Flexo Transparent, Inc.
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Brownfield Cleanup Program

Remedial Investigation Work Plan and

Interim Remedial Measures Work Plan

1132 & 1146 Seneca Street
Buffalo, NY 14240

(BCP Site C915228)

February 2009

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6105-002

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1. Introduction

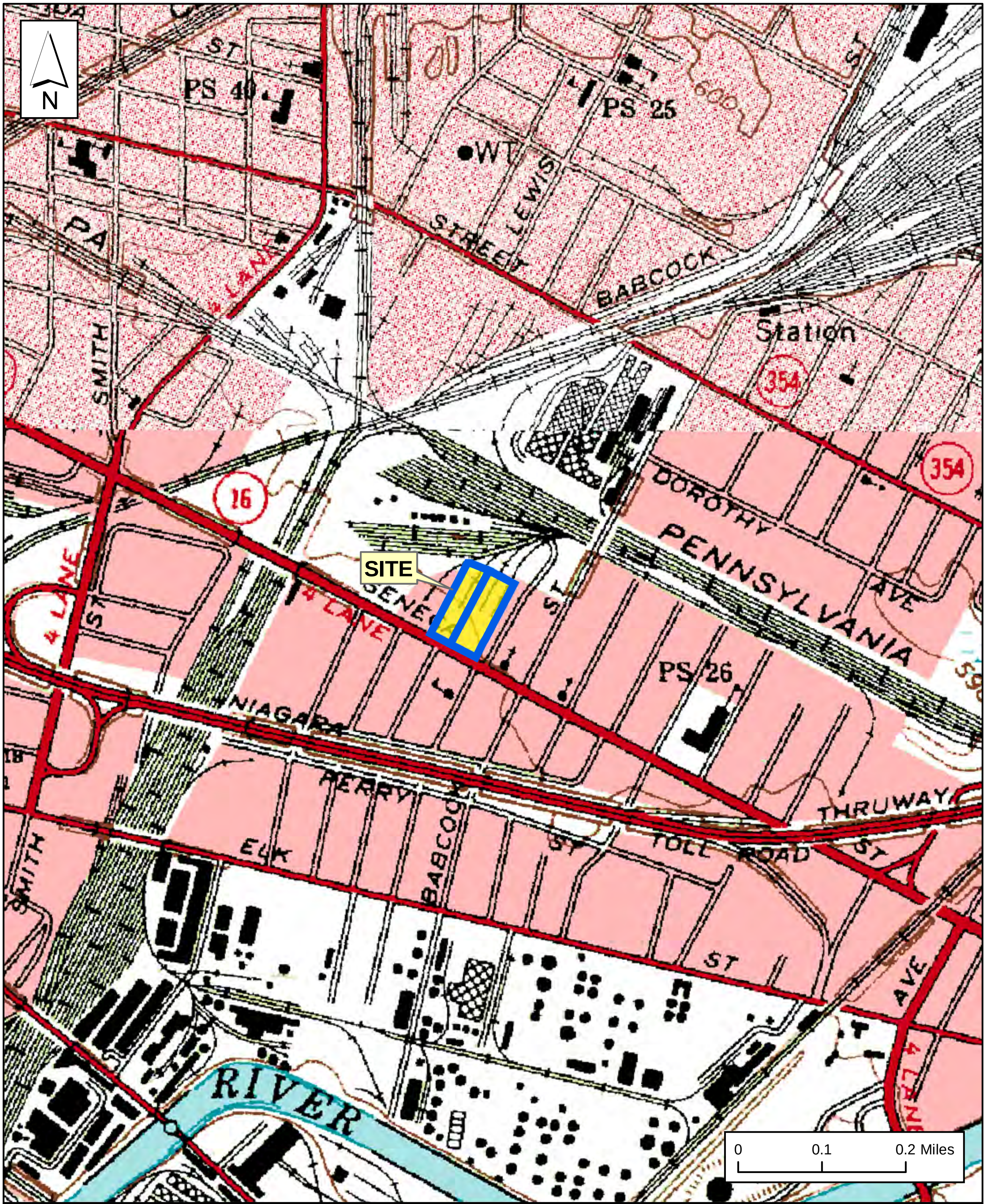
In July 2008, Flexo-Transparent, Inc. (volunteer) applied to and was granted entry into the New York State Department of Environmental Conservation's (NYSDECs) Brownfield Cleanup Program (BCP) for an approximately 4 acre Site located at 1132 and 1146 Seneca Street, Buffalo, New York, see **Figure 1-1**. The Site consists of two adjoining properties comprised of a former manufacturing facility on the westernmost property (1132 Seneca) and vacant land located immediately to the east. On December 8, 2008 the volunteer entered into a BCP agreement with the NYSDEC. Based on environmental data provided in the application, 3.7 acres of the proposed project Site were accepted into the BCP program. The volunteer plans to redevelop the Site as an expansion of their current business of manufacturing plastic wrapping and bags for food and other product packaging. The BCP site will have light industrial, office, and related parking uses. Malcolm Pirnie, Inc. (MPI) has prepared this Remedial Investigation Work Plan (RIWP) for investigation of the Site in accordance with the NYSDEC BCP requirements.

1.1. Site History

1132 Seneca Street

As shown on **Figure 1-1**, the property located at 1132 Seneca Street consists of one parcel identified by Erie County's GIS website as Parcel 83423. The property is approximately 1.7 acres in size and is zoned for "Manufacturing and Processing". The property improvements include a now vacant manufacturing building that once housed office, warehouse, and manufacturing areas. The building occupies the majority of the property. The construction date of the Site building is estimated to be 1920.

Site operations on the 1132 property included lumber and railroad yards, manufacture of electrical transformers and machines (Westinghouse and Eastern Electric), and most recently, the manufacture of fiberglass railroad transfer platforms (Fibreright). The northern, eastern, and western portions of the Site are enclosed within a chain link fence. Paved access roads that lead to an unpaved dirt/gravel area on the north side of the building are located along the western and eastern property boundaries. The northern area is vacant and covered with crushed stone and grass where fiberglass platforms, a dumpster, and plastic and metal refuse are staged. A rail spur enters the manufacturing building from the north and end at a loading platform in the northeastern corner of the building. The southern boundary of the Site is Seneca Street, where two large garage doors provide access to the manufacturing building. Overgrown shrubs located along the



MALCOLM PIRNIE

6105002 OCT. 2008

BCP SITE LOCATION MAP
1132 SENECA STREET AND 1146 SENECA STREET, BUFFALO, NY

FIGURE 1-1

chain link fenced perimeter of the 1146 Seneca Street property are located east of the 1132 building.

1146 Seneca Street

The eastern property located at 1146 Seneca Street consists of one parcel identified by Erie County's GIS website as Parcel 83422. The property which is approximately 2 acres in size is zoned "Vacant Industrial" and is overgrown with vegetation and tall shrubs. A rectangular concrete pad that measures approx. 125 feet N/S and 20 feet E/W is located on the property. Although the intended use of the pad is unknown, information obtained during a Phase I Environmental Site Assessment file review indicated that a bioremediation pad was formerly located on the 1146 Seneca Street property and was used for remediation of petroleum impacted soils excavated from an adjacent property (1070 Seneca Street) to the north.

Historic operations on the 1146 property include lumber and railroad yards, clay products manufacturing, and a gasoline filling station. A portion of the property may also have been used by Westinghouse and Eastern Electric for manufacture of transformers and machines. Existing conditions at the Site include a surrounding chain link fence and a locked access gate located along the southern boundary. Abandoned playground equipment associated with the Seneca-Babcock Community Center is located in the southeastern portion of the property adjacent to foundation remnants of the former gas filling station. Flexo's manufacturing building is located adjacent to the northeastern portion of the 1146 Seneca Street property.

1.2. Previous Investigations

Phase I Environmental Site Assessments (ESAs) where completed for each of the two site properties and two subsurface soil investigations (Phase IIs) have been conducted on the BCP the Site.

1.2.1. Phase I ESA

A Phase I Environmental Site Assessments (ESA) was completed by Malcolm Pirnie, Inc. in September 2007 for both Site properties. The Phase I ESA identified Recognized Environmental Conditions (RECs) and de minimis conditions at the Site. The RECs and de minimis conditions found during the ESA are listed below by the property tract in which they were identified:

1132 SENECA STREET

- Significant staining and cracking of the concrete floor within the manufacturing building was evident.

- "Oily-greasy" stained soil was observed in the grassed area located north of the manufacturing building. The stained soil was found proximate to an area of PCB impacted soil/sludge piles for which there is no documented remedial action.
- A limited subsurface investigation completed in 2001 (see Section 1.2.2) identified elevated PCB concentrations in soil samples collected in the northern grassed staging area mentioned above and in the interior rail loading dock area.
- Based on the age and condition of the manufacturing building, asbestos containing materials (ACM) and lead-based paint may be present as a de minimis condition.

1146 SENECA STREET

- As documented in a 2001 limited subsurface investigation report, evidence of the bio-treatment of petroleum contaminated soil characterized as "oily-greasy" soil was observed in the central portion of the 1146 property.
- Soil samples collected adjacent to a former gasoline filling station in the southeast quadrant of the 1146 property identified slightly elevated VOC concentrations in excess of STARS criteria.

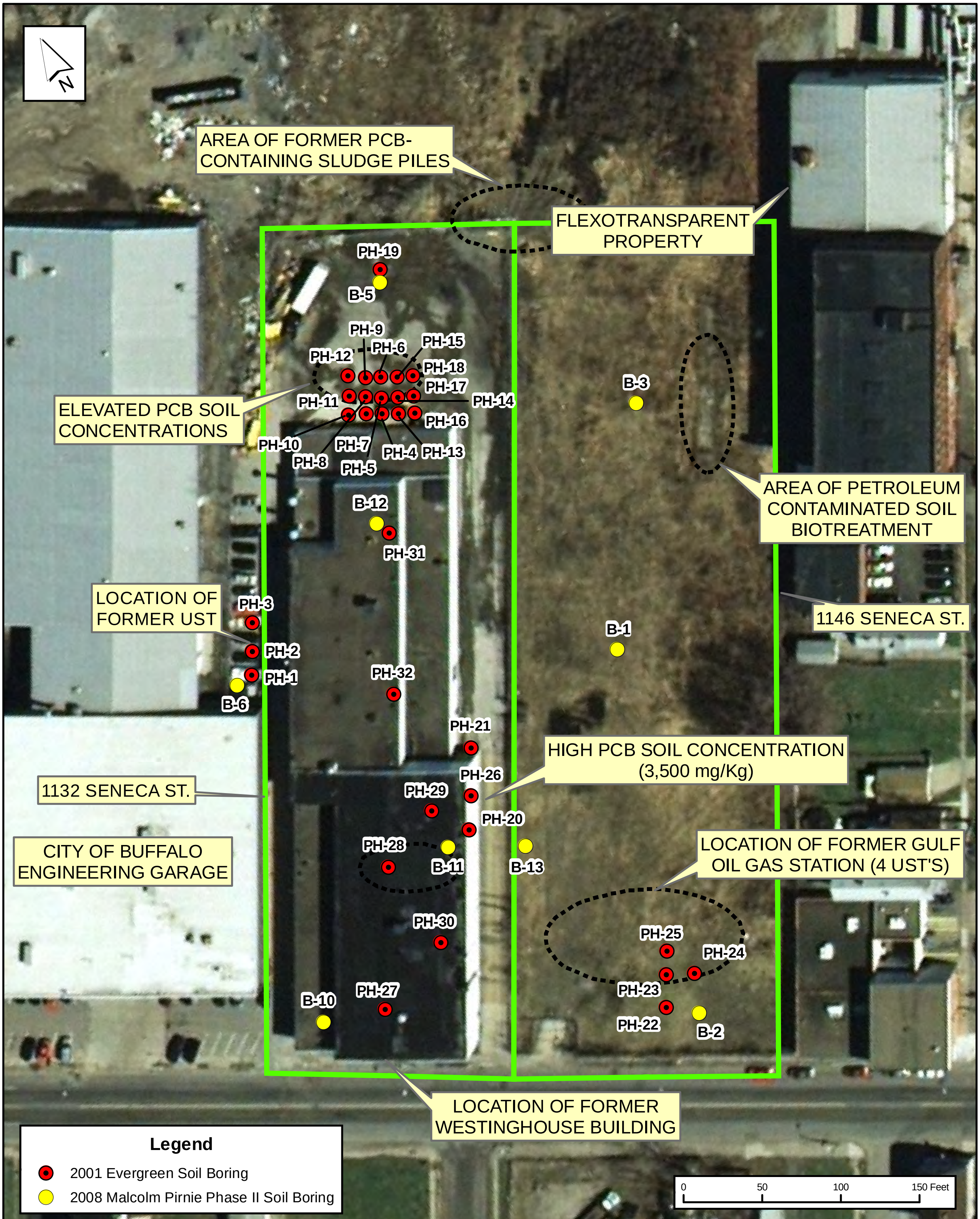
Figure 1-2 illustrates the locations of the above listed RECs.

Copies of the Phase I ESA is provided on compact disc (CD) in Appendix A.

1.2.2. Phase II Subsurface Investigation(s)

July 2001 **–** Working on behalf of Fibreright Manufacturing, Inc., Evergreen Testing and Environmental Services, Inc. was subcontracted to perform a limited environmental sampling and subsurface investigation of the 1132 and 1146 Seneca Street properties. The investigation was implemented based on environmental concerns identified in previous soil sampling and data review reports dated January, 1999 and May, 2001, respectively. Based on a review of historic Sanborn maps and documented on-site work practices, a geophysical and limited subsurface investigation was conducted to better characterize existing environmental conditions.

A non-invasive geophysical investigation was completed to further investigate areas of suspected or known USTs on the 1132 and 1146 properties. Results of the gridded survey identified a total of five magnetic anomalies designated A - E of which four were attributed to concrete pad foundations. Based on the findings of the geophysical investigation and suspected areas of contamination, 32 soil borings were drilled in areas of interest within the two properties. Borings were typically advanced to a depth of 6-8 feet bgs but were advanced to a maximum depth of 12 feet bgs in a former UST area located on the west side of the 1132 property. Soil/fill material was encountered in all borings measuring between 2.5 and 4.5 feet in thickness. A native soil unit consisting of clay or silty clay with interbedded sand was identified below the fill unit.



MALCOLM PIRNIE 6105001 OCT. 2008	REMEDIAL INVESTIGATION WORK PLAN	ENVIRONMENTAL CONCERNS AND HISTORIC SAMPLE LOCATIONS 1132 AND 1146 SENECA STREET, BUFFALO, NY	FIGURE 1-2

Groundwater was encountered in only four of the 32 borings on the 1132 and 1146 Seneca Street properties. The saturated conditions were identified in borings PH-2, PH-3, PH-4 and PH-5. Borings PH-2 and PH-3 were located in area that had been the focus of a tank removal located west of the manufacturing building on the 1132 Seneca Street property. Borings PH-4 and PH-5 were located in an area of PCB impacted soil removal located north of the manufacturing building. When present, the groundwater was encountered at a depth of less than 1.0' bgs as a perched or confined "bathtub" like condition within the backfill material. Only three of the 32 borings encountered PID readings above background concentrations, the highest being 20-25 PPM detected at boring PH-26 located in the area of the former railroad loading dock on the eastern side of the manufacturing building. Petroleum odors were also noted at two of the four borings advanced in the area of the former gas station on the 1146 property.

Based on soil screening criteria, soil samples were collected at select borings and submitted for off-Site chemical analyses that included both STARS and TCL volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), and in some cases polychlorinated biphenyl's (PCBs). Comparison of the analytical results with NYSDEC Soil Cleanup Objectives (SCOs) for PCBs indentified elevated concentrations above restricted residential use SCO in soil samples collected north of the manufacturing building (PH-4, PH-7, PH-8, PH-13, PH-18 and PH-19) and in probe hole PH-20 advanced in the loading dock area. The groundwater sample collected at sample location PH-2 located in the westernmost UST area did not detect parameters of concern above NYSDEC Class "GA" groundwater quality standards.

Figure 1-2 illustrates the locations of the 32 soil borings that were drilled and sampled within the BCP Site as part of the Evergreen investigation. A copy of the 2001Phase II Investigation report is included in the Phase I ESA -appendix C6 provided in **Appendix A.**

***March 2008* –** Malcolm Pirnie performed a Phase II investigation of the properties located at 1132 and 1146 Seneca Street in support of the BCP application. Surface and subsurface soil/fill samples were collected from direct-push soil borings drilled to maximum depths of 12 and 8 feet on the 1132 and 1146 Seneca Street properties respectively. Samples were analyzed for TCL VOCs, SVOCs, TAL metals and PCBs. Samples were analyzed by a NELAP certified laboratory and reported in a full Analytical Services Protocol (ASP) Category B data package.

The Phase II provided additional data for better characterization of the physical and chemical nature of the BCP site surface and subsurface soil/fill material. As shown on **Figure 1-2,** a total of nine borings were advanced and discrete soil samples collected based on PID screening results coupled with visual and olfactory observations. Analytical results of the soil/fill testing identified elevated levels of polychlorinated biphenyl's (PCBs) and two metals above NYS SCO restricted use criteria. Specifically, elevated concentrations of PCBs were detected at the boreholes B-5 (at the northern PCB removal area) and B-11(at the loading dock) on the 1132 property. Concentrations of arsenic and barium above the SCO criteria were detected in the soil/fill samples collected at the B-1 and B-3 sampling locations of the 1146 property. Measurable concentrations of VOC (BTEX compounds) were generally detected at the borehole locations B-1, B-2 and B-3 located on the 1146 property.

1.3 Site Investigation Results Summary

Analytical results from the Malcolm Pirnie Phase II Investigations of the two site properties (1132 and 1146 Seneca Street) are summarized in the July 2008 Phase II reports, see **Appendix B.** Results of these Phase II investigations confirmed the following:

Subsurface Soil/Fill Material

1132 Property

- The unconsolidated soil material identified below the building slab and north of the warehouse varies in composition and thickness. Generally the soil/fill consisted of fine to coarse sand with silt and clay admixed with varying percentages of brick, concrete, ash with cinders, and crushed stone. This fill unit was encountered at all boring locations. Dependent upon location within the site boundary, the thickness of the soil/fill ranged from 1.5 feet measured beneath the warehouse, to a maximum thickness of approximately 6.0 feet north of the building, and 11 feet in the former UST area located west of the building. The soil/fill unit is underlain by a stiff low permeability clay aquitard that limits the downward percolation of groundwater and contaminant transport.
- Concentrations of PCBs in excess of the NYS restricted commercial SCO were identified in soil samples collected in an area located immediately north of the warehouse building. Of particular note, PCB impacted soil/fill material exceeding the NYS restricted industrial SCO by two orders of magnitude was identified in soil material collected along the railroad loading dock located within the warehouse building on the 1132 Seneca property.
- Arsenic was detected at a concentration above the restricted industrial SCO at the B-10 sampling location advanced within the building complex. Barium was detected at a concentration exceeding the restricted commercial SCO at the same location.

1146 Property

- Fill materials generally consisted of black-gray, fine to coarse grain sand with silt and trace clay admixed with Construction and Demolition (C&D) debris comprised of wood, concrete, brick and gravel. Fill thickness on the 1146 Seneca Street property ranged from 0.6 to 2.3 feet.

- Native soil beneath the fill cover was described as an upper silt and sand underlain by clay and silt.
- One sample of the upper soil/fill material was collected from each of the four borings on the 1146 property and analyzed for TCL VOCs, SVOCs, PCBs, TAL metals and cyanide.
- No site-attributable VOCs were detected in any of the four samples collected. Methylene chloride (a laboratory artifact) was detected at low concentrations in all four samples.
- Several SVOCs were detected at very low concentrations in three of the four samples.
- PCB Aroclor 1260 was detected in one sample (B-3) at a concentration of 0.6 mg/kg.
- Arsenic and barium were detected in one or more samples above the restricted industrial and/or commercial SCOs.

Groundwater

- With the exception of the temporary monitoring well MW-4 located immediately north of the Site, all borings advanced during the 2008 investigation were observed to be dry.

1.3. Site Development Plan

The planned Flexo-Transparent Development project will encompass approximately 4 acres on the 1132 and 1146 Seneca Street properties in Buffalo, New York (the "Site") and may include a planned future development of the 1070 property, adjacent and to the north of the Site. The anticipated Project schedule requires renovation and rehabilitation of the existing building and will include a phased buildout. The proposed development will allow for expansion of Flexo's existing and growing business, will enhance property values in the immediate area, and provide employment opportunity in the Seneca-Babcock area.

Phased Development

The Site development will include the construction of manufacturing and office space designed to complement renovation of the existing building at 1132 Seneca and modernization of the Flexo complex on Wasson Street. Long term expansion plans of the Flexo Site will also include facility expansion within the 1070 Seneca Street property. Planned development of the BCP Site will entail construction of more than 60,000 ft^2 of office, manufacturing and parking space at 1146 Seneca and a 40,000 ft^2 renovation at 1132 Seneca.

2. Purpose

A Remedial Investigation is planned to further characterize the Site and support planned development in accordance with the requirements of the BCP. Based on the historical use of the Site and documented characterization results; Malcolm Pirnie has developed a work scope to further investigate surface and subsurface conditions. This Work Plan details specific tasks that will facilitate Site characterization and compliance with the NYSDEC BCP requirements. Specifically, when used in concert with results of previous investigations, the findings of the remedial investigation will be used to:

- Describe the amount, concentration, persistence, mobility, form (e.g., solid, liquid), and other significant characteristics of the contamination present.
- Define hydrogeological factors (e.g., depth to saturated zone, hydrologic gradients (if practical), proximity to a drinking water aquifer, and wetlands proximity).
- Define the aerial extent of the Site fill material and characterize the chemical composition of the fill.
- If applicable, define the extent to which the contaminants of concern have potential to migrate, and whether potential future migration may pose a threat to human health or the environment.
- Determine the extent to which contaminant levels pose an unacceptable risk to public health and the environment.
- Provide sufficient information to allow for the identification of potentially feasible remedial alternatives.

Develop Remedial Action Objectives (RAOs) for the Site based on the contaminant characterization results, exposure pathways, and risk evaluation data. Based on our knowledge of potential Site issues, the RAOs for the Site may require implementation of remedial actions designed to remove or cover impacted soil/fill material.

3. Investigation Scope of Work

Completion of the Phase II investigations provided documentation of impacts to the surface and subsurface soil/fill at selected areas within the BCP Site. These areas and others not yet investigated will be further characterized to determine the nature and extent of potential and known contaminant impacts.

The BCP Site has not been completely characterized. The proposed RI will characterize areas of interest (AOIs) and other areas of the BCP Site where sampling was not performed. Samples will be collected not only from the surface and subsurface soil/fill but also soil gas and groundwater (if present). Data collected during the RI will be used to identify potential health risks and to evaluate remedial alternatives other than those already planned as interim remedial measures (IRMs). Implementation of the anticipated IRMs is based on the analytical results that identified elevated PCB concentrations in soils samples collected in the railroad loading dock area and the undeveloped grassed area immediately north of the building at 1132 Seneca.

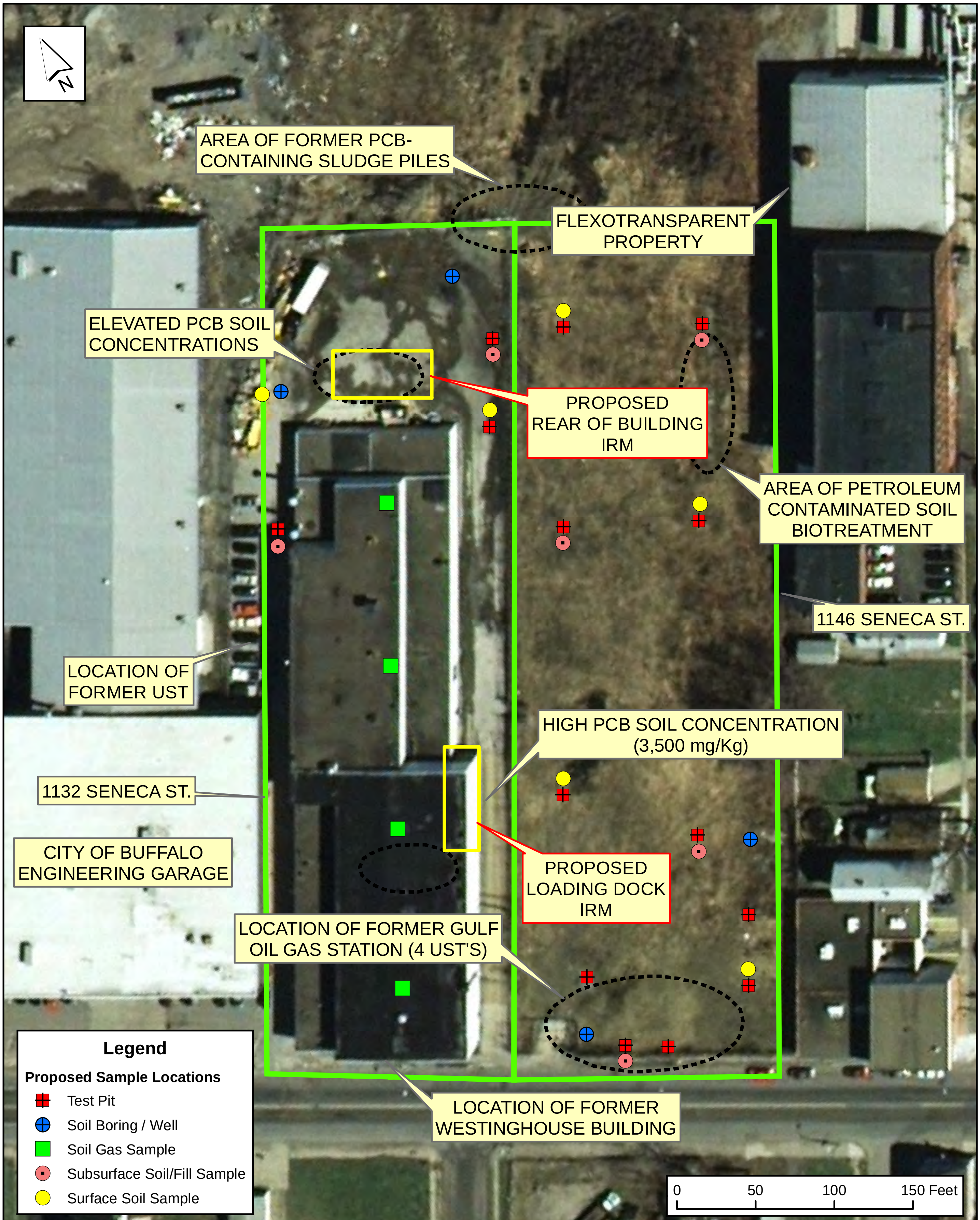
The investigation will include excavation of 14 shallow test pits, advancement and installation of four groundwater monitoring wells. Completion of the aforementioned sampling points will facilitate the collection of six surface soil/fill, six subsurface soil/fill, four soil vapor samples, and up to four groundwater samples.

Subsequent to NYSDEC approval of the RI Work Plan and Citizens Participation Plan and Health and Safety Plan, (Appendix B and C respectively) and requisite public comment period, Malcolm Pirnie will initiate the remedial investigation and prepare a report of findings. The major tasks and elements associated with this Work Plan are described in detail within this section. Proposed IRM locations are illustrated on **Figure 3-1**. Actual post-excavation IRM sample locations will vary based on field conditions/observations and logistics. **Table 3-1** provides a summary of samples to be collected during the RI.

3.1. Soil/Fill Characterization

3.1.1. Surface Soil Sampling Program

To better characterize surface soils within the BCP Site boundaries, the uppermost 2 inches of soil/fill will be collected at six sampling locations chosen to represent conditions unique to specific areas and/or proximity to known contaminant impacts. All surface soil samples will be collected at the same locations as proposed shallow test pit locations and analyzed for Target Compound List (TCL) Semi Volatile Organic



MALCOLM PIRNIE 6105002 OCT. 2008	REMEDIAL INVESTIGATION WORK PLAN	PROPOSED RI SAMPLE LOCATIONS 1132 AND 1146 SENECA STREET, BUFFALO, NY	FIGURE 3-1

TABLE 3-1

Analytical Program Summary
Remedial Investigation
1132 and 1146 Seneca Street Site
Buffalo, New York

Sample Media	Number of Samples				Analyses
	Field Samples	**Duplicates**	**MS/MSD Samples**	**Trip Blanks**	
Surface Soil Samples (6 from test pit/ soil borings)	6	1	1/1	1	TCL SVOCs TCL PCBs, TAL Metals and cyanide
Subsurface Soil/fill (6 from test pits and/or soil boring)	6	1	1/1	1	TCL VOCs TCL SVOCs TCL PCBs, TAL Metals and cyanide
IRM concrete/rail samples	4	0	0	0	TAL PCBs
IRM confirmation samples (12 – six per excavation)	12	2	2/2	2	TAL PCBs,
Groundwater (up to 4 temporary monitoring wells)	4	1	1/1	1	TCL VOCs TCL SVOCs TCL Pesticides, PCBs TAL total Metals and cyanide
Sub-Slab Soil Vapor (4 sample points)	4	1	0	0	TO15 VOCs

Notes:
MS = matrix spike
MSD = matrix spike duplicate
SVOCs = semivolatile organic compounds
TAL = target analyte list
TCL = target compound list
TO15 = Analytical method for VOCs in air
VOCs = volatile organic compounds

Compounds (SVOCs), polychlorinated biphenyls (PCBs) and target analyte list (TAL) metals with cyanide.

As shown on the **Figure 3-1**, two surface soil samples will be collected in the unpaved/undeveloped areas of the 1132 property; whereas, four samples will be collected at representative sample locations within the 1146 property.

3.2. Subsurface Investigation

Subsurface soil/fill samples collected in some areas of the BCP Site during the 2001 and 2008 Phase II investigations contained elevated concentrations of PCBs and select metals above the NYS Soil Cleanup Objectives (SCOs) for restricted industrial and restricted commercial use. Areas of Concern (AOC) in which elevated subsurface soil/fill concentrations were detected are located in three distinct areas within the BCP Site, including:

- An area of elevated PCB concentrations detected in subsurface soil sampled in the area immediately north of the existing 1132 building. (Elevated PCBs present in PH-4, PH-7, PH-8, PH-18, PH-19 and B-5).
- The rail loading dock area in the 1132 building (Elevated PCBs present in PH-20, and B-11)
- VOCs detected in soil samples collected from the vacant 1146 property in the vicinity of the former bioremediation pad and gasoline filling station. (VOCs present in PH-23, B-1, B-2 and B-3).

Interim Remedial Measures (IRMs) are planned for the PCB impacted areas north of the building and the railroad loading dock (see Section 3.4). Further investigation of AOCs within the Site will facilitate characterization of the Site in accordance with BCP requirements.

3.2.1. Test Pit /Soil Boring Program

Discussions with representatives of the NYSDEC formulated a scope of work that includes test pit excavation and soil sampling throughout the BCP Site to thoroughly characterize the surface and subsurface soil/fill and groundwater media.

A test pit excavation/soil boring program will be implemented to further characterize areas of concern identified during previous site investigations and to better characterize the overall Site soil/fill material and shallow groundwater, where present. The soil sampling program will require the excavation and/or advancement of up to 14 test pits and four soil borings advanced at predetermined Areas of Concern (AOCs) and at other locations of the BCP Site that have not yet been fully characterized. Proposed test pit/borehole locations as depicted in **Figure 3-1** may be adjusted in the field based on Site conditions, accessibility, or other logistical concerns.

Test Pits

Approximately 14 shallow test pits will be excavated to investigate possible soil/fill contamination. Test pits will be excavated to a depth sufficient to expose the underlying native silty clay layer or to refusal. The excavator used for the test pits will be capable of efficiently digging through compacted stone, asphalt, and concrete rubble as necessary. We anticipate that all test pits will be completed and backfilled (with the excavated materials) during a 1-2 day work period. Soil/fill samples will be collected from the test pits shown on Figure 3-1 based on screening criteria described below in subsection 3.2.2. For budgeting purposes, it is assumed that a total of 6 subsurface soil/fill samples will be collected and analyzed from the test pits.

3.2.2. Subsurface Soil/Fill Sampling

A drilling rig capable of advancing a borehole using direct push drilling methods will be used to advance four soil borings through the soil/fill and a minimum of two feet into the underlying native clay soil. Based on documented subsurface data collected from more than 40 Phase II investigation borings within the BCP Site, the depth to native soil ranged from less than 1.0 feet below ground surface (bgs) to a maximum of 12 feet bgs. The depth of the native soil material in the proposed area(s) of investigation is anticipated to be 3-4 feet bgs. The planned drilling method advances and retrieves soil core samples at four foot intervals; therefore the total depth of the borings is anticipated to be a maximum of eight feet. If however contaminant impacts or lithologic/saturated conditions warrant, select borings may be advanced deeper to better characterize subsurface conditions.

Upon retrieval of each soil/fill core, the soil/fill samples will be screened for total organic vapors using a photo-ionization detector (PID). The organic vapor measurements will be recorded and the soil/fill material described on boring logs by a Malcolm Pirnie geologist. Subsurface soil samples will be collected for chemical analysis as warranted or preferentially at the boring locations shown on **Figure 3-1**. The depth from which samples are collected will be determined based on screening results of visual and olfactory observations and PID measurements. Samples will be collected from the discrete depth interval that displays the greatest evidence of contamination, if present. Subsurface fill samples will be analyzed for TCL VOCs and SVOCs, Pesticides, PCBs, TAL metals, and cyanide.

For cost estimating purposes, the four boreholes advanced by drilling methods will be converted to temporary groundwater monitoring wells as it has been assumed that not every boring will be sampled for soil characterization and that a total of six subsurface soil/fill samples will be collected from the soil borings and test pits. A summary of proposed samples and analyses is provided in **Table 3-1**.

All non-dedicated, downhole sampling equipment will be decontaminated between soil boring locations in accordance with accepted drilling practices using a high-pressure hot water “steam” cleaner or scrubbed using alconox and a hot water wash followed by clean potable water rinse. Subsequent to borehole advancement at each boring location, a temporary monitoring well will be installed if saturated conditions are identified, or the boring will be grouted from total depth to grade level with a grout mixture of 95% cement and 5% bentonite.

3.2.3. Groundwater Monitoring Well Installation and Sampling

3.2.3.1. Site Hydrogeologic conditions

To date, a total of 41 soil borings were advanced during the Phase II investigations of the Site. The borings provide sufficient information to facilitate an understanding of the shallow hydrogeologic conditions across the BCP Site. With few exceptions, the Phase II borings were typically advanced to depths of 4 to 8 feet bgs with select borings located in the former UST area completed as deep as 12 feet bgs. As described above in Section 1.3, the uppermost soil/fill material identified at each drilling location generally consisted of disturbed sand with silt and clay admixed with C&D debris. The soil/fill thickness across the Site varied from a minimum 0.6 ‘as measured in the vacant 1146 property to a maximum thickness of 11.0’ measured in the former UST area.

Directly beneath the soil/fill layer is native soil which is described as a gray-brown sand and silt with trace clay and fine gravel. The sandy –silt unit transitions with depth to a stiff brown clay or silty clay unit that is correlative across the site. The clay aquitard is characterized as dense with weak plasticity due to trace amounts of silt and sand laminae within the clay matrix. The clay/silty clay unit was generally encountered at an average depth of approximately four-five feet below grade. Based subsurface data and geologic publications and experience at nearby investigation sites, the clay layer at this Site is believed to be continuous and greater than 15’ feet thick. Such a clay layer would greatly impede downward migration of groundwater (and dissolved contaminants if present in the groundwater) to deeper groundwater in the underlying bedrock.

A perched or confined groundwater condition was encountered at only 4 of the 41 borings drilled on Site all of which were located on the 1132 property in thickened fill areas of the west and north sides. Based on the hydrogeologic conditions encountered during the investigations described above, groundwater will not be encountered at the depth of interest at most locations drilled during the RI. If however, a saturated groundwater condition is encountered, a monitoring point will be installed and the groundwater sampled and analyzed. For cost estimating purposes, it has been assumed that groundwater will be sampled at four borehole locations.

3.2.3.2. Monitoring Well Installation

Four soil borings will be drilled and completed as 1 inch PVC micro-wells to be used for measuring water levels and collecting groundwater samples. The locations will be determined after consultation with the NYSDEC project manager, but will also depend on the presence of saturated soils in the fill unit at the proposed monitoring well locations shown on **Figure 3-1**. Micro-wells will be installed after soil cores have established the presence of saturated conditions (and any soil samples have been collected from the selected borings). The micro-wells will be screened in the saturated overburden soils using sand-packed well screens. The total depth of the wells is expected to be within 15 feet of ground surface. Provided that each of the micro-wells yields sufficient water, groundwater samples will be collected from each of the micro-wells using low flow sampling methods. For budgeting purposes, it is assumed that four groundwater samples will be collected. At each location, field parameters of temperature, conductivity, pH, and turbidity will be measured before sampling.

3.2.3.3. Well Development

The newly installed monitoring wells will be developed no sooner than 24 hours after construction has been completed. The development procedure will require purging of the groundwater and periodically surging the water in the well to loosen and remove suspended fines from the well screen and sandpack. Measurements of the water volume removed and water quality parameters including temperature, pH, conductivity, and turbidity will be recorded at regular intervals throughout the development process. Development will continue until water quality measurements stabilize to within 10% of the previous measurement.

3.2.3.4. Groundwater Sample Collection

Groundwater will be collected from each temporary well using low flow sampling techniques by dedicated plastic flex tubing and a peristaltic pump. If low-flow sampling is not feasible due to insufficient groundwater recharge rate, new and dedicated disposable bailers may be used to collect the groundwater samples. If sufficient groundwater volume is available, each well will be sampled for TCL VOCs, SVOCs, Pesticides, PCBs, TAL metals, and cyanide.

Groundwater field parameters will be monitored during well purging prior to sampling including pH, specific conductivity, temperature, turbidity, and dissolved oxygen.

All groundwater samples will be collected in the precleaned and pre-preserved laboratory sample bottles in accordance with protocols for analyses shown on **Table 3-1**. Appropriate QA/QC samples will be collected for the groundwater sampling event including one trip blank, one MS, one MSD, and one field duplicate sample. Subsequent to sample collection all groundwater samples will be placed on ice and shipped under chain of custody to the selected analytical laboratory.

3.3. Air Quality Characterization

Based on the results of previous environmental investigations conducted at the Site, subsurface soil/fill material on Site has been shown to contain volatile organic compounds (VOCs) and SVOCs including carcinogenic polycyclic aromatic hydrocarbons (PAHs). A potential pathway exists whereby these compounds in the vapor phase may migrate from the soil and could affect the quality of air in the on-Site building at 1132 Seneca Street. To evaluate the potential for intrusion of vapor originating from soil underlying the building, Malcolm Pirnie will collect and analyze four soil vapor samples from beneath the Site building. The proposed soil vapor sampling locations are shown on **Figure 3-1**.

The soil vapor samples will be collected by advancing a small (~1/2") diameter borehole to a maximum depth of 0.5' feet below the concrete slab floors of the buildings to allow for the installation of the soil vapor sampling device. A stainless steel sampling point (KVA Shield Point or similar device) will be connected to Teflon-lined tubing and placed in the borehole. Clean silica sand will be poured around and a minimum of six-inches above the sampling point. A hydrated bentonite powder will then be used to seal the sampling point from the top of the sand pack to the floor surface.

A tracer gas will be used to validate the performance of the sample point seal. Helium tracer-gas testing will be conducted at each sample point to ensure that an effective seal has been established. The helium tracer gas test will be conducted as follows:

1. A small plastic bucket-like container will be placed inverted over the sampling point. The container will have three drilled holes for; helium introduction, ambient air release, and passage of the sample probe tubing.
2. The container will be filled with laboratory grade helium which will be measured using a helium detector to ensure greater than 90% concentration of helium in the container.
3. Using sampling tubing, a 3-way valve, and a disposable syringe, approximately 1 liter of air/vapor will be purged from the sample point to a Tedlar® bag at a consistent flow rate of less than or equal to 0.2 liters per minute. The sub-slab vapor will be purged into a Tedlar® bag to not influence the indoor air quality.
4. The Tedlar® bag will be tested outdoors using the helium detector capable of reading to PPM and percent levels and all readings meter readings will be recorded.
5. If concentrations > 10% of tracer gas are observed in the Tedlar® bag, the probe seal will be enhanced to reduce the infiltration of air and the seal retested as described above.

Prior to sample collection, an electric peristaltic pump capable of producing a vacuum of at least 20 inches of mercury will be used to purge air from the vapor sampling borehole. Soil vapor will be purged at a rate not greater than 0.2 liters per minute for 15 minutes.

Following purging, a grab sample will be collected in a 6-liter Summa canister fitted with a one-hour regulator (using a sampling rate of 0.1 liters per minute) resulting in a sample collection period of one hour per sample.

The subsurface soil vapor samples will be collected from four sub slab sampling points and analyzed for VOCs by the analytical Laboratory using USEPA Compendium Method TO-15. The lists of compounds analyzed by method TO-15 as well as the method reporting limits are provided in **Table 3-2**.

3.4. Site Survey

A topographic base map of the Site will be prepared at a scale of one-inch equals 50 feet, with a one-foot contour interval. The map will be used to locate the site boundary and pertinent Site features including buildings, roadways, fences, as well as IRM, monitoring well and sample locations.

The base map will be prepared by a New York State licensed surveyor as a subcontractor to Malcolm Pirnie. All mapping will conform to specifications for size, distribution and content as established by the USGS National Mapping division. Digital mapping will be supplied on an AutoCADD 2008 drawing. The surveyor will establish the horizontal location and vertical elevations using the New York State Plane Coordinate System and most recent vertical datum. Elevations of the ground surface and top of PVC riser will be measured and recorded for each monitoring well.

As required under the BCP agreement, an ALTA survey will be completed after the RI as part of the overall Site development.

TABLE 3-2

TO 15 Target Compounds[1]
Remedial Investigation
1132 and 1146 Seneca Street Site
Buffalo, New York

Compound	CAS Number	Proposed RL ppbv	NJTO15	Full TO15
Acetone (2-propanone)	67-64-1	5.0	X	X
Benzene	71-43-2	0.20	X	X
Bromodichloromethane	75-27-4	0.20	X	X
Bromoethene	593-60-2	0.20	X	X
Bromoform	75-25-2	0.20	X	X
Bromomethane (Methyl bromide)	74-83-9	0.20	X	X
1,3-Butadiene	106-99-0	0.20	X	X
2-Butanone (methyl ethyl ketone)	78-93-3	0.50	X	X
Carbon disulfide	75-15-0	0.50	X	X
Carbon tetrachloide	56-23-5	0.20	X	X
Chlorobenzene	108-90-7	0.20	X	X
Chloroethane	75-00-3	0.20	X	X
Chloroform	87-66-3	0.20	X	X
Chloromethane (methyl chloride)	74-87-3	0.20	X	X
3-chloropropene (allyl chloride	107-05-1	0.20	X	X
2-chlorotoluene (o-chlorotoluene)	95-49-8	0.20	X	X
Cyclohexane	110-82-7	0.20	X	X
Dibromochloromethane	124-48-1	0.20	X	X
1,2-dibromoethane	106-93-4	0.20	X	X
1,2-dichlorobenzene	95-50-1	0.20	X	X
1,3-dichlorobenzene	541-73-1	0.20	X	X
1,4-dichlorobenzene	106-46-7	0.20	X	X
dichlorodifluoromethane	75-71-8	0.20	X	X
1,1-dichloroethane	75-34-3	0.20	X	X
1,2-dichlorethane	107-06-2	0.20	X	X
1,1-dichloroethene	75-35-4	0.20	X	X
1,2-dichloroethene (cis)	155-59-2	0.20	X	X
1,2-dichloroethene (trans)	156-605	0.20	X	X
1,2-dichloropropane	78-87-5	0.20	X	X
Cis-1,3-dichloropropene	10061-01-5	0.20	X	X
Trans-1,3-dichloropropene	10061-02-6	0.20	X	X
1,2-dichlorotetrafluoroethane (Freon 114)	76-14-2	0.20	X	X
Ethylbenzene	100-41-4	0.20	X	X
4-Ethyltoluene (p-ethyltoluene)	622-96-8	0.20	X	X
n-heptane	142-82-5	0.20	X	X
hexachlorobutadiene	87-68-3	0.20	X	X
n-hexane	110-54-3	0.20	X	X
methylene chloride	75-09-2	0.50	X	X
4-methyl-2-pentanone (MIBK)	108-10-1	0.50	X	X
MTBE (methyl tert-butyl ether)	1634-04-4	0.50	X	X
Styrene	100-42-5	5.0	X	X
Tertiary butyl alcohol (TBA)	75065-0	0.20	X	X
1,1,2,2-tetrachloroethane	79-34-5	0.20	X	X
Tetrachloroethene (PCE)	127-18-4	0.20	X	X
Toluene	108-88-3	0.50	X	X
1,2,4-trichlorobenzene	120-82-1	0.20	X	X
1,1,1-trichloroethane	71-55-6	0.20	X	X
1,1,2-trichloroethane	79-00-5	0.20	X	X
1,1,2-trichloro-1,2,2-trifluoroethane (Freon TF)	76-13-1	0.20	X	X
Trichloroethene (TCE)	79-01-6	0.20	X	X
Trichlorofluoromethane (Freon 11)	75-69-4	0.20	X	X
1,2,4-trimethylbenzene	95-63-6	0.20	X	X
1,3,5-trimethylbenzene	108-67-8	0.20	X	X
2,2,4-trimethylpentane	540-84-1	0.20	X	X
Vinyl chloride	75-01-4	0.20	X	X
Xylenes (m&p)	1330-20-7	0.20	X	X
Xylenes (o)	95-47-6	0.20	X	X
1,2-dichlorethene (total)	540-59-0	0.20		X
1,4-dioxane	123-91-1	5.		X
Isopropyl alcohol	67-63-0	5.0		X
Methyl butyl ketone	591-78-6	0.50		X
Methyl methacrylate	80-62-6	0.50		X
Naphthalene (upon request only)	91-20-3	0.50		X
tetrahydrofuran	109-99-9	5.0		X

[1]NJ compounds have NJ-assigned compound names.
RL = Reporting limit

4. Interim Remedial Measures Scope of Work

As discussed above in Section 3.2, analytical results from previous investigation and a recently completed soil boring program identified elevated PCB concentrations in soil/fill material at two Areas of Concern located on the 1132 Seneca Street property. Impacted soil/fill material was found to extend from the surface to a depth of approximately two feet below ground surface (bgs) in the area adjacent to the loading dock and to a maximum depth of six feet bgs in the area rear of the building. The areal extent of the two impacted areas has not been completely delineated. The approximate location of the two AOCs are illustrated on **Figure 3-1.**

The remediation of these two impacted soil AOCs will be completed as Interim Remedial Measures (IRMs).

4.1. Objectives

The objectives of the IRMs are to:

- reduce the potential for exposure to PCB contaminated soil/fill
- reduce the potential for Site contamination to impact groundwater beneath the Site and off-Site locations,

The PCB impacted soil/fill at the interior loading dock is located beneath a concrete floor with one set of rail lines. The IRM at this location will require removal and off-site disposal of steel rails and concrete flooring. The concrete and steel will be characterized prior to off-site disposal. One composite sample of each material will be collected and analyzed for PCBs.

With the exception of the removal and disposal of the concrete floor and rails at the loading dock area, both IRMs will involve similar tasks, these include:

A. Removal and off-site disposal of impacted soil/fill
B. Post excavation soil sampling
C. Backfill Placement
D. Health and safety and monitoring

Each of these tasks is briefly described below:

A. Delineation of Extent and Removal of Impacted Soil/Fill

Initial dimensions of the impacted soil/fill excavation will be based on historical analytical results. As shown on **Figure 3-1,** an excavation measuring approximately 30' long and 10' wide will be extended laterally to encompass impacted soils in the loading dock area. The excavation area north of the building initially planned to be an area measuring 50' long and 30' wide. The depth of excavation will be limited based on the removal of unsaturated fill material sufficient to expose the underlying native soil or to the depth of groundwater saturation.

The impacted soil/fill will be removed using an excavator and placed either directly into trucks for off-site disposal, or stockpiled on plastic sheeting adjacent to the excavation pending characterization and subsequent disposal. To prevent possible runoff in the event of rain or high winds, stockpiled soil/fill will be covered with 6 mm polyethylene sheeting. A perimeter of hay bales will be positioned around the base of the soil pile to control runoff.

B. Post Excavation Soil Sampling

Subsequent to excavation, soil samples will be collected within defined lateral boundaries of the proposed remediation area to confirm complete removal relative to the Restricted Commercial Use SCO for PCBs (1 PPM). A representative soil sample will be collected from the base of the excavation and vertical face of each of the excavation boundaries and analyzed for PCBs. Should analytical results detect PCB concentrations in excess of 1 PPM, the area of excavation will be extended and the working face re-sampled for PCBs.

For purposes of cost estimation, a total of six soil samples will be collected at each AOC and will include the required QA/QC samples.

Soil samples from the two AOCs will be analyzed by the analytical methods listed in the Table 1 below.

Table 1
1132 & 1146 Seneca Street BCP Site
IRM Post Excavation Soil Sampling

ANALYTICAL PARAMETERS AND METHODS

Parameters	Method	Soil	Quality Control			Total
			MS	MSD	DUPL	
PCBs	8082	12	1	1	1	15

C. Backfill Placement

Soil brought to the Site for use as backfill shall be comprised of soil or other unregulated material as defined in NYCRR Part 375 Part 6.7(d) which states that the soil not exceed the applicable soil cleanup objectives for the use of the Site, as set forth in Tables 375-6.8(b), the lower of the protection of groundwater or the protection of public health soil cleanup objectives, for the identified use of the Site.

Analytical data is required to demonstrate that the material complies with these requirements. The number of samples required to confirm compliance is as follows:

- Virgin soils (soils that are known to have not been developed upon or moved since their formation) should be subject to collection of one representative composite sample per source. The sample should be analyzed for TCL VOCs, SVOCs, pesticides, PCBs, and TAL metals plus cyanide.
- Non-virgin soils will be tested via collection of one composite sample per 500 cubic yards of material from each source area. If more than 1,000 cubic yards of soil are borrowed from a given off-Site non-virgin soil source area and both samples of the first 1,000 cubic yards meet the criteria specified above, the sample collection frequency will be reduced to one composite for every 2,500 cubic yards of additional soils from the same source, up to 5,000 cubic yards. For borrow sources greater than 5,000 cubic yards, sampling frequency may be reduced to one sample per 5,000 cubic yards, provided all earlier samples met the specified criteria.

Possible Site specific exemption for the analytical testing requirements may be possible, based upon documentation of the origin and composition of the material.

D. Site Safety and Monitoring

A Site Specific Construction Health and Safety Plan has been prepared and will be implemented during the IRMs. Air within the breathing zone will be monitored for volatile organic vapors using a PID and for airborne dust using a random aerosol monitor both at the work site and periodically downwind. The work site will be surrounded by temporary construction fencing and appropriate warning signage to keep the public away from potential physical hazards of the work site. The excavation will be backfilled as necessary based on the design of the redevelopment plans.

5. Qualitative Human Health Risk Assessment

A qualitative human health risk assessment will be conducted to determine if the presence and concentrations of chemicals in the environmental media at the Site pose potential human health concerns. The assessment will encompass both on-Site and off-Site risks with the results of the exposure analysis used as one of the criteria to determine the most appropriate future actions at the Site. These may range from no further action, to additional data collection, to quantitative health risk assessment and the establishment of risk-based action levels. The assessment will begin with the construction of a conceptual Site model, a graphic illustration that outlines chemical source areas, possible chemical release mechanisms, environmental media that currently show or may show in the future the presence of chemicals, possible exposure pathways, possible points of exposure for human receptors, possible exposure routes, and possible human receptors. The conceptual model will be based on current Site conditions and surrounding land use as well as the planned future Site and surrounding land uses. For environmental media that may be of concern, qualitative evaluations will be made for the four components that typically comprise a health risk assessment: data evaluation; exposure assessment; toxicity assessment; and risk characterization/uncertainty analysis. In the data evaluation, chemical concentrations in the various media will be compared to appropriate NYSDEC risk-based standards and criteria (e.g., NYSDEC Soil Cleanup Objective and Cleanup Levels, Water Quality Standards, etc.). Chemicals detected in concentrations greater than these standards and criteria will be identified as chemicals of potential concern. In the exposure assessment, an evaluation will be made of the likelihood and magnitude of exposure to the chemicals of potential concern in environmental media of concern. This will involve outlining possible exposure routes and plausible exposure times, frequencies, and durations. In the toxicity assessment, the toxicity of the chemicals of concern will be outlined. This will include identifying known or suspected carcinogens and/or the target organ/system of concern for noncarcinogenic effects. In the risk characterization, information from the three components will be integrated, to estimate the likelihood and magnitude of possible health risks.

Fact sheets documenting the goals and progress of the project will be prepared at key milestones of the project and distributed to those on the project mailing list. The distribution list is included in the Citizens Participation Plan which is provided in **Appendix C.**

6. Quality Assurance /Quality Control (QA/QC)

6.1. Analytical Methods

All samples collected during the BCP Remedial Investigation will be analyzed using EPA-approved analytical methods that follow the most recent edition of the EPA's "Test Methods for Evaluating Solid Waste" (SW-846), Methods for Chemical Analysis of Water and Wastes" (EPA 600/4-79-020), and Standard Methods for Examination of Water and Wastewater" (prepared and published jointly by the American Public Health Association, American Waterworks Association and Water Pollution Control Federation).

6.2. Laboratory

The subcontracted laboratory will be certified by the New York State Department of Health to perform Contract Laboratory Program (CLP) analysis on all media to be sampled during this investigation. The laboratory will perform the sample analysis in accordance with the most recent NYSDEC Analytical Services Protocol (ASP).

6.3. Data Submittal

Analytical data will be submitted in complete ASP category B data packs. Procedures for chain of custody, laboratory instrumentation calibration, laboratory analyses, reporting of data, internal quality control, and corrective actions shall be followed as per SW-846 and as per the laboratory's Quality Assurance Plan. Where appropriate, trip blanks, field blanks, field duplicates, and matrix spike, matrix spike duplicate shall be performed at a rate of 5% and will be used to assess the quality of the data. The laboratory's in-house QA/QC limits will be utilized whenever they are more stringent than those suggested by the EPA methods.

6.4. Data Usability Summary Report

The data package will be sent to a qualified, independent, data validation specialist for evaluation of the accuracy and precision of the analytical results. A Data Usability Summary Report (DUSR) will be prepared to describe the compliance of the analyses with the analytical method protocols detailed in the NYSDEC Analytical Services Protocol (ASP). The DUSR will provide a determination of whether the data meets the project-specific criteria for data quality and data use. The validation effort will be completed in accordance with NYSDEC Division of Environmental Remediation DUSR guidelines.

7. Health and Safety

Field tasks will be performed using industry standard health and safety procedures. A site-specific Health and Safety Plan (HASP) has been prepared for use by the field team during all field activities. This plan details known and potential hazards of the Site and field tasks as well as air monitoring and emergency procedures. The HASP is presented in **Appendix D.**

7.1. Community Air Monitoring

Most of the planned RI work will be completed outdoors on the property surrounding the existing build at 1132 Seneca Street. Where intrusive drilling or excavation operations are planned, community air monitoring will be performed to protect the downwind community. A Malcolm Pirnie representative will continually monitor the breathing air in the vicinity of the immediate work area using PID instrumentation capable of measuring total volatile organic compounds in air at concentrations as low as 1 part per million (PPM). The air in the work zone also will be visually monitored for dust generation. If sustained VOC measurements above 5 PPM, or visible dust generation is observed, the intrusive work will be temporarily halted and a more rigorous monitoring of VOCs and dust using recordable meters will be implemented in accordance with the NYSDOH Generic Community Air Monitoring Plan (CAMP). A copy of the CAMP is provided with the Health and Safety Plan in **Appendix D**.

8. Project Organization

Malcolm Pirnie has established a project team for the Flexo 1132 & 1146 BCP Site whose collective qualifications and experience are strongly suited for successful completion of the project. The proposed responsibilities of the key staff are summarized below:

Kent McManus, PE, will be the Project Manager for the work. In this capacity Mr. McManus will be responsible for the successful completion of each task including coordination and supervision of engineers and scientists, and adherence to the work plan, schedule and budget.

Jim Richert, CPG, will be the Quality Leader, responsible for the development of the work plan, coordination of subcontractors, direction of the field program including maintaining quality assurance policies that pertain to all aspects of sampling, well drilling and development.

Adam Mazenauer, will be the field geologist responsible for implementing the field effort. Responsibilities will include sample collection, well development and directing Malcolm Pirnie's drilling subcontractors, and ensuring the successful completion of all field activities.

Shi Ng, will be the Quality Assurance Officer (QAO). Mr. Ng will assist the project manager in the development of the work plan, interface with the laboratory to make requests and resolve problems and interface with the data validator during development of Data Usability Summary Reports.

9. Reporting

Following receipt of the validated analytical results, Malcolm Pirnie will prepare a Remedial Investigation Report and a Remedial Action Work Plan (RAWP) with an attached Soil/Fill Management Plan (S/FMP). Preparation of the report will entail a summary of fieldwork performed to date; data collected, and will include appropriate summary data tables, soil boring and well construction logs, analytical results, photos, and maps. The report will also include Malcolm Pirnie's recommendations for further characterization of the Site, if necessary. If no additional characterization is required, as anticipated, the RI report will include a Qualitative Human Health Risk Assessment. If additional investigation is required, the Qualitative Human Health Risk Assessment will be completed following the receipt of validated results of the additional characterization.

The Remedial Action Work Plan will include an evaluation of remedial alternatives. Data obtained during previous investigations will be utilized along with the planned end use to identify, select, and evaluate remedial action alternatives for the Site. Potential Site constituents and migration pathways will be categorized as follows:

- Indoor Air and airborne dust.
- Soil/Fill.
- Groundwater.

Once the degree of contamination associated with these media and other Site characteristics are quantified, General Response Alternatives for Site remediation will be defined. The General Response Alternatives that are considered will include the "no action" measure as a baseline against which other remedial measures, if necessary, can be compared.

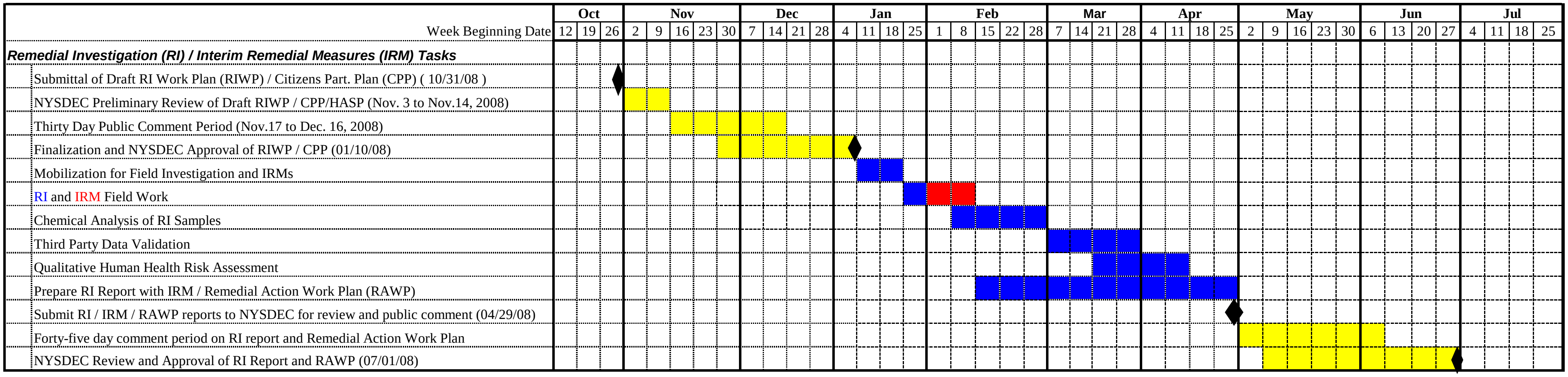
The RAWP will also include a Soil/Fill Management Plan, which will describe a plan for characterization and handling of excavated soil/fill based on NYSDEC Soil Cleanup Objectives as specified in 6 NYCRR Subpart 375-6.

10. Project Schedule

A schedule showing the planned remedial investigation activities and assessment of remedial alternatives is included in **Figure 10-1**.

FIGURE 10-1

SCHEDULE OF PLANNED REMEDIAL INVESTIGATION/INTERIM REMEDIAL MEASURES ACTIVITIES
1132 and 1146 SENECA STREET SITE
BUFFALO, NEW YORK
BCP REMEDIAL INVESTIGATION



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