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Work Plan

Brownfield Site Investigation
Pass & Seymour
50 Boyd Avenue
Solvay, New York

September 2004

Stearns & Wheler
Companies

WORK PLAN

BROWNFIELD SITE INVESTIGATION
PASS & SEYMOUR
50 BOYD AVENUE
SOLVAY, NEW YORK

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2004

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICIES

SECTION 1 - INTRODUCTION

The Pass & Seymour facility ("site") is located at 50 Boyd Avenue in the village of Solvay, Onondaga County, New York (Figure 1). The site is located approximately ½ mile south of the New York State Fairgrounds, approximately 5 miles west of downtown Syracuse.

The site consists of 18.07 acres, and is currently owned and occupied by Pass & Seymour, Inc. ("P&S"), which has its corporate office and a warehouse on the premises. Currently, the office building consists of approximately 45,000 square feet on the eastern portion of the site, and the warehouse encompasses approximately 660,000 square feet on the western portion of the site (Figure 2). Past operations at the site occurred in a larger building footprint (Figure 2), much of which has been demolished leaving the two remaining structures.

The site has been used as an industrial facility since the early 1900s. A range of industrial activities have occurred on site, primarily steel milling and porcelain equipment manufacturing. Former manufacturing facilities on the site included oil-fired boilers, metal working areas, clay kilns, a machine shop, several petroleum above ground and underground storage tanks, several small sheds, and a warehouse. Most of these facilities were removed from the site as the buildings were demolished. However some are known to remain in place, for example three of the underground storage tanks (USTs). There is currently no manufacturing at the site.

P&S has completed an application for the site under the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP). Under the BCP, a Brownfield Site Investigation must be completed in accordance with NYSDEC's draft *Brownfield Cleanup Program Guidance* and *Technical Guidance for Site Investigation and Remediation* (DER-10), to provide a systematic assessment of environmental conditions on the property. This Work Plan sets forth the scope and methods for completing the Brownfield Site Investigation, and includes the following supporting documents:

Appendix A – Historical Sanborn Fire Insurance Maps
Appendix B – Site Health and Safety Plan
Appendix C – Quality Assurance Project Plan
Appendix D – Sample Community Participation Plan

SECTION 2 – SITE DESCRIPTION AND HISTORICAL SUMMARY

2.1 - SITE LAYOUT

The site is used by P&S as corporate headquarters. Employees occupy office space on the eastern portion of the site. The former manufacturing building west of the office building is used as a warehouse to store former manufacturing equipment, office equipment, and materials that are no longer used on the premises. Current site operations include administration, accounting, and research and development. There is currently no manufacturing at the site, and the warehouse building, except for the equipment and materials it contains, is unoccupied.

S&W Redevelopment of North America, LLC (SWRNA) completed a site reconnaissance visit on July 21, 2004. During that visit, it was confirmed that the former manufacturing building is unoccupied by site personnel, and is not used in any functional capacity for current site operations. The manufacturing building is surrounded by a perimeter fence and sits in an abandoned state.

The site grounds are covered by a combination of paved and landscaped areas. Landscape around the office building consists primarily of a maintained grassy field with ornamental shrubs and planters adjacent to the building entrance. Around the warehouse building perimeter there is pavement, with invasive woody plants and weeds that provide a thick vegetative cover that becomes denser to the west.

The approximate elevation of the site is 410 feet above mean sea level. Site topography is generally flat, although topographic relief increases to the south, where ground elevations rise to greater than 500 feet. Topography slopes gradually to the north-northeast of the site, towards Onondaga Lake, which is approximately 1 mile northeast of the site.

The site is bordered by a municipal solid waste landfill to the north (the Solvay transfer Station), a furniture store and warehouse to the east (China Towne Furniture), and an iron foundry facility to the west (Frazer and Jones). Railroad tracks and Milton Avenue bound the site to the south. Further to the south is a variety of commercial businesses and a residential neighborhood.

There are no surface water bodies or mapped wetlands on or immediately adjacent to the site.

2.2 - SITE HISTORY

The facility currently owned and operated by P&S was originally constructed in the late 1800s as a steel mill. A 1911 Sanborn fire insurance map (Appendix A) indicates that the site was occupied by Pass & Seymour Inc for the manufacture of porcelain insulators. The map identifies clay and metal working areas and five kilns in the area south of the current office building, in what was later known as Building 10.

By 1950 the building footprint on the eastern portion of the site had expanded northward to include the area of the current office building. The 1950 map indicates the facility was used to manufacture electrical equipment. The previous clay and metal working areas are still evident on the map, along with an additional kiln. New buildings are also evident on the western portion of the site, constructed of steel frames with earthen floors, and used as warehouses and storage areas. East of the existing office location a warehouse and storage bins are indicated. Additional detail on the 1950 map includes a coal storage area and a boiler room in Building 14, a paint spray area in the northern portion of Building 15, and a lacquer spraying area in Building 11. The current office space was apparently used for assembly, packing, and office areas.

A 1954 map indicates additional portions of the western manufacturing building that have been constructed. By 1968 the majority of site facilities had been constructed. The office building apparently had a machine shop on the first floor, and offices on the second and third floors. The manufacturing building is identified as having storage and shipping areas. Other site features include the boiler room, paint room, and lacquer spray room. The 1990 map indicates a similar site layout as the 1968 map.

Although not apparent on the Sanborn maps, it is known that the western portion of the site, west of the site buildings, was used as a disposal area. The majority of the disposed material was rejected material from the ceramic manufacturing process. The landfill reportedly operated from the early 1900s through the 1980s, and includes most of the western portion of the site.

The layout of prior site operations, and the results of previous site investigations (see Section 3) provides a basis for focusing attention on specific site areas that are most likely to have potential sources of contamination. In addition to the aforementioned western landfill, specific locations for chemical storage, petroleum underground storage tanks (USTs), and manufacturing areas that utilized various chemicals have been identified by previous site investigations. Although these specific site areas are the main focus of the Brownfield Site Investigation, the sampling program is also aimed at providing site-wide representation.

SECTION 3 - SUMMARY OF PREVIOUS SITE INVESTIGATIONS

A site investigation was completed in 1993, as a result of which nine (9) specific areas of concern (AOCs) were identified. Subsequent sampling and analysis in 1994 and 1995 was directed at specific AOCs to further define and in some cases to mitigate the detected impacts. Data derived from these previous site activities provide useful background information for developing a Brownfield Site Investigation scope.

3.1 - 1993 SITE INVESTIGATION

O'Brien & Gere Engineers (OBG) completed a site investigation in 1993, to assess potential impacts to site soils from previous site activity. The following information is derived from the *Site Investigation Report* (OBG, October 1993).

The 1993 Site Investigation Report (SIR) identified nine (9) specific areas of concern (AOCs). The AOCs were initially identified based on site inspection and historical site operation information, and were subsequently investigated. The investigation approach targeted primarily shallow soils within each specific area to assess the likelihood of impacts in each area. Table 1 summarizes the analytical findings of this area-specific investigation. Each of the following AOCs is identified on Figure 3. The results of the 1993 investigation program are described below.

A. TRANSFORMER STORAGE PAD

This area consisted of a concrete pad approximately 4 ft wide by 50 ft long, located west of the former Building 11. The pad had been used in the past for the temporary storage of transformers that had not yet been removed from the site. At the time of the 1993 site investigation, no transformers were observed and the pad was no longer being used.

Three holes were bored through the concrete pad, and the concrete dust from the pad was analyzed for PCBs. Two of the three concrete dust samples contained PCBs (2.3 ppm and 3.9 ppm, respectively).

At the time of SWRNA's July 21, 2004 site visit the transformer pad was no longer visible. A raised planter bordered by landscape timbers is located in the approximate location of the former pad. A monitoring well was also discovered adjacent to the

planter. This well, and six others observed during the site visit, were not installed as part of the prior site investigations for which information is available. The date(s) of installation and well construction details for these wells are not known.

B. LOCATION OF FORMER TCE STORAGE TANK

This tank was located west of Building 11, and was removed from the site in 1980. The TCE that was stored in the tank was used as a solvent and cleaner in various electrical and mechanical operations, and was also used to clean finished porcelain prior to firing when the on-site kiln was in operation.

A soil vapor survey was completed around the tank, and two surface soil samples were collected and analyzed. The soil vapor survey indicated detectable concentrations of TCE, and the soil samples contained TCE at 7 ppb and 8 ppb, respectively (Figure 4). A soil sample collected from 2 to 4 feet deep in a shallow soil boring contained 22 ppb. Auger refusal was at 8 feet deep, which is presumed to represent the limit of downward vertical migration. The detected TCE concentrations are all below NYSDEC TAGM 4046 recommended soil cleanup objectives (RSCOs) for TCE (700 ppb).

C. EMPTY OIL DRUM STORAGE AREA

This area is west of the former TCE tank, and north of former Building 15. When this area was used for drum storage, a 4 to 5 foot high earthen mound existed. At the time of the 1993 investigation, the mound was no longer present, and the area had been paved to match the surrounding parking area. The drums stored there are believed to have contained virgin and used cutting oils.

A composite surface soil sample was composed of a grab sample from adjacent to Building 15, and a grab sample from an adjacent grassy area to the north. Two subsurface soil samples were also collected from a soil boring, from 4 to 6 feet and 6 to 8 feet, respectively. The composite surface soil sample contained polycyclic aromatic hydrocarbons (PAHs) above TAGM RSCOs, including:

- Phenathrene (280 ppm)
- Anthracene (55 ppm)
- Fluoranthene (320 ppm)
- Pyrene (260 ppm)

- Benzo(a)anthracene (150 ppm)
- Chrysene (130 ppm)
- Benzo(b)fluoranthene (190 ppm)
- Benzo(k)fluoranthene (71 ppm)
- Benzo(a)pyrene (120 ppm)
- Indeno(1,2,3-cd)pyrene (68 ppm)
- Benzo(g,h,I)perylene (57 ppm)

The two subsurface soil samples did not contain any detectable volatile or semivolatile compounds.

A second round of surface soil sampling was completed to further define impacts with respect to PAHs. Two grab samples were collected near Building 15 and analyzed separately. Analytical results verified many of the same compounds as detected before, at higher concentrations.

A monitoring well was observed in the northern portion of this site area during the July 21, 2004 SWRNA site visit.

D. FORMER ELECTROPLATING AREA

This area was formerly located in the middle of former Building 15. At the time of the 1993 investigation, the area was used for an injection molding process. Prior to being used for electroplating, the area was reportedly used to manufacture hand grenade fuses during World War II.

VOCs VOCs

Four borings were advanced through the concrete floor inside former Building 15 to assess impacts with respect to metals. Two other borings were advanced outside Buildings 12 and 14 to assess potential impacts that might have occurred from ancillary spillage of materials in the alley adjacent to the former electroplating operations. Soil samples were collected from 1 to 3 feet deep from the borings. Laboratory analysis for the soil samples indicated the following metals were present above TAGM RSCOs: arsenic, lead, nickel, chromium, copper, mercury, and zinc.

SWRNA's July 21, 2004 site visit revealed that Building 15, and interconnected building areas of the former manufacturing facility, are vacant except for the aforementioned

equipment and materials that are being stored. A floor drain was observed during the July 21, 2004 site visit, oriented north-south within Building 15. The drain contained water and sediments.

E. FORMER LANDFILL AREA

The western half of the property may have received landfilled materials, beginning in the early 1900s when the site was an active steel mill. Process waste material including mill scale, scrap steel, and grinding dust were reportedly used to fill low-lying areas of the western portion of the site. In addition, foundry sand from the neighboring Frazer and Jones facility was reportedly landfilled on the site. At the time of the 1993 investigation, steel mill debris and foundry sand were observed on the ground surface of this area. Landfilling continued until the early 1980s, at which time a significant portion of the fill was comprised of broken or rejected porcelain from the former kiln operation. C&D materials were also reportedly disposed of in this area.

Two borings were drilled in the western parking lot area, with a total of four samples from these borings being submitted for laboratory analysis. In addition, four surface soil samples of suspected fill material and one surface sample of foundry sand were collected for analysis.

All nine of the collected samples were analyzed for total phenols. Samples of suspected fill material were also analyzed for TCLP metals, semi-volatile organic compounds, and PCBs. Foundry sand samples were analyzed for RCRA metals in addition to phenols.

Phenols concentrations were below detection limits in all of the samples. None of the samples analyzed by TCLP methods contained concentrations above TCLP limits. Only three of the suspected fill samples contained detectable SVOCs, but the concentrations in two of the three samples were below TAGM RSCOs. Only one of the suspected fill samples contained SVOCs – chrysene at 6.1 ppm, benzo(b)fluoranthene at 8.8 ppm, and benzo(a)pyrene at 5.3 ppm – above RSCOs. No PCBs were detected in any of the fill samples. The foundry sand sample contained arsenic, chromium, and lead above TAGM RSCOs.

A monitoring well was observed in the paved portion of this site area during the July 21, 2004 site visit. West of the paved area the landfill is covered with dense vegetation and trees.

F. TWO CHEMICAL STORAGE AREAS

One chemical storage area was identified inside former Building 10, and one storage area was identified in a small wooden shed adjacent to the west wall of former Building 18. The storage area near Building 10 was reportedly historically used for a variety of drummed materials, including plating sludge, used oil, and plating line materials. The Building 18 storage area was used for waste methyl ethyl ketone (MEK), soldering flux, and a Freon/oil mixture.

Soil samples were collected from immediately below the concrete floor slab in each of these two areas, and were analyzed for metal and PCBs. Some metals were detected marginally above RSCOs, including arsenic, chromium, and lead. No PCBs were detected.

A monitoring well was observed adjacent to the Building 18 storage area shed during the July 21, 2004 site visit.

G. AREA OF TWO CLOSED 20,000 GALLON FUEL OIL USTS

Two (2) 20,000 gallon USTs were closed in place in 1987. Both tanks were constructed of bare steel, and were installed in 1978 to store No. 2 fuel oil. The tanks were located off the southwest corner of Building 17. The tanks were decommissioned by Clean Harbors, and were reportedly emptied and cleaned, and then filled with "solid inert material". Clean Harbor reported that "[u]pon visual inspection by our field service personnel, there was no evidence of leaks and the tanks appeared to be intack [sic]."

Three soil borings were drilled in this area, and one sample per boring was analyzed for VOCs and total petroleum hydrocarbons (TPH). No VOCs or TPH were detected in the samples.

This site area was found to be covered with thick vegetation at the time of the July 21, 2004 site visit, and there was no visible evidence of the tanks. A monitoring well was observed adjacent to Building 17.

H. AREA OF CLOSED 23,000 GALLON FUEL OIL UST

A third UST was also closed in place, although the SIR indicates no documentation regarding this closure was available. The tank was reportedly used for No. 2 fuel oil. This tank was a 23,000 gallon bare steel tank, located in the U shaped area surrounded on three sides by former Buildings 6, 10, 12, and 13.

A total of eight (8) borings were drilled in this area, and one sample per borings was analyzed for VOCs, SVOCs and TPH. One of the borings (SB-4) was located to characterize the electroplating area as well (see item D above). Two borings produced soil samples with TCE and PCE above TAGM RSCOs. Only one of the samples analyzed contained detectable SVOCs, but below TAGM values.

I. FORMER FUEL OIL ABOVE GROUND STORAGE TANKS (ASTS)

Three 4,000 gallon ASTs were formerly located between former Building 18 and the parking lot. These tanks were installed in 1975 and stored No. 2 fuel oil. Plant personnel indicated that the tanks were filled with fuel oil only once, and were never subsequently refilled. The tanks were removed from the site sometime between 1990 and 1993.

Asphalt in the center of the area was cored, and underlying gravel fill was moved aside, to allow sampling of the soil material below the area. This soil sample was analyzed for VOCs and TPH. No VOCs were detected, but TPH analysis indicate 3,500 ppm TPH. Subsequent soil samples were collected from two (2) soil borings, with one sample collected from each boring from 2 to 4 feet, and analyzed for SVOCs. No SVOCs were detected.

3.2 - 1994-1995 SUPPLEMENTAL SAMPLING PROGRAMS

C&S Engineers (C&S) completed supplemental sampling in selected site areas in 1994 and 1995, based on the 1993 Site Investigation findings. Specifically, this supplemental program targeted: (1) the former drum storage area north of former Building 15; (2) the

area south of Building 12, north of the 23,000 gallon closed UST area; and (3) removal of concrete transformer pads.

A. FORMER DRUM STORAGE

A single soil boring was advanced in this area to six feet below grade. Fill material containing ash, cinders and gravel fill were visible in the upper three feet of the soil boring, and were underlain by native soil consisting of reddish-brown clay, silt and sand down to six feet.

Discrete samples of fill and underlying native soil were collected, and analyzed. The fill material contained several PAHs compounds above TAGM RSCOs, but the concentrations of PAHs in the underlying native soil sample were comparatively low, below RSCOs.

Elevated concentrations (above RSCOs) of TCE, arsenic, lead, mercury, and selenium were also detected in the fill material. Overall, the supplemental data indicated that contaminants were identified primarily in the ash/cinder fill, and the underlying native soils are relatively unimpacted.

B. SOUTH OF BUILDING 12

Five additional soil borings were advanced to bedrock (Figure 4), which was contacted at approximately 6 to 8 feet below grade. The stratigraphy of this area was determined to consist of two to four feet of asphalt and fill overlying reddish-brown clay, silt, and fine sand.

A soil sample from each boring was collected for laboratory analysis. In two of the samples (CS-1 and CS-4), TCE and PCE were detected above RSCOs. TCE and PCE impacts appeared to be associated with the upper 2 to 4 feet below grade, in the northwest portion of this specific site area closer to Building 12, and farther from the 23,000 gallon UST. Conversely, only low levels of TCE and PCE (below RSCOs) were detected closer to the closed UST.

Test pits were subsequently dug in this area near Building 12 in 1995 (Figure 4) and verified the dark colored fill over red colored native soils. PID readings indicated VOC

impacts in upper 2 feet where fill is present, and much lower VOC levels in underlying native material.

The data indicates that the principal impact in this area is chlorinated organics in surficial fill material, and is unrelated to the closed 23,000 gallon petroleum UST that exists south of former Building 12.

C. TRANSFORMER PAD

In September 1995 C&S observed the removal of the "upper portion" of two abandoned concrete pads, which were formerly used to store spent transformers prior to off site disposal. Dielectric fluid was sampled from transformers that were situated on the pads, and analytical results indicated the fluid contained PCBs.

In addition to partially removing the pads, a small volume of visibly stained soil associated with the pads was also excavated. The pads and excavated soil were transported to a permitted waste disposal facility.

Following the partial removal of the pads and soil, four soil samples were collected from the two pad excavation footprints. For the larger pad, analytical data indicated that discolored soil along the north wall of the excavation contained relatively high concentrations of PCBs (5.2 mg/Kg) compared to other areas of the excavation where no discoloration was observed (PCBs < 1 mg/Kg).

For the smaller pad, laboratory analysis of soil samples from the southeast and northwest portions of the excavation indicated PCB concentrations of 0.12 mg/Kg and 1.2 mg/Kg, respectively.

SECTION 4 - BROWNFIELD SITE INVESTIGATION SCOPE

A Brownfield Site Investigation (BSI) will be completed at the site to meet the following objectives:

- characterize the nature and extent of impact in relation to former site activities,
- assess the potential for human exposure of those impacts, and
- evaluate the potential for site-related impacts to affect off site receptors.

The previously defined AOCs will be grouped into specific site areas that will be further investigated, as indicated on Figure 5. The BSI program will address the following site areas:

- Northern Office Area. The main investigation targets for this area will include the former transformer pads, the former TCE tank, and the former drum storage area, which are all situated near to the existing office building. Surface soil, subsurface soil, and groundwater samples will be collected from this northeastern portion of the site.
- Former Building 12 Area. This area is south of the former building, and includes the closed 23,000 gallon UST, the former electroplating area, and a former chemical storage area.
- Manufacturing Area. The area adjacent to the former manufacturing facility will include a former chemical storage area, the 20,000 gallon UST area, and the former AST area.
- Western Landfill Area. This area is comprised of the western half of the site.
- Groundwater. Groundwater sampling programs will be included in each of the aforementioned areas, so that a site-wide groundwater evaluation can be completed.

4.1 - SAMPLING APPROACH

The sampling approach for each of the site investigation areas will rely on a combination of soil borings, monitoring well installation, and test pitting. Samples of surface soil, subsurface soil, fill material, and groundwater will be collected for visual examination, field screening, and laboratory analysis.

Area-specific sampling strategies will adhere to the standard sample collection methodologies described below. In addition to the specified sampling strategy, SWRNA will utilize a dynamic work process, in the form of a contingency scope, based on real-time field observations. This investigation approach will provide a degree of flexibility and decision making consistent with the objectives of NYSDEC's Triad Approach for site investigation. Specifically, the contingency scope will provide for the installation of up to two additional soil borings in each of the identified AOCs, beyond the basic scope described below, if it is determined that additional borings are likely to be necessary to define the nature and extent of impacts. The need for contingency borings will be determined by field observations including visual characteristics (discolorations, staining, sheens, etc.), odors, and photoionization detector (PID) readings. Contingency boring locations will be selected after consultation with NYSDEC.

A. SOIL BORING APPROACH

Soil borings will be advanced in the specified locations to enable collection of both surface and subsurface soils. Drilling will be completed using 4 ¼ inch inside diameter hollow stem augers. Soil samples will be collected continuously during drilling using 2 inch inside diameter split spoon samplers. Descriptions of soils will be recorded by a hydrogeologist in a soil boring log, including descriptions of soil color, moisture content, grain size, and PID readings.

Two soil samples will be collected from each boring for laboratory analysis. Analyzed samples will include a surface soil sample collected from 0 to 6 inches deep, and a soil sample from a deeper interval based on field screening results. Field screening will be based on visual observation, a determination of odor, and screening with a PID. The selection criteria for the deep soil sample will be the depth interval at which impacts are most apparent. If no impacts are apparent or field screening is inconclusive, the sample from immediately above the water table will be analyzed. If no groundwater is encountered, the soil sample from the bottom of the boring will be analyzed.

The soil borings will be drilled to a depth of seven feet below the water table, or to auger refusal, whichever occurs first. Borings will be terminated at 30 feet below grade in the event that neither groundwater nor auger refusal are encountered.

Soil samples will be analyzed for priority pollutant list (PPL) metals (USEPA Methods 6010/7471/7470), volatile organic compounds (VOCs – USEPA Method 8260), polycyclic aromatic hydrocarbons (PAHs – USEPA Method 8270), and PCBs (USEPA Method 8082).

B. MONITORING WELL INSTALLATION/ GROUNDWATER SAMPLING

Soil borings in which groundwater is encountered will be completed as groundwater monitoring wells. At least seven monitoring wells, which were installed by a third party, were identified on site during SWRNA's July 21, 2004 site visit. Well installation methods and construction details are not available for these previously installed wells. Accordingly, it is not known whether groundwater samples collected from these wells would accurately represent site groundwater quality. To avoid potential data quality questions, additional monitoring wells will be installed.

Monitoring wells will be constructed of 2-inch diameter PVC, with a sand filter pack, bentonite seal, and a bolt-down protective cover cemented in place at ground surface. Following well completion, each monitoring well will be developed to reduce suspended sediments (i.e. turbidity) by removing a minimum of ten (1) volumes of water.

Groundwater samples will be collected from each monitoring well at least one week following installation. Prior to sampling, the depth to groundwater will be measured and recorded, and each well will then be purged of three (3) volumes of water. Field parameters will be measured, including pH, Eh, turbidity, and specific conductance.

Groundwater samples will be collected and analyzed for VOCs (8260), PAHs (8270), PCBs (8082), and PPL metals (6010/7471/7470).

C. TEST PITS

Test pits will be dug to allow direct visual observation of site fill material in the western landfill area of the site, to confirm the total depth of fill, and to enable sample collection for SPLP (synthetic precipitation leaching procedure) waste characterization analysis. Test pits will be dug using a rubber-tired backhoe, to a maximum excavation depth of 12 feet, or to the top of native soils, whichever is shallower. Descriptions of fill material

will be recorded in a test pit log, including the types of material, coloration, moisture content, and PID screening results.

Excavated fill material will be staged on plastic during excavation activity, and will be replaced in the pit after excavation is completed, in a first-out/first-in manner.

4.2 - AREA-SPECIFIC SAMPLING PROGRAMS

Sampling programs specific to each area are described below. Although each program is aimed primarily at assessing the nature and extent of impact within a particular area, the overall investigation strategy will provide data that can be used to characterize the site as a whole. As a result, both site-wide and area specific issues will be identified.

A. OFFICE AREA

Three (3) soil borings will be advanced west of the office buildings, and one will be advanced to the south. The approximate locations of the borings are indicated on Figure 5. The precise locations of the borings will be determined in the field prior to initiating work. The objective will be to locate two of the borings in the general area of the former transformer pad and former TCE tank, and the third boring adjacent to the former drum storage area.

Two soil samples will be collected from each boring for laboratory analysis, from 0 to 6 inches deep and from a deeper soil interval based on field observations, as noted in the standard soil boring approach, and analyzed for VOCs, PAHs, PCBs, and PPL metals.

Each of the three soil borings in which groundwater is encountered will be completed as a monitoring well, and subsequently developed and sampled in accordance with the standard groundwater sampling approach. Groundwater samples will be analyzed for VOCs, PAHs, PCBs, and PPL metals.

B. FORMER BUILDING 12 AREA

Two (2) soil borings will be advanced in this general site area, including one boring north of Building 14 and one boring in the closed 23,000 gallon UST area south of Building 12, respectively. Two soil samples will be collected from each boring for laboratory analysis,

from 0 to 6 inches deep and from a deeper soil interval based on field observations, as noted in the standard soil boring approach, and analyzed for VOCs, PAHs, PCBs, and PPL metals.

Each of the three soil borings in which groundwater is encountered will be completed as a monitoring well, and subsequently developed and sampled in accordance with the standard groundwater sampling approach. Groundwater samples will be analyzed for VOCs, PAHs, PCBs, and PPL metals.

C. MANUFACTURING AREA

Five (5) soil borings will be advanced at locations around the former manufacturing facility. One of these borings will be located off the southwest corner of the existing warehouse building, in proximity to the two closed 20,000 gallon USTs and the three former ASTs, respectively. One boring will be completed in the former chemical storage area west of the building, and two borings will be located north and northwest of this area, respectively, which is the presumed downgradient direction. One boring will be located in the former loading dock area.

Two soil samples will be collected from each boring for laboratory analysis, from 0 to 6 inches deep and from a deeper soil interval based on field observations, as noted in the standard soil boring approach, and analyzed for VOCs, PAHs, PCBs, and PPL metals.

Each of the three soil borings in which groundwater is encountered will be completed as a monitoring well, and subsequently developed and sampled in accordance with the standard groundwater sampling approach. Groundwater samples will be analyzed for VOCs, PAHs, PCBs, and PPL metals.

D. WESTERN LANDFILL AREA

Approximately the western one half of the site was reportedly used to landfill site waste materials. This site area will be investigated by a combination of soil borings, monitoring wells and test pits.

Two (2) soil borings are proposed, near the northern and southern portions of the landfill, respectively. Two soil samples will be collected from each boring for laboratory

analysis, from 0 to 6 inches deep and from a deeper soil interval based on field observations, as noted in the standard soil boring approach, and analyzed for VOCs, PAHs, PCBs, and PPL metals. The two borings will be completed as monitoring wells in the event that groundwater is encountered. Groundwater samples will be analyzed for VOCs, PAHs, PCBs, and PPL metals.

Six (6) test pits will also be dug in the landfill area. Two pits are proposed for the eastern portion of the landfill area that is presently paved. Four pits are proposed for the western wooded portion.

Based on visual observation and field screening with a PID, three composite fill samples will be collected from three of the test pits for SPLP laboratory analysis, including PPL metals, VOCs, and PAHs. Each of the three composite samples will consist of three to five individual grab samples collected from within a single test pit.

E. GROUNDWATER

Groundwater conditions for the site will be evaluated based on the groundwater analytical data that is collected from each site investigation area. In addition, a monitoring well is proposed for the southeastern corner of the property, to serve as an upgradient monitoring location. The proposed well locations across the site (Figure 5) will enable a determination of groundwater flow and contaminant migration patterns, if they exist.

After the monitoring well installation and groundwater sampling programs are completed, a New York State-licensed surveyor will determine precise well locations and elevations so that accurate groundwater flow patterns can be depicted, based on depth to water measurements.

4.3 - BROWNFIELD SITE INVESTIGATION REPORT

Previous site investigation data will be reviewed along with the newly-acquired data under the BSI, and presented in a Brownfield Site Investigation (BSI) Report. The BSI Report will provide an overall presentation of the methods and findings of the BSI, and will include tabulated summaries of analytical data, site location and sample location figures, a groundwater flow map, soil boring and test pit logs, and laboratory analysis

reports. In addition to narrative discussions regarding these basis elements, the BSI report will include the following:

A. DATA USABILITY STUDY REPORT (DUSR)

Following the completion of the laboratory analysis program, a Data Usability Study Report (DUSR) will be completed, and included as part of the BSI Report. The DUSR will include available datasets from previous investigations, as well as data from this phase of site characterization. The DUSR is carried out as specified in DER-10 to evaluate the quality control measures that were implemented during the field and laboratory analytical programs, with the objective of determining whether the reported analytical data are representative and usable for decision making. The DUSR will evaluate whether the data are technically defensible (i.e. were all analytical requirements met and documented). Data usability analysis reviews the site data to determine whether they are adequate to draw conclusions regarding the nature and extent of contamination.

The following items are reviewed as part of the DUSR:

- Completeness (number of samples collected and analyzed compared to plans)
- Chain of custody complete and accurate
- Holding times
- Instrument calibration
- Relative percent difference between field duplicates
- Reasonableness of data (e.g. relationships between total and soluble analytes)
- Blank contamination

B. HUMAN HEALTH EXPOSURE ASSESSMENT

Site data will be evaluated to determine whether human receptors, both on site and off site, are potentially exposed. The purpose of the exposure assessment will be to qualitatively determine the route, intensity, frequency, and duration of actual or potential exposures of humans to site-related chemicals. The assessment will also describe the nature and size of the population potentially exposed to the contaminants.

Laboratory analytical results for soil and groundwater will be compared to applicable health-based screening criteria:

- **Soil.** Soil analytical results will be compared to NYSDEC's Technical and Administrative Guidance Memorandum (TAGM) 4046 health-based soil cleanup objectives.

- **Groundwater**. Groundwater analytical results will be compared to NYS Class GA (drinking water) groundwater quality standards.

The comparison of analytical results to the applicable screening values will be used to tentatively identify contaminants of potential concern (COPCs).

C. COMPLIANCE WITH SCGS

Applicable standards, criteria, and guidance (SCGs) for the sampled media will be identified, and analytical results from the field sampling program will be compared to those regulatory SCGs.

D. HYDROGEOLOGIC/HYDROLOGIC ASSESSMENT

Available data and records relating to site climate, hydrology, and hydrogeology will be reviewed and discussed in the BSI Report, including:

- Precipitation records
- Area aquifers
- Floodplains
- Area wetlands
- Groundwater use in the general area
- Surface water classifications and designations for the area

Site-specific data for groundwater will be evaluated and discussed in terms of contaminant migration and transport potential.

E. FISH AND WILDLIFE IMPACT ANALYSIS

A Fish and Wildlife Impact Analysis will be completed to provide an initial screening of potentially affected fish and wildlife resources in connection with the site. The first step of the FWRIA process, resource characterization, will be completed as part of the site investigation scope. Resource characterization includes the following basic steps:

- Identify fish and wildlife resources for the area within a one-half mile radius of the site, based on NYSDEC records and knowledge of the site area.
- Identify contaminant migration patterns that may potentially expose fish and wildlife resources to site-related contaminants.
- Identify specific contaminants of ecological concern
- Draw conclusions regarding potential adverse effects.

The findings of the initial FWRIA phase will be used to determine whether it is likely that the site has a negative effect on local wildlife and related habitats.

F. CONCLUSIONS AND RECOMMENDATIONS

The BSI Report will provide conclusions and recommendations that identify and summarize specific on-site sources of contamination, define the extent of areas of concern, identify human health exposure paths and potential ecological receptors, and recommend future work, as needed.

SECTION 5 – BROWNFIELD SITE INVESTIGATION SCHEDULE

This Work Plan is being submitted simultaneously with the BCP application. When approved by NYSDEC, and following a 30-day public review and comment period, it will govern the completion of the field investigation and report.

It is anticipated that field work can begin within 30 days of final Work Plan approval by NYSDEC, and will be coordinated with the building demolition schedule. It is estimated that the field work, including soil borings, monitoring well installation, test pits, groundwater sampling, and surveying can be completed in less than four weeks. Laboratory analysis and data validation will require six weeks to complete.

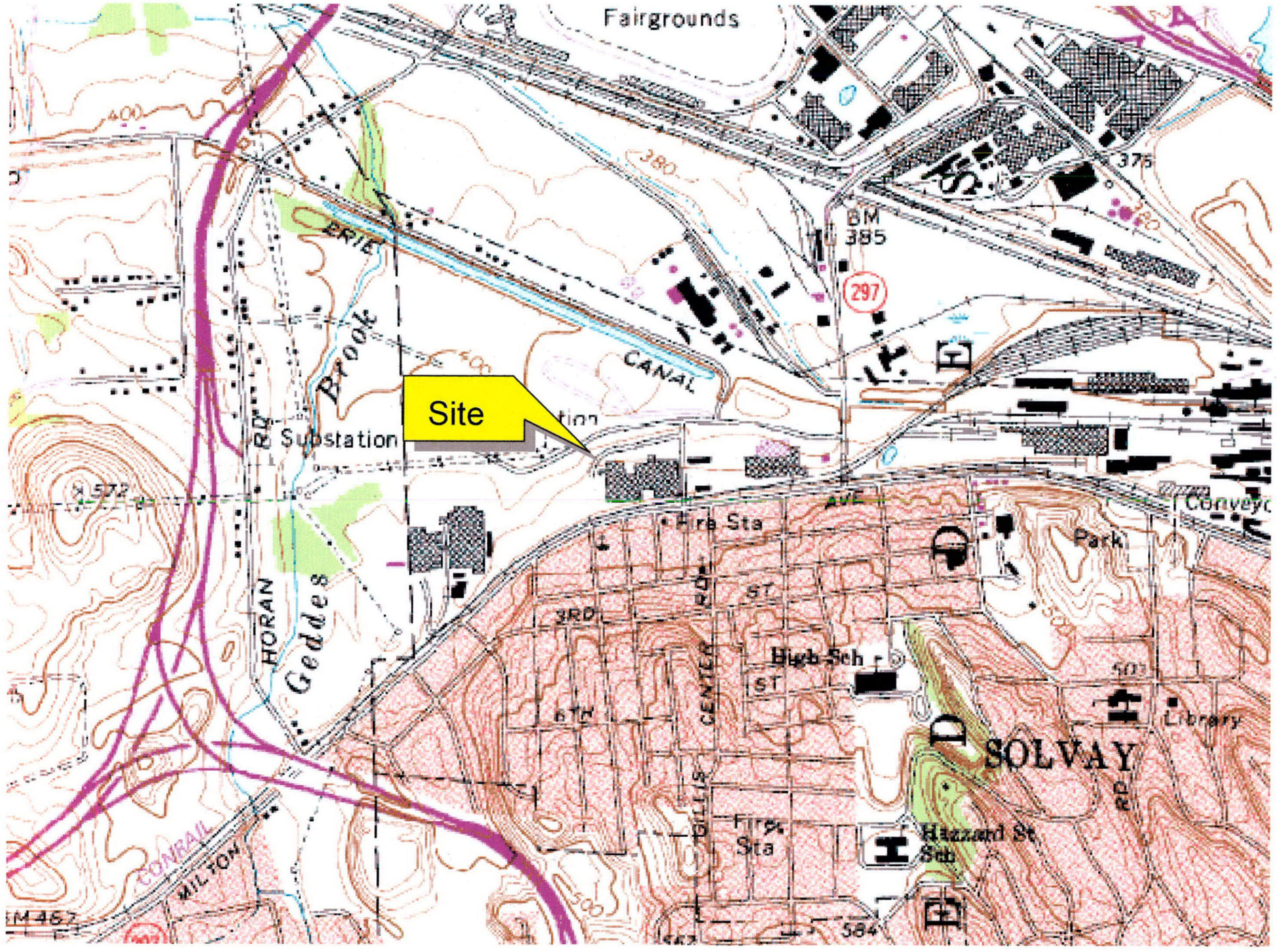
Following receipt of validated and final laboratory results, a BSI report can be provided to NYSDEC within four weeks. In total, therefore, it is estimated that the BSI Report will be completed within 120 days of Work Plan approval.

Tables

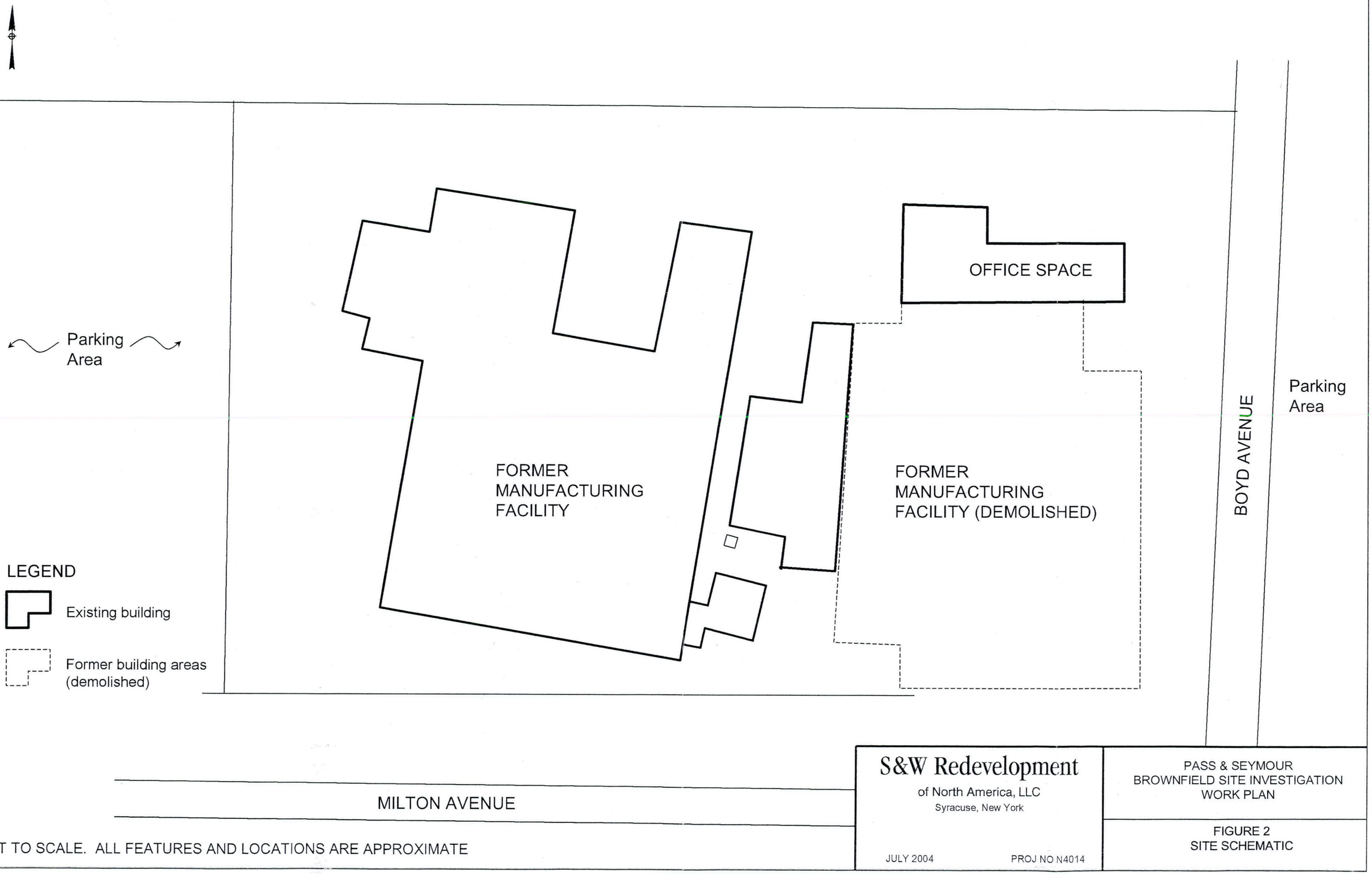
Table 1. AOC Summary. Brownfield Site Investigation, Pass & Seymour Site. Solvay, NY

Area of Concern	Description	Contaminants of Potential Concern	Potentailly Affected Media
Transformer Storage Pad	4 ft x 50 ft concrete pad, west of Bldg 11	PCBs	Surface and shallow subsurface soils
Former TCE Stroage Tank	Above ground tank west of Bldg 11	TCE	Soil and groundwater
Empty Drum Storage Area	West of TCE tank, north of Bldg 15	Metals and PAHs	Soil and groundwater
Former Electroplating Area	Within Bldg 15	Metals, chlorinated solvents	Soil and groundwater
Former Landfill Area	Western half of site. Used for C&D, scrap metal, mill scale, ceramics, foundry sand	Metals, possibly organics	Soil and groundwater
Chemical Storage Areas	Adjacent to Bldgs 10 and 18. Containerized plating sludge, used oil, MEK	Metals, aromatics, chlorinated organics, ketones	Soil and groundwater
Two Closed USTs (20K)	Southwest of Bldg 18, 20,000 gal ea No 2 Fuel Oil	PAHs	Soil and groundwater
Closed UST (23K)	Southeast of former manufacturing building. 23,000 No 2 Fuel Oil	PAHs	Soil and groundwater
Former Fuel Oil ASTs	Three tanks West of Bldg 18	PAHs	Soil and groundwater

Figures



S&W Redevelopment of North America, LLC Syracuse, New York	PASS & SEYMOUR BROWNFIELD SITE INVESTIGATION WORK PLAN
JULY 2004 PROJ NO N4014	FIGURE 1 SITE LOCATION



NOT TO SCALE. ALL FEATURES AND LOCATIONS ARE APPROXIMATE

S&W Redevelopment
of North America, LLC
Syracuse, New York

JULY 2004 PROJ NO N4014

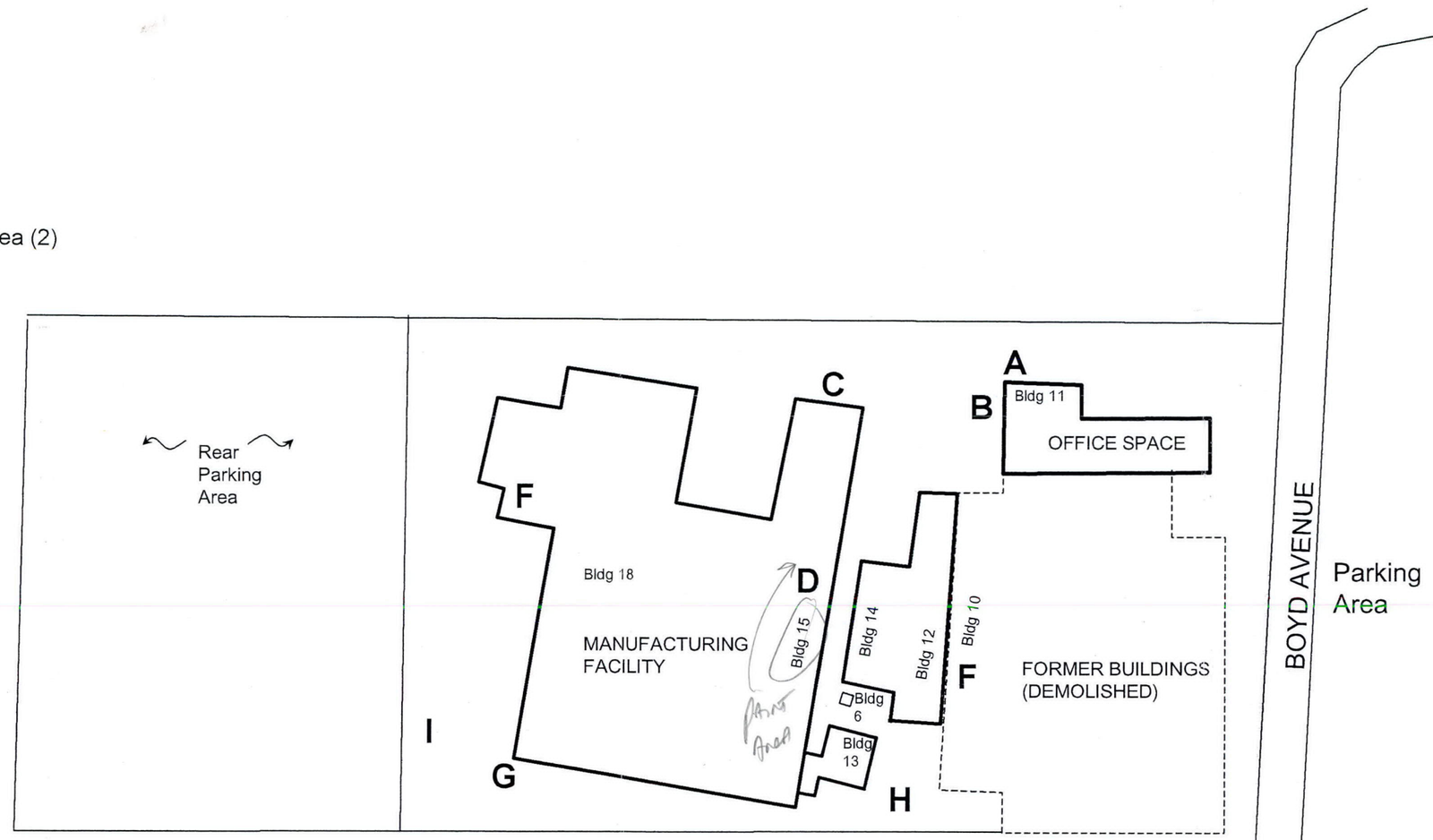
PASS & SEYMOUR
BROWNFIELD SITE INVESTIGATION
WORK PLAN

FIGURE 2
SITE SCHEMATIC

Area of Concern

A – Former transformer storage pad
B – Former TCE tank
C – Former drum storage
D – Former electroplating area
E – Former landfill
F – Former chemical storage areas
G – Former (closed) 20,000 gallon UST area (2)
H – Former (closed) 23,000 gallon UST
I – Former ASTs (3)

Locations are approximate and subject to field verification.



NOT TO SCALE. ALL FEATURES AND LOCATIONS ARE APPROXIMATE

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of North America, LLC
Syracuse, New York

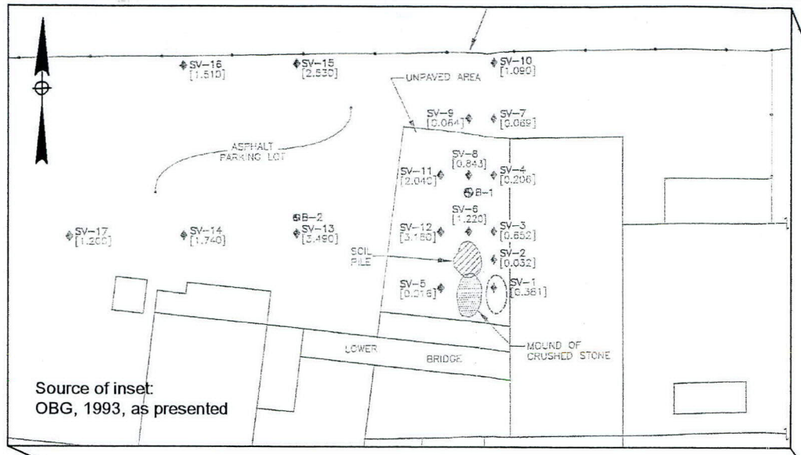
JULY 2004 PROJ NO N4014

PASS & SEYMOUR
BROWNFIELD SITE INVESTIGATION
WORK PLAN

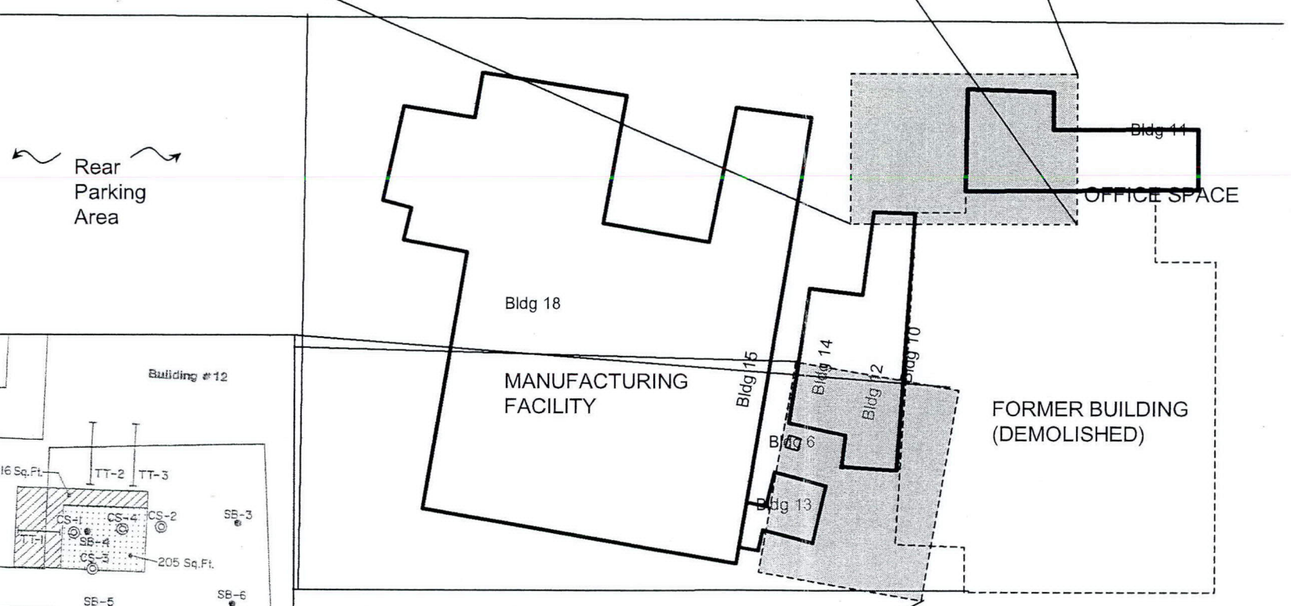
FIGURE 3
IDENTIFIED AREAS OF CONCERN (AOCs)

Inset Legend:

- Soil vapor sample location
- Boring location
- Approximate location TCE tank

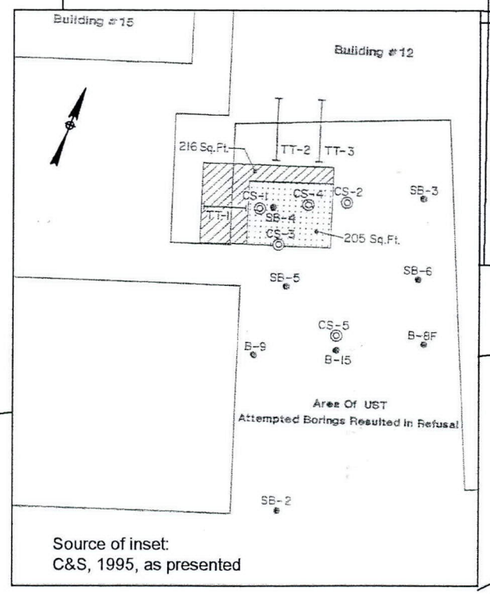


Source of inset:
OBG, 1993, as presented



Inset Legend:

- Test Pit (TT)
- 1993 SI Boring
- Supplemental Boring
- Impact at 4 ft deep
- Impact at 2 ft deep



Source of inset:
C&S, 1995, as presented

NOT TO SCALE. ALL FEATURES AND LOCATIONS ARE APPROXIMATE

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of North America, LLC
Syracuse, New York

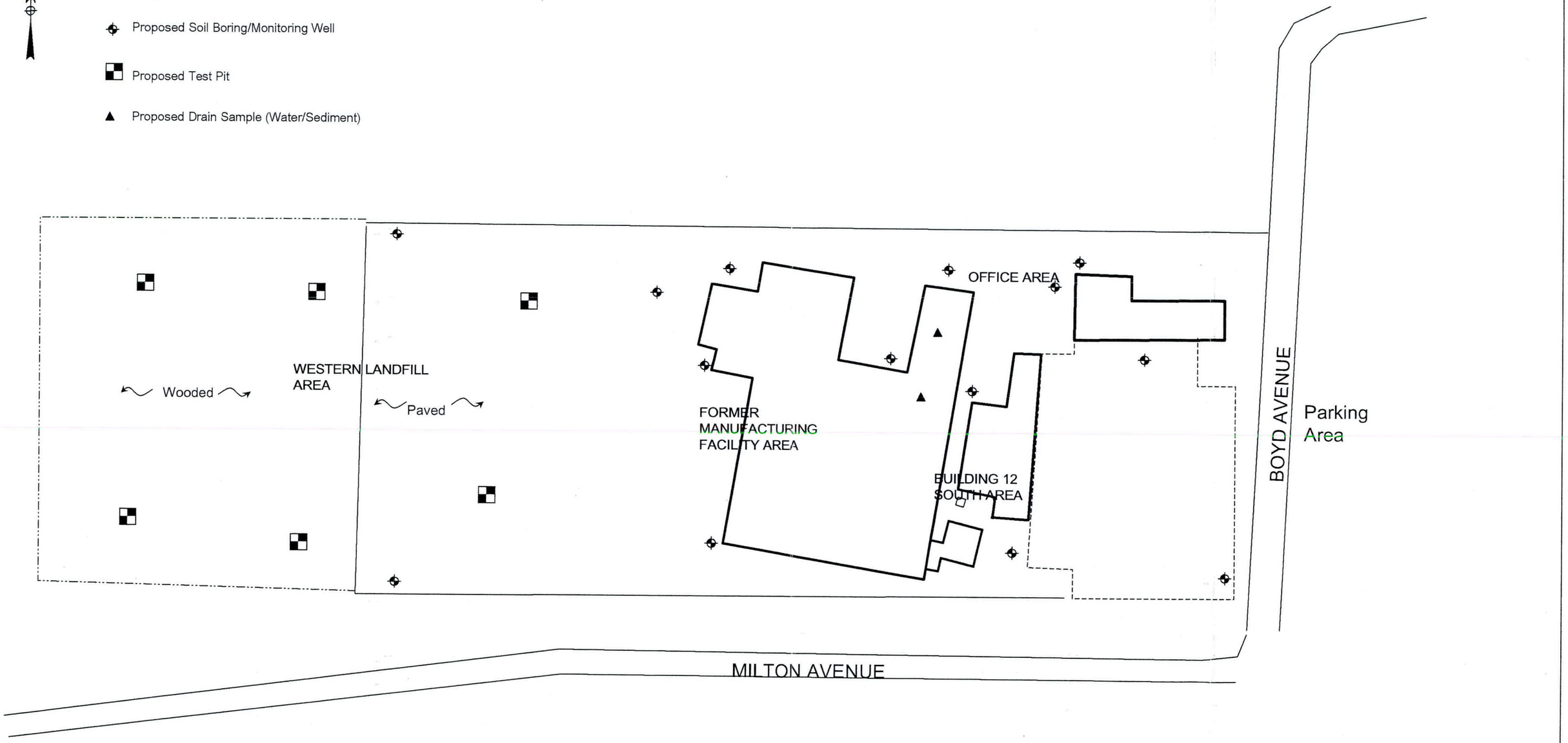
JULY 2004 PROJ NO N4014

PASS & SEYMOUR
BROWNFIELD SITE INVESTIGATION
WORK PLAN

FIGURE 4
AREAS OF PREVIOUS INVESTIGATION

Legend

- Proposed Soil Boring/Monitoring Well
- Proposed Test Pit
- ▲ Proposed Drain Sample (Water/Sediment)



Sampling locations and site features are approximate, and subject to field verification.

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Syracuse, New York

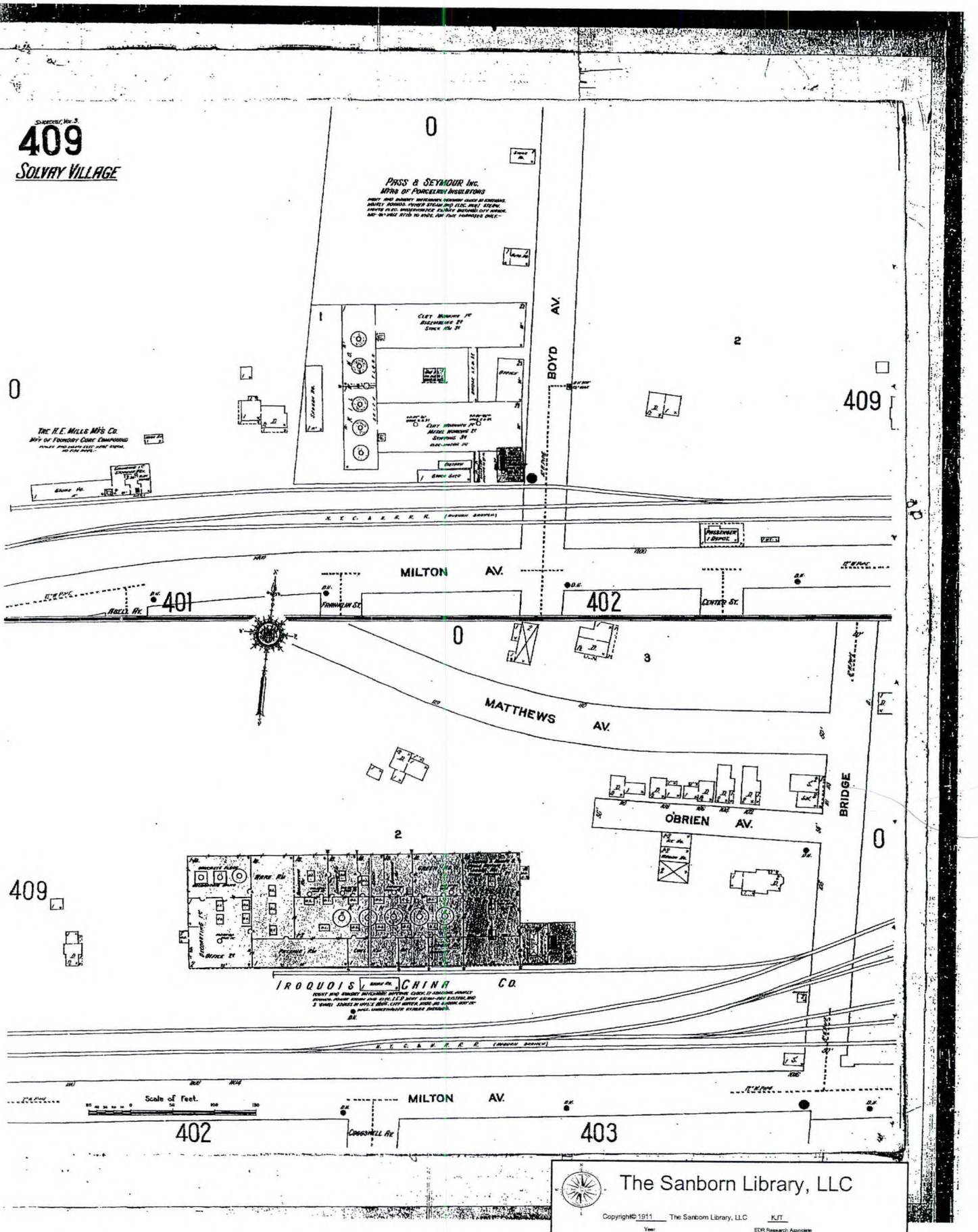
JULY 2004 PROJ NO N4014

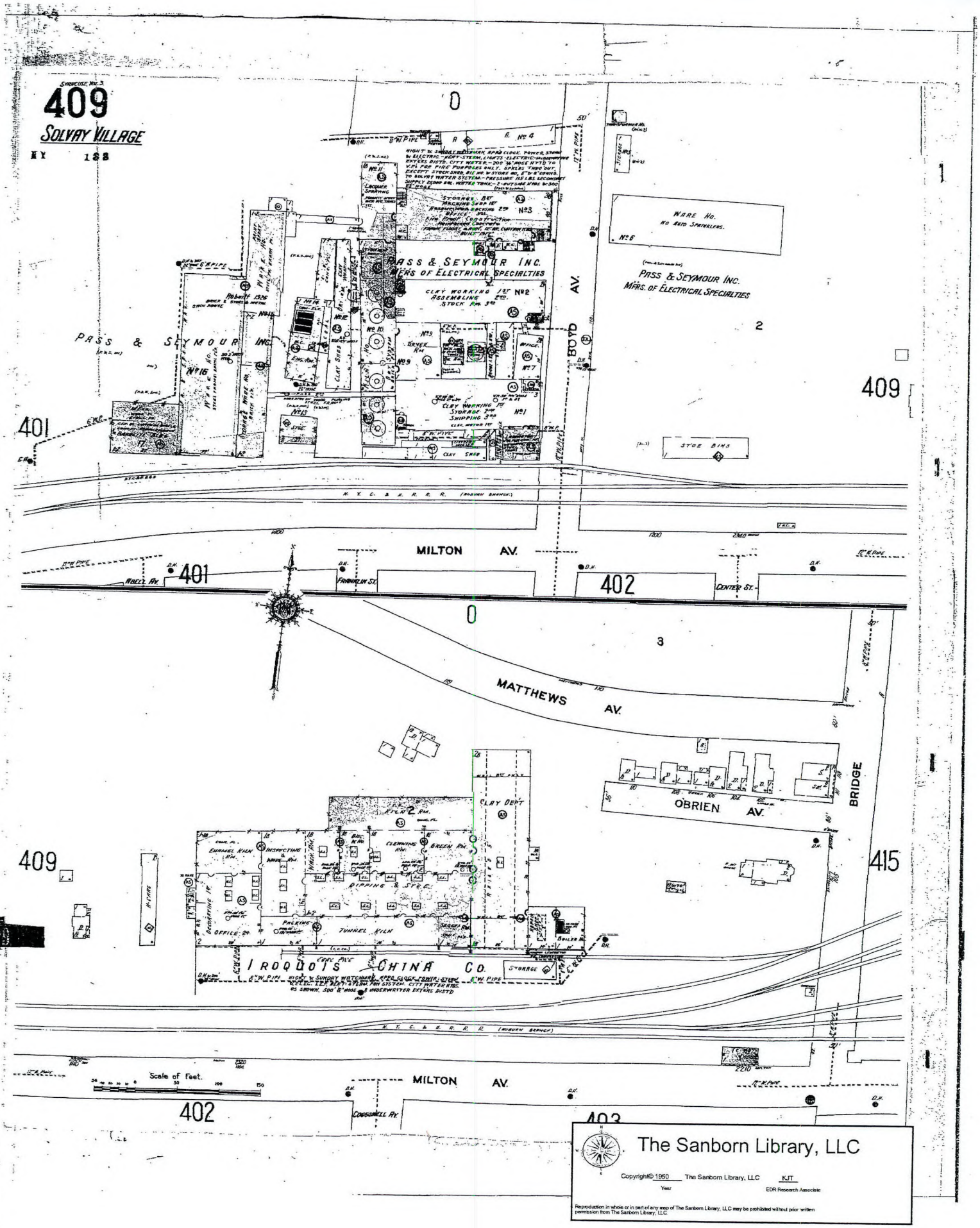
PASS & SEYMOUR
BROWNFIELD SITE INVESTIGATION
WORK PLAN

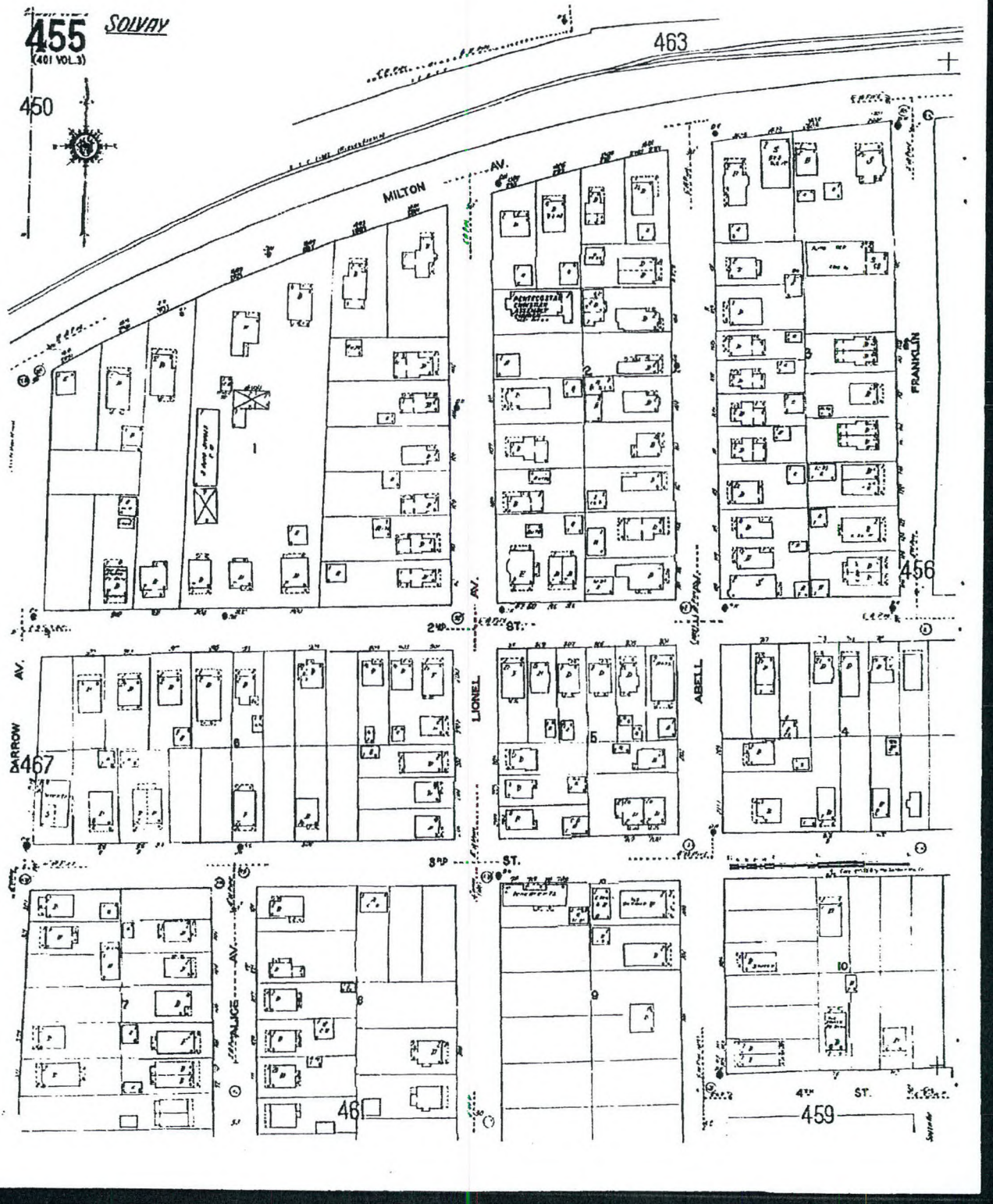
FIGURE 5
BROWNFIELD SAMPLING PROGRAM

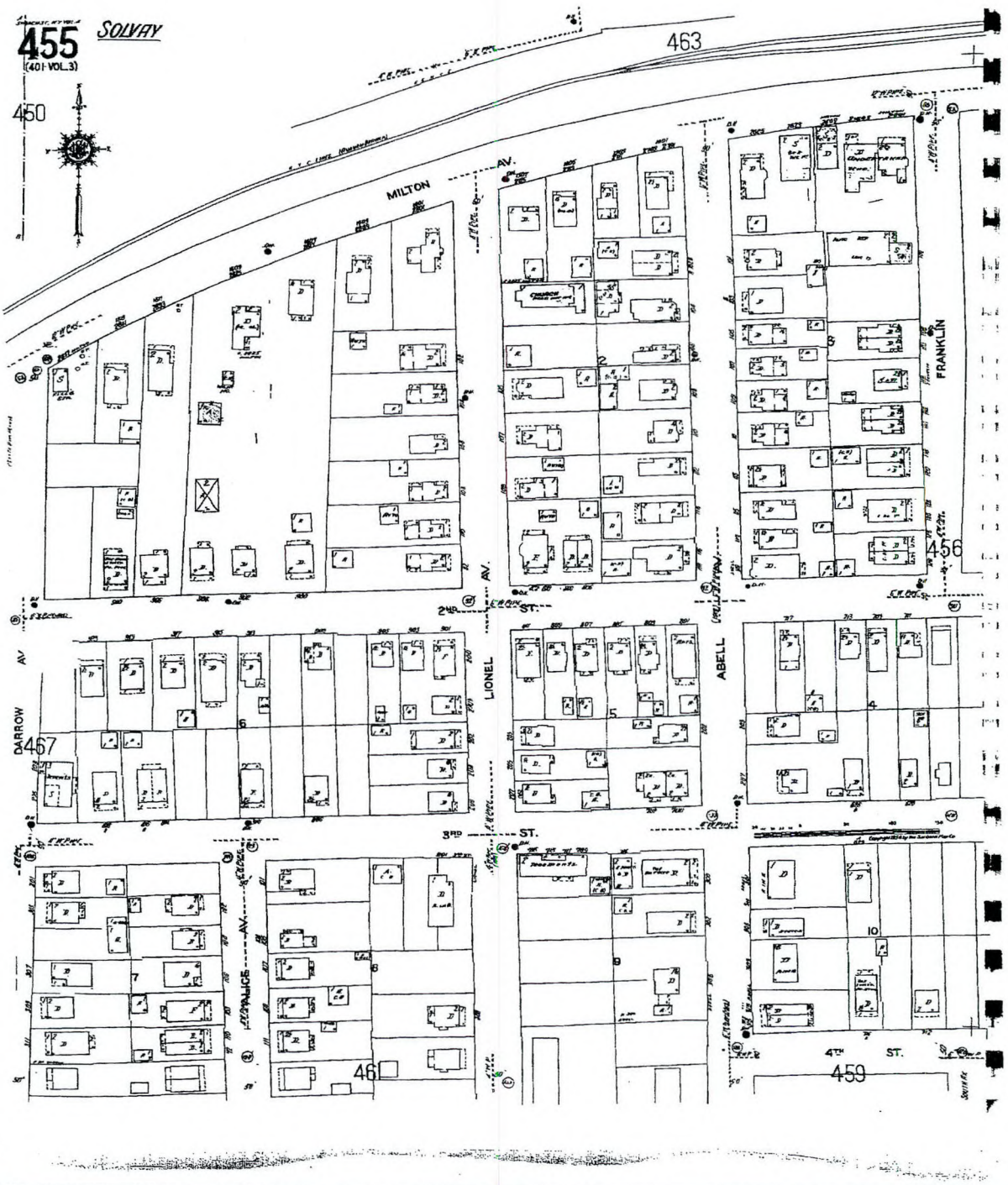
APPENDICES

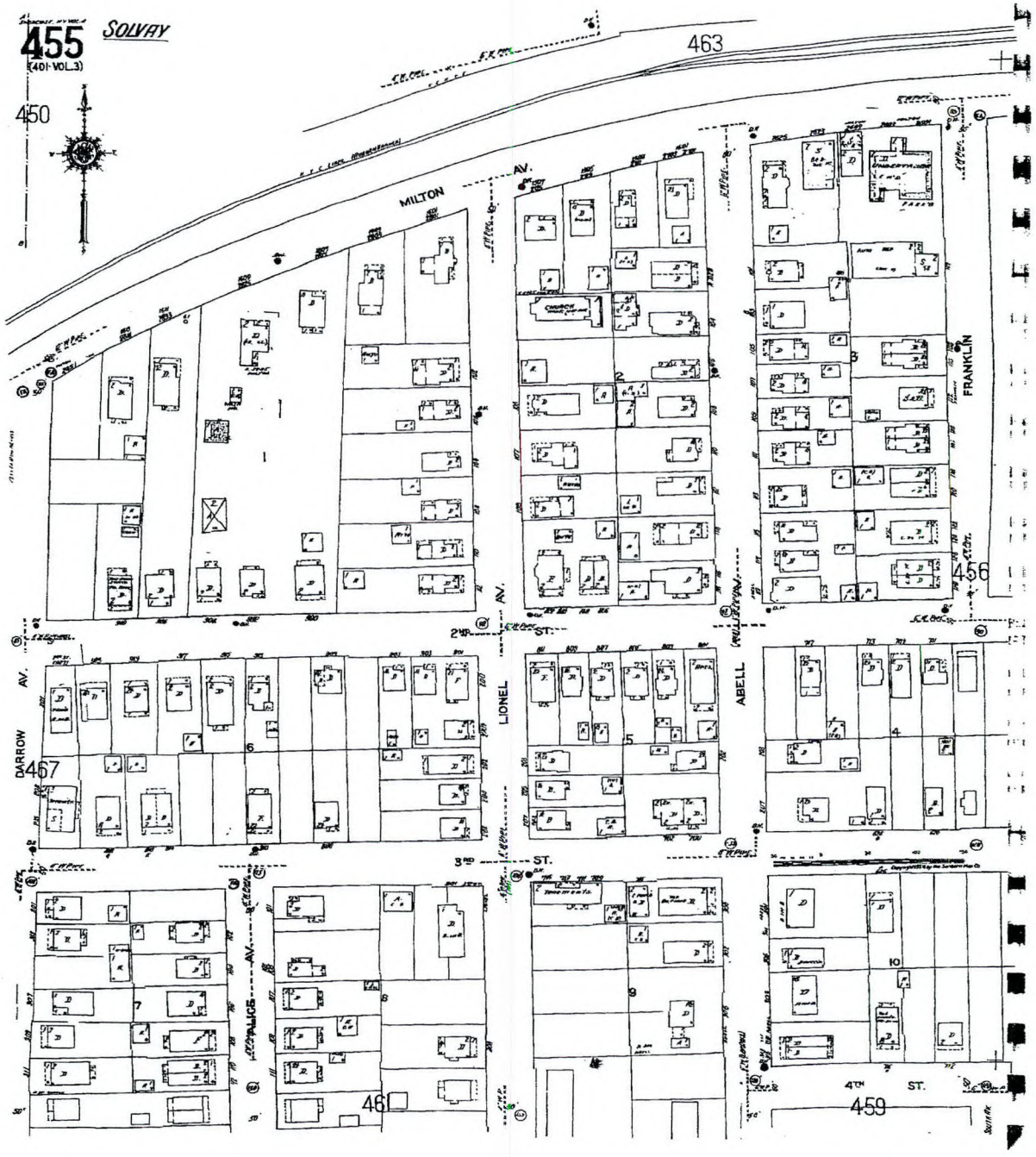
Appendix A
Sanborn Fire Insurance Maps

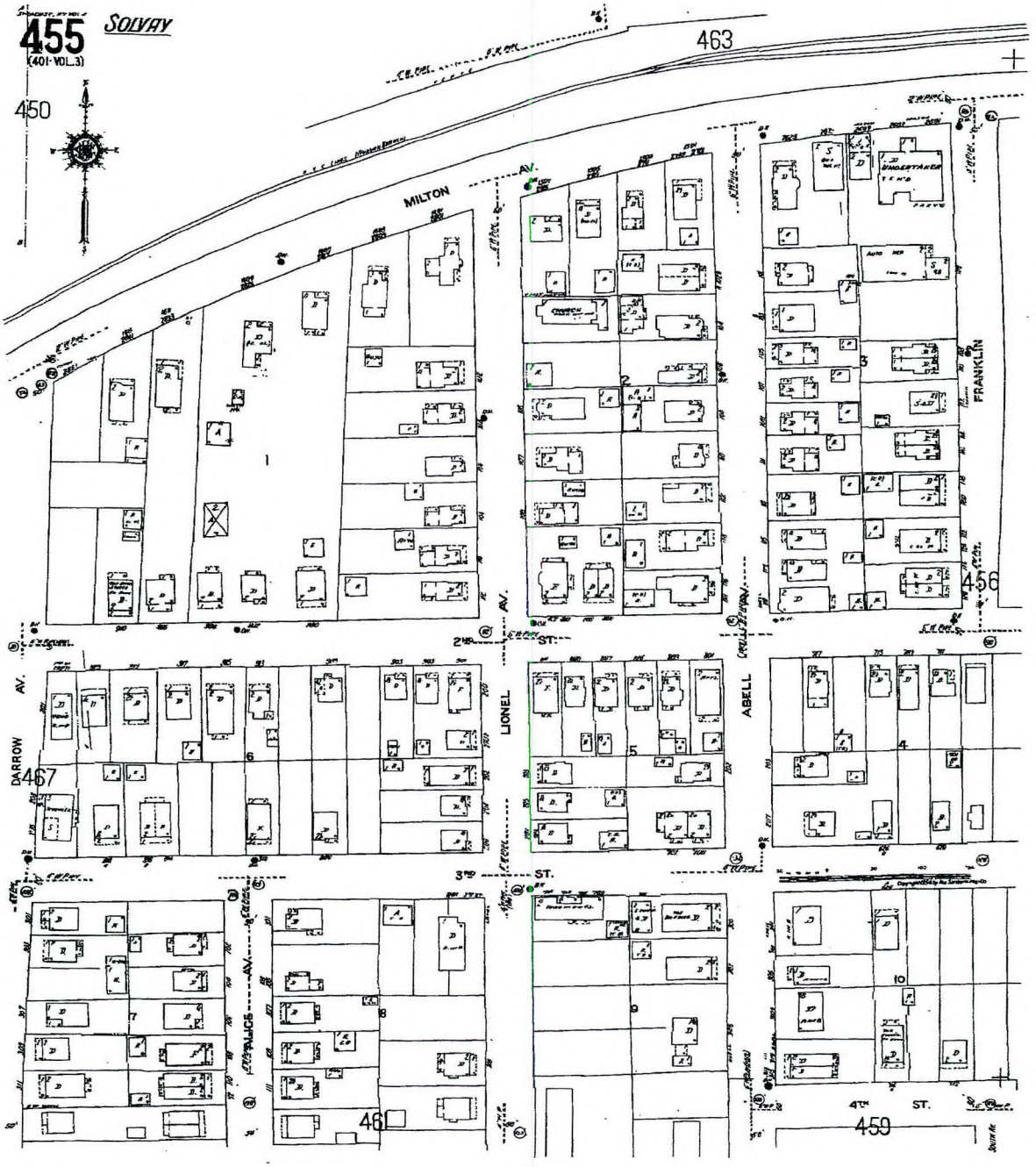












Appendix B
Site Health and Safety Plan

SITE HEALTH AND SAFETY PLAN

A. SITE DESCRIPTION

Date ..... Date: July 2004 Revised: _____
Location ..... Pass & Seymour Site, 50 Boyd Ave, Solvay NY
Hazards ..... Metals, volatile and semi-volatile organics, and PCBs in soil and groundwater
Area Affected ..... Subsurface, surface soils, groundwater
Surrounding Population ..... Mixed industrial/commercial/residantial
Topography ..... Flat
Weather Conditions ..... Usually partly sunny to overcast, south winds

B. ENTRY OBJECTIVES: The objective of site entry is to investigate potential source areas for metals, volatile and semi-volatile organic compounds, and PCBs.

C. ON-SITE ORGANIZATION AND COORDINATION. The following personnel are designated to carry out the stated job functions on site. (Note: One person may carry out more than one job function.)

Project Team Leader:	Donald Sorbello or designee	(315) 422-4949
Site Safety Officer:	Daniel Ours or designee	(315) 422-4949
Field Team Leader:	Jeffrey Kiggins or designee	(315) 422-4949
Field Team Members:	Allison Menges/Jeffrey Kiggins	(315) 422-4949

D. ON-SITE CONTROL. Pass & Seymour personnel will coordinate access control and security on site. A safe perimeter has been established at the site boundaries. No unauthorized personnel should be within this area.

E. HAZARD EVALUATION. The following substances are known or suspected to be on site, primarily in site wastes. The primary hazards of each are identified.

SUBSTANCE	PRIMARY HAZARDS
Volatile Organics	
Trichlorethene	Eye & skin irritation, nausea, vomiting, headache
Tetrachloroethene	Eyes, nose, throat irritation, nausea, dizziness, headache

SUBSTANCE	PRIMARY HAZARDS
Semi-Volatile Organics*	
Acenaphthene	Skin irritation, mucous membrane irritation, vomiting
Benzo(a)pyrene	Skin tumors, carcinogen
Chrysene	Carcinogen
Fluoranthene	Possible carcinogen

SUBSTANCE	PRIMARY HAZARDS
Naphthalene	Headache, nausea, sweating

*Compounds listed above are PAHs. A number of other PAHs have been tentatively identified which do not have reported short-term exposure effects, but which are suspected carcinogens. These other PAHs are not included in the above table.

SUBSTANCE	PRIMARY HAZARDS
Metals	
Chromium	Histologic fibrosis of lungs
Copper	Irrit eys, nose, metallic taste
Nickel	Headache, nausea, vomiting, stomach pain
Arsenic	Stomach disturb., nose bleeds, respiratory problems
Mercury	Eye and respiratory irritant, skin irritation, cough

SUBSTANCE	PRIMARY HAZARDS
Pesticides/PCBs	
Aroclor 1248	Eye irritation, acne; liver damage
Aroclor 1254	Eye irritation, acne; liver damage

F. PERSONAL PROTECTIVE EQUIPMENT. Based on evaluation of potential hazards, the following levels of personal protection have been designated for the applicable work areas or tasks:

LOCATION	JOB FUNCTION	LEVEL OF PROTECTION
Work zone	Site investigation	A B C (D) Other

Specific protective equipment for each level of protection is as follows:

Level A	Fully-encapsulating suit SCBA (disposable coveralls)
Level B	Splash gear (saranax-coated Tyvek suit) SCBA or airline respirators
Level C	Splash gear (Tyvek suit) Full-face canister respirator Boots Gloves Hard hat
Level D	Overalls Safety glasses Boots Gloves Hard hat

Action Levels. The following criteria shall be used to determine appropriate action:

VOLATILE ORGANICS IN BREATHING ZONE	LEVEL OF RESPIRATORY PROTECTION
0-5 ppm	Level D
5-200 ppm	Level C
200-1000 ppm	Level B - air line
1000+ ppm	Level B - SCBA

% LOWER EXPLOSIVE LIMIT (LEL)	ACTION
Above 10	Discontinue work and take remedial action

The following protective clothing materials are required for the involved substances:

SUBSTANCE	MATERIAL (MATERIAL NAME, E.G., VITON)
Volatile Organics	
Trichloroethene	Level D, Respirator
Tetrchloroethene	Level D, Respirator

Semi-Volatile Organics*	
Acenaphthene	Level D, Respirator
Benzo(a)pyrene	Level D, Respirator
Chrysene	Level D, Respirator
Fluoranthene	Level D, Respirator
Naphthalene	Level D, Respirator

Metals	
Chromium	Level D, Respirator
Copper	Level D, Respirator
Nickel	Level D, Respirator
Arsenic	Level D, Respirator
Mercury	Level D, Respirator

Pesticides/PCBs	
Aroclor 1248	Level D, Respirator
Aroclor 1254	Level D, Respirator

NO CHANGE TO THE SPECIFIED LEVELS OF PROTECTION SHALL BE MADE WITHOUT THE APPROVAL OF THE SITE SAFETY OFFICER AND THE PROJECT TEAM LEADER.

G. **ON-SITE WORK PLANS.** The following personnel or designated alternate(s) will perform the field investigation.

Project Team Leader: .....Donal Sorbello
Work Party .....Allison Menges Jeffrey Kiggins

The work party was briefed on the contents of this plan prior to commencement of work.

H. **COMMUNICATION PROCEDURES.** The Project Team Leader should remain in communication with the Field Team Leader. A cellular phone will be used in the field.

Continuous horn blast is the emergency signal to indicate that all personnel should leave the Work Zone.

In the event that radio communications are used, the following standard hand signals will be used in case of failure of radio communications:

Hand gripping throat	Out of air; can't breathe
Grip partner's wrist or both hands around waist	Leave area immediately
Hands on top of head.....	Need assistance
Thumbs up.....	OK; I am all right; I understand
Thumbs down.....	No; negative

I. **SITE HEALTH AND SAFETY PLAN.**

1. Daniel Ours or a designated alternate is the Site Safety Officer and is directly responsible to the Project Team Leader for safety recommendations on site. The Field Team Leader will be responsible for executing and enforcing the Site Health and Safety Plan.

2. **Emergency Medical Care.** Upstate (University) Hospital is located 10 minutes from this location. A map of alternative routes to this facility is available at the field vehicle (attached).

   First aid equipment is available on site at the following locations:

   First aid kit Field vehicle

   List of emergency phone numbers:

AGENCY/FACILITY	PHONE NUMBER
Police (Onondaga County Sheriff)	911
Fire	911
Ambulance	911
Upstate University Hospital	(315) 464-5540

3. **Environmental Monitoring.** The following environmental monitoring instruments shall be used on site at the specified intervals:

- MiniRAE photoionization detector (PID). Continuous during installation of soil gas monitoring probes.
- Dust monitor.

4. **Emergency Procedures.** The following standard procedures will be used by on-site personnel. The Site Safety Officer shall be notified of any on-site emergencies and be responsible for ensuring that the appropriate procedures are followed:

   a. **Personnel Injury in the Work Zone.** Upon notification of an injury in the Work Zone, the designated emergency signal, a continuous horn blast, shall be sounded. A rescue team will enter the Work Zone (if required) to remove the injured person to safety. Appropriate first aid shall be initiated and contact should be made for an ambulance and with the designated medical facility (if required). No persons shall re-enter the Work Zone until the cause of the injury or symptoms is determined.

   b. **Fire/Explosion.** Upon notification of a fire or explosion on site, the designated emergency signal, a continuous horn blast, shall be sounded and all site personnel assembled at the decontamination line. The fire department shall be alerted and all personnel moved to a safe distance from the involved area.

   c. **Personal Protective Equipment Failure.** If any site worker experiences a failure or alteration of protective equipment that affects the protection factor, that person and his/her buddy shall immediately leave the Work Zone. Re-entry shall not be permitted until the equipment has been repaired or replaced.

   d. **Other Equipment Failure.** If any other equipment on site fails to operate properly, the Project Team Leader and Site Safety Officer shall be notified and then determine the effect of this failure on continuing operations on site. If the failure affects the safety of personnel or prevents completion of the Work Plan tasks, all personnel shall leave the Work Zone until the situation is evaluated and appropriate actions taken.

   In all situations, when an on-site emergency results in evacuation of the Work Zone, personnel shall not re-enter until:

   a. The conditions resulting in the emergency have been corrected.
   b. The hazards have been reassessed.
   c. The Site Health and Safety Plan has been reviewed.
   d. Site personnel have been briefed on any changes in the Site Health and Safety Plan.

5. **Personal Monitoring.** The following personal monitoring will be in effect on site:

   Personal exposure sampling: MiniRAE PID screening, sampling pumps/tubes , or organic vapor monitors.

   Medical monitoring: The expected air temperature will be less than 70EF. If it is determined that heat stress monitoring is required (mandatory if over 70EF), the following procedures shall be followed: Monitoring body temperature, body weight, pulse weight.

All site personnel have read the above plan and are familiar with its provisions.

	Name	Signature
Site Safety Officer		
Project Team Leader		
Other Site Personnel		

Appendix C
QAPP

SECTION 1

PROJECT DESCRIPTION

The Pass & Seymour facility ("site") is located at 50 Boyd Avenue in the village of Solvay, Onondaga County, New York (Figure 1). The site is located approximately ½ mile south of the New York State Fairgrounds, approximately 5 miles west of downtown Syracuse.

The site consists of 18.07 acres, and is currently owned and occupied by Pass & Seymour, Inc. ("P&S"), which has its corporate office and a warehouse on the premises. Currently, the office encompasses approximately 11,000 square feet on the eastern portion of the site, and the warehouse encompasses approximately 49,000 square feet on the western portion of the site (Figure 2). Past operations at the site occurred in a substantially larger building footprint (Figure 2), most of which has been demolished leaving the two remaining structures.

The site has been used as an industrial facility since the early 1900s. A range of industrial activity has occurred on site, primarily steel milling and porcelain equipment manufacturing. Former manufacturing facilities on the site included oil-fired boilers, metal working areas, clay kilns, a machine shop, several petroleum above ground and underground storage tanks, several small sheds, and a warehouse. Most of these facilities were removed from the site as the buildings were demolished, however some are known to remain in place, for example three of the underground storage tanks (USTs). There is currently no manufacturing at the site.

P&S has completed a Brownfield Cleanup Program (BCP) application for the site under the New York State Department of Environmental Conservation (NYSDEC) Environmental Restoration Program. Under the BCP, a Brownfield Site Investigation must be completed in accordance with NYSDEC's *Technical Guidance for Site Investigation and Remediation* (DER-10), to provide a systematic assessment of environmental conditions on the property. This Quality Assurance Project Plan sets forth the quality assurance measures for completing the Brownfield Site Investigation.

SECTION 2

PROJECT ORGANIZATION

The organization of the key project management and field sampling teams, and areas of responsibility are shown presented below. Resumes are included as Appendix B-1.

Project Principal	David W. Stoner, C.P.G.	Provide technical and administrative oversight and guidance throughout the project, assist in securing company resources, participate in technical review of deliverables, and attend key meetings as needed.
Principal Engineer	Damian J. Vanetti, P.E.	Provide technical guidance and review of reports, analytical data. Will have key involvement in screening and development of remedial alternatives.
Project Manager	Daniel P. Ours, C.P.G.	Responsible for maintaining the day-to-day schedule for completing the fieldwork and deliverables according to budget, QA/QC, and SDRA expectations.
Field Team Leader	Donald S. Sorbello	Responsible for coordinating and directing field efforts of S&W staff and subcontractors

SECTION 3

QA/QC OBJECTIVES FOR MEASUREMENT OF DATA

Levels of quality for all laboratory analyses shall be based on those stipulated in the New York State Department of Environmental Conservation Analytical Services Protocol (NYSDEC-ASP). If NYSDEC-ASP is not specific, then the USEPA CLP will be followed. For the remainder of this document, ASP shall refer to the most recent update of the NYSDEC-ASP (December 1991). Field blanks and duplicate samples will be collected for QA purposes according to ASP requirements. Number and frequency of blanks and duplicates is itemized by matrix group in the Field Sampling Plan (FSP).

Detection limits set by NYSDEC-ASP will be used for all sample analyses unless otherwise noted. If NYSDEC-ASP-dictated detection limits prove insufficient to assess project goals (i.e., comparison to drinking water standards or attainment of ARARs), then ASP Special Analytical Services (SAS) or other appropriate methods will be described in the FSP.

The quality assurance/quality control objectives for all measurement data include completeness, representativeness, comparability, precision and accuracy.

COMPLETENESS

The analyses performed must be appropriate and inclusive. The parameters selected for analysis are chosen to meet the objectives of the study.

Completeness of the analyses will be assessed by comparing the number of parameters intended to be analyzed with the number of parameters successfully determined and validated. Data must meet QC acceptance criteria for 100 percent or more of requested determinations.

REPRESENTATIVENESS

Samples must be taken of the population and, where appropriate, the population will be characterized statistically to express the degree to which the data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process, or environmental condition.

Non-dedicated sampling devices will be cleaned between sampling points by washing and rinsing with pesticide-grade methanol, followed by a thorough rinse with distilled water. Specific cleaning techniques are described in the Field Sampling Procedure. Two types of blank samples will accompany each sample set where Target Compound List (TCL) volatiles are to be analyzed (water matrix only). A trip blank, consisting of a 40 ml VOA vial of organic-free water prepared by the laboratory, will accompany each set of sample bottles from the laboratory to the field and back. This bottle will remain sealed throughout the shipment and sampling process. This blank will be analyzed for TCL volatile organic compounds along with the groundwater samples to ensure that contamination with TCL volatile compounds has not occurred during the bottle preparation, shipment and sampling phase of the project. In order to check for contaminant carryover when non-dedicated sampling equipment is used, a rinsate blank will be submitted to the laboratory. This blank will also be analyzed for TCL volatile organic compounds. The TCL compounds are identified in the United States Environmental Protection Agency (USEPA) Contract Laboratory Program dated 7/85 or as periodically updated.

The analysis results obtained from the determination of identical parameters in field duplicate samples can be used to further assess the representativeness of the sample data.

COMPARABILITY

Consistency in the acquisition, preparation, handling and analysis of samples is necessary in order for the results to be compared where appropriate. Additionally, the results obtained from analyses of the samples will be compared with the results obtained in previous studies, if available.

To ensure the comparability of analytical results with those obtained in previous or future testing, all samples will be analyzed by NYSDEC-approved methods. The NYSDEC-ASP mandated holding times for various analyses will be strictly adhered to.

PRECISION AND ACCURACY

The validity of the data produced will be assessed for precision and accuracy. Analytical methods which will be used include gas chromatography/mass spectrometry (GC/MS), gas chromatography (GC), colorimetry, atomic spectroscopy, gravimetric and titrametric techniques. The following outlines the procedures for evaluating precision and accuracy, routine monitoring procedures, and corrective actions to maintain analytical quality control. All data evaluations will be consistent with NYSDEC-ASP procedures. Data will be 100 percent compliant with NYSDEC-ASP requirements.

The requirements of QA/QC are both method specific and matrix dependent. The procedures to be used are described on this basis in Sections 6 and 9. The number of duplicate, spiked and blank samples analyzed will be dependent upon the total number of samples of each matrix to be analyzed, but there will be at least one split per matrix. The inclusion and frequency of analysis of field blanks and trip blanks will be on the order of one per each site. Samples to be analyzed for volatile organic compounds will be accompanied by trip and field blanks (water matrix) or field blanks (soil, sediment matrice).

Quality assurance audit samples will be prepared and submitted by the laboratory QA manager for each analytical procedure used. The degree of accuracy and the recovery of analyte to be expected for the analysis of QA samples and spiked samples is dependent upon the matrix, method of analysis, and compound or element being determined. The concentration of the analyte relative to the detection limit is also a major factor in determining the accuracy of the measurement. The lower end of the analytical range for most analyses is generally accepted to be five times the detection limit. At or above this level, the determination and spike recoveries for metals in water samples will be expected to range from 75 to 125 percent. The recovery of organic surrogate compounds and matrix spiking compounds determined by GC/MS will be compared to the guidelines for recovery of individual compounds as established by the United States Environmental Protection Agency Contract Laboratory Program dated 7/85 or as periodically updated.

The quality of results obtained for inorganic ion and demand parameters will be assessed by comparison of QC data with laboratory control charts for each test.

SECTION 4

SAMPLING PROCEDURES

SAMPLING PROGRAM

The soil sampling program will include the collection of soil samples from split spoon sampling devices retrieve from soil borings. Groundwater samples will be collected from groundwater monitoring wells.

A. **Drilling/Sampling Procedures.** Test borings shall be completed using the hollow stem auger drilling method or rotary drilling method to a depth specified by the SWRNA geologist.

If a hollow stem auger drilling method is to be utilized for monitoring well completion, the minimum inside diameter of the augers shall be 4-1/4 inches.

Samples of the encountered surface materials shall be collected at a minimum of every 5 feet and/or change in material or at the discretion of the geologist. The sampling method employed shall be ASTM D-1586/Split Barrel Sampling using a standard 2-foot long, 2-inch outside diameter split-spoon sampler with a 140-pound hammer. Upon retrieval of the sampling barrel, the collected sample shall be placed in glass jars and labeled, stored on site (on ice in a cooler if necessary), and transmitted to the appropriate testing laboratory or storage facility. Chain-of-custody procedures will be practiced following Section 15, EPA-600/4-82-029, Handbook for Sampling and Sample Preservation of Water and Waste Waters.

A geologist will be on site during the drilling operations to fully describe each soil sample, following the New York State Soil Description Procedure, and to retain representative portions of each sample. The drilling contractor will be responsible for obtaining accurate and representative samples, informing the geologist of changes in drilling pressure, keeping a separate general log of soils encountered including blow counts [i.e., the number of blows from a soil sampling drive weight (140 pounds)] required to drive the split-spoon sampler in 6-inch increments and installing monitoring wells to levels directed by the supervising geologist following specifications further outlined in this protocol.

B. Monitoring Well Completion. Initial downgradient monitoring wells will be constructed of 10 feet of .010-inch slot size PVC well screen and riser casing that will extend from the screened interval to 2 to 3 feet above existing grade. The selection of stainless steel or PVC for supplemental wells will depend on groundwater quality results from the initial wells. Other materials utilized for completion will be washed silica sand (Q-Rock No. 4 or approved equivalent) bentonite grout, Portland cement, and a protective steel locking well casing and cap with locks.

The monitoring well installation method for wells installed within unconsolidated sediments shall be to place the screen and riser assembly into the casing once the screen interval has been selected. At that time, a washed silica sand pack will be placed around the well screen if required to prevent screen plugging. If a sand pack is not warranted, the auger string will be pulled back to allow the native aquifer material to collapse 2 to 3 feet above the top of the screen. Bentonite pellets will then be added to the annulus between the casing and the inside auger to insure proper sealing. Cement/bentonite grout will continue to be added during the extraction of the augers until the entire aquifer thickness has been sufficiently sealed off from horizontal and/or vertical flow above the screened interval. During placement of sand and bentonite pellets, frequent measurements will be made to check the height of the sand pack and thickness of bentonite layers by a weighted drop tape measure.

A vented protective steel casing shall be located over the standpipe extending 2 feet below grade and 2 to 3 feet above grade, secured by a Portland cement seal. The cement seal shall extend laterally at least 1 foot in all directions from the protective casing and shall slope gently away to drain water away from the well. A vented steel cap will be fitted on the protective casing. The cap shall be constructed so it may be secured with a steel lock.

C. Well Development. All monitoring wells will be developed or cleared of all fine-grained materials and sediments that have settled in or around the well during installation so that the screen is transmitting representative portions of the groundwater. The development will be by one of two methods, pumping or bailing groundwater from the well until it yields relatively sediment-free water.

A decontaminated pump or bailer will be used and subsequently decontaminated after each use following procedures outlined in the Decontamination Protocol. Pumping or bailing will cease when the turbidity falls below 50 NTUs or until specific conductivity, pH, and temperature are stable (i.e., consecutive readings are within 10 percent with no overall upward or downward trends in

measurements). The decision to stop well development at a turbidity level above 50 NTUs is made only after consultation with the NYSDEC. Well development water will be disposed of on the ground surface at each well location or contained in drums as conditions warrant.

D. Decontamination. All drilling equipment and associated tools including augers, drill rods, sampling equipment, wrenches and any other equipment or tools that have come in contact with contaminated materials will be decontaminated before any drilling on site begins, between each well, and prior to removing any equipment from the site. The preferred decontamination procedure will be to use a high pressure steam cleaner to remove soils and volatile organics from the equipment. The water used for this procedure will be contained and shall come from a controlled source, preferably a municipal drinking supply. Representative samples of the contained decontamination water and well development water will be screened in the field to determine the proper method of disposal. Every effort will be made to minimize the generation of contaminated water.

E. Groundwater Sampling Program.

1. **Well Evacuation.** Prior to sampling a monitoring well, the static water level will be recorded and the wells evacuated to assure that the water in the well is truly representative of the groundwater. All well data will be recorded on a field sampling record. For shallow wells or deep wells with a relatively low static water level, evacuation will be accomplished by using a stainless steel or teflon bailer with a ball check valve at its lower end. A bladder may be used to evacuate the deeper wells at a rate of approximately 1 gpm. Water samples to be analyzed for volatile and/or semi-volatile organics must be sampled by bailer.

2. **Sampling Procedure.** Groundwater samples will be collected using either stainless steel, teflon, or disposable polyethylene bailers with a ball check valve at the lower end. Incorporation of a check valve onto the bailers assures that a sample is representative of the depth to which the bailer is lowered. All samples will be removed from a depth just above the well screen to further assure a representative groundwater sample. Before and after sampling, the sampling device will be cleaned inside and out with soapy water, methanol, and then rinsed with distilled deionized water. Sampling procedures are summarized on Table 4.2.

In addition to water samples collected from the monitoring wells, two types of "blanks" will be collected and submitted to the chemical laboratory for analyses. The blanks will consist of 40 ml VOA vials, as follows:

a. **Trip Blank**. A trip blank will be prepared before the sample bottles are sent by the laboratory. It consists of a sample of distilled, deionized water which accompanies the other sample bottles into the field and back to the laboratory. A trip blank will be included with each shipment of samples where sampling and analysis for TCL volatiles is planned (water matrix only). The trip blank will be analyzed for TCL volatile organic compounds as a measure of the internal laboratory procedures and their effect on the results.

b. **Field (Wash) Blanks.** Field wash blanks are analyzed to check the effectiven ess of decontamin ation. Each sample consists of distilled deionized water (prepared by the laboratory) poured through a decontamin ated bailer or other sampling apparatus. It is usually collected as a last step in the decontamin ation procedure prior to sampling of a monitoring well. The wash blank can be analyzed for all or some of the compounds which the subsequent monitoring well sample is scheduled for.

SAMPLE PRESERVATION AND SHIPMENT

Since all bottles will contain the necessary preservatives as shown in Table 4.1, they need only be filled. The 40 ml VOA vials must be filled brim full with no air bubbles. The other bottles should be filled to within about 1 inch from the top.

The bottles will be sent from the laboratory in coolers which will be organized on a per site basis. Following sample collection, the bottles should be placed on ice in the shipping cooler. The samples will be cooled to 4°C, but not frozen.

Final packing and shipment of coolers will be performed in accordance with guidelines outlined in the "User's Guide to the CLP".

SECTION 5

SAMPLE CUSTODY

The program for sample custody and sample transfer is in compliance with the NYSDEC-ASP, as periodically updated. If samples may be needed for legal purposes, chain-of-custody procedures, as defined by NEIC Policies and Procedures (USEPA-330/9-78-001-R, Revised June 1988) will be used. Sample chain-of-custody is initiated by the laboratory with selection and preparation of the sample containers. To reduce the chance for error, the number of personnel handling the samples should be minimized.

FIELD SAMPLE CUSTODY

A chain-of-custody record accompanies the sample from initial sample container selection and preparation at the laboratory, shipment to the field for sample containment and preservation, and return to the laboratory. Two copies of this record follow the samples to the laboratory. The laboratory maintains one file copy and the completed original is returned to the site inspection team. Individual sample containers provided by the laboratory are used for shipping samples. The shipping containers are insulated and chemical or ice water is used to maintain samples at approximately 4°C until samples are returned and in the custody of the laboratory. All sample bottles within each shipping container are individually labeled and controlled. Samples are to be shipped to the laboratory within 24-48 hours of the day of collection.

Each sample shipping container is assigned a unique identification number by the laboratory. This number is recorded on the chain-of-custody record and is marked with indelible ink on the outside of the shipping container. The field sampler will indicate the sample designation/location number in the space provided on the appropriate chain-of-custody form for each sample collected. The shipping container is closed and a seal provided by the laboratory is affixed to the latch. This seal must be broken to open the container, and this indicates possible tampering if the seal is broken before receipt at the laboratory. The laboratory will contact the site investigation team leader and the sample will not be analyzed if tampering is apparent.

LABORATORY SAMPLE CUSTODY

The site investigation team leader or Project Quality Assurance Officer notifies the laboratory of upcoming field sampling activities and the subsequent transfer of samples to the laboratory. This notification will include information concerning the number and type of samples to be shipped as well as the anticipated date of arrival.

The laboratory sample program meets the following criteria:

1. The laboratory has designated a sample custodian who is responsible for maintaining custody of the samples and for maintaining all associated records documenting that custody.

2. Upon receipt of the samples, the custodian will check the original chain-of-custody documents and compare them with the labeled contents of each sample container for correctness and traceability. The sample custodian signs the chain-of-custody record and records the date and time received.

3. Care is exercised to annotate any labeling or descriptive errors. In the event of discrepant documentation, the laboratory will immediately contact the site investigation team leader as part of the corrective action process. A qualitative assessment of each sample container is performed to note any anomalies, such as broken or leaking bottles. This assessment is recorded as part of the incoming chain-of-custody procedure.

4. The samples are stored in a secured area at a temperature of approximately 4°C until analyses are to commence.

5. A laboratory chain-of-custody record accompanies the sample or sample fraction through final analysis for control.

6. A copy of the chain-of-custody form will accompany the laboratory report and will become a permanent part of the project records.

FINAL EVIDENCE FILES

Final evidence files include all originals of laboratory reports and are maintained under documented control in a secure area.

A sample or an evidence file is under custody if:

- It is in your possession; it is in your view, after being in your possession.
- It was in your possession and you placed it in a secure area.
- It is in a designated secure area.

SECTION 6

CALIBRATION PROCEDURES

Instruments and equipment used to gather, generate or measure environmental data will be calibrated with sufficient frequency and in such a manner that accuracy and reproducibility of results are consistent with the appropriate manufacturer's specifications or project specific requirements. The procedures for instrument calibration, calibration verification, and the frequency of calibrations are described in the NYSDEC-CLP. The calibration of instruments used for the determination of metals will be as described in the appropriate CLP standard operating procedures.

Calibration of other instruments required for measurements associated with these analyses will be in accordance with the manufacturer's recommendations and the standard operating procedures of the laboratory.

SECTION 7

ANALYTICAL PROCEDURES

Analytical procedures shall conform to the most recent revision of the NYSDEC-ASP and are summarized on Table 7.1. In the absence of USEPA or NYSDEC guidelines, appropriate procedures shall be submitted for approval by NYSDEC prior to use.

The procedures for the sample preparation and analysis for organic compounds are as specified in the NYSDEC-ASP. Analytical cleanups are mandatory where matrix interferences are noted. No sample shall be diluted any more than 1 to 5. The sample shall be either re-extracted, re-sonicated, re-stream distilled, etc. or be subjected to any one analytical cleanup noted in SW846 or a combination thereof. The analytical laboratory shall expend such effort and discretion to demonstrate good laboratory practice and demonstrate an attempt to best achieve the method detection limit.

VOLATILE ORGANICS (VOA)

For the analysis of water samples for Target Compound List (TCL), volatile organic compounds (VOCs), no sample preparation is required. The analytical procedure for volatiles is detailed in NYSDEC-ASP (Volume I, Section D-I). A measured portion of the sample is placed in the purge and trap apparatus and the sample analysis is performed by gas chromatography/mass spectrometry for the first round. USEPA Methods 8010 or 8020 (gas chromatography with different detectors) will be used if subsequent rounds with lower limits of detection are warranted.

SEMI-VOLATILE ORGANIC COMPOUNDS

The extraction and analytical procedures used for preparation of water, soil and sediment samples for the analysis of the TCL semi-volatile organic compounds are described in NYSDEC-ASP Volume I, Section D-III.

Instrument calibration, compound identification, and quantitation are performed as described in Section 6 of this document and in the NYSDEC-ASP.

PCB COMPOUNDS

The sample preservation procedures for gas chromatography for PCB's will be as described in the NYSDEC-ASP methods (Section D-IV). The analysis of standard mixes, blanks and spiked samples will be performed at the prescribed frequency with adherence to the 72-hour requirement described in the method.

METALS

Water, soil and waste samples will be analyzed for the metals listed in Table 7.2. The detection limits for these metals are as specified in the NYSDEC-ASP, Section D-V. The instrument detection limits will be determined using calibration standards and procedures specified in the NYSDEC-ASP. The detection limits for individual samples may be higher due to the sample matrix. The procedures for these analyses will be as described in the NYSDEC-ASP.

The digestion procedures for water samples are not recommended for samples requiring analysis for mercury, arsenic or selenium. The aliquot of sample analyzed for As and Se will be prepared using the modifications described in USEPA Methods 206.2 CLP-M and 270.2 CLP-M, respectively. Analysis for mercury requires a separate digestion procedure (245.1 CLP-M, or 245.2 CLP-M).

The analyses for metals will be performed by atomic absorption spectroscopy (AAS) or inductively-coupled plasma emission spectroscopy (ICPES), as specified in the ASP with regard to AAS flame analysis.

SITE SPECIFICITY OF ANALYSES

Work plans prepared for remedial investigation waste sites contain recommendations for the chemical parameters to be determined for each site. Thus, some or all of the referenced methods will apply to the analysis of samples collected at the individual waste sites. Analyses of Target Compound List (TCL) analytes will be performed on all samples.

Appendix D
Community Participation Plan
(Sample)

SAMPLE

50 Boyd Avenue
Brownfield Cleanup Agreement # XXXXXXXX
NYSDEC Index # XXXXXX
Owner:
Pass & Seymour, Inc.
50 Boyd Avenue
Solvay, New York

Citizen Participation Plan

In conformance with the Brownfield Cleanup Agreement (BCP) executed _____, 2004, Pass & Seymour, Inc. has developed the following Citizen Participation Plan for BCP Site No. XXXXX.

Document Repository

Pass & Seymour, Inc. will establish a document repository in the New York State Department of Environmental Conservation (NYSDEC) Region 7 office located at 615 Erie Boulevard West in Syracuse, Onondaga County, New York.

Brownfield Site Contact List

Pass & Seymour, Inc. has developed a BSCL based on the criteria outlined in the State's BCP application and it is included with this plan. The list includes adjacent property owned as Attachment A and other required contacts as identified by NYSDEC.

Site Investigation and Remediation Fact Sheets

In order to obtain approval of the Site Investigation and Remediation Work Plans, Pass & Seymour, Inc. will distribute an NYSDEC approved fact sheet to persons on the BSCL, and place a copy in the document repository for a 30-day public review and comment period.

An additional fact sheet will be distributed to the document repository and persons on the BSCL prior to NYSDEC approval of the Final Brownfield Site Investigation Report.

Before approval of the Remedial Work Plan, Pass & Seymour, Inc. will distribute an NYSDEC approved fact sheet to persons on the BSCL, and place a copy in the document repository for a 30-day public review and comment period.

An additional fact sheet will be distributed to the document repository and persons on the BSCL prior to NYSDEC approval of the Final Engineering Completion Report.

If institutional or engineering controls are necessary on the site, Pass & Seymour, Inc. will issue a fact sheet to persons on the BSCL within 10-days of receipt of the Certificate of Completion.

Final Certification

Once the project is complete Pass & Seymour, Inc. will provide NYSDEC a form certifying that is has mailed all required fact sheets.