86		76		65		83		84		77		87		81		89		52		83		81		79		84		87	
Volatile Organics by 8260C/5035																															
Acetone	67-64-1	0.05	mg/kg	0.0099	U	-		0.026	U	0.01	U	0.011	U	0.038	J	0.06		0.017	U	0.017	U	0.21		0.018	U	0.016	U	0.026	J	0.013	U	0.011	UJ
2-Butanone	78-93-3	0.12	mg/kg	0.0099	U	-		0.02	J	0.01	U	0.011	U	0.032	U	0.014		0.017	U	0.017	U	0.03		0.018	U	0.016	U	0.013	UJ	0.013	U	0.011	UJ
Carbon Disulfide	75-15-0		mg/kg	0.099	U	-		0.026	U	0.01	U	0.011	U	0.032	U	0.012	U	0.017	U	0.017	U	0.03	U	0.018	U	0.016	U	0.013	U	0.013	U	0.011	U
Cyclohexane	110-82-7		mg/kg	0.02	U	-		0.051	U	0.02	U	0.022	U	0.065	U	0.025	U	0.00043	J	0.033	U	0.014	J	0.036	U	0.032	U	0.025	U	0.026	U	0.022	U
Ethylbenzene	100-41-4	1	mg/kg	0.0099	U	-		0.0026	U	0.001	U	0.0011	U	0.0032	U	0.0012	U	0.0017	U	0.0017	U	0.003	U	0.0018	U	0.0016	U	0.0013	U	0.0013	U	0.0011	U
p-Isopropyltoluene	99-87-6		mg/kg	0.00099	U	-		0.0026	U	0.001	U	0.0011	U	0.0032	U	0.0012	U	0.0017	U	0.0017	U	0.48		0.0018	U	0.0016	U	0.088		0.0013	U	0.0011	U
Methyl cyclohexane	108-87-2		mg/kg	0.004	U	-		0.01	U	0.004	U	0.0043	U	0.013	U	0.005	U	0.0067	U	0.0067	U	0.024		0.0073	U	0.0065	U	0.0051	U	0.0052	U	0.0044	U
Methylene chloride	75-09-2	0.05	mg/kg	0.0099	U	-		0.026	U	0.01	U	0.011	U	0.032	U	0.0034	J	0.017	U	0.017	U	0.03	U	0.018	U	0.016	U	0.013	U	0.013	U	0.011	U
Toluene	108-88-3	0.7	mg/kg	0.0015	U	-		0.0038	U	0.0015	U	0.0011	U	0.0049	U	0.0019	U	0.0025	U	0.0025	U	0.0042		0.0027	U	0.0024	U	0.0019	U	0.002	U	0.0016	U
Semivolatile Organics by 8270D																															
2-Methylnaphthalene	91-57-6	--	mg/kg	0.23	U	0.26	U	0.6	U	0.2	J	1.2	U	0.26	U	0.22	U	0.24	U	0.44	U	3.8	U	0.24	U	0.1	J	3		0.22	J	0.22	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	1000	mg/kg	0.27	U	0.31	U	0.72	U	0.29	U	1.4	U	0.31	U	0.27	U	0.29	U	0.53	U	4.5	U	0.28	U	0.29	U	3	U	0.56	U	0.27	U
Acenaphthene	83-32-9	1000	mg/kg	0.046	J	0.17	U	0.4	U	0.67		0.77	U	0.17	U	0.13	J	0.16	U	0.29	U	2.5	U	0.16	U	0.16	U	12		0.62	J	0.15	U
Acenaphthylene	208-96-8	1000	mg/kg	0.16	J	0.17	U	0.66		0.23		0.77	U	0.17	U	0.15	U	0.16	U	0.29	U	1.3	J	0.16	U	0.16	U	2		0.31	UJ	0.15	U
Anthracene	120-12-7	1000	mg/kg	0.22	J	0.13	U	0.37		2		0.41	J	0.086	J	0.26		0.12	U	0.06	J	2.8		0.12	U	0.068	J	28		1.1	J	0.11	U
Benzo(a)anthracene	56-55-3	11	mg/kg	0.65	J	0.13	U	0.49	J	3.2		1.2		0.22		0.55		0.057	J	0.18	J	7		0.12	U	0.25	NJ	47		3.1	J	0.11	UJ
Benzo(a)pyrene	50-32-8	1.1	mg/kg	0.58	J	0.17	U	1.4	J	2.8		1.2		0.15	J	0.5		0.051	J	0.18	J	6.4		0.16	U	0.22		41		2.9	J	0.15	UJ
Benzo(b)fluoranthene	205-99-2	11	mg/kg	0.87	J	0.13	U	1.2	J	3.9		1.6		0.24		0.65		0.061	J	0.22		8.1		0.12	U	0.35		53		4.2	J	0.11	UJ
Benzo(ghi)perylene	191-24-2	1000	mg/kg	0.33	J	0.17	U	0.84	J	1.6		0.65	J	0.11	J	0.33		0.16	U	0.1	J	3.8		0.16	U	0.18		20		1.6	J	0.15	U
Benzo(k)fluoranthene	207-08-9	110	mg/kg	0.32	J	0.13	U	0.36	J	1.2		0.49	J	0.088	J	0.24		0.034	J	0.1	J	3.6		0.12	U	0.15		19		1.5	J	0.11	U
Benzoic Acid	65-85-0	--	mg/kg	0.61	U	0.7	U	1.6	U	0.64	U	3.1	U	0.7	U	0.6	U	0.66	U	1.2	U	10	U	0.64	U	0.66	U	6.6	U	1.2	U	0.6	U
Benzyl Alcohol	100-51-6	--	mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Bis(2-Ethylhexyl)phthalate	117-81-7	--	mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Butyl benzyl phthalate	85-68-7	--	mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Carbazole	86-74-8	--	mg/kg	0.079	J	0.21	U	0.19	J	0.78		0.18	J	0.052	J	0.16	J	0.2	U	0.36	U	1.4	J	0.2	U	0.047	J	11		1.1	J	0.18	U
Chrysene	218-01-9	110	mg/kg	0.65	J	0.13	U	0.7	J	3		1.1		0.21		0.55		0.055	J	0.17	J	6.6		0.12	U	0.3		45		3.5	J	0.11	UJ
Di-n-butylphthalate	84-74-2	--	mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	0.097	J	0.13	U	0.29	NJ	0.37		0.58	U	0.13	U	0.067	J	0.12	U	0.22	U	0.97	J	0.12	U	0.041	J	6.2		0.44	J	0.11	U
Dibenzofuran	132-64-9	1000	mg/kg	0.063	J	0.21	U	0.5	U	0.62		0.97	U	0.22	U	0.081	J	0.2	U	0.36	U	0.71	J	0.2	U	0.048	J	8.4		0.53	J	0.18	U
Fluoranthene	206-44-0	1000	mg/kg	1.2	J	0.13	U	0.75	J	8.6	D	2.7		0.48		1.5		0.12		0.36		15		0.12	U	0.58		100	D	10	J	0.11	UJ
Fluorene	86-73-7	1000	mg/kg	0.072	J	0.21	U	0.5	U	1		0.97	U	0.047	J	0.16	J	0.2	U	0.36	U	1	J	0.2	U	0.2	U	15		0.76	J	0.18	U
Hexachlorobenzene	118-74-1	1.2	mg/kg	0.11	U	0.13	U	0.3	U	0.12	U	0.58	U	0.13	U	0.11	U	0.12	U	0.22	U	1.9	U	0.12	U	0.12	U	1.2	U	0.23	U	0.11	U
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	0.41	J	0.17	U	0.73		1.9		0.64	J	0.11	J	0.32		0.16	U	0.096	J	3.4		0.16	U	0.2		25		2.1	J	0.15	U
Naphthalene	91-20-3	1000	mg/kg	0.081	J	0.21	U	0.5	U	0.31		0.97	U	0.22	U	0.091	J	0.2	U	0.36	U	3.1	U	0.2	U	0.089	J	6.4		0.34	J	0.18	U
Phenanthrene	85-01-8	1000	mg/kg	0.6	J	0.13	U	0.53	J	7.4		1.6		0.4		1.3		0.09	J	0.2	J	11		0.12	U	0.38		92	D	7.5	J	0.11	UJ
Phenol	108-95-2	1000	mg/kg	0.19	U	0.21	U	0.5	U	0.2	U	0.97	U	0.22	U	0.19	U	0.2	U	0.36	U	3.1	U	0.2	U	0.2	U	2	U	0.39	U	0.18	U
Pyrene	129-00-0	1000	mg/kg	0.92	J	0.13	U	0.8	J	7		2.2		0.38		1.2		0.098	J	0.28		12		0.12	U	0.44		80		7.4	J	0.11	UJ
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**7.396**	**J**	**ND**		**9.62**		**45.38**		**14.76**		**2.741**		**8.038**		**0.766**		**2.306**		**86.07**		**ND**		**3.448**		**593.6**		**47.45**		**ND**	
Organochlorine Pesticides by 8081B																															
4,4'-DDD	72-54-8	180	mg/kg	0.00177	UJ	0.00203	UJ	0.0327	J	0.00187	UJ	0.00226	J	0.00655	UJ	0.00971	J	0.00267	J	0.00178	UJ	1.73	J	0.00184	UJ	0.00186	UJ	0.0195	UJ	0.00181	UJ	0.00177	UJ
4,4'-DDE	72-55-9	120	mg/kg	0.00281	UJ	0.00361	J	0.0482	U	0.00187	UJ	0.00411		0.00988	UJ	0.009	UJ	0.00185	UJ	0.00374	NJ	0.213	J	0.000797	J	0.00327	J	0.0195	UJ	0.0045	NJ	0.00177	UJ
4,4'-DDT	50-29-3	94	mg/kg	0.00819	J	0.00242	J	0.0422	J	0.00351	UJ	0.0103	J	0.0185	UJ	0.00858	J	0.00247	J	0.0098	NJ	1.98	J	0.00345	UJ	0.00315	UJ	0.0366	UJ	0.0111	J	0.00331	UJ
Alpha-BHC	319-84-6	6.8	mg/kg	0.000739	UJ	0.000844	UJ	0.0201	U	0.00078	UJ	0.000772	UJ	0.00412	UJ	0.00375	UJ	0.000771	UJ	0.000744	UJ	0.00126	UJ	0.000766	UJ	0.000776	UJ	0.00814	UJ	0.000753	UJ	0.000736	UJ
Chlordane	57-74-9	--	mg/kg	0.0311	J	0.0165	UJ	0.392	U	0.0152	UJ	0.0151	UJ	0.0803	UJ	0.0731	UJ	0.015	UJ	0.0164	UJ	2.12	J	0.0149	UJ	0.0151	UJ	0.159	UJ	0.0504	J	0.0144	UJ
cis-Chlordane	5103-71-9	47	mg/kg	0.00206	UJ	0.00253	UJ	0.0602	U	0.00234	UJ	0.00232	UJ	0.0124	UJ	0.0112	UJ	0.000771	NJ	0.00208	UJ	0.112	J	0.0023	UJ	0.00233	UJ	0.0244	UJ	0.00308	UJ	0.00221	UJ
Dieldrin	60-57-1	2.8	mg/kg	0.00111	UJ	0.00127	UJ	0.0301	U	0.00117	UJ	0.00116	UJ	0.00618	UJ	0.00562	UJ	0.00116	UJ	0.00112	UJ	0.0509	NJ	0.00115	UJ	0.00116	UJ	0.0122	UJ	0.00113	UJ	0.0011	UJ
Endrin ketone	53494-70-5	--	mg/kg	0.00177	UJ	0.00203	UJ	0.0482	UJ	0.00187	UJ	0.00185	UJ	0.00988	UJ	0.009	UJ	0.00185	UJ	0.00178	UJ	0.00303	UJ	0.00184	UJ	0.00186	UJ	0.0195	UJ	0.00181	UJ	0.00177	UJ
Heptachlor	76-44-8	29	mg/kg	0.000886	UJ	0.00101	UJ	0.0241	U	0.000936	UJ	0.000927	UJ	0.00494	UJ	0.0045	UJ	0.000925	UJ	0.000893	UJ	0.00152	UJ	0.00092	UJ	0.000932	UJ	0.00977	UJ	0.000904	UJ	0.000884	UJ
Lindane	58-89-9	23	mg/kg	0.000739	UJ	0.000844	UJ	0.0827	J	0.00078	UJ	0.000772	UJ	0.00412	UJ	0.00375	UJ	0.000771	UJ	0.000744	UJ	0.00126	UJ	0.000766	UJ	0.000776	UJ	0.00814	UJ	0.000753	UJ	0.000736	UJ
Methoxychlor	72-43-5	--	mg/kg	0.00332	UJ	0.0038	UJ	0.0904	UJ	0.00351	UJ	0.00348	UJ	0.0185	UJ	0.0169	UJ	0.00347	UJ	0.00335	UJ	0.00569	UJ	0.00345	UJ	0.00349	UJ	0.0366	UJ	0.00339	UJ	0.00331	UJ
trans-Chlordane	5103-74-2	--	mg/kg	0.00222	UJ	0.00253	UJ	0.0602	U	0.00234	UJ	0.00232	UJ	0.0124	UJ	0.0112	UJ	0.00231	UJ	0.00134	UJ	0.0563	J	0.0023	UJ	0.00233	UJ	0.0244	UJ	0.00586	J	0.00221	UJ
Polychlorinated Biphenyls by 8082A																															
Aroclor 1254	11097-69-1	25	mg/kg	0.0378	UJ	0.0421	UJ	0.049	U	0.0125	J	0.0386	UJ	0.0421	UJ	0.037	UJ	0.0397	UJ	0.0359	UJ	0.0616	UJ	0.0391	UJ	0.0397	UJ	0.0594	J	0.0372	UJ	0.0362	UJ
Aroclor 1260	11096-82-5	25	mg/kg	0.0181	J	0.0421	UJ	0.0451	J	0.0398	UJ	0.0386	UJ	0.0421	UJ	0.037	UJ	0.0397	UJ	0.0359	UJ	0.0616	UJ	0.0391	UJ	0.025	J	0.0252	J	0.0161	J	0.0362	UJ
Total Metals by 6010C/7471B (Mercury)																															
Aluminum, Total	7429-90-5	--	mg/kg	14000		11000	J	13000		8500		8900		11000		7200		13000		9000		5300		7900		14000		11000		14000		6200	
Antimony, Total	7440-36-0	--	mg/kg	5.4	J	4.2	J	4.3	J	18	J	3.9	J	3.3	J	2.1	J	3.4	J	3.1	J	9.4	J	1.6	J	4.1	J	15	J	4.5	J	1.9	J
Arsenic, Total	7440-38-2	16	mg/kg	12		7.6	J	7.7		7.6	J	7.2		7.2		3.8		8		7.6		12		4.5	J	11	J	9.2		8.7		3	
Barium, Total	7440-39-3	10000	mg/kg	92		76	J	130	J	94		89		77		50		78		66		870		47		110		390		91		43	
Beryllium, Total	7440-41-7	2700	mg/kg	0.71		0.6		0.63		0.42	J	0.48		0.56		0.36	J	0.65		0.52		0.41	J	0.37	J	0.67		0.52		0.7		0.31	J
Cadmium, Total	7440-43-9	60	mg/kg	0.14	J	1	U	0.63	J	0.55	J	0.71	J	0.19	J	0.09	J	0.97	U	0.84	U	3.5		0.18	J	0.11	J	1.3		0.12	J	0.89	U
Calcium, Total	7440-70-2	--	mg/kg	51000		32000	J	20000		18000		15000		16000		5200		38000		67000		86000		48000		36000		45000		57000		3400	
Chromium, Total	7440-47-3	--	mg/kg	24	J	17	J	47	J	14		18	J	19	J	9.8	J	19	J	15	J	51	J	10		23		25	J	30	J	9.6	J
Cobalt, Total	7440-48-4	--	mg/kg	10		8		10		7.4		8.2		9.7		5.8		11		7.2		7.2		6.5		12		6.1		9.2		5.4	
Copper, Total	7440-50-8	10000	mg/kg	48	J	22	J	50		33		57	J	30		17		27	J	23	J	120	J	18		74		150	J	41	J	15	J
Iron, Total	7439-89-6	--	mg/kg	28000		21000	J	24000		17000		22000		22000		13000		24000		18000		22000		14000		30000		19000		28000		12000	
Lead, Total	7439-92-1	3900	mg/kg	97	J	17	J	220	J	840	J	220	J	50	J	22	J	53	J	45	J	3700	J	13	J	120	J	480	J	73	J	10	J
Magnesium, Total	7439-95-4	--	mg/kg	13000		7800		8500	J	6300		6400		7900		3200		13000		16000		7800		5500		15000		6800		13000		2600	
Manganese, Total	7439-96-5	10000	mg/kg	460		280		340		300	J	430		310		240		440		420		620		240	J	510	J	320		680		240	
Mercury, Total	7439-97-6	5.7	mg/kg	0.48		0.03	J	0.47		0.23		0.14		0.19	J	0.02	J	0.09	J	0.05	J	0.51		0.04	J	0.08		3.3		0.28		0.04	J
Nickel, Total	7440-02-0	10000	mg/kg	27		22	J	33		22		24		26		16		27		20		20		18		34		19		26		15	
Potassium, Total	7440-09-7	--	mg/kg	3000	J	2000	J	1700		990		1100	J	1800		900		2300	J	1400	J	870	J	1100		2400		1200	J	2600	J	700	J
Selenium, Total	7782-49-2	6800	mg/kg	2.3		0.79	J	1.2	J	1.4	J	1.3	J	0.84	J	0.66	J	0.94	J	1.3	J	2.8	J	0.28	J	2.2		2.4		2.5		1.1	J
Silver, Total	7440-22-4	6800	mg/kg	0.27	J	0.23	J	0.46	J	0.91	U	0.9	U	0.99	U	0.88	U	0.97	U	0.84	U	1	J	0.92	U	0.94	U	1		0.19	J	0.89	U
Sodium, Total	7440-23-5	--	mg/kg	310		220		200	J	280		170	J	150	J	240		680		260		540		120	J	360		320		380		110	J
Vanadium, Total	7440-62-2	--	mg/kg	28		22	J	24		17		19		21		14		24		19		20		14		25		25		29		13	
Zinc, Total	7440-66-6	10000	mg/kg	120		69	J	210		190	J	470		120	J	56	J	84		87		1400		61	J	190	J	320		110		45	

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 7

SUMMARY OF SOIL/FILL ANALYTICAL RESULTS COMPARED TO INDUSTRIAL SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																									
				SB-18 (2-4) 1/15/2013	Qual	SB-19 (0-2) 1/15/2013	Qual	SB-19 (8-10) 1/15/2013	Qual	SB-20 (2-4) 1/14/2013	Qual	SB-21 (2-4) 1/7/2013	Qual	SB-22 (2-4) 1/7/2013	Qual	SB-23 (0-2) 1/4/2013	Qual	SB-23 (4-6) 1/4/2013	Qual	SB-24 (0-2) 1/16/2013	Qual	SB-24 (2-4) 1/16/2013	Qual	SB-25 (10-12') 1/8/2013	Qual	SB-26 (6-8) 1/7/2013	Qual	SB-27 (0-2) 1/7/2013	Qual	SB-27 (3-4) 1/7/2013	Qual	SB-28 (2-4) 1/14/2013	Qual
General Chemistry																															
Solids, Total	NONE	--	%	85		89		89		80		80		81		74		82		85		83		74		90		70		68		83	
Volatile Organics by 8260C/5035																															
Acetone	67-64-1	0.05	mg/kg	0.015	U	0.014	U	0.02	J	0.018	U	0.024	U	0.019	U	0.012	UJ	0.0049	J	0.0066	J	0.012	U	0.014		0.0088	U	0.015	J	0.052	U	0.012	U
2-Butanone	78-93-3	0.12	mg/kg	0.015	U	0.014	U	0.018	U	0.018	U	0.024	U	0.019	U	0.012	UJ	0.014	UJ	0.015	U	0.012	U	0.013	U	0.0088	U	0.037	U	0.052	U	0.012	U
Carbon Disulfide	75-15-0		mg/kg	0.015	U	0.014	U	0.018	U	0.018	U	0.024	U	0.019	U	0.012	U	0.014	U	0.015	U	0.012	U	0.013	U	0.008	U	0.037	U	0.052	U	0.012	U
Cyclohexane	110-82-7		mg/kg	0.00074	J	0.027	U	0.0003	J	0.037	U	0.048	U	0.038	U	0.024	U	0.027	U	0.0014	J	0.00057	J	0.026	U	0.018	U	0.074	U	0.1	U	0.025	U
Ethylbenzene	100-41-4	1	mg/kg	0.0015	U	0.0014	U	0.0018	U	0.0018	U	0.0024	U	0.0019	U	0.0012	U	0.0014	U	0.0015	U	0.0012	U	0.0013	U	0.0088	U	0.0037	U	0.0052	U	0.0012	U
p-Isopropyltoluene	99-87-6		mg/kg	0.0015	U	0.0014	U	0.0018	U	0.0018	U	0.0024	U	0.0019	U	0.0012	U	0.0014	U	0.0015	U	0.0012	U	0.0019		0.00088	U	0.0037	U	0.0052	U	0.0012	U
Methyl cyclohexane	108-87-2		mg/kg	0.001	J	0.0055	U	0.0072	U	0.0074	U	0.0096	U	0.0077	U	0.0048	U	0.0054	U	0.002	J	0.00084	J	0.0053	U	0.0035	U	0.015	U	0.021	U	0.005	U
Methylene chloride	75-09-2	0.05	mg/kg	0.015	U	0.0042	J	0.0058	J	0.018	U	0.024	U	0.019	U	0.012	U	0.014	U	0.015	U	0.012	U	0.013	U	0.0088	U	0.037	U	0.052	U	0.012	U
Toluene	108-88-3	0.7	mg/kg	0.0023	U	0.002	U	0.0018	J	0.0019	U	0.0036	U	0.0029	U	0.0018	U	0.002	U	0.0023	U	0.0018	U	0.0013	U	0.0013	U	0.0055	U	0.0079	U	0.0019	U
Semivolatile Organics by 8270D																															
2-Methylnaphthalene	91-57-6	--	mg/kg	0.23	U	1.1	U	6.7	U	2.5	U	0.25	U	0.24	U	2.7	U	4.8	U	0.23	U	0.24	U	6.6	U	0.22	U	0.28	U	0.29	U	0.24	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	1000	mg/kg	0.28	U	1.3	U	8	U	3	U	0.3	U	0.29	U	3.2	U	5.8	U	0.28	U	0.28	U	7.9	U	0.26	U	0.33	U	0.35	U	0.29	U
Acenaphthene	83-32-9	1000	mg/kg	0.15	U	1.1		4.4	U	1.1	J	0.16	U	0.16	U	1.8	U	3.2	U	0.16	U	0.16	U	4.4	U	0.14	U	0.19	U	0.19	U	0.16	U
Acenaphthylene	208-96-8	1000	mg/kg	0.15	U	0.74	U	4.4	U	1.6	U	0.16	U	0.16	U	1.8	U	1.1	J	0.16	U	0.16	U	4.7		0.14	U	0.19	U	0.19	U	0.16	U
Anthracene	120-12-7	1000	mg/kg	0.11	U	2.3		3	J	3		0.12	U	0.12	U	1.3	U	3.3		0.12	U	0.12	U	6.7		0.11	U	0.14	U	0.14	U	0.12	U
Benzo(a)anthracene	56-55-3	11	mg/kg	0.11	U	3.5		10		6.1		0.12	U	0.12	U	1.3	U	8.1		0.12	U	0.12	U	25		0.11	U	0.14	U	0.14	U	0.12	U
Benzo(a)pyrene	50-32-8	1.1	mg/kg	0.15	U	2.8		9.5		5		0.16	U	0.16	U	1.8	U	7		0.16	U	0.16	U	23		0.14	U	0.19	U	0.19	U	0.16	U
Benzo(b)fluoranthene	205-99-2	11	mg/kg	0.041	J	3.6		12		6.4		0.045	J	0.12	U	1.3	U	8		0.061	J	0.12	U	30		0.11	U	0.14	U	0.14	U	0.12	U
Benzo(ghi)perylene	191-24-2	1000	mg/kg	0.15	U	1.5		6		2.7		0.16	U	0.16	U	1.8	U	4		0.16	U	0.16	U	15		0.14	U	0.19	U	0.19	U	0.16	U
Benzo(k)fluoranthene	207-08-9	110	mg/kg	0.11	U	1.5		4.6		2.8		0.12	U	0.12	U	1.3	U	3.5		0.12	U	0.12	U	13		0.11	U	0.14	U	0.14	U	0.12	U
Benzoic Acid	65-85-0	--	mg/kg	0.62	U	3	U	18	U	6.7	U	0.66	U	0.65	U	7.2	U	13	U	0.63	U	0.63	U	18	U	0.59	U	0.75	U	0.78	U	0.65	U
Benzyl Alcohol	100-51-6	--	mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Bis(2-Ethylhexyl)phthalate	117-81-7	--	mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Butyl benzyl phthalate	85-68-7	--	mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Carbazole	86-74-8	--	mg/kg	0.19	U	1.2		5.6	U	1.3	J	0.2	U	0.2	U	2.2	U	0.79	J	0.19	U	0.2	U	1.6	J	0.18	U	0.23	U	0.24	U	0.2	U
Chrysene	218-01-9	110	mg/kg	0.039	J	3.2		10		5.7		0.043	J	0.12	U	1.3	U	8		0.049	J	0.12	U	26		0.11	U	0.14	U	0.14	U	0.12	U
Di-n-butylphthalate	84-74-2	--	mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.098	J	0.24	U	0.2	U
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	0.11	U	0.39	J	1.5	J	0.81	J	0.12	U	0.12	U	1.3	U	1.1	J	0.12	U	0.12	U	4.3		0.11	U	0.14	U	0.14	U	0.12	U
Dibenzofuran	132-64-9	1000	mg/kg	0.19	U	0.84	J	5.6	U	0.64	J	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Fluoranthene	206-44-0	1000	mg/kg	0.054	J	7.5		22		13		0.061	J	0.12	U	0.53	J	15		0.058	J	0.043	J	42		0.11	U	0.06	J	0.061	J	0.12	U
Fluorene	86-73-7	1000	mg/kg	0.19	U	1.3		1.1	J	1.2	J	0.2	U	0.2	U	2.2	U	0.98	J	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Hexachlorobenzene	118-74-1	1.2	mg/kg	0.11	U	0.55	U	3.3	U	1.2	U	0.12	U	0.12	U	1.3	U	2.4	U	0.12	U	0.12	U	3.3	U	0.11	U	0.14	U	0.14	U	0.12	U
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	0.15	U	1.7		6		2.5		0.16	U	0.16	U	1.8	U	4.6		0.16	U	0.16	U	13		0.14	U	0.19	U	0.19	U	0.16	U
Naphthalene	91-20-3	1000	mg/kg	0.19	U	0.48	J	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.12	J	0.2	U
Phenanthrene	85-01-8	1000	mg/kg	0.041	J	8		12		10		0.12	U	0.12	U	0.4	J	10		0.048	J	0.12	U	15		0.11	U	0.14	U	0.068	J	0.12	U
Phenol	108-95-2	1000	mg/kg	0.19	U	0.92	U	5.6	U	2.1	U	0.2	U	0.2	U	2.2	U	4	U	0.19	U	0.2	U	5.5	U	0.18	U	0.23	U	0.24	U	0.2	U
Pyrene	129-00-0	1000	mg/kg	0.041	J	5.4		19		10		0.049	J	0.12	U	0.44	J	12		0.049	J	0.035	J	38		0.11	U	0.054	J	0.05	J	0.12	U
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**0.406**		**45.19**		**122.3**		**72.41**		**0.198**		**ND**		**3.57**		**90.68**		**0.455**		**0.078**		**261.2**		**ND**		**0.114**		**0.539**		**ND**	
Organochlorine Pesticides by 8081B																															
4,4'-DDD	72-54-8	180	mg/kg	0.00901	UJ	0.00176	UJ	0.0228	NJ	0.00232	J	0.00189	UJ	0.00192	UJ	0.00211	UJ	0.071	J	0.0018	UJ	0.00182	UJ	0.0264	NJ	0.000645	J	0.0022	UJ	0.00232	UJ	0.00186	U
4,4'-DDE	72-55-9	120	mg/kg	0.00901	UJ	0.00176	UJ	0.0147	J	0.00198	UJ	0.00189	UJ	0.00192	UJ	0.00409	J	0.0332	J	0.00278	J	0.00204	J	0.0323	J	0.00128	UJ	0.0022	UJ	0.00196	J	0.00186	U
4,4'-DDT	50-29-3	94	mg/kg	0.00852	J	0.00331	UJ	0.0657	NJ	0.0276	J	0.00354	UJ	0.00361	UJ	0.00287	UJ	0.0621	J	0.00229	J	0.00215	J	0.0666	UJ	0.00322	UJ	0.00413	UJ	0.00223	J	0.0035	U
Alpha-BHC	319-84-6	6.8	mg/kg	0.00375	UJ	0.000735	UJ	0.000724	UJ	0.000827	UJ	0.000787	UJ	0.000802	UJ	0.00088	UJ	0.00776	UJ	0.000751	UJ	0.000761	UJ	0.00848	UJ	0.000717	UJ	0.000918	UJ	0.000966	UJ	0.000777	U
Chlordane	57-74-9	--	mg/kg	0.0732	UJ	0.0143	UJ	0.0141	UJ	0.0161	UJ	0.0153	UJ	0.0156	UJ	0.0172	UJ	0.341	NJ	0.0146	UJ	0.0148	UJ	0.225	J	0.014	UJ	0.0179	UJ	0.0188	UJ	0.0151	U
cis-Chlordane	5103-71-9	47	mg/kg	0.0113	UJ	0.00221	UJ	0.00217	UJ	0.00248	UJ	0.00236	UJ	0.00241	UJ	0.00264	UJ	0.0285	NJ	0.00225	UJ	0.00228	UJ	0.0198	J	0.00215	UJ	0.00275	UJ	0.0029	UJ	0.00233	U
Dieldrin	60-57-1	2.8	mg/kg	0.00563	UJ	0.0011	UJ	0.00461	NJ	0.00124	UJ	0.00118	UJ	0.0012	UJ	0.00132	UJ	0.0116	UJ	0.00113	UJ	0.00114	UJ	0.0127	UJ	0.00108	UJ	0.00138	UJ	0.00145	UJ	0.00116	U
Endrin ketone	53494-70-5	--	mg/kg	0.00901	UJ	0.00176	UJ	0.00174	UJ	0.00198	UJ	0.00189	UJ	0.00192	UJ	0.00211	UJ	0.0186	UJ	0.0018	UJ	0.00182	UJ	0.0203	UJ	0.00172	UJ	0.0022	UJ	0.00232	UJ	0.00186	U
Heptachlor	76-44-8	29	mg/kg	0.0045	UJ	0.000882	UJ	0.000869	UJ	0.00213	NJ	0.000944	UJ	0.000963	UJ	0.00106	UJ	0.00931	UJ	0.000901	UJ	0.000913	UJ	0.0102	UJ	0.00086	UJ	0.0011	UJ	0.00116	UJ	0.000932	U
Lindane	58-89-9	23	mg/kg	0.00375	UJ	0.000735	UJ	0.000724	UJ	0.000827	UJ	0.000787	UJ	0.000802	UJ	0.00088	UJ	0.00776	UJ	0.000751	UJ	0.000761	UJ	0.00848	UJ	0.000717	UJ	0.000918	UJ	0.000966	UJ	0.000777	U
Methoxychlor	72-43-5	--	mg/kg	0.0169	UJ	0.00331	UJ	0.00326	UJ	0.00687	J	0.00354	UJ	0.00361	UJ	0.00396	UJ	0.0349	UJ	0.00338	UJ	0.00342	UJ	0.0381	UJ	0.00322	UJ	0.00413	UJ	0.00435	UJ	0.0035	U
trans-Chlordane	5103-74-2	--	mg/kg	0.0113	UJ	0.00221	UJ	0.00217	UJ	0.00248	UJ	0.00236	UJ	0.00241	UJ	0.00264	UJ	0.0395	J	0.00225	UJ	0.00228	UJ	0.0301	NJ	0.00215	UJ	0.00275	UJ	0.0029	UJ	0.00233	U
Polychlorinated Biphenyls by 8082A																															
Aroclor 1254	11097-69-1	25	mg/kg	0.0374	UJ	0.0358	UJ	0.0355	UJ	0.367	J	0.0412	UJ	0.04	UJ	0.0261	J	0.135	J	0.0374	UJ	0.0386	UJ	0.0874	UJ	0.0354	UJ	0.0467	UJ	0.048	UJ	0.0394	UJ
Aroclor 1260	11096-82-5	25	mg/kg	0.0276	J	0.00795	J	0.117	J	0.153	J	0.0412	UJ	0.04	UJ	0.0344	J	0.12	J	0.0374	UJ	0.0386	UJ	0.0316	J	0.0354	UJ	0.0467	UJ	0.048	UJ	0.0394	UJ
Total Metals by 6010C/7471B (Mercury)																															
Aluminum, Total	7429-90-5	--	mg/kg	13000		5400		5900		6200		8000		7800		6000		8700		10000		8700		4400		6700		6700		10000		7300	
Antimony, Total	7440-36-0	--	mg/kg	2.1	J	4.4	UJ	1.8	J	4.8	UJ	2.3	J	2.3	J	1.5	J	45	J	2.1	J	2.3	J	9.1	J	2.2	J	21	J	52	J	4.7	UJ
Arsenic, Total	7440-38-2	16	mg/kg	6.8		5.8		7.9		12		6.6		4		3.2		9.7		6	J	5.9	J	10		4.3		12		60		4.4	
Barium, Total	7440-39-3	10000	mg/kg	97		48		980		510		68		56		45		450		66		61		630		46		580		1900		44	
Beryllium, Total	7440-41-7	2700	mg/kg	0.66		0.31	J	0.37	J	0.32	J	0.41	J	0.38	J	0.36	J	0.72		0.47		0.41	J	0.32	J	0.33	J	0.54		0.31	J	0.33	J
Cadmium, Total	7440-43-9	60	mg/kg	0.89	U	0.1	J	1.1		1.7		0.37	J	0.07	J	0.35	J	1.7		0.1	J	0.12	J	4.3		0.13	J	0.46	J	2.9		0.68	J
Calcium, Total	7440-70-2	--	mg/kg	38000		100000		38000		38000		48000		3900		70000		62000		21000		5600		55000		4300		8400		33000		7800	
Chromium, Total	7440-47-3	--	mg/kg	19	J	10	J	27	J	24	J	14		12		11	J	120	J	14		12		29		9.8		16		83		10	J
Cobalt, Total	7440-48-4	--	mg/kg	9.6		3.6		4.2		5.2		7.8		7.1		3.8		5.7		7.8		7.7		5		6.5		7.3		22		6.7	
Copper, Total	7440-50-8	10000	mg/kg	24		14		82		52		20		20		39	J	120	J	25		22		110		18		120		10000		20	
Iron, Total	7439-89-6	--	mg/kg	22000		10000		9200		15000		17000	J	16000	J	11000		27000		18000		17000		32000	J	14000	J	37000	J	190000	J	16000	
Lead, Total	7439-92-1	3900	mg/kg	24	J	36	J	1600	J	3400	J	30		10		50	J	1700	J	26	J	24	J	4900		14		960		4500		15	J
Magnesium, Total	7439-95-4	--	mg/kg	9300		10000		6600		8600		12000		3900		10000		9600		7700		4300		5300		3700		440		2200		4300	
Manganese, Total	7439-96-5	10000	mg/kg	560		280		200		320		420		310		250		1000		350	J	410	J	370		340		280		1200		370	
Mercury, Total	7439-97-6	5.7	mg/kg	0.09	J	0.07	J	0.48	J	1.6	J	0.1	U	0.04	J	0.19		1.8		0.07	J	0.05	J	0.67	J	0.03	J	0.1	J	0.18	J	0.04	J
Nickel, Total	7440-02-0	10000	mg/kg	26		13		9.2		14		19		21		11		44		22		21		12		18		23		100		19	
Potassium, Total	7440-09-7	--	mg/kg	2400		1200		690		880		1500		590		1400	J	1000	J	1400		880		500		600		800		2000		750	
Selenium, Total	7782-49-2	6800	mg/kg	1.1	J	0.58	J	1.2	J	0.71	J	1.4	J	0.95	J	1.5	J	3		1.4	J	1.5	J	3.1		0.98	J	2.5		10		1.9	U
Silver, Total	7440-22-4	6800	mg/kg	0.89	U	0.87	U	0.22	J	0.24	J	0.94	U	0.93	U	1	U	0.54	J	0.91	U	0.91	U	0.41	J	0.88	U	1.2		9.2		0.95	U
Sodium, Total	7440-23-5	--	mg/kg	280		130	J	420		99	J	240		140	J	250		710		210		180		390		100	J	390		2600		190	U
Vanadium, Total	7440-62-2	--	mg/kg	25		14		23		18		20		14		15		45		18		15		19		12		26		24		13	
Zinc, Total	7440-66-6	10000	mg/kg	77	J	57	J	460	J	470	J	97		57		110		670		81	J	82	J	1600		61		380		3300		130	J

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 7

SUMMARY OF SOIL/FILL ANALYTICAL RESULTS COMPARED TO INDUSTRIAL SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																											
				SB-29 (2-6) 1/8/2013	Qual	SB-30 (0-2) 1/8/2013	Qual	SB-30 (2-6) 1/8/2013	Qual	SB-31 (2-4) 1/11/2013	Qual	SB-32 (2-4) 1/11/2013	Qual	SB-33 (10-12) 1/14/2013	Qual	MS/MSD SB-34 (0-2) 1/14/2013	Qual	MS/MSD SB-34 (4-5.5) 1/14/2013	Qual	SB-35 (10-12) 1/11/2013	Qual	SB-36 (0-2) 1/8/2013	Qual	SB-36 (6-10) 1/8/2013	Qual	SB-37 (10-12) 1/10/2013	Qual	SB-38 (10-12) 1/11/2013	Qual	MS/MSD SS-1 1/10/2013	Qual	SS-2 1/10/2013	Qual	SS-3 1/10/2013	Qual
General Chemistry																															
Solids, Total	NONE	--	%	86		81		81		77		72		82		81		72		69		69		83		69		70		70		70		62	
Volatile Organics by 8260C/5035																															
Acetone	67-64-1	0.05	mg/kg	0.06		0.0042	J	0.71	U	0.011	U	0.027	U	0.011	J	0.0061	J	0.019	U	0.049		0.0056	J	0.12		0.14	J	0.014	U	-		-		-	
2-Butanone	78-93-3	0.12	mg/kg	0.012		0.012	U	0.71	U	0.011	U	0.027	U	0.034	U	0.011	UJ	0.019	U	0.01	J	0.015	U	0.024		0.014	U	0.014	U	-		-		-	
Carbon Disulfide	75-15-0		mg/kg	0.098	U	0.012	U	0.71	U	0.011	U	0.027	U	0.034	U	0.011	U	0.019	U	0.022	U	0.015	U	0.0036	J	0.0071	J	0.014	U	-		-		-	
Cyclohexane	110-82-7		mg/kg	0.02	U	0.023	U	1.4	U	0.023	U	0.053	U	0.068	U	0.022	UJ	0.038	U	0.044	U	0.03	U	0.023	U	0.029	J	0.029	U	-		-		-	
Ethylbenzene	100-41-4	1	mg/kg	0.0098	U	0.0012	U	0.071	U	0.0011	U	0.0027	U	0.0034	U	0.0011	U	0.0019	U	0.0022	U	0.0015	U	0.0012	U	0.00033	J	0.0014	U	-		-		-	
p-Isopropyltoluene	99-87-6		mg/kg	0.00073	J	0.0012	U	0.071	U	0.0011	U	0.0027	U	0.0034	U	0.0011	UJ	0.0019	U	0.0022	U	0.0015	U	0.00081	J	0.094	J	0.0014	U	-		-		-	
Methyl cyclohexane	108-87-2		mg/kg	0.0039	U	0.0046	U	0.28	U	0.0046	U	0.011	U	0.014	U	0.0043	UJ	0.0075	U	0.0088	U	0.0059	U	0.0046	U	0.0058	U	0.0058	U	-		-		-	
Methylene chloride	75-09-2	0.05	mg/kg	0.0098	U	0.012	U	0.71	U	0.011	U	0.027	U	0.034	U	0.011	UJ	0.019	U	0.022	U	0.015	U	0.012	U	0.0059	J	0.014	U	-		-		-	
Toluene	108-88-3	0.7	mg/kg	0.0015	U	0.0017	U	0.049	J	0.0011	U	0.0027	U	0.0051	U	0.0016	U	0.0028	U	0.0033	U	0.0022	U	0.0017	U	0.0028	J	0.0028	U	-		-		-	
Semivolatile Organics by 8270D																															
2-Methylnaphthalene	91-57-6	--	mg/kg	0.46	U	0.24	U	4.9		0.26	U	1.4	U	1.2	U	0.25	U	0.28	U	2.8	U	2.8	U	0.86		2.9	U	2.8	U	0.56	U	0.28	U	0.32	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	1000	mg/kg	0.55	U	0.29	U	1.1	J	0.31	U	1.6	U	1.4	U	0.3	U	0.33	U	3.4	U	3.4	U	0.56	U	3.4	U	3.4	U	0.68	U	0.34	U	0.38	U
Acenaphthene	83-32-9	1000	mg/kg	0.24	J	0.071	J	3.3		0.17	U	0.91	U	0.81	U	0.16	U	0.18	U	1.9	U	2.5		3.5		2.3		1.9	U	0.38	U	0.19	U	0.21	U
Acenaphthylene	208-96-8	1000	mg/kg	0.41		0.094	J	5.4		0.17	U	0.91	U	0.81	U	0.16	U	0.18	U	1.9	U	3.1		0.78		1.9	U	1.1	J	0.38	U	0.19	U	0.21	U
Anthracene	120-12-7	1000	mg/kg	0.87		0.22		9.2		0.033	J	0.68	U	0.61	U	0.12	U	0.14	U	0.73	J	12		8.1		3.7		1.2	J	0.13	J	0.14	U	0.16	U
Benzo(a)anthracene	56-55-3	11	mg/kg	2.7		0.64		15		0.084	J	0.68	U	0.61	U	0.12	U	0.14	U	2.5		37		14		7.1		3.7	J	0.36		0.14	U	0.16	U
Benzo(a)pyrene	50-32-8	1.1	mg/kg	2.8		0.56		14		0.082	J	0.91	U	0.81	U	0.16	U	0.18	U	2.6		32		14		6.2		3.8	J	0.28	J	0.19	U	0.21	U
Benzo(b)fluoranthene	205-99-2	11	mg/kg	3.8		0.8		17		0.097	J	0.68	U	0.61	U	0.12	U	0.14	U	3		44		17	D	8		4.5	J	0.41		0.14	U	0.16	U
Benzo(ghi)perylene	191-24-2	1000	mg/kg	1.7		0.35		8.5		0.064	J	0.91	U	0.81	U	0.16	U	0.18	U	1.5	J	19		9.5		4		1.9	J	0.18	J	0.19	U	0.21	U
Benzo(k)fluoranthene	207-08-9	110	mg/kg	1.2		0.29		7		0.04	J	0.68	U	0.61	U	0.12	U	0.14	U	1.5		15		6.3		3.3		2.2	J	0.15	J	0.14	U	0.16	U
Benzoic Acid	65-85-0	--	mg/kg	1.2	U	0.66	U	6.5	U	0.7	U	3.7	U	3.3	U	0.66	U	0.74	U	7.7	U	7.7	U	1.3	U	7.8	U	7.6	U	1.5	U	0.76	U	0.86	U
Benzyl Alcohol	100-51-6	--	mg/kg	0.38	U	0.2	U	2	U	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	2.4	U	2.3	U	0.47	U	0.23	U	0.26	U
Bis(2-Ethylhexyl)phthalate	117-81-7	--	mg/kg	0.38	U	0.2	U	0.85	NJ	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.42	NJ	14		2.3	U	0.47	U	0.23	U	0.26	U
Butyl benzyl phthalate	85-68-7	--	mg/kg	0.38	U	0.2	U	2	U	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	17		2.3	U	0.47	U	0.23	U	0.26	U
Carbazole	86-74-8	--	mg/kg	0.67		0.16	J	5.1		0.22	U	1.1	U	1	U	0.2	U	0.23	U	0.52	J	3.2		4.8		2	J	1.4	J	0.47	U	0.23	U	0.26	U
Chrysene	218-01-9	110	mg/kg	2.9		0.68		15		0.082	J	0.68	U	0.61	U	0.12	U	0.14	U	2.6		37		16	D	6.9		4.3	J	0.34		0.14	U	0.16	U
Di-n-butylphthalate	84-74-2	--	mg/kg	0.38	U	0.2	U	2	U	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	5.6		2.3	U	0.47	U	0.23	U	0.26	U
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	0.55		0.098	J	2.6		0.13	U	0.68	U	0.61	U	0.12	U	0.14	U	1.4	U	6.4		2.4		1	J	0.69	J	0.28	U	0.14	U	0.16	U
Dibenzofuran	132-64-9	1000	mg/kg	0.26	J	0.063	J	6		0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	1.5	J	3.6		1.1	J	0.67	J	0.47	U	0.23	U	0.26	U
Fluoranthene	206-44-0	1000	mg/kg	6		1.4		31		0.17		0.25	J	0.61	U	0.12	U	0.032	J	5.1		69		40	D	17		8.5	J	0.79		0.14	U	0.16	U
Fluorene	86-73-7	1000	mg/kg	0.36	NJ	0.089	J	7		0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	3.5		6.5		1.8	J	0.95	J	0.47	U	0.23	U	0.26	U
Hexachlorobenzene	118-74-1	1.2	mg/kg	0.23	U	0.12	U	1.2	U	0.13	U	0.68	U	0.61	U	0.12	U	0.14	U	1.4	U	1.4	U	0.23	U	1.4	U	1.4	U	0.28	U	0.14	U	0.16	U
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	1.6		0.31		7.7		0.17	U	0.91	U	0.81	U	0.16	U	0.18	U	1.4	J	17		8.2		3.4		1.7	J	0.16	J	0.19	U	0.21	U
Naphthalene	91-20-3	1000	mg/kg	0.15	J	0.2	U	19		0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	1	J	2		1.5	J	0.9	J	0.47	U	0.23	U	0.26	U
Phenanthrene	85-01-8	1000	mg/kg	3.8		1.1		36		0.14		0.68	U	0.61	U	0.12	U	0.14	U	2.8		37		35	D	14		9.9	J	0.56		0.14	U	0.16	U
Phenol	108-95-2	1000	mg/kg	0.38	U	0.2	U	0.66	J	0.22	U	1.1	U	1	U	0.2	U	0.23	U	2.4	U	2.4	U	0.39	U	2.4	U	2.3	U	0.47	U	0.23	U	0.26	U
Pyrene	129-00-0	1000	mg/kg	4.6		1.1		25		0.14		0.19	J	0.61	U	0.12	U	0.14	U	4.1		56		31	D	13		7.3	J	0.6		0.14	U	0.16	U
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**34.06**		**8.002**		**223.36**		**1.152**		**0.44**		**ND**		**ND**		**0.032**		**30.23**		**393.9**		**214.67**		**95.6**		**54.94**		**4.43**		**ND**		**ND**	
Organochlorine Pesticides by 8081B																															
4,4'-DDD	72-54-8	180	mg/kg	0.0175	NJ	0.000857	J	0.00518	J	0.00279	NJ	0.00108	UJ	0.00183	U	0.00196	U	0.00211	U	0.0214	U	0.0328	J	0.0367	UJ	0.218	NJ	0.0103	J	0.00224	U	0.00218	UJ	0.0025	UJ
4,4'-DDE	72-55-9	120	mg/kg	0.00333	J	0.00608	NJ	0.0102	NJ	0.00673		0.0122	NJ	0.00506	J	0.00196	U	0.00391		0.00226	U	0.0228	UJ	0.0367	UJ	0.0437	U	0.00224	U	0.00768	NJ	0.00314	J	0.00268	J
4,4'-DDT	50-29-3	94	mg/kg	0.00204	UJ	0.0141	NJ	0.0084	NJ	0.0191	NJ	0.0293	NJ	0.00342	U	0.00367	U	0.0123	NJ	0.0074	U	0.0705	J	0.0688	UJ	0.0849	J	0.0042	UJ	0.00725	J	0.00239	J	0.00256	J
Alpha-BHC	319-84-6	6.8	mg/kg	0.00074	UJ	0.000779	UJ	0.000804	UJ	0.000841	U	0.00392	J	0.000761	U	0.00235	J	0.00088	U	0.000944	U	0.0095	UJ	0.0153	UJ	0.0182	U	0.000934	U	0.000934	U	0.000909	UJ	0.00104	UJ
Chlordane	57-74-9	--	mg/kg	0.0144	UJ	0.0152	UJ	0.0157	UJ	0.0164	U	0.017	UJ	0.0148	U	0.0159	U	0.0172	U	0.0184	U	0.3	J	0.298	UJ	0.319	U	0.0182	U	0.0182	U	0.0177	UJ	0.0203	UJ
cis-Chlordane	5103-71-9	47	mg/kg	0.00222	UJ	0.00234	UJ	0.00241	UJ	0.00265	J	0.00262	UJ	0.00228	U	0.00245	U	0.00264	U	0.00283	U	0.019	UJ	0.0459	UJ	0.0335	J	0.0028	U	0.0028	U	0.00273	UJ	0.00312	UJ
Dieldrin	60-57-1	2.8	mg/kg	0.00111	UJ	0.00117	UJ	0.00121	UJ	0.0024	NJ	0.00131	UJ	0.00114	U	0.00122	U	0.00132	U	0.00142	U	0.0142	UJ	0.0229	UJ	0.0273	U	0.0014	U	0.0014	U	0.00136	UJ	0.00156	UJ
Endrin ketone	53494-70-5	--	mg/kg	0.00178	UJ	0.00187	UJ	0.00193	UJ	0.00202	UJ	0.00209	UJ	0.00183	U	0.00196	U	0.00211	U	0.00226	U	0.0228	UJ	0.0367	UJ	0.0437	UJ	0.00224	U	0.00224	UJ	0.00218	UJ	0.0025	UJ
Heptachlor	76-44-8	29	mg/kg	0.000888	UJ	0.000935	UJ	0.000965	UJ	0.00101	U	0.00105	UJ	0.000913	U	0.000979	U	0.00106	U	0.00113	U	0.0114	UJ	0.0184	UJ	0.0219	U	0.00112	U	0.00112	U	0.00109	UJ	0.00125	UJ
Lindane	58-89-9	23	mg/kg	0.00074	UJ	0.000779	UJ	0.000804	UJ	0.000841	U	0.000872	UJ	0.000761	U	0.000816	U	0.00088	U	0.000944	U	0.0095	UJ	0.0153	UJ	0.0182	U	0.000934	UJ	0.000934	U	0.000909	UJ	0.00104	UJ
Methoxychlor	72-43-5	--	mg/kg	0.00333	UJ	0.0035	UJ	0.00362	UJ	0.00378	UJ	0.00392	UJ	0.00342	U	0.00367	U	0.00396	U	0.00425	U	0.0428	UJ	0.0688	UJ	0.082	UJ	0.0042	U	0.0042	UJ	0.00409	UJ	0.00468	UJ
trans-Chlordane	5103-74-2	--	mg/kg	0.00222	UJ	0.00234	UJ	0.00241	UJ	0.00252	U	0.00262	UJ	0.00228	U	0.00245	U	0.00264	U	0.00283	U	0.0174	J	0.0459	UJ	0.0355	NJ	0.0028	U	0.0028	U	0.00273	UJ	0.00312	UJ
Polychlorinated Biphenyls by 8082A																															
Aroclor 1254	11097-69-1	25	mg/kg	0.038	UJ	0.0396	UJ	0.0706	J	0.0164	J	0.0443	U	0.0384	UJ	0.0387	UJ	0.0456	UJ	0.032	J	0.0671	NJ	0.0382	UJ	0.229	UJ	0.0449	U	0.0461	UJ	0.0453	UJ	0.0521	UJ
Aroclor 1260	11096-82-5	25	mg/kg	0.038	UJ	0.00824	J	0.0382	J	0.00827	J	0.0111	J	0.0384	UJ	0.0387	UJ	0.0456	UJ	0.0464	U	0.0837	J	0.0447	J	0.229	UJ	0.0119	J	0.0108	J	0.0453	UJ	0.0521	UJ
Total Metals by 6010C/7471B (Mercury)																															
Aluminum, Total	7429-90-5	--	mg/kg	5800		5500		5300		6600		12000		5500		11000		8500		7400		6300		4400		4200		13000		6000		5200	J	14000	
Antimony, Total	7440-36-0	--	mg/kg	1.3	J	4.8	UJ	2.5	J	3.6	J	5.4	J	9.2	UJ	5.5	J	5.2	UJ	3.9	J	7.2	J	4	J	2.9	J	4	J	3.1	J	4	J	3.1	J
Arsenic, Total	7440-38-2	16	mg/kg	3.4		4.3		7.8		5.4		17		48		7.5		9.4		7.4		14		7.1		8.6		6.1		5.5		4.5	J	7.6	
Barium, Total	7440-39-3	10000	mg/kg	83		81		530		660	J	540	J	1600		100		230		630	J	700		300		360	J	100	J	72		42	J	110	
Beryllium, Total	7440-41-7	2700	mg/kg	0.29	J	0.28	J	0.31	J	0.34	J	1.1		0.09	J	0.59		0.7		0.41	J	0.4	J	0.21	J	0.25	J	0.61		0.37	J	0.33	J	1.1	
Cadmium, Total	7440-43-9	60	mg/kg	0.18	J	0.77	J	2		0.83	J	1.2		12		0.06	J	0.6	J	1.1		2.5		8.9		3.1		0.77	J	0.77	J	2.7	U	0.26	J
Calcium, Total	7440-70-2	--	mg/kg	7000		4000		34000		9400		11000		31000		4500		5200		43000		29000		20000		30000		20000		67000		190000	J	45000	
Chromium, Total	7440-47-3	--	mg/kg	9.5		9.7		24		26		30		110	J	21	J	12	J	19		26		13		30		25	J	13		10	J	19	
Cobalt, Total	7440-48-4	--	mg/kg	5.6		5.5		5.1		6.4		12		28		11		8.5		4.5		6.8		5.1		5.4		11		5.5		5.3	J	8.8	
Copper, Total	7440-50-8	10000	mg/kg	18		21		27		24		110		820		410		45		25		55		90		48		40		21		12	J	27	
Iron, Total	7439-89-6	--	mg/kg	12000	J	13000	J	12000	J	18000		18000		340000		24000		8800		10000		52000	J	27000	J	16000		27000		14000		10000	J	22000	
Lead, Total	7439-92-1	3900	mg/kg	300		140		1700		2500	J	450	J	2600	J	43	J	73	J	2000	J	3600		590		1200	J	78	J	77	J	13	J	45	J
Magnesium, Total	7439-95-4	--	mg/kg	3600		2800		6000		4200	J	1400	J	1500		4500		440		6300	J	4600		2800		4600	J	8600	J	15000		7400		13000	
Manganese, Total	7439-96-5	10000	mg/kg	280		280		300		270		240		1600		540		120		210		610		250		230		460		320		250		670	
Mercury, Total	7439-97-6	5.7	mg/kg	0.07	J	0.09	J	0.36	J	0.13		0.09	J	0.12	J	0.08	J	0.03	J	0.86		1.1	J	0.43	J	1.9		0.51		0.1	J	0.03	J	0.09	J
Nickel, Total	7440-02-0	10000	mg/kg	15		16		19		17		31		190		30		18		11		16		16		13		33		16	J	12	J	21	J
Potassium, Total	7440-09-7	--	mg/kg	610		720		770		960		1300		1300		1600		890		1200		700		520		670		1800		1400	J	1200	J	3000	J
Selenium, Total	7782-49-2	6800	mg/kg	0.98	J	0.93	J	1.6	J	1.3	J	2.5		3.7	U	0.75	J	0.48	J	1.1	J	2.5		1.4	J	1.8	J	1.7	J	1.1	J	1.7	J	1.4	J
Silver, Total	7440-22-4	6800	mg/kg	0.88	U	0.96	U	0.31	J	0.21	J	0.6	J	6.7		0.7	J	1	U	0.28	J	1.4		0.44	J	1.1	U	0.27	J	0.69	J	2.7	U	1.2	U
Sodium, Total	7440-23-5	--	mg/kg	92	J	140	J	330		93	J	680		1400		170	J	370		160	J	560		1200		330		220		460		540	U	370	
Vanadium, Total	7440-62-2	--	mg/kg	12		12		21		15		41		1.6	J	24		28		23		28		15		15		23		15		13	J	24	
Zinc, Total	7440-66-6	10000	mg/kg	91		120		630		410		550		2500	J	130	J	81	J	570		970		6300		950		180		140	J	45	J	160	J

TABLE 7

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

SUMMARY OF SOIL/FILL ANALYTICAL RESULTS COMPARED TO INDUSTRIAL SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier									
				SS-4 1/17/2013	Qual	SS-5 1/18/2013	Qual	SS-6 1/17/2013	Qual	SS-7 1/11/2013	Qual	SS-8 1/18/2013	Qual
General Chemistry													
Solids, Total	NONE	--	%	70		63		73		42		64	
Volatile Organics by 8260C/5035													
Acetone	67-64-1	0.05	mg/kg	-		-		-		-		-	
2-Butanone	78-93-3	0.12	mg/kg	-		-		-		-		-	
Carbon Disulfide	75-15-0		mg/kg	-		-		-		-		-	
Cyclohexane	110-82-7		mg/kg	-		-		-		-		-	
Ethylbenzene	100-41-4	1	mg/kg	-		-		-		-		-	
p-Isopropyltoluene	99-87-6		mg/kg	-		-		-		-		-	
Methyl cyclohexane	108-87-2		mg/kg	-		-		-		-		-	
Methylene chloride	75-09-2	0.05	mg/kg	-		-		-		-		-	
Toluene	108-88-3	0.7	mg/kg	-		-		-		-		-	
Semivolatile Organics by 8270D													
2-Methylnaphthalene	91-57-6	--	mg/kg	1.4	U	0.32	U	0.14	J	0.46	U	0.62	U
3-Methylphenol/4-Methylphenol	108-39-4 / 106-44-5	1000	mg/kg	1.7	U	0.38	U	0.32	U	0.56	U	0.75	U
Acenaphthene	83-32-9	1000	mg/kg	0.45	J	0.15	J	0.18	U	0.31	U	0.18	J
Acenaphthylene	208-96-8	1000	mg/kg	1.2		0.14	J	0.18	U	0.31	U	0.19	J
Anthracene	120-12-7	1000	mg/kg	2.4		0.49		0.04	J	0.086	J	0.92	
Benzo(a)anthracene	56-55-3	11	mg/kg	5.4		1.8		0.16		0.29		3.3	
Benzo(a)pyrene	50-32-8	1.1	mg/kg	5		1.5		0.16	J	0.31		2.3	
Benzo(b)fluoranthene	205-99-2	11	mg/kg	6.5		2.1		0.25		0.42		4	
Benzo(ghi)perylene	191-24-2	1000	mg/kg	2.5		0.9		0.11	J	0.18	J	1.4	
Benzo(k)fluoranthene	207-08-9	110	mg/kg	2.7		0.67		0.089	J	0.13	J	1.2	
Benzoic Acid	65-85-0	--	mg/kg	3.8	U		R	0.74		0.48	J		R
Benzyl Alcohol	100-51-6	--	mg/kg	1.2	U	0.26	U	0.25		0.39	U	0.52	U
Bis(2-Ethylhexyl)phthalate	117-81-7	--	mg/kg	1.2	U	0.26	U	0.22	U	0.39	U	0.52	U
Butyl benzyl phthalate	85-68-7	--	mg/kg	1.2	U	0.26	U	0.22	U	0.39	U	0.52	U
Carbazole	86-74-8	--	mg/kg	0.59	J	0.36		0.038	J	0.39	U	0.57	
Chrysene	218-01-9	110	mg/kg	4.7		1.7		0.19		0.31		3.5	
Di-n-butylphthalate	84-74-2	--	mg/kg	1.2	U	0.26	U	0.22	U	0.066	J	0.52	U
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	0.83		0.25		0.13	U	0.23	U	0.58	
Dibenzofuran	132-64-9	1000	mg/kg	0.34	J	0.096	J	0.22	U	0.39	U	0.14	J
Fluoranthene	206-44-0	1000	mg/kg	13		3.3		0.33		0.6		6	
Fluorene	86-73-7	1000	mg/kg	0.94	J	0.15	J	0.22	U	0.39	U	0.26	J
Hexachlorobenzene	118-74-1	1.2	mg/kg	0.7	U	0.16	U	0.13	U	0.23	U	0.31	U
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	3.2		1.1		0.12	J	0.16	J	1.6	
Naphthalene	91-20-3	1000	mg/kg	1.2	U	0.26	U	0.14	J	0.39	U	0.52	U
Phenanthrene	85-01-8	1000	mg/kg	7.1		1.9		0.22		0.37		4.2	
Phenol	108-95-2	1000	mg/kg	1.2	U	0.26	U	0.22	U	0.39	U	0.52	U
Pyrene	129-00-0	1000	mg/kg	9.2		2.6		0.27		0.49		4.4	
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**66.32**		**19.01**		**2.299**		**3.736**		**34.55**	
Organochlorine Pesticides by 8081B													
4,4'-DDD	72-54-8	180	mg/kg	0.0022	U	0.00248	U	0.00209	U	0.00361	U	0.00244	U
4,4'-DDE	72-55-9	120	mg/kg	0.0022	U	0.0185	J	0.00212		0.0127	NJ	0.00817	NJ
4,4'-DDT	50-29-3	94	mg/kg	0.00413	U	0.0319		0.00454	J	0.0154		0.0378	J
Alpha-BHC	319-84-6	6.8	mg/kg	0.000918	U	0.00104	U	0.00087	U	0.0015	U	0.00126	NJ
Chlordane	57-74-9	--	mg/kg	0.0179	U	0.0202	U	0.017	U	0.0293	U	0.122	
cis-Chlordane	5103-71-9	47	mg/kg	0.00364	NJ	0.00311	U	0.00261	U	0.00451	U	0.00774	NJ
Dieldrin	60-57-1	2.8	mg/kg	0.00138	U	0.00155	U	0.0013	U	0.00226	U	0.00152	U
Endrin ketone	53494-70-5	--	mg/kg	0.0022	U	0.00782	NJ	0.00209	U	0.00361	U	0.00881	NJ
Heptachlor	76-44-8	29	mg/kg	0.0011	U	0.00124	U	0.00104	U	0.0018	U	0.00122	U
Lindane	58-89-9	23	mg/kg	0.000918	U	0.00104	U	0.00087	U	0.0015	U	0.00101	U
Methoxychlor	72-43-5	--	mg/kg	0.00413	U	0.00466	U	0.00391	U	0.00677	U	0.00456	UJ
trans-Chlordane	5103-74-2	--	mg/kg	0.00275	U	0.00311	U	0.00261	U	0.00451	U	0.00726	NJ
Polychlorinated Biphenyls by 8082A													
Aroclor 1254	11097-69-1	25	mg/kg	0.0457	UJ	0.102	UJ	0.0445	UJ	0.0344	J	0.1	UJ
Aroclor 1260	11096-82-5	25	mg/kg	0.0138	J	0.102	UJ	0.0127	J	0.0365	J	0.1	UJ
Total Metals by 6010C/7471B (Mercury)													
Aluminum, Total	7429-90-5	--	mg/kg	10000		7500		12000		12000		5500	
Antimony, Total	7440-36-0	--	mg/kg	2.8	J	2.2	J	6.8	J	7.8	J	1.8	J
Arsenic, Total	7440-38-2	16	mg/kg	7.2	J	6.3	J	29	J	18		5.1	J
Barium, Total	7440-39-3	10000	mg/kg	150		130		340		290		320	
Beryllium, Total	7440-41-7	2700	mg/kg	0.43		0.37	J	1		1		0.27	J
Cadmium, Total	7440-43-9	60	mg/kg	0.41	J	0.73	J	2.5		6.9		1.6	
Calcium, Total	7440-70-2	--	mg/kg	42000		7000		7100		19000		19000	
Chromium, Total	7440-47-3	--	mg/kg	22		14		26		45		18	
Cobalt, Total	7440-48-4	--	mg/kg	8.2		6.7		7.8		11		6.1	
Copper, Total	7440-50-8	10000	mg/kg	54		25		120		110		24	
Iron, Total	7439-89-6	--	mg/kg	22000		15000		44000		25000		11000	
Lead, Total	7439-92-1	3900	mg/kg	280	J	330	J	280	J	660	J	950	J
Magnesium, Total	7439-95-4	--	mg/kg	5400		3200		1500		1600		4300	
Manganese, Total	7439-96-5	10000	mg/kg	680	J	340	J	280	J	620		270	J
Mercury, Total	7439-97-6	5.7	mg/kg	0.09	J	0.12	J	0.28		0.34	J	0.19	
Nickel, Total	7440-02-0	10000	mg/kg	47		18		28		41	J	16	
Potassium, Total	7440-09-7	--	mg/kg	1800		1400		1000		2000	J	970	
Selenium, Total	7782-49-2	6800	mg/kg	1	J	1.8	J	2.6		5.7		0.97	J
Silver, Total	7440-22-4	6800	mg/kg	0.22	J	1.2	U	0.69		0.95	J	1.2	U
Sodium, Total	7440-23-5	--	mg/kg	590		230	J	720		360	J	300	
Vanadium, Total	7440-62-2	--	mg/kg	21		17		24		40		14	
Zinc, Total	7440-66-6	10000	mg/kg	240	J	350	J	650	J	1100	J	580	J

TABLE 7

SUMMARY OF SOIL/FILL ANALYTICAL RESULTS COMPARED TO INDUSTRIAL SCOs

Remedial Investigation / Interim Remedial Measures / Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Notes:
1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Restricted-Industrial Use Soil Cleanup Objective per 6NYCRR Part 375.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.

Qualifier Key:

B	The analyte was detected above the reporting limit in the associated method blank.
NJ	The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated qantitative value.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
R	The data are unusable. The analyte may or may not be present.
D	Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
U	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
UJ	The analyte was not detected. The associated reported quantitation limit is an estimate and may be inaccurate or imprecise.
EMPC	The results do not meet all criteria for a confirmed identification. The quantitative value represents the Estimated Maximum Possible Concentration of the analyte in the sample

Color Code:

= concentration exceeds the individual Restricted-Industrial Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.
= the analytical method detection limit reported exceeds or is equal to the individual SCO.

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TABLE 8

SUMMARY OF GROUNDWATER ANALYTICAL RESULTS

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	GWQS/GV [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier															
				BLIND DUP MW-1	MS/MSD MW-1	MS/MSD MW-2	MW-2	MW-3	BLIND DUP MW-3	MW-4	MW-4	MW-5	MW-5	BLIND DUP (MW-1)	BLIND DUP (MW-3)	EQUIP BLANK	EQUIP BLANK	TRIP BLANK	TRIP BLANK
				1/22/2013	8/15/2013	1/22/2013	8/15/2013	1/22/2013	8/15/2013	1/22/2013	8/15/2013	1/23/2013	8/15/2013	1/22/2013	8/15/2013	1/22/2013	8/15/2013	1/22/2013	8/15/2013
Volatile Organics by GC/MS - Westborough Lab																			
Acetone	67-64-1	50	ug/L	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	5 U	5 UJ	3.6 J
Benzene	71-43-2	1	ug/L	0.5 U	0.5 U	0.3 J	0.5 U	0.5 U	0.5 U	1 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	108-90-7	5	ug/L	2.5 U	2.5 U	24	9.8	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,2-Dichlorobenzene	95-50-1	3	ug/L	2.5 U	2.5 U	8.3	3.3	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,3-Dichlorobenzene	541-73-1	3	ug/L	2.5 U	2.5 U	0.74 J	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
1,4-Dichlorobenzene	106-46-7	3	ug/L	2.5 U	2.5 U	1.5 J	0.72 J	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
cis-1,2-Dichloroethene	156-59-2	5	ug/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	75	9.4	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
p-Isopropyltoluene	99-87-6	5	ug/L	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	5 U	2.5 U	1.3 J	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Methyl tert butyl ether	1634-04-4	10	ug/L	2.5 U	2.5 U	0.86 J	2.5 U	2.5 U	2.5 U	5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
Semivolatile Organics by GC/MS - Westborough Lab																			
4-Chloroaniline	106-47-8	5	ug/L	5 U	5 U	2.6 J	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	-	-
Acenaphthene	83-32-9	20	ug/L	0.2 U	0.2 U	0.07 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	1.8	0.2 U	0.2 U	0.2 U	0.2 U	-	-
Anthracene	120-12-7	50	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.08 J	0.2 U	0.2 U	0.2 U	0.2 U	-	-
Fluoranthene	206-44-0	50	ug/L	0.2 U	0.2 U	0.2 U	0.05 J	0.2 U	0.2 U	0.2 U	0.2 U	0.11 J	0.35	0.2 U	0.2 U	0.2 U	0.2 U	-	-
Fluorene	86-73-7	50	ug/L	0.2 U	0.2 U	0.23	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 J	0.06 J	0.2 U	0.2 U	0.2 U	-	-
2-Methylnaphthalene	91-57-6	-	ug/L	0.2 U	0.2 U	0.42	0.13 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 UJ	0.2 U	-	-
Naphthalene	91-20-3	10	ug/L	0.2 U	0.2 U	0.16 J	0.1 J	0.2 U	0.2 U	0.2 U	0.2 U	0.09 J	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	-	-
Phenanthrene	85-01-8	50	ug/L	0.32	0.32	0.15 J	0.2 U	0.2 U	0.2 U	0.08 J	0.2 U	0.18 J	0.2 U	0.35	0.2 U	0.2 U	0.2 U	-	-
Pyrene	129-00-0	50	ug/L	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.1 J	0.21	0.2 U	0.2 U	0.2 U	0.2 U	-	-
Total Metals - Westborough Lab																			
Aluminum, Total	7429-90-5	-	ug/L	81 J	--	142	--	167	--	90 J	--	460	--	71 J	--	2 J	--	-	-
Antimony, Total	7440-36-0	3	ug/L	1.8 J	--	5 U	--	1 J	--	5 U	--	5 U	--	5 U	--	0.4 J	--	-	-
Arsenic, Total	7440-38-2	25	ug/L	2.8 J	1.78	4.2 J	4.94	5 U	1.23	3.1 J	4.12	3.5 J	0.66	3.3 J	1.72	0.5 U	0.5 U	-	-
Barium, Total	7440-39-3	1000	ug/L	141.9	124.6	131.4	154	77.1	88.75	101.9	63.52	139.3	335	146.5	88.18	0.5 U	0.61	-	-
Cadmium, Total	7440-43-9	5	ug/L	5 U	0.2 U	5 U	0.2 U	5 U	0.07 U	5 U	0.07 U	0.6 J	0.05 U	5 U	0.07 U	0.5 U	0.07 J	-	-
Calcium, Total	7440-70-2	-	ug/L	204000	--	320000	--	259000	--	112000	--	205000	--	201000	--	88 J	--	-	-
Chromium, Total	7440-47-3	50	ug/L	10 U	0.9 U	1 U	1.48 U	1 U	0.77 U	1 U	0.29 U	1 U	0.64 U	1 U	1.32 U	1 U	0.49 J	-	-
Cobalt, Total	7440-48-4	-	ug/L	2 J	--	5 U	--	5 U	--	5 U	--	1.1 J	--	1.9 J	--	0.5 U	--	-	-
Copper, Total	7440-50-8	200	ug/L	10 U	--	10 U	--	10 U	--	10 U	--	1 J	--	10 U	--	1 U	--	-	-
Iron, Total	7439-89-6	300	ug/L	5590	--	9020	--	10300	--	10300	--	12400	--	5920	--	50 U	--	-	-
Lead, Total	7439-92-1	25	ug/L	10 U	1 U	10 U	1.73	10 U	0.84 U	1 U	0.83 U	25.4	8.52	1 U	0.85 U	1 U	0.28 J	-	-
Magnesium, Total	7439-95-4	35000	ug/L	37400	--	25800	--	32900	--	18200	--	26000 J	--	38500	--	100 U	--	-	-
Manganese, Total	7439-96-5	300	ug/L	1625	--	2570	--	1126	--	824.2	--	681.3	--	1743	--	0.9	--	-	-
Mercury, Total	7439-97-6	0.7	ug/L	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U	0.1 U	0.2 U	0.1 J	-	-
Nickel, Total	7440-02-0	100	ug/L	2.1 J	--	5 U	--	5 U	--	5 U	--	5 U	--	2 J	--	0.5 U	--	-	-
Potassium, Total	7440-09-7	-	ug/L	15600	--	12700	--	8440	--	3160	--	11800	--	14900	--	100 U	--	-	-
Selenium, Total	7782-49-2	10	ug/L	5 U	0.104 J	5 U	1.83 J	5 U	1.02 J	5 U	0.9 J	5 U	0.85 J	5 U	1.18 J	5 U	5 U	-	-
Silver, Total	7440-22-4	50	ug/L	14	0.4 U	5 U	0.4 U	1.4 J	0.4 U	5 U	0.4 U	5 U	0.4 U	5 U	0.4 U	0.5 U	0.4 U	-	-
Sodium, Total	7440-23-5	20000	ug/L	258000	--	205000	--	36600	--	15300	--	27500 J	--	259000	--	98 J	--	-	-
Vanadium, Total	7440-62-2	-	ug/L	1.4 J	--	50 U	--	2.4 J	--	50 U	--	2.4 J	--	50 U	--	5 U	--	-	-
Zinc, Total	7440-66-6	2000	ug/L	100 U	--	30 U	--	100 U	--	17.4 U	--	171.2	--	100 U	--	11.7	--	-	-
Dissolved Metals - Westborough Lab																			
Aluminum, Dissolved	7429-90-5	-	ug/L	-	-	-	-	-	-	-	-	20 UJ	-	-	-	10 U	-	-	-
Antimony, Dissolved	7440-36-0	3	ug/L	-	-	-	-	-	-	-	-	1.3 J	-	-	-	1.3 J	-	-	-
Arsenic, Dissolved	7440-38-2	25	ug/L	-	-	-	-	-	-	-	-	0.6 J	-	-	-	1.3 J	-	-	-
Barium, Dissolved	7440-39-3	1000	ug/L	-	-	-	-	-	-	-	-	115.7 J	-	-	-	0.5 U	-	-	-
Cadmium, Dissolved	7440-43-9	5	ug/L	-	-	-	-	-	-	-	-	0.5 UJ	-	-	-	0.5 U	-	-	-
Calcium, Dissolved	7440-70-2	-	ug/L	-	-	-	-	-	-	-	-	191000 J	-	-	-	100 U	-	-	-
Cobalt, Dissolved	7440-48-4	-	ug/L	-	-	-	-	-	-	-	-	0.2 J	-	-	-	0.5 U	-	-	-
Copper, Dissolved	7440-50-8	200	ug/L	-	-	-	-	-	-	-	-	0.2 J	-	-	-	1 U	-	-	-
Iron, Dissolved	7439-89-6	300	ug/L	-	-	-	-	-	-	-	-	661 J	-	-	-	50 U	-	-	-
Lead, Dissolved	7439-92-1	25	ug/L	-	-	-	-	-	-	-	-	1 UJ	-	-	-	1 U	-	-	-
Magnesium, Dissolved	7439-95-4	35000	ug/L	-	-	-	-	-	-	-	-	30900 J	-	-	-	100 U	-	-	-
Manganese, Dissolved	7439-96-5	300	ug/L	-	-	-	-	-	-	-	-	549.1 J	-	-	-	0.5 U	-	-	-
Nickel, Dissolved	7440-02-0	100	ug/L	-	-	-	-	-	-	-	-	0.3 J	-	-	-	0.5 U	-	-	-
Potassium, Dissolved	7440-09-7	-	ug/L	-	-	-	-	-	-	-	-	12500 J	-	-	-	100 U	-	-	-
Silver, Dissolved	7440-22-4	50	ug/L	-	-	-	-	-	-	-	-	0.3 J	-	-	-	0.5 U	-	-	-
Sodium, Dissolved	7440-23-5	20000	ug/L	-	-	-	-	-	-	-	-	31300 J	-	-	-	116	-	-	-
Vanadium, Dissolved	7440-62-2	-	ug/L	-	-	-	-	-	-	-	-	5 UJ	-	-	-	5 U	-	-	-
Zinc, Dissolved	7440-66-6	2000	ug/L	-	-	-	-	-	-	-	-	7.3 UJ	-	-	-	10.9	-	-	-

Notes:
1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. NYS Ambient Water Quality Class GA Groundwater Quality Standards/Guidance Values; NYSDEC June 1998 Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1

Qualifier Key:
J = Estimated value. The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
U = Not detected at the reported detection limit for the sample.
UJ = The analyte was not detected. The associated reported quantitation limit is an estimate and may be inaccurate or imprecise.

Color Code:
= concentration exceeds the individual GWQS/GV.
= the analytical method detection limit reported exceeds the GWQS/GV.

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TABLE 9

SUMMARY OF SUPPLEMENTAL SOIL/FILL ANALYTICAL RESULTS

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																	
				SB-14 Vicinity												SB-16 Vicinity					
				SB-14 (8-10) 1/3/2013	Qual	SB-40 (8-10) 3/11/2013	Qual	SB-41 (8-10) 3/11/2013	Qual	SB-42 (8-10) 3/11/2013	Qual	SB-43 (8-10) 3/11/2013	Qual	Waste Char. #2 SB-58 (8-10) 3/12/2013	Qual	SB-16 (6-8) 1/4/2013	Qual	SB-44 (6-8) 3/11/2013	Qual	SB-45 (6-8) 3/11/2013	Qual	SB-46 (6-8) 3/11/2013	Qual	SB-47 (6-8) 3/11/2013	Qual
General Chemistry - Westborough Lab																							
Solids, Total	NONE	--	%	52		73.6		87.3		78.6		80.2		-		79		75.4		83		82.1		82.6	
Semivolatile Organics by GC/MS - Westborough Lab (PAHs in blue)																							
2-Methylnaphthalene	91-57-6	--	mg/kg	3.8	U	-		-		-		-		-		3		2.8		0.85		1.5		0.91	J
Acenaphthene	83-32-9	1000	mg/kg	2.5	U	-		-		-		-		-		12		4.2		2.3		4.3		5.6	
Acenaphthylene	208-96-8	1000	mg/kg	1.3	J	-		-		-		-		-		2		2		0.98		0.88		0.82	
Anthracene	120-12-7	1000	mg/kg	2.8		-		-		-		-		-		28		12		6.5		11		16	
Benzo(a)anthracene	56-55-3	11	mg/kg	7		-		-		-		-		-		47		17		11		22		28	
Benzo(a)pyrene	50-32-8	1.1	mg/kg	6.4		-		-		-		-		-		41		13		9.6		20		25	
Benzo(b)fluoranthene	205-99-2	11	mg/kg	8.1		-		-		-		-		-		53		18		13		26		33	
Benzo(ghi)perylene	191-24-2	1000	mg/kg	3.8		-		-		-		-		-		20		6.7		4.9		10		12	
Benzo(k)fluoranthene	207-08-9	110	mg/kg	3.6		-		-		-		-		-		19		6.7		4.4		11		11	
Carbazole	86-74-8	--	mg/kg	1.4	J	-		-		-		-		-		11		6		2.5		5.5		5.1	
Chrysene	218-01-9	110	mg/kg	6.6		-		-		-		-		-		45		17		12		22		29	
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	0.97	J	-		-		-		-		-		6.2		2		1.6		3.1		3.7	
Dibenzofuran	132-64-9	1000	mg/kg	0.71	J	-		-		-		-		-		8.4		4.8		2		3.5		3.2	
Fluoranthene	206-44-0	1000	mg/kg	15		-		-		-		-		-		100	D	43		27	D	52	D	66	D
Fluorene	86-73-7	1000	mg/kg	1	J	-		-		-		-		-		15		7.2		3.5		4.8		6.4	
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	3.4		-		-		-		-		-		25		8.2		5.8		12		14	
Naphthalene	91-20-3	1000	mg/kg	3.1	U	-		-		-		-		-		6.4		6.8		1.5		3.5		1.8	
Phenanthrene	85-01-8	1000	mg/kg	11		-		-		-		-		-		92	D	48	D	25	D	47	D	52	D
Pyrene	129-00-0	1000	mg/kg	12		-		-		-		-		-		80		32		21	D	41	D	52	D
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**82.97**		**-**		**-**		**-**		**-**		**-**		**591.6**		**243.8**		**150.08**		**290.58**		**356.32**	
Total Metals - Westborough Lab																							
Lead, Total	7439-92-1	3900	mg/kg	3,700	J	600	J	120	J	840	J	280	J	-		-		-		-		-		-	
TCLP Metals by EPA 1311 - Westborough Lab																							
Arsenic, TCLP	7440-38-2	5	mg/L	-		-		-		-		-		0.03	J	-		-		-		-		-	
Barium, TCLP	7440-39-3	100	mg/L	-		-		-		-		-		0.79		-		-		-		-		-	
Lead, TCLP	7439-92-1	5	mg/L	-		-		-		-		-		0.06	J	-		-		-		-		-	

Notes:

1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Restricted-Industrial Use Soil Cleanup Objective per 6NYCRR Part 375. TCLP results were compared to 40CFR Part 261 toxicity characteristic criteria.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.

Qualifier Key:

"-" Sample not analyzed for compound.
J Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
D Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
U Not detected at the reported detection limit for the sample.

Color Code:

= concentration exceeds the individual Restricted-Residential Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.

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TABLE 10

SUMMARY OF NEAR-SURFACE SOIL/FILL ANALYTICAL RESULTS
WESTERN PORTION OF SITE

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																							
				SB-59 (0-2) 11/12/2013	Qual	SB-60 (0-2) 11/12/2013	Qual	SB-61 (0-2) 11/12/2013	Qual	SB-62 (0-2) 11/12/2013	Qual	SB-63 (0-2) 11/12/2013	Qual	SB-64 (0-2) 11/12/2013	Qual	SB-65 (0-2) 11/12/2013	Qual	SB-66 (0-2) 11/12/2013	Qual	SB-67 (0-2) 11/12/2013	Qual	SB-68 (0-2) 11/12/2013	Qual	SB-69 (0-2) 11/12/2013	Qual	BLIND DUP [4] 11/12/2013	Qual	SB-70 11/12/2013	Qual
General Chemistry - Westborough Lab																													
Solids, Total	NONE	--	%	83		77.2		84.6		78.3		85.8		77		76.3		76		85.8		81.8		82.9		71.9		85.4	
Semivolatile Organics by GC/MS - Westborough Lab (PAHs in blue)																													
2,4-Dinitrotoluene	121-14-2	--	mg/kg	1.2	U	0.42	U	0.19	U	0.42	U	0.19	U	0.43	U	0.42	U	0.21	U	0.19	U	0.85		1	U	0.22	U	0.19	U
2-Methylnaphthalene	91-57-6	--	mg/kg	1.1	J	0.5	U	0.23	U	0.51	U	0.23	U	0.52	U	0.51	U	0.25	U	0.23	U	0.089	J	1.2	U	0.27	U	0.24	
Acenaphthene	83-32-9	1000	mg/kg	3.4		0.34	U	0.16	U	0.34	U	0.15	U	0.13	J	0.33	J	0.17	U	0.054	J	0.079	J	0.8	U	0.18	U	0.49	
Acenaphthylene	208-96-8	1000	mg/kg	2.6		0.092	J	0.039	J	0.22	J	0.15	U	0.2	J	0.64		0.17	U	0.074	J	0.17		0.8	U	0.18	U	0.35	
Anthracene	120-12-7	1000	mg/kg	10		0.37		0.077	J	0.26		0.068	J	0.46		1.2		0.13	U	0.2		0.31		0.6	U	0.06	J	1.5	J
Benzo(a)anthracene	56-55-3	11	mg/kg	20		0.99		0.24		0.79		0.16		1.1		3.1		0.068	J	0.43		0.87		0.6	U	0.18		2.1	J
Benzo(a)pyrene	50-32-8	1.1	mg/kg	18		0.85		0.21		0.71		0.15		0.91		2.6		0.055	J	0.36		0.74		0.8	U	0.15	J	1.5	J
Benzo(b)fluoranthene	205-99-2	11	mg/kg	23		1.1		0.28		0.92		0.22		1.3		3.7		0.074	J	0.5		0.96		0.6	U	0.28		2.3	J
Benzo(ghi)perylene	191-24-2	1000	mg/kg	8.8		0.46		0.11	J	0.42		0.086	J	0.5		1.4		0.17	U	0.2		0.44		0.8	U	0.12	J	0.77	
Benzo(k)fluoranthene	207-08-9	110	mg/kg	9.6		0.42		0.12		0.4		0.072	J	0.47		1.2		0.13	U	0.2		0.31		0.6	U	0.078	J	0.77	
Carbazole	86-74-8	--	mg/kg	4.4		0.11	J	0.19	U	0.099	J	0.19	U	0.18	J	0.48		0.21	U	0.096	J	0.2		1	U	0.22	U	0.53	
Chrysene	218-01-9	110	mg/kg	21		0.93		0.24		0.78		0.16		1		2.9		0.059	J	0.38		0.86		0.6	U	0.19		1.9	J
Di-n-butylphthalate	84-74-2	--	mg/kg	1.2	U	0.42	U	0.19	U	0.42	U	0.19	U	0.43	U	0.42	U	0.21	U	0.11	J	0.2	U	1	U	0.22	U	0.19	
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	2.6		0.14	J	0.12	U	0.11	J	0.12	U	0.14	J	0.48		0.13	U	0.066	J	0.13		0.6	U	0.14	U	0.28	
Dibenzofuran	132-64-9	1000	mg/kg	2.4		0.42	U	0.19	U	0.42	U	0.19	U	0.43	U	0.25	J	0.21	U	0.19	U	0.087	NJ	1	U	0.22	U	0.62	
Fluoranthene	206-44-0	1000	mg/kg	42		2		0.45		1.6		0.35		2.3		5.9		0.12	J	0.87		1.8		0.22	J	0.26		3.8	J
Fluorene	86-73-7	1000	mg/kg	3.8		0.12	J	0.19	U	0.42	U	0.19	U	0.21	J	0.42		0.21	U	0.077	J	0.1	J	1	U	0.22	U	1.2	J
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	10		0.5		0.13	J	0.36		0.076	J	0.45		1.3		0.17	U	0.19		0.39		0.8	U	0.1	J	0.76	
Naphthalene	91-20-3	1000	mg/kg	1.8		0.42	U	0.19	U	0.42	U	0.19	U	0.43	U	0.25	J	0.21	U	0.19	U	0.27		1	U	0.1	J	0.22	
Phenanthrene	85-01-8	1000	mg/kg	35		1.2		0.23		0.91		0.25		1.9		4.2		0.063	J	0.66		1.5		0.22	J	0.18		4.2	J
Pyrene	129-00-0	1000	mg/kg	36		1.6		0.37		1.3		0.27		1.8		4.7		0.098	J	0.65		1.4		0.6	U	0.21		2.7	J
Total PAHs [3]		***500***	***mg/kg***	***247.6***		***10.77***		***2.686***		***8.780***		***1.862***		***12.87***		***34.32***		***0.5370***		***4.911***		***10.33***		***0.4400***		***2.268***		***24.84***	
Total Metals - Westborough Lab																													
Arsenic, Total	7440-38-2	16	mg/kg	9	J	7.2	J	5.4	J	14	J	4.8	J	10	J	10	J	12	J	9.5	J	9	J	32	J	71	J	6.3	J
Barium, Total	7440-39-3	10000	mg/kg	280	J	120	J	88	J	550	J	50	J	210	J	270	J	360	J	170	J	280	J	1300	J	1500	J	100	J
Cadmium, Total	7440-43-9	60	mg/kg	1.4		0.86		0.89		2.5		0.55		1.4		1.7		1.9		1.3		2		6.8		7.4		0.77	
Chromium, Total	7440-47-3	--	mg/kg	18	J	14	J	12	J	31	J	9.5	J	18	J	18	J	27	J	18	J	19	J	65	J	84	J	14	J
Lead, Total	7439-92-1	3900	mg/kg	1400	J	210	J	160	J	870	J	26	J	440	J	610	J	1100	J	240	J	530	J	2500	J	3600	J	140	J
Mercury, Total	7439-97-6	5.7	mg/kg	1.3		0.47		0.18		0.21		0.1	U	0.2		0.49		0.03	J	0.19		0.07	J	0.82		1.4		0.35	
Selenium, Total	7782-49-2	6800	mg/kg	0.32	J	0.99	U	0.14	J	2	U	0.89	U	0.17	J	0.4	J	2.1	U	1.8	U	1.9	U	0.55	J	1.7	J	0.91	U
Silver, Total	7440-22-4	6800	mg/kg	0.52		0.5	U	0.44	U	1		0.45	U	2.7		0.69		0.79	J	0.4	J	0.52	J	3.7		5.6		0.18	J

Notes:
1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Restricted-Industrial Use Soil Cleanup Objective per 6NYCRR Part 375.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.
4. Blind duplicate of SB-69.

Qualifier Key:
J = Estimated value.
U = Not detected at the reported detection limit for the sample.
NJ = The detection is tenatative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitation value.

Color Code:
= Concentration exceeds the individual Restricted-Industrial Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 11

SUMMARY OF SUPPLEMENTAL GROUNDWATER ANALYTICAL RESULTS

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	GWQS/GV [2]	Units	Sample Location, Collection Date, and Laboratory Qualifier																							
				TW-1 2/9/2012	Qual	TW-2 2/9/2012	Qual	TW-3 2/10/2012	Qual	MW-2 1/22/2013	Qual	MW-2 8/15/2013	Qual	TW-04 3/13/2013	Qual	TW-05 3/13/2013	Qual	MW-4 1/22/2013	Qual	MW-4 8/15/2013	Qual	TW-06 3/13/2013	Qual	TW-07 3/13/2013	Qual	TW-08 3/13/2013	Qual
Volatile Organics by GC/MS - Westborough Lab																											
Acetone	67-64-1	50	ug/L	4.2	J	10	U	10	U	5	UJ	5	U	5	U	5	U	10	UJ	5	U	5	U	5	U	5	U
Benzene	71-43-2	1	ug/L	1	U	1	U	**1.2**		0.3	J	0.5	U	0.5	U	0.5	U	1	U	0.5	U	0.5	U	0.5	U	0.34	J
2-Butanone	78-93-3	50	ug/L	1.3	J	10	U	1.3	J	5	U	5	U	5	U	5	U	10	U	5	U	5	U	5	U	1	J
Carbon disulfide	75-15-0	60	ug/L	1	U	1	U	1	U	5	U	5	U	5	U	3.3	J	10	U	2.5	U	5	U	5	U	1.8	J
Chlorobenzene	108-90-7	5	ug/L	1	U	**6.3**		0.78	J	**24**		**9.8**		2.5	U	2.5	U	5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,2-Dichlorobenzene	95-50-1	3	ug/L	1	U	2.1		1	U	**8.3**		**3.3**		2.5	U	2.5	U	5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,3-Dichlorobenzene	541-73-1	3	ug/L	1	U	1	U	1	U	0.74	J	2.5	U	2.5	U	2.5	U	5	U	2.5	U	2.5	U	2.5	U	2.5	U
1,4-Dichlorobenzene	106-46-7	3	ug/L	1	U	1	U	1	U	1.5	J	0.72	J	2.5	U	2.5	U	5	U	2.5	U	2.5	U	2.5	U	2.5	U
cis-1,2-Dichloroethene	156-59-2	5	ug/L	1	U	1	U	1	U	2.5	U	2.5	U	2.5	U	2.5	U	**75**		**9.4**		2.5	U	2.5	U	2.5	U
Cyclohexane	--	--	ug/L	1	U	1	U	3.2		10	U	10	U	NA		NA		20	U	10	U	NA		NA		NA	
Ethylbenzene	100-41-4	5	ug/L	1	U	1	U	1.6		2.5	U	2.5	U	2.5	U	2.5	U	5	U	2.5	U	2.5	U	2.5	U	2.5	U
Isopropylbenzene	98-82-8	5	ug/L	1	U	1	U	**25**		2.5	U	2.5	U	2.5	U	2.5	U	5	U	2.5	U	2.5	U	2.5	U	2.5	U
Methyl tert butyl ether	1634-04-4	10	ug/L	1	U	1	U	1	U	0.86	J	2.5	U	2.5	U	2.5	U	5	U	2.5	U	0.93	J	2.5	U	2.5	U
Methylcyclohexane	--	--	ug/L	1	U	1	U	11		10	U	10	U	NA		NA		20	U	10	U	NA		NA		NA	
Methylene chloride	75-09-2	5	ug/L	1.3		0.59	J	1	U	2.5	U	2.5	U	2.5	U	2.5	U	5	U	2.5	U	2.5	U	2.5	U	2.5	U
Toluene	108-88-3	5	ug/L	1	U	1	U	0.54	J	2.5	U	2.5	U	2.5	U	2.5	U	5	U	2.5	U	2.5	U	5	U	2.5	U
Xylenes, total	--	15	ug/L	2	U	2	U	6		2.5	U	2.5	U	2.5	U	2.5	U	5	U	2.5	U	2.5	U	2.5	U	2.5	U

Notes:

1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. NYS Ambient Water Quality Class GA Groundwater Quality Standards/Guidance Values; NYSDEC June 1998 Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1

NA = Not Analyzed for this parameter

Qualifier Key:

J = Estimated value. The target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.
U = Not detected at the reported detection limit for the sample.
UJ = The analyte was not detected. The associated reported quantitation limit is an estimate and may be inaccurate or imprecise.

Color Code:

= concentration exceeds the individual GWQS/GV.
= the analytical method detection limit reported exceeds the GWQS/GV.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 12

SUMMARY OF IRM CONFIRMATION SOIL/FILL ANALYTICAL RESULTS
AREAS OF CONCERN (AOC) - SS-06

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO [2]	Units	Location, Sample ID, & Sample Date											
				BOTTOM		BOTTOM		NORTH		EAST		SOUTH		WEST	
				SS-6-B-1 (2.0') 5/31/2013	Qual	SS-6-B-2 (3.0') 6/14/2013	Qual	SS-6-SW-1 5/31/2013	Qual	SS-6-SW-2 5/31/2013	Qual	SS-6-SW-3 5/31/2013	Qual	SS-6-SW-4 5/31/2013	Qual
General Chemistry - Westborough Lab															
Solids, Total	NONE		%	76.8		75		74.3		69.3		83.8		80.2	
Semivolatile Organics by GC/MS (PAHs in blue)															
Acenaphthene	83-32-9	1000	mg/kg	0.34		0.14	U	0.2		0.19	U	0.15	U	0.21	J
Acenaphthylene	208-96-8	1000	mg/kg	0.24	J	0.18	J	0.13	J	0.19	U	0.15	U	0.5	
Anthracene	120-12-7	1000	mg/kg	0.85		0.36	J	0.42		0.14	U	0.12	U	0.74	
Benzo(a)anthracene	56-55-3	11	mg/kg	1.9		1.1		0.91		0.057	J	0.12	U	1.8	
Benzo(a)pyrene	50-32-8	1.1	mg/kg	1.5		0.88		0.77		0.19	U	0.15	U	1.5	
Benzo(b)fluoranthene	205-99-2	11	mg/kg	2		1.2		1.1		0.075	J	0.12	U	2.2	
Benzo(ghi)perylene	191-24-2	1000	mg/kg	0.84		0.55		0.43		0.19	U	0.15	U	0.88	
Benzo(k)fluoranthene	207-08-9	110	mg/kg	0.99		0.51		0.39		0.14	U	0.12	U	0.77	
Carbazole	86-74-8		mg/kg	0.44		0.18	J	0.19	J	0.24	U	0.19	U	0.36	J
Chrysene	218-01-9	110	mg/kg	1.7		1.1		0.85		0.068	J	0.12	U	1.8	
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	0.23	J	0.14		0.13		0.14	U	0.12	U	0.23	J
Dibenzofuran	132-64-9	1000	mg/kg	0.25	J	0.22	U	0.15	J	0.24	U	0.19	U	0.15	J
Fluoranthene	206-44-0	1000	mg/kg	4.2		2		1.9		0.11	J	0.059	J	3.9	
Fluorene	86-73-7	1000	mg/kg	0.39	J	0.19	U	0.22		0.24	U	0.19	U	0.23	J
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	0.8		0.59		0.41		0.19	U	0.15	U	0.82	
Phenanthrene	85-01-8	1000	mg/kg	3.2		1.3		1.5		0.11	J	0.041	J	2.6	
Pyrene	129-00-0	1000	mg/kg	3.4		1.6		1.6		0.097	J	0.05	J	3.2	
Total PAHs (CP-51) [3]		***500***	***mg/kg***	**22.58**		**12.1**		**10.96**		**0.517**		**0.091**		**21.38**	
Total Metals - Westborough Lab															
Arsenic, Total	7440-38-2	16	mg/kg	190		14		13		37		5.7		13	
Barium, Total	7440-39-3	10000	mg/kg	700		440		340		730		100		460	
Cadmium, Total	7440-43-9	60	mg/kg	3.3		2.9		2		9.9		1.2		2.7	
Chromium, Total	7440-47-3	6800	mg/kg	41		22		26		38		11		45	
Lead, Total	7439-92-1	3900	mg/kg	1100		980		1300		690		120		680	
Mercury, Total	7439-97-6	5.7	mg/kg	0.98		0.96		0.39		0.24		0.04	J	0.86	
Selenium, Total	7782-49-2	6800	mg/kg	0.9	J	1.0	U	0.63	J	2.9		0.19	J	0.85	J
Silver, Total	7440-22-4	6800	mg/kg	2.6		5.0		0.82		2.9		0.25	J	0.88	

Notes:

1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Restricted-Industrial Use Soil Cleanup Objective per 6NYCRR Part 375.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.

Qualifier Key:

D Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
J Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.
U Not detected at the reported detection limit for the sample.

Color Code:

= concentration exceeds the individual Restricted-Industrial Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.
= sample location is a re-sample following additional excavation; reported concentrations are within acceptable regulatory criteria

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 13

SUMMARY OF IRM CONFIRMATION SOIL/FILL ANALYTICAL RESULTS
AREA OF CONCERN (AOC) - SB-4

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO [2]	Protection of GW	Units	Location, Sample ID, & Sample Date															
					BOTTOM				EAST				NORTH				SOUTH				WEST			
					SB-4-B-1 (17.0') 07/16/2013	Qual	SB-4-B-2 (17.0') 07/17/2013	Qual	SB-4-SW-1 (13-14') 07/15/2013	Qual	SB-4-SW-2 (13-15') 07/16/2013	Qual	SB-4-SW-3 (11-15') 07/16/2013	Qual	SB-4-SW-5 (14-17') 07/17/2013	Qual	SB-4-SW-4 (14-17') 07/17/2013	Qual	SB-4-SW-8 (14-17') 07/17/2013	Qual	SB-4-SW-6 (14-17') 07/17/2013	Qual	SB-4-SW-7 (14-17') 07/17/2013	Qual
General Chemistry - Westborough Lab																								
Solids, Total	NONE			%	83.3		79.7		80.8		77.5		80.7		78		74.5		85.2		74.3		84.6	
Volatile Organics by GC/MS (STARS compounds in red)																								
1,2,4-Trimethylbenzene	95-63-6	380	3.6	mg/kg	ND		ND		ND		5.8		0.42		ND		0.0027	J	0.0046	J	ND		0.015	
1,2-Dichlorobenzene	95-50-1	1000	1.1	mg/kg	0.0028	J	ND		ND		ND		ND		ND		ND		ND		ND		ND	
1,3,5-Trimethylbenzene	108-67-8	380	8.4	mg/kg	ND		ND		ND		ND		ND		ND		ND		0.0019	J	ND		0.0095	
2-Butanone (Methyl ethyl ketone)	78-93-3	1000	0.12	mg/kg	ND		ND		ND		ND		ND		ND		0.018		0.014		ND		0.015	
Acetone	67-64-1	1000	0.05	mg/kg	0.016	J	ND		ND		ND		ND		ND		0.056		0.049		ND		0.047	
Benzene	71-43-2	89	0.06	mg/kg	ND		0.016	J	ND		ND		ND		ND		ND		ND		ND		0.00067	J
Carbon disulfide	75-15-0	-	-	mg/kg	ND		ND		ND		ND		ND		ND		ND		0.0025	J	ND		0.0027	J
Cyclohexane	110-82-7	-	-	mg/kg	ND		ND		ND		ND		ND		ND		0.0036	J	ND		ND		0.0027	J
Ethylbenzene	100-41-4	780	1	mg/kg	0.00092	J	ND		ND		ND		ND		ND		ND		ND		ND		0.0065	J
Isopropylbenzene (p-Cumene)	98-82-8	-	2.3	mg/kg	ND		ND		ND		0.2		ND		ND		ND		0.00039	J	ND		0.0012	
Methyl cyclohexane	108-87-2	-	-	mg/kg	ND		ND		ND		ND		ND		ND		0.0074		0.0017	J	ND		0.0074	
Methylene chloride	75-09-2	1000	0.05	mg/kg	ND		ND		0.0069	J	ND		ND		ND		ND		ND		ND		ND	
n-Butylbenzene (Butylbenzene)	104-51-8	1000	12	mg/kg	ND		ND		ND		0.19		0.08		ND		ND		ND		ND		0.00049	J
n-Propylbenzene	103-65-1	1000	3.9	mg/kg	ND		ND		ND		0.32		0.042	J	ND		ND		ND		ND		0.00072	J
p-Isopropyltoluene (p-Cymene)	99-87-6	-	10	mg/kg	ND		ND		ND		ND		ND		ND		ND		ND		0.028	J	0.0019	
sec-Butylbenzene	135-98-8	1000	11	mg/kg	ND		ND		ND		0.14		ND		ND		ND		ND		ND		0.0006	J
Toluene	108-88-3	1000	0.7	mg/kg	ND		0.025	J	ND		ND		ND		ND		0.0043	J	0.0034	J	0.034	J	ND	
Xylenes, m/p	108-38-3 / 106-42-3	1000	1.6	mg/kg	0.0025	J	ND		ND		ND		ND		ND		0.00055	J	0.00071	J	ND		0.0017	J
Xylenes, o	95-47-6	1000	1.6	mg/kg	ND		ND		ND		ND		ND		ND		0.00085	J	0.00047	J	ND		0.0018	J
Semivolatile Organics by GC/MS (PAHs in blue)																								
Acenaphthene	83-32-9	1000	1000	mg/kg	ND		ND		ND		ND		ND		ND		ND		ND		ND		0.043	J
Anthracene	120-12-7	1000	1000	mg/kg	ND		ND		ND		ND		ND		ND		ND		ND		ND		0.084	J
Benzo(a)anthracene	56-55-3	11	11	mg/kg	ND		0.075	J	ND		ND		ND		ND		ND		ND		ND		ND	
Benzo(a)pyrene	50-32-8	1.1	1.1	mg/kg	ND		ND		ND		ND		ND		ND		ND		0.047	J	ND		0.13	J
Benzo(b)fluoranthene	205-99-2	11	11	mg/kg	ND		0.065	J	ND		ND		ND		ND		ND		0.054	J	ND		0.16	
Benzo(ghi)perylene	191-24-2	1000	1000	mg/kg	ND		ND		ND		ND		ND		ND		ND		ND		ND		0.089	J
Benzo(k)fluoranthene	207-08-9	110	110	mg/kg	ND		ND		ND		ND		ND		ND		ND		ND		ND		0.061	J
Chrysene	218-01-9	110	110	mg/kg	ND		0.059	J	ND		ND		ND		ND		ND		0.037	J	ND		0.15	
Fluoranthene	206-44-0	1000	1000	mg/kg	ND		0.13	J	ND		ND		ND		ND		ND		0.072	J	ND		0.35	
Indeno(1,2,3-cd)Pyrene	193-39-5	11	11	mg/kg	ND		ND		ND		ND		ND		ND		ND		ND		ND		0.082	J
Naphthalene	91-20-3	1000	12	mg/kg	ND		0.13	J	ND		ND		ND		ND		ND		ND		ND		0.09	J
Phenanthrene	85-01-8	1000	1000	mg/kg	ND		ND		ND		ND		ND		ND		ND		0.044	J	ND		0.3	
Pyrene	129-00-0	1000	1000	mg/kg	ND		0.12	J	ND		ND		ND		ND		ND		0.062	J	ND		0.29	
Total PAHs (CP-51) [3]		***500***	***500***	***mg/kg***	**0**		**0.579**		**0**		**0**		**0**		**0**		**0**		**0.316**		**0**		**1.829**	
Total Metals - Westborough Lab																								
Arsenic, Total	7440-38-2	16	16	mg/kg	5.4		3.9		1.2		4.1		2.5		5.3		4.9		2.6		6.3		5	
Barium, Total	7440-39-3	10000	10000	mg/kg	8.2		27		24		50		29		52		73		28		48		38	
Cadmium, Total	7440-43-9	60	60	mg/kg	0.3	J	0.49	J	0.61		0.57		0.33	J	0.59		0.64		0.35	J	0.62		0.54	
Chromium, Total	7440-47-3	6800	6800	mg/kg	4.2		6		8.3		10		6.3		10		9.7		6.4		10		6.6	
Lead, Total	7439-92-1	3900	3900	mg/kg	4.2		10		7		9.8		6.6		96		27		15		16		28	
Mercury, Total	7439-97-6	5.7	5.7	mg/kg	ND		ND		ND		ND		ND		ND		0.04	J	ND		ND		ND	
Selenium, Total	7782-49-2	6800	6800	mg/kg	0.34	J	0.33	J	0.94	J	0.27	J	0.2	J	0.25	J	0.46	J	ND		0.19	J	0.31	J
Silver, Total	7440-22-4	6800	6800	mg/kg	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	

Notes:

1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Restricted-Industrial Use Soil Cleanup Objective per 6NYCRR Part 375.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.

Qualifier Key:

J Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.

Color Code:

= concentration exceeds the individual Restricted-Industrial Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.

= concentration exceeds the individual Protection of Groundwater Soil Cleanup Objective (SCO).

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 14

SUMMARY OF IRM CONFIRMATION SOIL/FILL ANALYTICAL RESULTS
BUILDING FOOTPRINT AREA OF CONCERN (AOC) SB-14

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO	Units	Sample Location, Depth, Date									
				BOTTOM		SOUTH		WEST		NORTH		EAST	
				SB-14-B-1 (10.0')		SB-14-SW-1 (6-8')		SB-14-SW-2 (6-8')		SB-14-SW-3 (6-8')		SB-14-SW-4 (6-8')	
				5/6/2013 L1308034-05	5/24/2013 L1309521-05	5/6/2013 L1308034-01	5/24/2013 L1309521-01	5/6/2013 L1308034-02	5/24/2013 L1309521-02	5/6/2013 L1308034-03	5/24/2013 L1309521-03	5/6/2013 L1308034-04	5/24/2013 L1309521-04
				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual
General Chemistry - Westborough Lab													
Solids, Total	NONE		%	58.6	81	81.9	90	82.1	88	79.7	86	83.5	88
Semivolatile Organics by GC/MS - Westborough Lab													
2-Methylnaphthalene	91-57-6	-	mg/kg	-	0.82 J	-	0.44 J	-	0.37 J	-	1.1 J	-	0.4 J
Acenaphthene	83-32-9	1000	mg/kg	-	2.4	-	0.49 J	-	0.84	-	3.3	-	0.3 J
Acenaphthylene	208-96-8	1000	mg/kg	-	2	-	0.24 J	-	1.5	-	2.4	-	ND
Anthracene	120-12-7	1000	mg/kg	-	10	-	1.5	-	5.5	-	12	-	0.79
Benzo(a)anthracene	56-55-3	11	mg/kg	-	23	-	3.5	-	12	-	25	-	1.4
Benzo(a)pyrene	50-32-8	1.1	mg/kg	-	21	-	2.9	-	10	-	23	-	1.1
Benzo(b)fluoranthene	205-99-2	11	mg/kg	-	26	-	3.7	-	12	-	32	-	1.4
Benzo(ghi)perylene	191-24-2	1000	mg/kg	-	12	-	1.8	-	5.9	-	14	-	0.72 J
Benzo(k)fluoranthene	207-08-9	110	mg/kg	-	10	-	1.5	-	6.2	-	8.7	-	0.69
Carbazole	86-74-8	-	mg/kg	-	3.1	-	0.62 J	-	1.2	-	4.6	-	0.25 J
Chrysene	218-01-9	110	mg/kg	-	21	-	3.1	-	11	-	22	-	1.2
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	-	3.9	-	0.4 J	-	1.9	-	4	-	ND
Dibenzofuran	132-64-9	1000	mg/kg	-	1.9	-	0.38 J	-	0.79	-	3.2	-	ND
Fluoranthene	206-44-0	1000	mg/kg	-	50	-	7.6	-	28	-	56	-	3.2
Fluorene	86-73-7	1000	mg/kg	-	3.4	-	0.63 J	-	1.4	-	4.6	-	ND
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	-	14	-	2.1	-	6.6	-	16	-	0.76 J
Naphthalene	91-20-3	1000	mg/kg	-	1.7	-	ND	-	0.46 J	-	2.4	-	ND
Phenanthrene	85-01-8	1000	mg/kg	-	37	-	5.4	-	20	-	41	-	2.8
Pyrene	129-00-0	1000	mg/kg	-	46	-	5.9	-	25	-	45	-	2.4
Total SVOCs				**-**	**289.22**	**-**	**42.2**	**-**	**150.66**	**-**	**320.3**	**-**	**17.41**
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**-**	**283.4**	**-**	**40.76**	**-**	**148.3**	**-**	**311.4**	**-**	**16.76**
Total RCRA Metals - Westborough Lab													
Arsenic, Total	7440-38-2	16	mg/kg	-	6.3	-	4.4	-	7.5	-	6.4	-	3.9
Barium, Total	7440-39-3	10000	mg/kg	-	220	-	34	-	74	-	93	-	42
Cadmium, Total	7440-43-9	60	mg/kg	-	1.1	-	0.85	-	0.56	-	0.67	-	0.39 J
Chromium, Total	7440-47-3	6800	mg/kg	-	13	-	8.6	-	13	-	10	-	6.2
Lead, Total	7439-92-1	3900	mg/kg	2200	-	530	-	550	-	220	-	280	-
Mercury, Total	7439-97-6	5.7	mg/kg	-	0.87	-	0.55	-	0.17	-	1.1	-	0.25
Selenium, Total	7782-49-2	6800	mg/kg	-	0.35 J	-	ND	-	0.18 J	-	0.2 J	-	ND
Silver, Total	7440-22-4	6800	mg/kg	-	0.22 J	-	ND	-	ND	-	0.34 J	-	ND

Notes:

1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Restricted-Industrial Use Soil Cleanup Objective per 6NYCRR Part 375.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.

Qualifier Key:

J Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.
ND Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Color Code:

= concentration exceeds the individual Restricted-Industrial Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 15

SUMMARY OF IRM CONFIRMATION SOIL/FILL ANALYTICAL RESULTS
BUILDING FOOTPRINT AREA OF CONCERN (AOC) SB-16

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO	Units	Sample Location, Depth, Date									
				BOTTOM		NORTH		EAST		SOUTH		WEST	
				SB-16-B-1 (9.0')		SB-16-SW-1 (5-9')		SB-16-SW-2 (5-9')		SB-16-SW-3 (5-9')		SB-16-SW-4 (5-9')	
				5/6/2013 L1308034-10	5/24/2013 L1309520-05	5/6/2013 L1308034-06	5/24/2013 L1309520-01	5/6/2013 L1308034-07	5/24/2013 L1309520-02	5/6/2013 L1308034-08	5/24/2013 L1309520-03	5/6/2013 L1308034-09	5/24/2013 L1309520-04
				Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual	Qual
General Chemistry - Westborough Lab													
Solids, Total	NONE		%	77.7	84.9	84.1	91.8	80.8	85.8	83.1	81.2	82.4	86.4
Semivolatile Organics by GC/MS - Westborough Lab													
2-Methylnaphthalene	91-57-6	-	mg/kg	1 J	-	1.6	-	1.1 J	-	3.1	-	0.93 J	-
Acenaphthene	83-32-9	1000	mg/kg	5.4	-	3.9	-	2.2	-	10	-	5.7	-
Acenaphthylene	208-96-8	1000	mg/kg	2.4	-	3.1	-	12	-	1.4 J	-	2.5	-
Anthracene	120-12-7	1000	mg/kg	14	-	13	-	15	-	21	-	18	-
Benzo(a)anthracene	56-55-3	11	mg/kg	32	-	24	-	29	-	34	-	33	-
Benzo(a)pyrene	50-32-8	1.1	mg/kg	28	-	18	-	26	-	28	-	26	-
Benzo(b)fluoranthene	205-99-2	11	mg/kg	38	-	25	-	38	-	38	-	34	-
Benzo(ghi)perylene	191-24-2	1000	mg/kg	15	-	9.7	-	15	-	14	-	13	-
Benzo(k)fluoranthene	207-08-9	110	mg/kg	14	-	9.3	-	17	-	14	-	14	-
Biphenyl	92-52-4	-	mg/kg	ND	-	0.38 J	-	ND	-	0.72 J	-	ND	-
Carbazole	86-74-8	-	mg/kg	5.8	-	4.3	-	5.4	-	10	-	5.1	-
Chrysene	218-01-9	110	mg/kg	33	-	23	-	32	-	34	-	33	-
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	4.6	-	3	-	4.8	-	4.6	-	4	-
Dibenzofuran	132-64-9	1000	mg/kg	2.6	-	3.1	-	3.7	-	6.8	-	3.4	-
Fluoranthene	206-44-0	1000	mg/kg	64 D	-	52 D	-	63	-	70	-	70	-
Fluorene	86-73-7	1000	mg/kg	5.6	-	6	-	8.4	-	13	-	7.3	-
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	19	-	12	-	19	-	18	-	16	-
Naphthalene	91-20-3	1000	mg/kg	1.7	-	2.6	-	ND	-	7.3	-	1.8 J	-
Phenanthrene	85-01-8	1000	mg/kg	42	-	45 D	-	43	-	70	-	55	-
Pyrene	129-00-0	1000	mg/kg	54 D	-	39	-	49	-	54	-	52	-
Total SVOCs				**382.1**	**-**	**294.88**	**-**	**383.6**	**-**	**451.92**	**-**	**272.73**	**-**
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**372.7**	**-**	**288.6**	**-**	**354.4**	**-**	**431.3**	**-**	**385.3**	**-**
Total RCRA Metals - Westborough Lab													
Arsenic, Total	7440-38-2	16	mg/kg	-	8	-	6.3	-	12	-	7.3	-	5.5
Barium, Total	7440-39-3	10000	mg/kg	-	210	-	240	-	330	-	350	-	120
Cadmium, Total	7440-43-9	60	mg/kg	-	1.6	-	0.97	-	1.1	-	1.2	-	2.1
Chromium, Total	7440-47-3	6800	mg/kg	-	15	-	12	-	17	-	12	-	15
Lead, Total	7439-92-1	3900	mg/kg	-	790	-	560	-	2800	-	810	-	210
Mercury, Total	7439-97-6	5.7	mg/kg	-	0.44	-	1.5	-	0.89	-	5.7	-	1.8
Selenium, Total	7782-49-2	6800	mg/kg	-	ND	-	0.25 J	-	1.1	-	0.35	-	0.15
Silver, Total	7440-22-4	6800	mg/kg	-	0.9	-	0.22 J	-	0.29 J	-	0.43 J	-	ND

Notes:

1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Restricted-Industrial Use Soil Cleanup Objective per 6NYCRR Part 375.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.

Qualifier Key:

J Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.
ND Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Color Code:

= concentration exceeds the individual Restricted-Industrial Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 16

SUMMARY OF IRM CONFIRMATION SOIL/FILL ANALYTICAL RESULTS
AREA OF CONCERN (AOC) - SB-20

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO [2]	Units	Sample Location, Depth, Date									
				BOTTOM		NORTH		EAST		SOUTH		WEST	
				SB-20-B-1 (5.0') 5/15/2013 L1308804-01	Qual	SB-20-SW-1 (1-5') 5/15/2013 L1308804-02	Qual	SB-20-SW-2 (1-5') 5/15/2013 L1308804-03	Qual	SB-20-SW-3 (1-5') 5/15/2013 L1308804-04	Qual	SB-20-SW-4 (1-5') 5/15/2013 L1308804-05	Qual
General Chemistry - Westborough Lab													
	NONE	-	%	84.8		85				79.9		82.4	
Semivolatile Organics by GC/MS - Westborough Lab													
2-Methylnaphthalene	91-57-6	-	mg/kg	0.14	J	ND		0.36	J	0.17	J	0.4	J
Acenaphthene	83-32-9	1000	mg/kg	0.34		0.51	J	0.52		0.34		0.78	
Acenaphthylene	208-96-8	1000	mg/kg	0.24		1.3		2.8		0.76		1.7	
Anthracene	120-12-7	1000	mg/kg	1		2.4		3.6		1.5		4.4	
Benzo(a)anthracene	56-55-3	11	mg/kg	2		5.4		8.1		3.6		7.4	
Benzo(a)pyrene	50-32-8	1.1	mg/kg	1.6		5.4		15		3.2		5.5	
Benzo(b)fluoranthene	205-99-2	11	mg/kg	2.1		5.5		8.6		3.3		6.8	
Benzo(ghi)perylene	191-24-2	1000	mg/kg	0.86		2.7		4.5		1.7		2.7	
Benzo(k)fluoranthene	207-08-9	110	mg/kg	1.1		2.6		4.7		3.2		3.9	
Biphenyl	92-52-4	-	mg/kg	ND		ND		ND		ND		0.13	J
Bis(2-Ethylhexyl)phthalate	117-81-7	-	mg/kg	ND		0.56	J	ND		ND		ND	
Carbazole	86-74-8	-	mg/kg	0.56		1.2		1.4		0.84		1.1	
Chrysene	218-01-9	110	mg/kg	2.1		5.7		9.8		3.8		7.1	
Di-n-butylphthalate	84-74-2	-	mg/kg	ND		1		ND		ND		ND	
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	0.26		0.75		1.8		0.5		0.85	
Dibenzofuran	132-64-9	1000	mg/kg	0.32		0.57	J	0.84		0.35	J	1.2	
Fluoranthene	206-44-0	1000	mg/kg	4.7		12		19	D	8		18	D
Fluorene	86-73-7	1000	mg/kg	0.5		0.74	J	0.92		0.55		2	
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	1.1		3.3		5.4		2.1		3.8	
Naphthalene	91-20-3	1000	mg/kg	0.29		0.42	J	0.74		0.33	J	0.58	
Phenanthrene	85-01-8	1000	mg/kg	4.1		10		13		6		14	
Pyrene	129-00-0	1000	mg/kg	3.6		10		15		6.6		13	
Total SVOCs				**26.91**		**72.05**		**116.08**		**46.84**		**95.34**	
Total PAHs (CP-51) [3]		**500**	**mg/kg**	**26.03**		**68.72**		**113.48**		**45.48**		**92.51**	
Total RCRA Metals - Westborough Lab													
Arsenic, Total	7440-38-2	16	mg/kg	6.7		9.5		9.3		12		44	
Barium, Total	7440-39-3	10000	mg/kg	200		260		260		450		120	
Cadmium, Total	7440-43-9	60	mg/kg	0.82		1.2		1.2		1.8		1.7	
Chromium, Total	7440-47-3	6800	mg/kg	13		12		13		24		120	
Lead, Total	7439-92-1	3900	mg/kg	1500		2000		2200		1900		420	
Mercury, Total	7439-97-6	5.7	mg/kg	0.12		1.3		1.2		1.2		0.099	J
Selenium, Total	7782-49-2	6800	mg/kg	ND		0.6	J	0.41	J	0.32	J	ND	
Silver, Total	7440-22-4	6800	mg/kg	0.13	J	0.1	J	0.23	J	0.3	J	0.24	J

Notes:

1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Restricted-Industrial Use Soil Cleanup Objective per 6NYCRR Part 375.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.

Qualifier Key:

J Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.
ND Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Color Code:

= concentration exceeds the individual Restricted-Industrial Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.

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TABLE 17

SUMMARY OF IRM CONFIRMATION SOIL/FILL ANALYTICAL RESULTS
AREA OF CONCERN (AOC) - SB-27

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO [2]	Units	Location, Sample ID, & Sample Date													
				BOTTOM		NORTH		NORTH		NORTH		EAST		SOUTH		WEST	
				SB-27-B-1 (5.0') 5/31/2013	Qual	SB-27-SW-1 (3-4') 5/31/2013	Qual	SB-27-SW-5 (3-4') 6/14/2013	Qual	SB-27-SW-6 (3-4') 6/26/2013	Qual	SB-27-SW-2 (3-4') 5/31/2013	Qual	SB-27-SW-3 (3-4') 5/31/2013	Qual	SB-27-SW-4 (3-4') 5/31/2013	Qual
General Chemistry - Westborough Lab																	
Solids, Total	NONE		%	80.3		64		67				64.6		67.5		68.2	
Semivolatile Organics by GC/MS (PAHs in blue)																	
Acenaphthene	83-32-9	1000	mg/kg	0.16	U	0.21	U	2.9	J	0.23	U	0.2	U	0.2	U	0.19	U
Acenaphthylene	208-96-8	1000	mg/kg	0.16	U	0.21	U	5.2		0.23	U	0.2	U	0.2	U	0.19	U
Anthracene	120-12-7	1000	mg/kg	0.12	U	0.16	U	15		0.18	U	0.087	J	0.15	U	0.14	U
Benzo(a)anthracene	56-55-3	11	mg/kg	0.12	U	0.16	U	58		0.18	U	0.35		0.15	U	0.05	J
Benzo(a)pyrene	50-32-8	1.1	mg/kg	0.16	U	0.21	U	48		0.23	U	0.3		0.2	U	0.19	U
Benzo(b)fluoranthene	205-99-2	11	mg/kg	0.12	U	0.16	U	70		0.18	U	0.46		0.15	U	0.079	J
Benzo(ghi)perylene	191-24-2	1000	mg/kg	0.16	U	0.21	U	30		0.23	U	0.18	J	0.2	U	0.19	U
Benzo(k)fluoranthene	207-08-9	110	mg/kg	0.12	U	0.16	U	22		0.18	U	0.2		0.15	U	0.14	U
Carbazole	86-74-8		mg/kg	0.2	U	0.26	U	3.6	J	0.29	U	0.25	U	0.24	U	0.24	U
Chrysene	218-01-9	110	mg/kg	0.12	U	0.16	U	62		0.18	U	0.36		0.15	U	0.061	J
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	0.12	U	0.16	U	8.1		0.18	U	0.055	J	0.15	U	0.14	U
Dibenzofuran	132-64-9	1000	mg/kg	0.2	U	0.26	U	6.2	U	0.29	U	0.25	U	0.24	U	0.24	U
Fluoranthene	206-44-0	1000	mg/kg	0.12	U	0.16	U	120		0.18	U	0.73		0.15	U	0.095	J
Fluorene	86-73-7	1000	mg/kg	0.2	U	0.26	U	4	J	0.29	U	0.25	U	0.24	U	0.24	U
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	0.16	U	0.21	U	32		0.23	U	0.18	J	0.2	U	0.19	U
Phenanthrene	85-01-8	1000	mg/kg	0.12	U	0.16	U	55		0.18	U	0.29		0.15	U	0.056	J
Pyrene	129-00-0	1000	mg/kg	0.12	U	0.16	U	94		0.18	U	0.57		0.15	U	0.081	J
Total PAHs (CP-51) [3]		***500***	***mg/kg***	**0**		**0**		**626.2**		**0**		**3.762**		**0**		**0.422**	
Total Metals - Westborough Lab																	
Arsenic, Total	7440-38-2	16	mg/kg	5.3		17		14		12		19		14		17	
Barium, Total	7440-39-3	10000	mg/kg	58		2300		840		700		580		1200		580	
Cadmium, Total	7440-43-9	60	mg/kg	0.53		7.6		2.9		0.82		3.5		4.3		2.4	
Chromium, Total	7440-47-3	6800	mg/kg	11		72		23		16		46		51		24	
Lead, Total	7439-92-1	3900	mg/kg	21		4000		750		1000		570		1200		1200	
Mercury, Total	7439-97-6	5.7	mg/kg	0.04	J	0.58		0.07	J	0.15	U	0.27		0.03	J	0.22	
Selenium, Total	7782-49-2	6800	mg/kg	0.2	J	1	J	1.1	U	0.33	J	0.91	J	1.2	U	0.39	J
Silver, Total	7440-22-4	6800	mg/kg	0.49	U	38		4.2		0.22	J	1.4		3.5		1.9	

Notes:

1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Restricted-Industrial Use Soil Cleanup Objective per 6NYCRR Part 375.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.

Qualifier Key:

D Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
J Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.
U Not detected at the reported detection limit for the sample.

Color Code:

= concentration exceeds the individual Restricted-Industrial Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.
= sample location is a re-sample following additional excavation; reported concentrations exceeded the regulatory criteria and additional excavation & confirmation sampling is planned
= sample location is a re-sample following additional excavation; reported concentrations are within acceptable regulatory criteria

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TABLE 18

SUMMARY OF IRM CONFIRMATION SOIL/FILL ANALYTICAL RESULTS
AREA OF CONCERN (AOC) - SB-36

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound [1]	CasNum	ISCO [2]	Units	Location, Sample ID, & Sample Date																	
				BOTTOM		BOTTOM		NORTH		NORTH		EAST		EAST		SOUTH		SOUTH		WEST		WEST	
				SB-36-B-1 (2.0') 5/31/2013	Qual	SB-36-B-2 (3.5') 6/14/2013	Qual	SB-36-SW-1 (0-2') 5/31/2013	Qual	SB-36-SW-5 (0-2') 6/14/2013	Qual	SB-36-SW-2 (0-2') 5/31/2013	Qual	SB-36-SW-6 (0-2') 6/14/2013	Qual	SB-36-SW-3 (0-2') 5/31/2013	Qual	SB-36-SW-7 (0-2') 6/14/2013	Qual	SB-36-SW-4 (0-2') 5/31/2013	Qual	SB-36-SW-8 (0-2') 6/14/2013	Qual
General Chemistry - Westborough Lab																							
Solids, Total	NONE		%	65.4		71		61.5		90		74		77		65		77		70.3		58	
Semivolatile Organics by GC/MS (PAHs in blue)																							
Acenaphthene	83-32-9	1000	mg/kg	4.5	J	1.2	J	5.2	J	2.1		3.4		1.9		3.8		1.7	J	3.6	J	0.23	U
Acenaphthylene	208-96-8	1000	mg/kg	6.9		3.4	J	8.7	J	1.0	J	3.7		4.9		7.4		1.7	J	6.8		0.23	U
Anthracene	120-12-7	1000	mg/kg	21		5.7	J	29		5.2		12		8.7		22		6		17		0.17	U
Benzo(a)anthracene	56-55-3	11	mg/kg	60		19		120		14		37		28		75		16		62		0.17	U
Benzo(a)pyrene	50-32-8	1.1	mg/kg	56		16		110		12		34		25		68		14		52		0.23	U
Benzo(b)fluoranthene	205-99-2	11	mg/kg	77		19		130		6.2		47		32		96		18		73		0.17	U
Benzo(ghi)perylene	191-24-2	1000	mg/kg	32		9.7		60		6.3		21		15		42		9.1		31		0.23	U
Benzo(k)fluoranthene	207-08-9	110	mg/kg	25		9.2		57		6.2		17		12		32		6.5		28		0.17	U
Carbazole	86-74-8		mg/kg	8		2	J	5.9	J	4.2		6.3		4.2		6.2		2.5	J	5.6		0.28	U
Chrysene	218-01-9	110	mg/kg	64		18		120		2.3		41		31		80		17		66		0.17	U
Dibenzo(a,h)anthracene	53-70-3	1.1	mg/kg	10		2.4	J	16		1.9		6.4		4.1		13		2.5		10		0.17	U
Dibenzofuran	132-64-9	1000	mg/kg	3.7	J	5.8	U	13	U	1.3	J	2.7	J	1.6	J	2.9		1.5	J	2.2	J	0.28	U
Fluoranthene	206-44-0	1000	mg/kg	120		35		260		28		84		60		140	D	32		120		0.088	J
Fluorene	86-73-7	1000	mg/kg	6.4		1.7	J	6.4	J	2.1		5		2.4		6.1		2.3	J	5		0.28	U
Indeno(1,2,3-cd)Pyrene	193-39-5	11	mg/kg	37		10		48		7.4		25		16		50		9.1		40		0.23	U
Phenanthrene	85-01-8	1000	mg/kg	69		21		78		21		51		34		75		28		63		0.17	U
Pyrene	129-00-0	1000	mg/kg	96		30		220		22		67		55		120	D	27		98		0.063	J
Total PAHs (CP-51) [3]		***500***	***mg/kg***	**684.8**		**201.3**		**1268.3**		**137.7**		**454.5**		**330**		**830.3**		**190.9**		**675.4**		**0.151**	
Total Metals - Westborough Lab																							
Arsenic, Total	7440-38-2	16	mg/kg	11		38		12		4.9		7.6		19		11		13		13		12	
Barium, Total	7440-39-3	10000	mg/kg	810		400		520		280		350		420		820		330		550		790	
Cadmium, Total	7440-43-9	60	mg/kg	4.6		3.6		2.3		0.84		2		1.2		4		1.8		4		3.6	
Chromium, Total	7440-47-3	6800	mg/kg	38		29		23		8.4		23		29		31		13		33		29	
Lead, Total	7439-92-1	3900	mg/kg	3400		1200		1500		290		1200		870		2600		1300		4300		2700	
Mercury, Total	7439-97-6	5.7	mg/kg	1.1		2.1		1.6		0.22		0.63		0.98		1.4		0.89		1.2		1.0	
Selenium, Total	7782-49-2	6800	mg/kg	0.99	J	0.65	J	0.95	J	0.86	U	0.53	J	0.51	J	0.63	J	0.49	J	0.75	J	0.72	J
Silver, Total	7440-22-4	6800	mg/kg	1.1		0.88		1.8		0.58		4		0.46	J	0.9		0.16	J	1		0.90	

Notes:

1. Only compounds detected with reporting limits that exceed the corresponding regulatory standard in at least one sample are included on the summary sheets.
2. Restricted-Industrial Use Soil Cleanup Objective per 6NYCRR Part 375.
3. In accordance with NYSDEC Soil Cleanup Guidance, Policy CP-51, compounds only include the total of those polycyclic aromatic hydrocarbons (PAHs) detected above the laboratory method detection limit.

Qualifier Key:

D Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
J Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses.
U Not detected at the reported detection limit for the sample.

Color Code:

= concentration exceeds the individual Restricted-Industrial Use Soil Cleanup Objective (SCO) or the CP-51 total PAH concentration of 500 ppm.
= sample location is a re-sample following additional excavation; reported concentrations are within acceptable regulatory criteria

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TABLE 19

SUMMARY OF IRM CONFIRMATION SOIL/FILL ANALYTICAL RESULTS
AREAS OF CONCERN (AOC) - SB-69

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Compound	CasNum	ISCO [1]	Units	Sample Location and Date of Collecction [2]				
				EAST	EAST	EAST	EAST	EAST
				SB-69-SW-1 12/5/2013 Qual	SB-69-SW-5 12/10/2013 Qual	SB-69-SW-9 12/10/2013 Qual	SB-69-SW-13 12/10/2013 Qual	SB-69-SW-17 12/23/2013 Qual
General Chemistry - Westborough Lab								
Solids, Total	NONE	--	%	70	74	75	73	76
Total Metals - Westborough Lab								
Arsenic, Total	7440-38-2	16	mg/kg	**32**	**39**	**17**	**17**	13
Lead, Total	7439-92-1	3900	mg/kg	2400	1100	740	850	520

Compound	CasNum	ISCO [1]	Units	Sample Location and Date of Collecction [2]				
				SOUTH	SOUTH	SOUTH	SOUTH	SOUTH
				SB-69-SW-2 12/5/2013 Qual	SB-69-SW-6 12/10/2013 Qual	SB-69-SW-10 12/10/2013 Qual	SB-69-SW-14 12/10/2013 Qual	SB-69-SW-18 12/23/2013 Qual
General Chemistry - Westborough Lab								
Solids, Total	NONE	--	%	71	76	74	75	76
Total Metals - Westborough Lab								
Arsenic, Total	7440-38-2	16	mg/kg	**30**	**23**	**33**	**21**	8.8
Lead, Total	7439-92-1	3900	mg/kg	1200	2000	620	1600	410

Compound	CasNum	ISCO [1]	Units	Sample Location and Date of Collecction						
				WEST	WEST	WEST	WEST	WEST	WEST	WEST
				SB-69-SW-3 12/5/2013 Qual	SB-69-SW-7 12/10/2013 Qual	SB-69-SW-11 12/10/2013 Qual	SB-69-SW-15 12/10/2013 Qual	SB-69-SW-19 12/23/2013 Qual	SB-69-SW-22 12/23/2013 Qual	SB-69-25 12/23/2013 Qual
General Chemistry - Westborough Lab										
Solids, Total	NONE	--	%	76	76	78	80	77	83.2	77.9
Total Metals - Westborough Lab										
Arsenic, Total	7440-38-2	16	mg/kg	**22**	**22**	**23**	**22**	**20**	**25**	9.7
Lead, Total	7439-92-1	3900	mg/kg	930	1500	2000	1600	900	2700	480

Compound	CasNum	ISCO [1]	Units	Sample Location and Date of Collecction			
				NORTH	NORTH	NORTH	NORTH
				SB-69-SW-4 12/5/2013 Qual	SB-69-SW-8 12/10/2013 Qual	SB-69-SW-12 12/10/2013 Qual	SB-69-SW-16 12/10/2013 Qual
General Chemistry - Westborough Lab							
Solids, Total	NONE	--	%	74	74	77	81
Total Metals - Westborough Lab							
Arsenic, Total	7440-38-2	16	mg/kg	**23**	**28**	**20**	13
Lead, Total	7439-92-1	3900	mg/kg	1100	1400	740	770

Notes:

1. Restricted-Industrial Use Soil Cleanup Objective per 6NYCRR Part 375.
2. East sidewall locations SB69-SW-20 and 23 as well as southern sidewall samples SB69-SW-21 and 24 did not require laboratory analysis because radially inward samples SB69-SW-17 and 18, respectively, reported arsenic and lead concentrations below their respective ISCOs, making analysis of these samples unnecessary.

Color Code:

= concentration exceeds the individual Restricted-Industrial Use Soil Cleanup Objective (SCO).

= sample location is a re-sample following additional excavation; reported concentrations are within acceptable regulatory criteria

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TABLE 20

STANDARDS, CRITERIA, AND GUIDANCE (SCGs)

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Citation	Title	Regulatory Agency
General		
29 CFR 1910.120	Hazardous Waste Operations and Emergency Response	US Dept. of Labor, OSHA
29 CFR 1910.1000	OSHA General Industry Air Contaminants Standard	US Dept. of Labor, OSHA
29 CFR 1926	Safety and Health Regulations for Construction	US Dept. of Labor, OSHA
Not Applicable	Analytical Services Protocol	NYSDEC
6NYCRR Part 608	Use and Protection of Waters	NYSDEC
6NYCRR Part 621	Uniform Procedures Regulations	NYSDEC
6NYCRR Parts 750-757	State Pollutant Discharge Elimination System	NYSDEC
Section 404	Clean Water Act	USACE
Soil		
6NYCRR Part 375	Environmental Remediation Programs	NYSDEC
DEC Policy CP-51	Soil Cleanup Guidance	NYSDEC
Groundwater		
6NYCRR Part 700-705	Surface Water and Ground Water Classification Standards	NYSDEC
TOGS 1.1.1	Ambient Water Quality Standards and Guidance Values	NYSDEC
TOGS 2.1.3	Primary and Principal Aquifer	NYSDEC
Air		
DER-10 Appendix 1B	Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites	NYSDEC
NYSDOH, October 2006	Final - Guidance for Evaluating Soil Vapor Intrusion in the State of New York	NYSDOH
Solid Waste		
6NYCRR 360	Solid Waste Management Facilities	NYSDEC
6NYCRR 364	Waste Transporters	NYSDEC

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TABLE 21

ALTERNATIVE 2: COST ESTIMATE FOR TRACK 1 CLEANUP

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Item	Quantity	Units	Unit Cost	Total Cost
Impacted Soil/Fill Removal[1]				
Clearing & Grubbing	1	LS	$ 130,000	$ 130,000
Soil/Fill Excavation & Dewatering (16 fbgs)	544,661	CY	$ 10	$ 5,446,613
Transportation & Disposal at TSDF (non-haz)	871,458	TON[1]	$ 40	$ 34,858,325
Verification Sampling	1	LS	$ 10,000	$ 10,000
Subtotal:				**$ 40,444,939**
Site Restoration				
Part 375[2] Compliant Backfill, Place & Compact	844,225	TON	$ 20	$ 16,884,501
6" Topsoil	17,021	CY	$ 25	$ 425,517
Seeding	21.1	ACRES	$ 3,000	$ 63,300
Subtotal:				**$ 17,373,318**
Reporting				
Remedial Action Work Plan	1	LS	$ 12,000	$ 12,000
Final Engineering Report	1	LS	$ 15,000	$ 15,000
Subtotal:				**$ 27,000**
Subtotal Capital Cost				**$ 57,845,257**
Contractor Mobilization/Demobilization				$ 200,000
Health and Safety/Air Monitoring				$ 50,000
Engineering/Contingency (5%)				$ 2,892,263
Estimated Remedial Cost				**$ 61,000,000**

Notes:
1. Entire 21.1-acre Site.
2. Estimated 1.6 tons per cubic yard
3. Per 6NYCRR 375-6.7(d)(ii)(b)

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TABLE 22

ALTERNATIVE 3: COST ESTIMATE FOR TRACK 4 CLEANUP

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Item	Quantity	Units	Unit Cost	Total Cost
Institutional Controls				
Develop Site Management Plan, Easement, Survey	1	LS	$ 25,000	$ 25,000
Subtotal:				**$ 25,000**
Subgrade Preparation				
Grading (± 14.45 acres)	629,442	SF	$ 0.05	$ 31,472
Subtotal:				**$ 31,472**
Soil Cover System[2]				
Clearing & Grubbing	1	LS	$ 130,000	$ 130,000
Site Regrading and Survey	10	DAY	$ 2,500	$ 25,000
Demarcation Layer	1	LS	$ 24,150	$ 24,150
Part 375[3] Compliant Cover, Place 1.5 Ft, Compact	50,820	CY	$ 15	$ 762,300
Topsoil (6" layer)	16,940	CY	$ 20	$ 338,800
Seeding	21	ACRES	$ 2,500	$ 52,500
Subtotal:				**$ 1,332,750**
Soil Vapor Mitigation				
Vapor Barrier	100,000	SQ. FT.	$ 0.50	$ 50,000
Subtotal:				**$ 50,000**
ASD System Piping				
Materials and Installation	1	LS	$ 21,000	**$ 21,000**
Subtotal:				**$ 21,000**
Reporting				
Final Engineering Report	1	LS	$ 15,000	$ 15,000
Subtotal:				**$ 15,000**
Subtotal Capital Cost				**$ 1,475,222**
Contractor Mobilization/Demobilization (5%)				$ 73,761
Health and Safety (2%)				$ 29,504
Engineering/Contingency				$ 150,000
Total Capital Cost				**$ 1,728,488**
Annual Operation Maintenance & Monitoring (OM&M):				
Site Maintenance and Mowing	2	EVENT	$ 4,000	$ 8,000
Annual Certification	1	LS	$ 3,000	$ 3,000
Total Annual OM&M Cost				**$ 11,000**
Number of Years (n):				30
Interest Rate (i):				3%
p/A value:				19.6004
OM&M Present Worth (PW):				**$ 215,604**
Total Present Worth (PW): Capital Cost + OM&M PW				**$ 1,944,000**

Notes:

1. Estimated 1.6 tons per cubic yard
2. If redevelopment occurs subsequent to remedial work then the cost of the cover system would be reduced as the soil cover system would only cover approximately 73% of Site, with the remaining 27% covered by hardscape as a function of redevelopment.
3. Per 6NYCRR 375-6.7(d)(ii)(b)

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TABLE 23

COMPARISON OF REMEDIAL ALTERNATIVES

Remedial Investigation/Interim Remedial Measures/Alternatives Analysis Report
154 South Ogden Street Site
Buffalo, New York

Site No. and Alternative	NYSDEC DER-10 Evaluation Criteria								
	1. Overall	2. SCGs	3. Eff & Perm	4. Reduction	5. Imp & Eff	6. Implement	7. Cost Eff	8. Community	9. Land Use
Alternative 1 - No Further Action							$0	TBE	
Alternative 2 - Track 1 Cleanup	✓	✓	✓	✓			$61 million	TBE	✓
Alternative 3 - Track 4 Cleanup	✓	✓	✓	✓	✓	✓	$1.944 million	TBE	✓

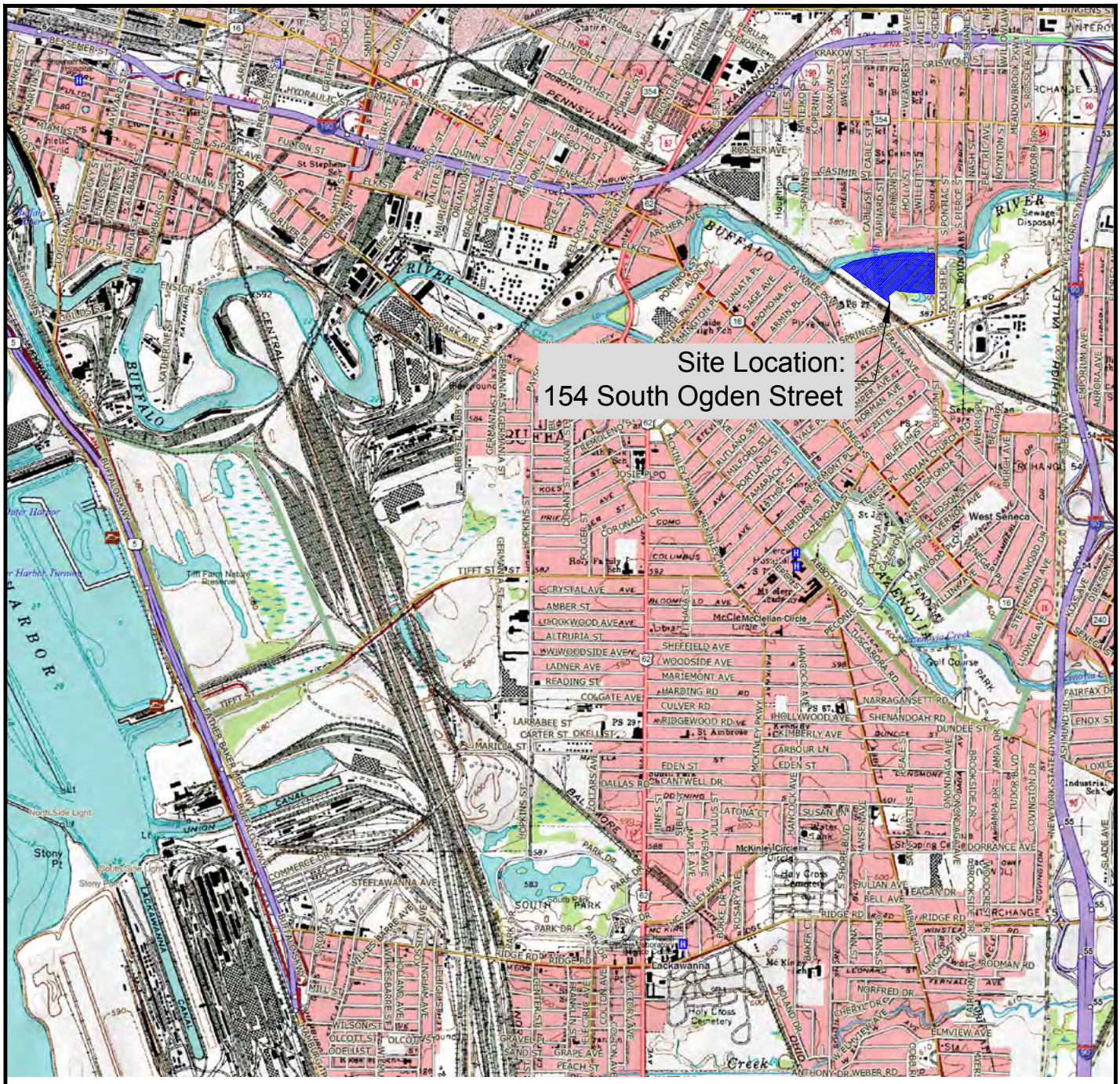
Notes:

1. Overall Protectiveness of Public Health and the Environment
2. Compliance with Standards, Criteria, and Guidance (SCGs)
3. Long-Term Effectiveness and Permanence
4. Reduction of Toxicity, Mobility, or Volume of Contamination through Treatment
5. Short-Term Impacts and Effectiveness
6. Implementability (Technical and Administrative)
7. Cost Effectiveness
8. Community Acceptance
9. Land Use

✓ = Alternative satisfies criterion
TBE = To be evaluated following public comment period

FIGURES

FIGURE 1



N

3000' 0' 3000' 6000'

SCALE: 1 INCH = 3000 FEET
SCALE IN FEET
(approximate)

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PROJECT NO.: 0249-012-005

DATE: MARCH 2014

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SITE LOCATION AND VICINITY MAP

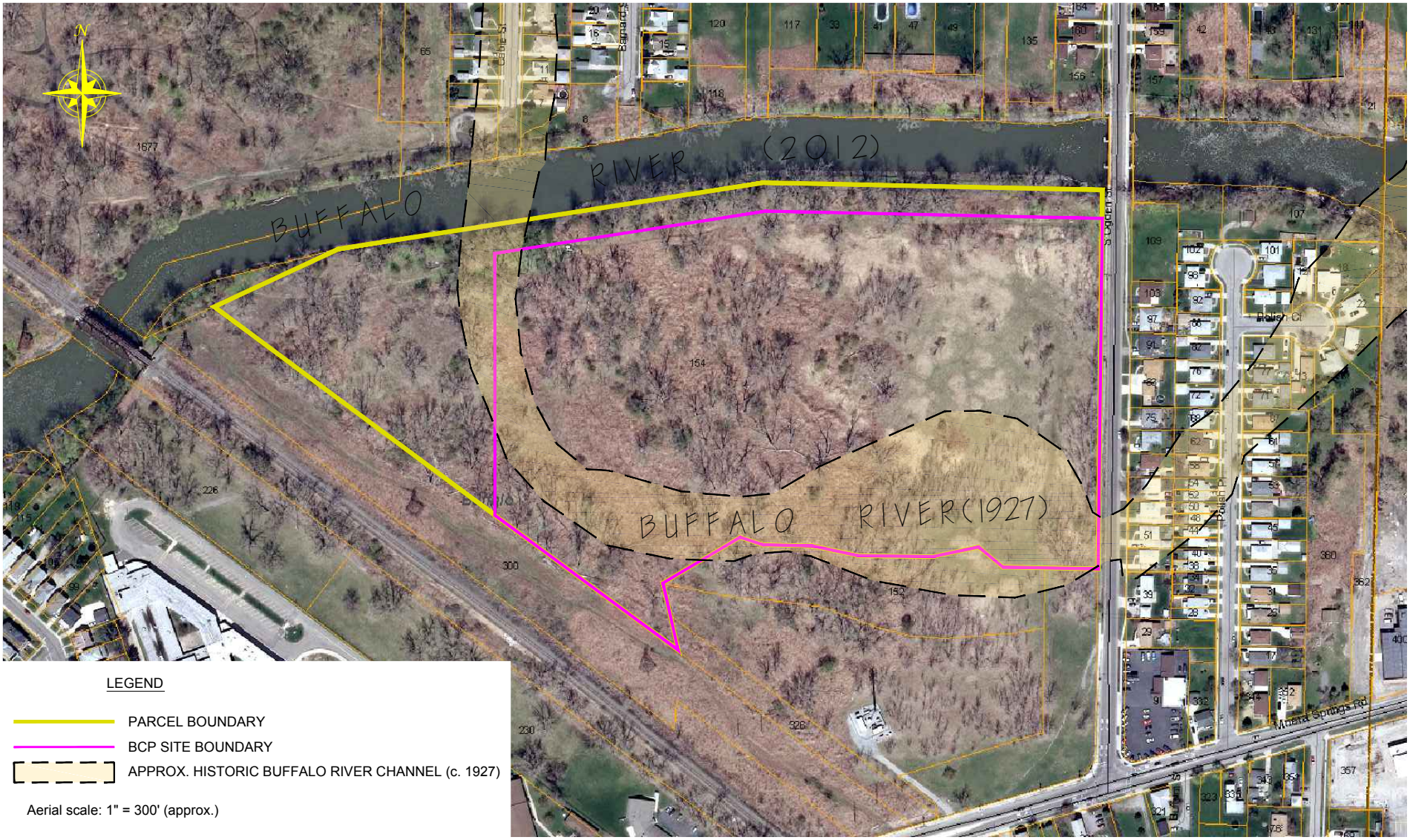
RI/IRM/AA REPORT

154 SOUTH OGDEN STREET SITE

BUFFALO, NEW YORK

PREPARED FOR

154 SOUTH OGDEN, LLC



LEGEND

- PARCEL BOUNDARY
- BCP SITE BOUNDARY
- APPROX. HISTORIC BUFFALO RIVER CHANNEL (c. 1927)

Aerial scale: 1" = 300' (approx.)

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SITE PLAN (AERIAL)

RI/IRM/AA REPORT

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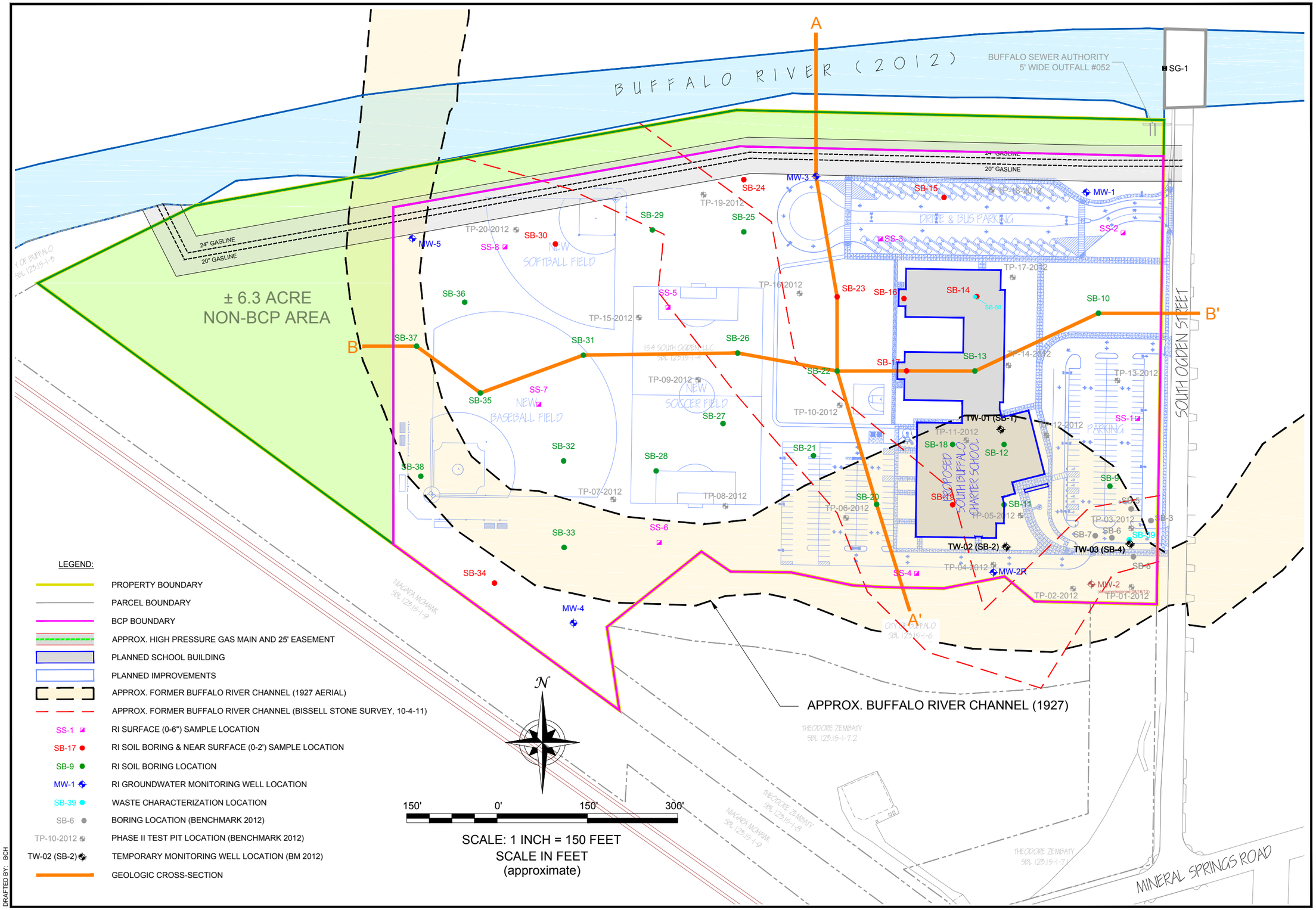
FIGURE 2



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RI SAMPLE LOCATIONS & CROSS SECTIONS

RI/IRM/AA REPORT
154 SOUTH OGDEN STREET SITE
BUFFALO, NEW YORK
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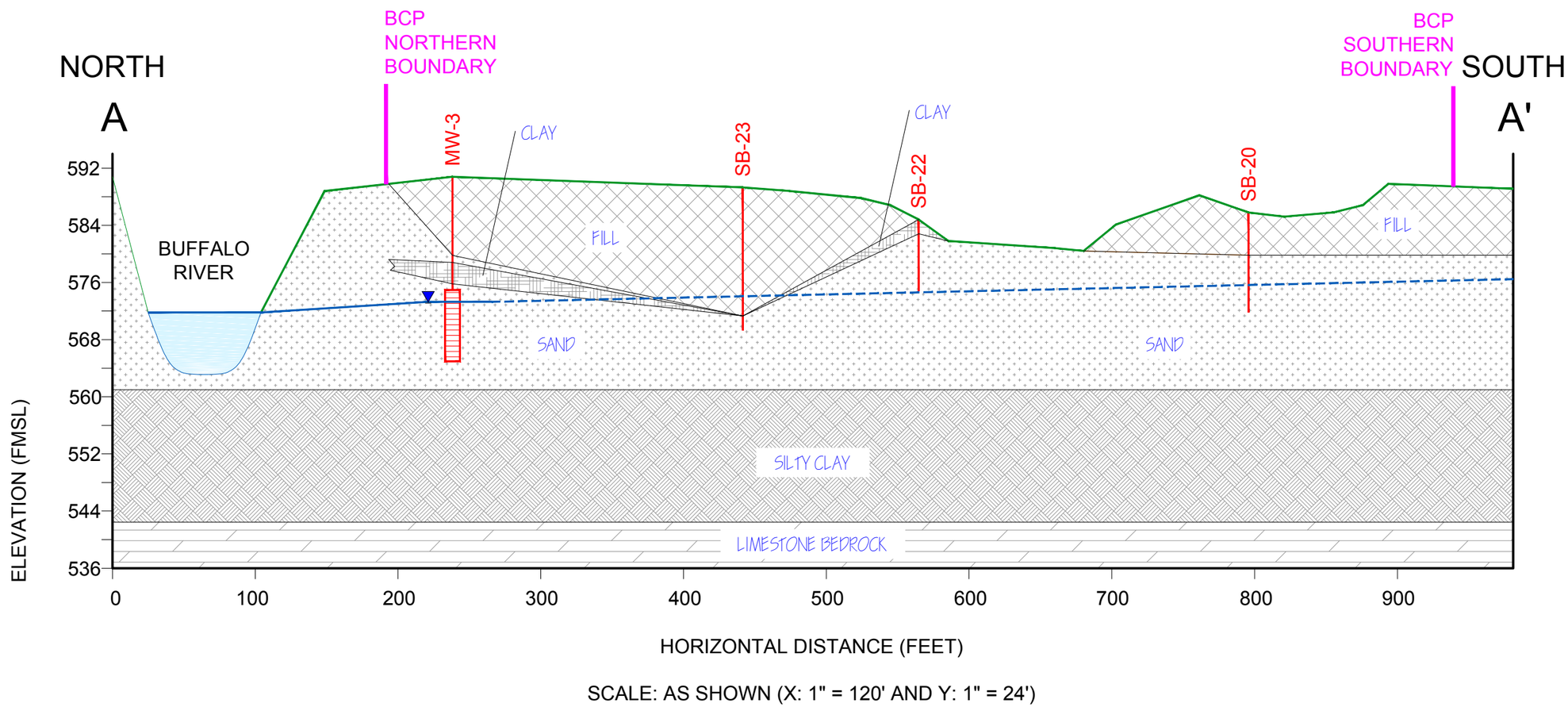
FIGURE 3



SCALE: AS SHOWN (X: 1" = 120' AND Y: 1" = 24')

LEGEND:

MW-3, SB-23	RI GROUNDWATER MONITORING WELL OR SOIL BORING LOCATION
▼	APPROXIMATE WATER TABLE ELEVATION (DASHED WHERE INFERRED)
	MONITORING WELL SCREEN INTERVAL
— — —	INFERRED BOUNDARY
	FILL
	SANDY LEAN CLAY
	SAND
	TILL
	BEDROCK
	BUFFALO RIVER

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A-A' HYDROGEOLOGIC CROSS SECTION

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154 SOUTH OGDEN STREET SITE
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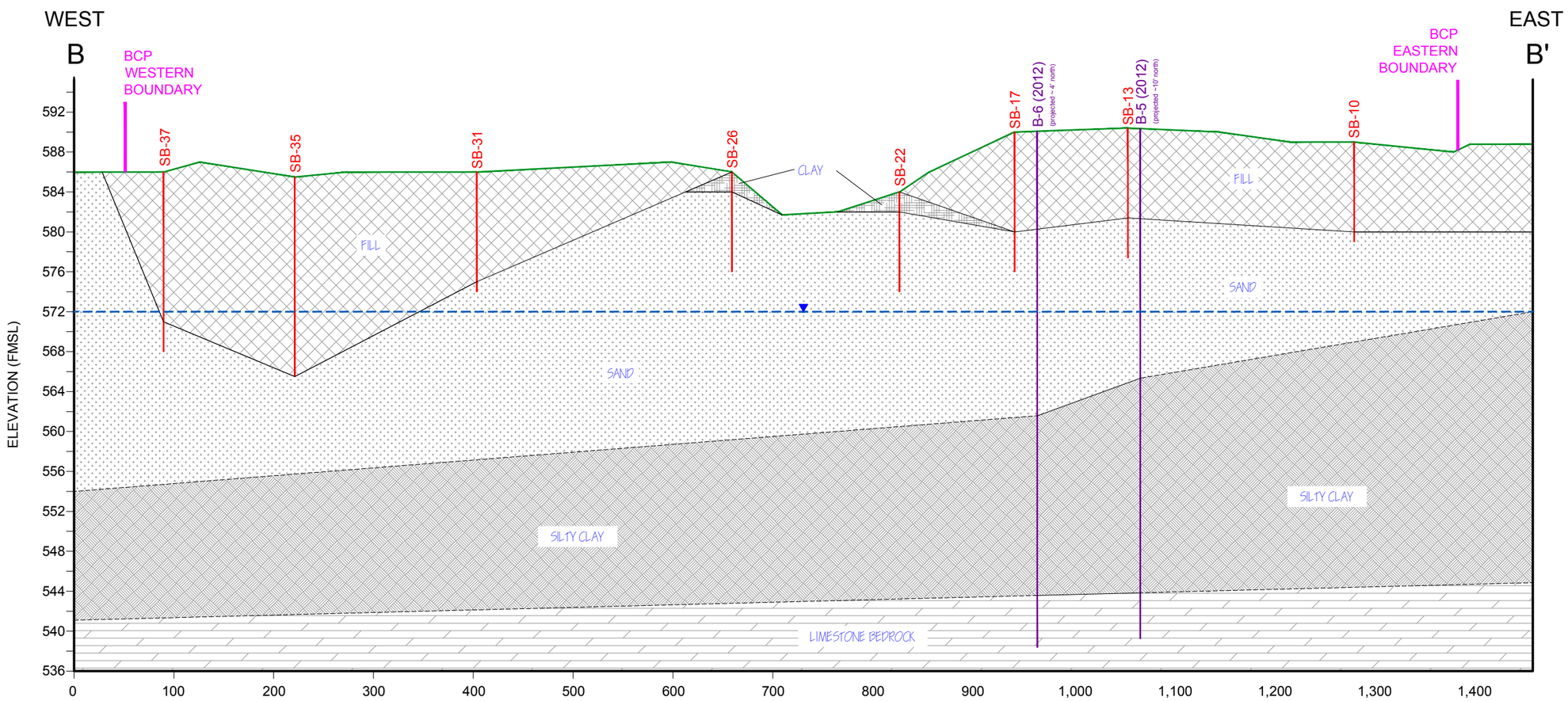
FIGURE 4



SCALE: AS SHOWN (X: 1" = 120' AND Y: 1" = 12')

LEGEND:

SB-23	RI SOIL BORING LOCATION		FILL
B-5 (2012) (projected ~10' north)	GEOTECHNICAL SOIL BORING LOCATION (BY OTHERS)		SANDY LEAN CLAY
▼	APPROXIMATE WATER TABLE ELEVATION (DASHED WHERE INFERRED)		SAND
— — — —	INFERRED BOUNDARY		TILL
			BEDROCK

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B-B' HYDROGEOLOGIC CROSS SECTION

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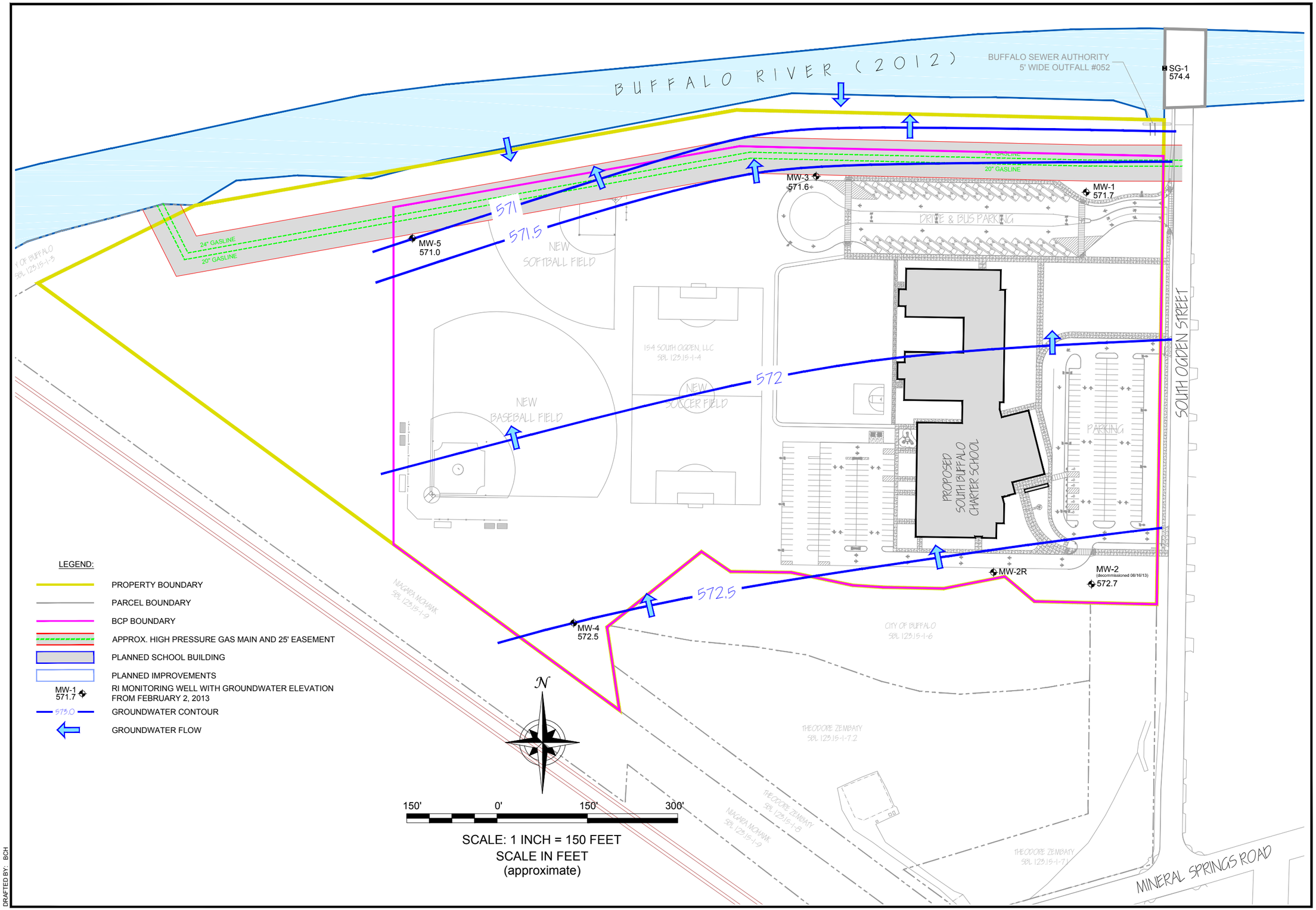
FIGURE 5



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GROUNDWATER ISOPOTENTIAL MAP
FEBRUARY 2, 2013

RI/IRM/AA REPORT

154 SOUTH OGDEN STREET SITE

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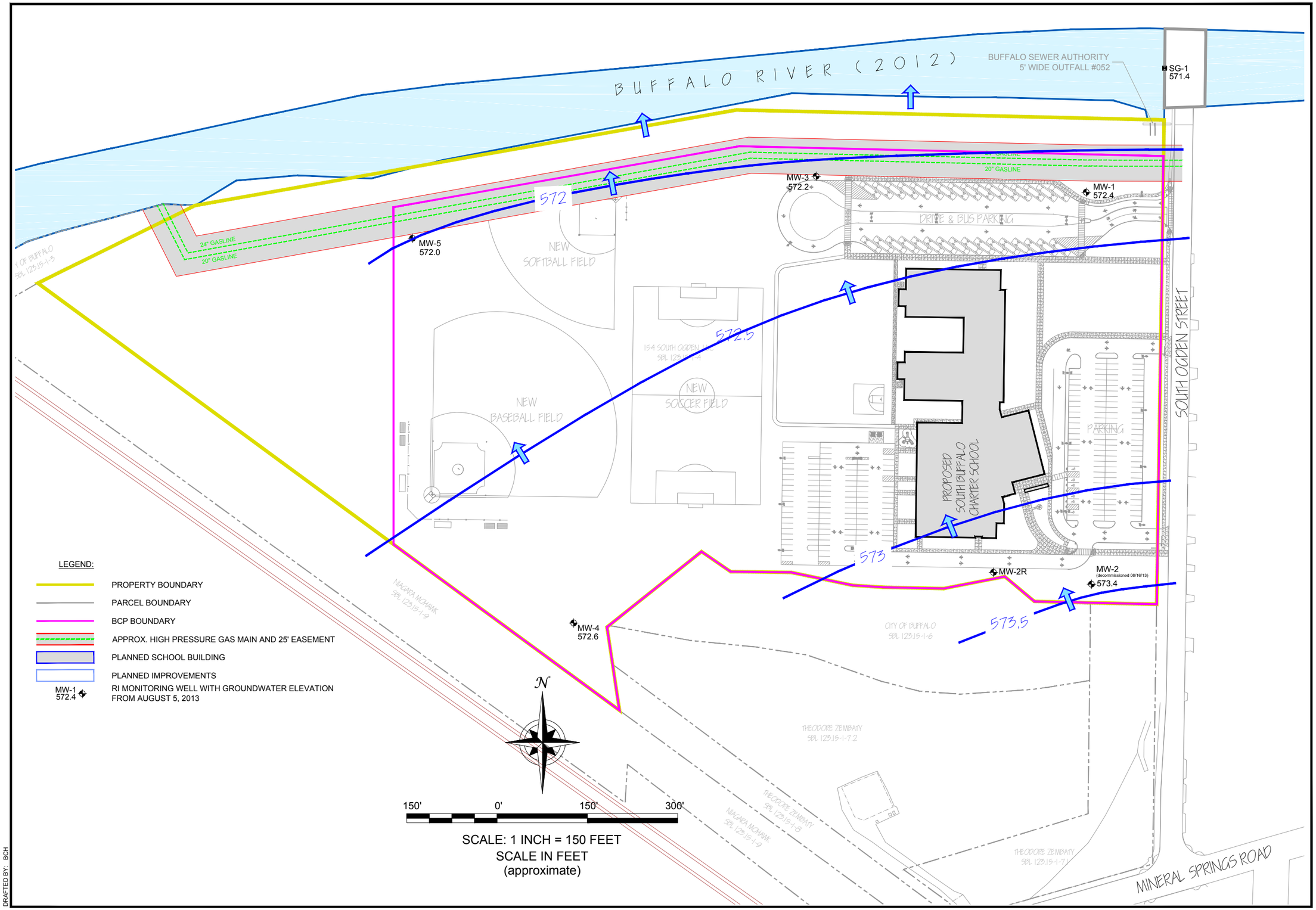
FIGURE 6



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GROUNDWATER ISOPOTENTIAL MAP
AUGUST 5, 2013

RI/IRM/AA REPORT

154 SOUTH OGDEN STREET SITE

BUFFALO, NEW YORK

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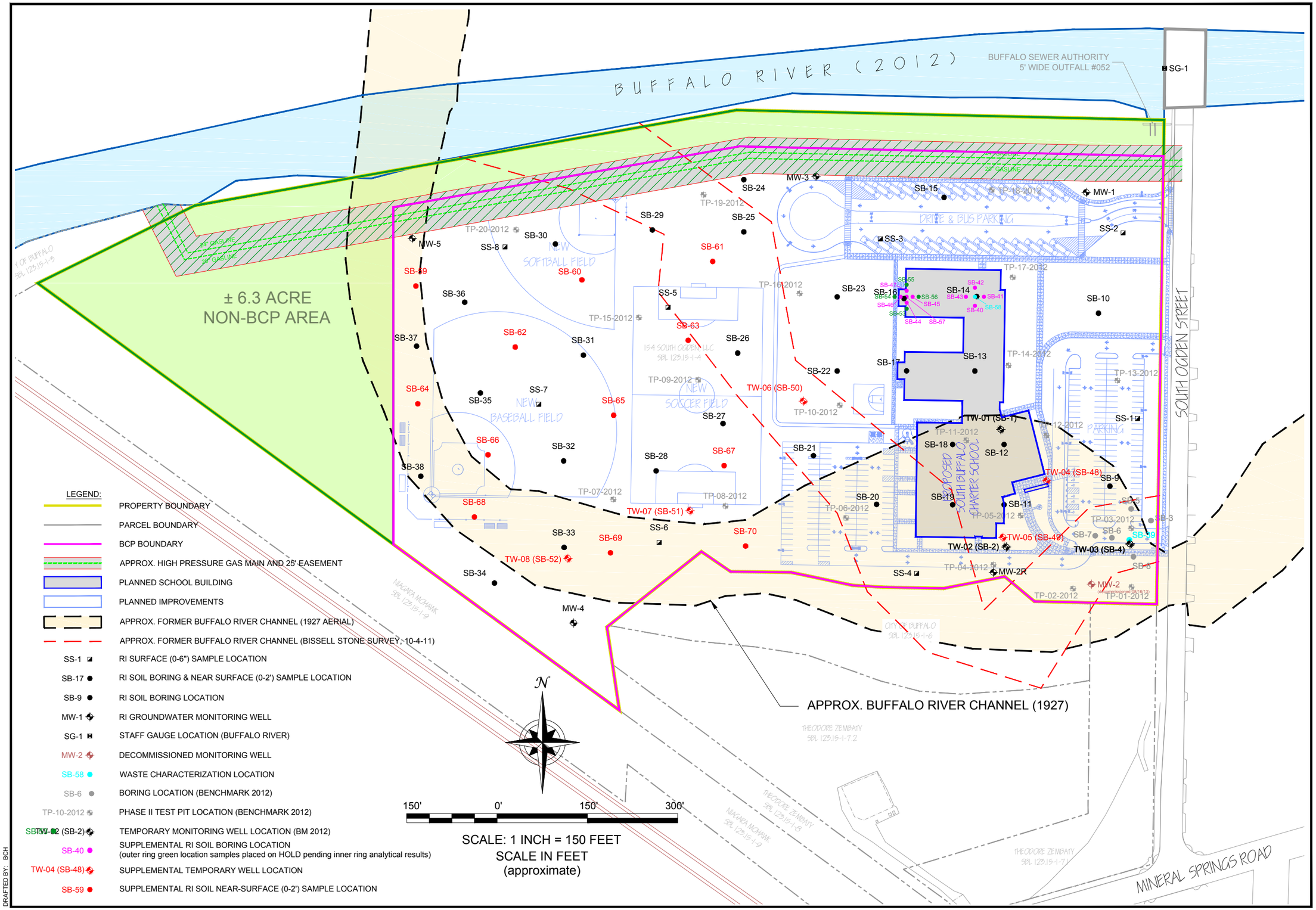
FIGURE 7



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SUPPLEMENTAL RI SAMPLE LOCATIONS

RI/IRM/AA REPORT
154 SOUTH OGDEN STREET SITE
BUFFALO, NEW YORK
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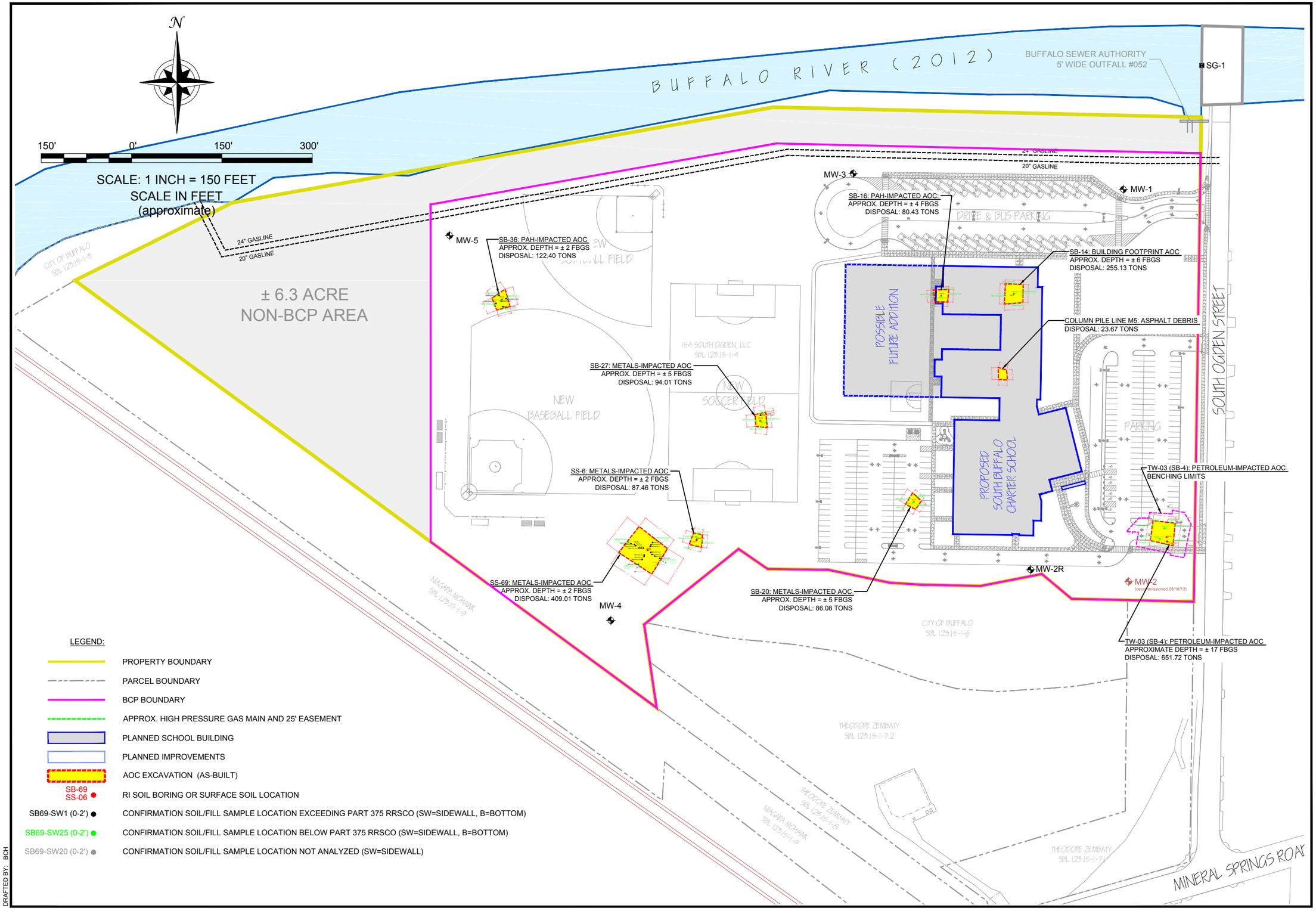
FIGURE 8



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COMPLETED IRM ACTIVITIES
RI/AA/IRM REPORT
154 SOUTH OGDEN STREET SITE
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FIGURE 9

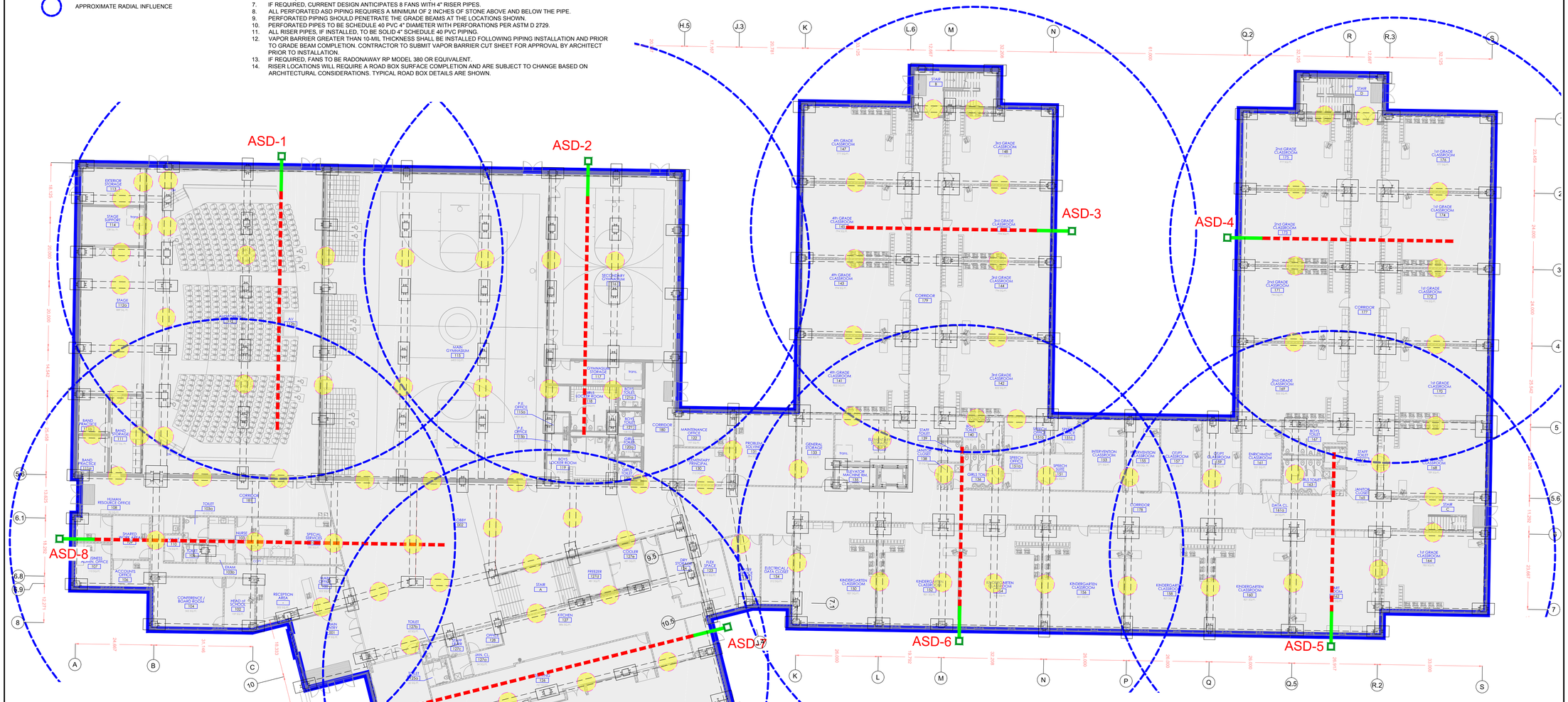
LEGEND:

- BUILDING OUTLINE
- 4-INCH Ø PERFORATED SCH. 80 PVC PIPE
- 4-INCH Ø SOLID SCH. 80 PVC PIPE
- TYPICAL ROAD BOX (SEE DETAIL)
- TYPICAL GRADE BEAM PENETRATION SLEEVE
- APPROXIMATE RADIAL INFLUENCE

NOTES:

1. THIS PLAN IS CONCEPTUAL ONLY AND NOT TO BE USED FOR CONSTRUCTION OF ANY COMPONENTS OF THE BUILDING. IT IS PROVIDED TO DEPICT THE APPROXIMATE LOCATION OF SUBSLAB PIPING, GRADE BEAM PENETRATIONS, AND ROAD BOX COMPLETIONS THAT NEED TO BE VERIFIED BY THE ARCHITECT.
2. GRADE BEAM PENETRATIONS SHOWN ARE TO BE 4-INCHES (MINIMUM) IN DIAMETER.
3. CONTRACTOR IS REQUIRED TO CLEAR EACH GRADE BEAM PENETRATION FOLLOWING CONCRETE FORM REMOVAL TO ENSURE PENETRATIONS REMAIN OPEN.
4. PVC = SCHEDULE 40 POLYVINYL CHLORIDE.
5. ASD = ACTIVE SOIL DEPRESSURIZATION.
6. ALL ASD PIPING TO BE INSTALLED WITHIN THE 6-INCH CRUSHED STONE LAYER SHOWN ON STRUCTURAL DRAWING S200 DETAIL 7 (TYP. STRUCT SLAB-ON-GRADE CONSTRUCTION).
7. IF REQUIRED, CURRENT DESIGN ANTICIPATES 8 FANS WITH 4" RISER PIPES.
8. ALL PERFORATED ASD PIPING REQUIRES A MINIMUM OF 2 INCHES OF STONE ABOVE AND BELOW THE PIPE.
9. PERFORATED PIPING SHOULD PENETRATE THE GRADE BEAMS AT THE LOCATIONS SHOWN.
10. PERFORATED PIPES TO BE SCHEDULE 40 PVC 4" DIAMETER WITH PERFORATIONS PER ASTM D 2729.
11. ALL RISER PIPES, IF INSTALLED, TO BE SOLID 4" SCHEDULE 40 PVC PIPING.
12. VAPOR BARRIER GREATER THAN 10-MIL THICKNESS SHALL BE INSTALLED FOLLOWING PIPING INSTALLATION AND PRIOR TO GRADE BEAM COMPLETION. CONTRACTOR TO SUBMIT VAPOR BARRIER CUT SHEET FOR APPROVAL BY ARCHITECT PRIOR TO INSTALLATION.
13. IF REQUIRED, FANS TO BE RADONAWAY RP MODEL 380 OR EQUIVALENT.
14. RISER LOCATIONS WILL REQUIRE A ROAD BOX SURFACE COMPLETION AND ARE SUBJECT TO CHANGE BASED ON ARCHITECTURAL CONSIDERATIONS. TYPICAL ROAD BOX DETAILS ARE SHOWN.

SCALE: 1 INCH = 16 FEET
SCALE IN FEET
(approximate)



TYPICAL ROAD BOX AND SURFACE COMPLETION: not to scale

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REVISIONS

NO.	BY	DATE	REMARKS

SEAL

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DATE: MARCH 2014
CHECKED BY:
APPROVED BY:

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ASD EXTRACTION SYSTEM PIPING DESIGN

RI/IRM/AA REPORT

154 SOUTH OGDEN STREET SITE
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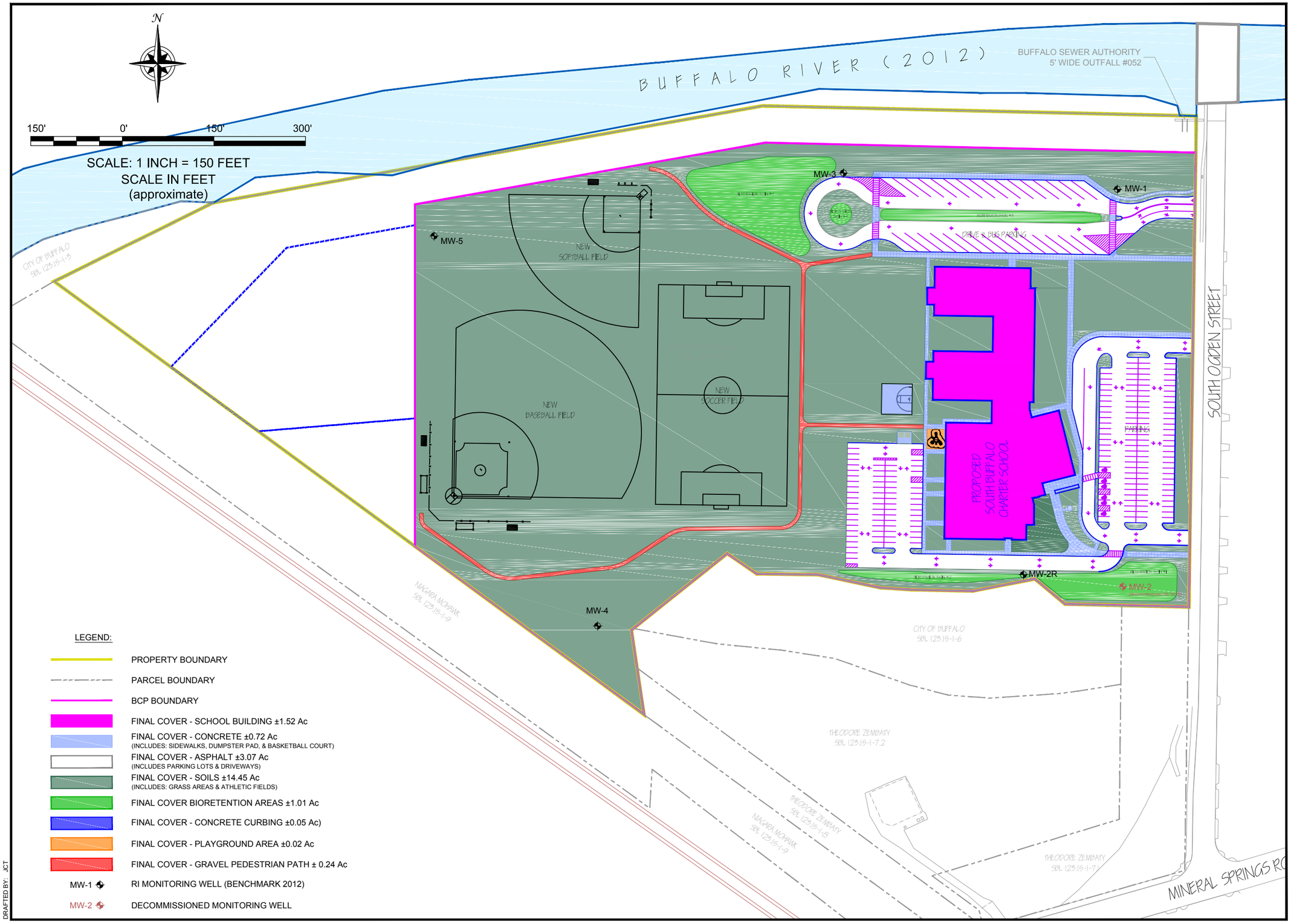
PREPARED FOR

154 SOUTH OGDEN, LLC

FIGURE 10

F:\CAD\Benchmark\154 South Ogden LLC (SBCS) (Site No. C915268)\RI-IRM-AA REPORT (MARCH 2014)\Figure 11; Final Cover Map.dwg



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FINAL COVER MAP

RI/AAR/IRM REPORT

154 SOUTH OGDEN STREET SITE

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FIGURE 11

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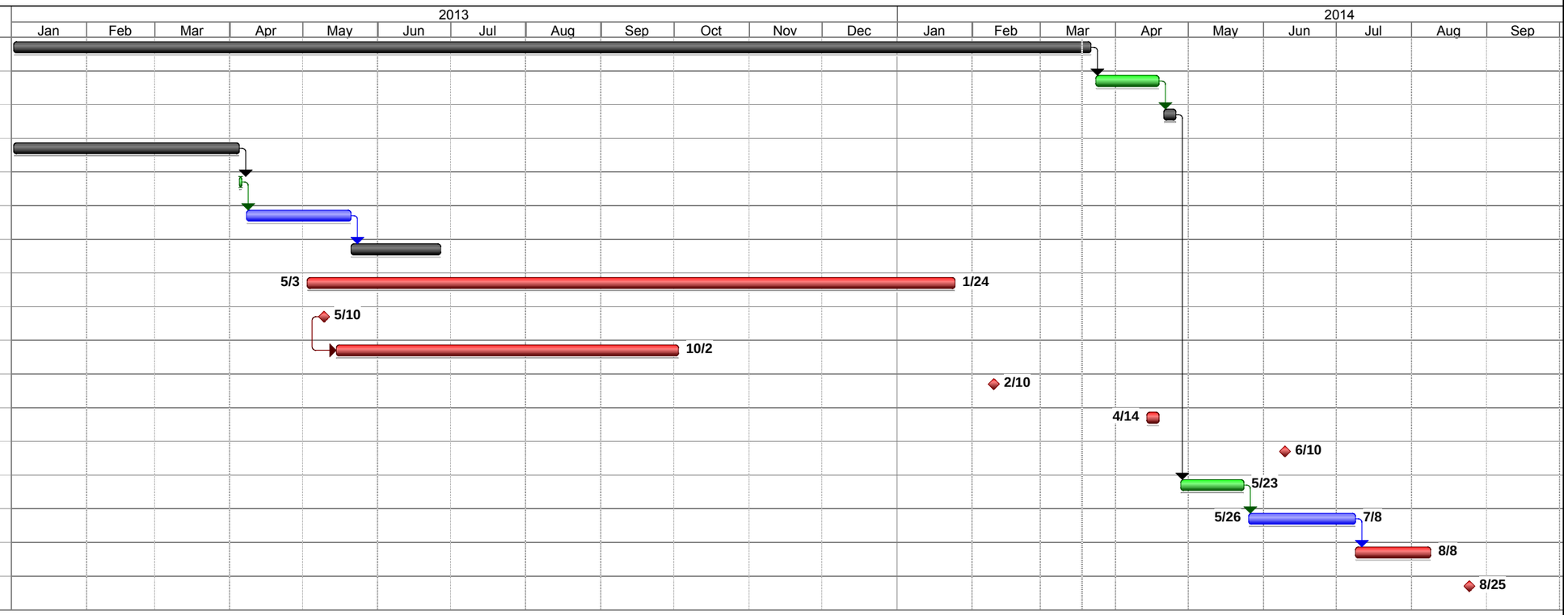
FIGURE 12
PROJECT SCHEDULE (2013-2014)

154 SOUTH OGDEN STREET SITE
BUFFALO, NEW YORK

ID	Task Name
1	Prepare RI/IRM/AA Report
2	DEC/DOH Review of RI/IRM/AA Report
3	Finalize RI/IRM/AA Report
4	Prepare Draft IRM Work Plan
5	DEC/DOH Review of IRM Work Plan
6	45-Day Public Comment Period for IRM Work Plan
7	Finalize IRM Work Plan
8	Implement IRM Work (Removal of AOCs)
9	Start of School Construction
10	Site Preparation - Grubbing
11	Post-Remedial Groundwater Monitoring Event #1
12	Sub-slab Vapor Setup and Sampling
13	Post-Remedial Groundwater Monitoring Event #2
14	DEC Prepares Decision Document
15	45-Day Comment Period for Decision Document
16	Place Site-Wide Cover System
17	First Day of School



RI: Remedial Investigation
AA: Alternatives Analysis
IRM: Interim Remedial Measures

AOCs: Area of Concerns
DEC: New York State Department of Environmental Conservation
DOH: New York State Department of Health