FOCUSSED REMEDIAL INVESTIGATION REPORT FOR 118-130 SWALM STREET NEW CASSEL, NEW YORK

FOR SUBMITTAL TO

THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

PREPARED BY

FPM

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MAY, 1999

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1999

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FPM

SECTION 1.0
INTRODUCTION

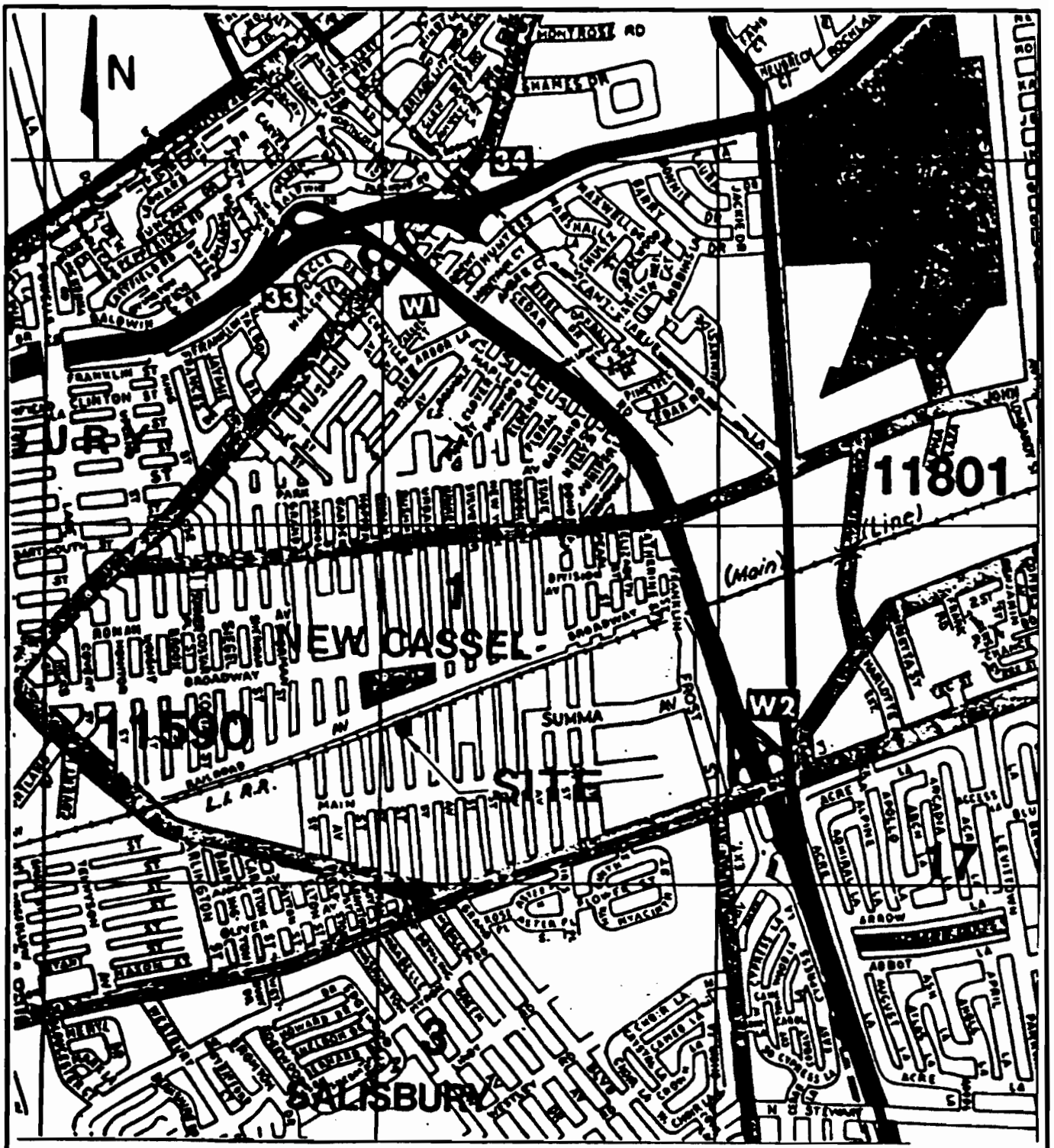
1.1 Overview

This Focussed Remedial Investigation (FRI) Report has been prepared by Fanning, Phillips and Molnar (FPM) for the Site owned by Barouh Eaton Allen Corp. (BEAC) located at 118-130 Swalm Street Westbury, New York (the "Site") (see Figure 1.1.1). The Site is located within the New Cassel Industrial Area (NCIA).

The NCIA is located in the unincorporated Village of Westbury in the Town of North Hempstead, Nassau County, New York. Due to volatile organic compound (VOC) contamination of the groundwater beneath the NCIA, the New York State Department of Environmental Conservation (NYSDEC) listed the entire NCIA on its registry of Inactive Hazardous Waste Disposal Sites (IHWDS) in 1988. Several subsurface investigations were conducted by the New York State Department of Environmental Conservation (NYSDEC) to delineate the contaminant plumes under the NCIA and locate the source of the contaminants.

Initial investigations conducted in 1993 and 1994 by Lawler, Matusky, & Skelly Engineers (LMS) identified several areas exhibiting significant groundwater contamination within the NCIA (LMS 1994). Potentially responsible parties for the two central section plumes and one of the western section plumes were identified; those facilities were listed as Class 2 sites on the registry of IHWDS. The remaining sites within the plume regions were designated as potential registry sites requiring additional investigation.

Lawler, Matusky & Skelly (LMS), as contractor to the NYSDEC, conducted a Multisite Preliminary Site Assessment (PSA) in 1995 on the sites that required additional investigation. The objectives of the Multisite PSA were to further delineate the contaminant plumes, locate the sources of



Fanning, Phillips & Molnar Engineers		
FIGURE 1.1.1 SITE LOCATION PLAN 118-130 SWALM STREET NEW CASSEL, NEW YORK		
Drawn By: L.G.	Checked By: B.K.	Date: 8/12/97

the contaminants, and assess the threat of each source to the environment. Based on the Multisite PSA investigation data, five properties were recommended for inclusion on the registry of IHWDS, 15 properties were not included on the registry, and 12 properties were determined to be potential registry sites.

To resolve the status of the remaining properties that were included as potential registry sites and address data gaps for several properties in the industrial area, additional PSA investigation activities were conducted by LMS in 1997. The investigation included additional file reviews, facility inspections, soil and groundwater sampling, and on-site mobile laboratory analysis. The data generated from the investigation was used to list the Site at 118-130 Swalm Street on the NYSDEC registry of IHWDS.

FPM was retained by McMillan, Rather, Bennett & Rigano, P.C. to prepare a FRI Work Plan to determine potential source areas at the Site and further evaluate groundwater contamination at and in the vicinity of the Site. The FRI Work Plan was approved by the NYSDEC, and the FRI was executed by FPM in December, 1998 and January, 1999. This report presents the procedures, results, conclusions, and recommendations of the FRI.

SECTION 2.0
SITE BACKGROUND AND SETTING

2.1 Current Conditions

The Site consists of approximately 1.1 acres and is located in an area of industrially-zoned properties. A one-story, 28,000-square-foot masonry and steel building occupies approximately 60 percent of the Site. The area on the Site north of the building consists of a former parking lot which now consists of asphalt and exposed soil. The area contains grass and weeds. A Site plan is presented in Figure 2.1.

Based on a Site inspection conducted by FPM, three subsurface drainage structures have been identified at the Site. One of these structures, which is located along Swalm Street, appears to be a former cesspool which received sanitary waste from the building. The other two structures, on the north side of the building, appear to have been used by former tenants of the building as leaching pools (possibly cesspools). Evidence of a former trench drain within the building was noted. The trench drain has been sealed with concrete to grade. The former drain led to the vicinity of the location of the two leaching structures outside of the building on the north side of the Site. None of the three subsurface drainage structures appear to be in use and none have been abandoned by backfilling to grade. A magnetometer was used to locate the manhole cover of one of the subsurface structures which was obscured by overlying soil and vegetation.

According to building department records, the Site has been connected to the municipal sewer system since 1980. At the request of FPM, the Nassau County Department of Public Works (NCDPW) performed a dye test at the facility on March 18, 1999 to confirm the connection to the public sewer. The NCDPW dye test confirmed that the facility is connected to the public sewer. There are no apparent storm drainage structures located on the Site.

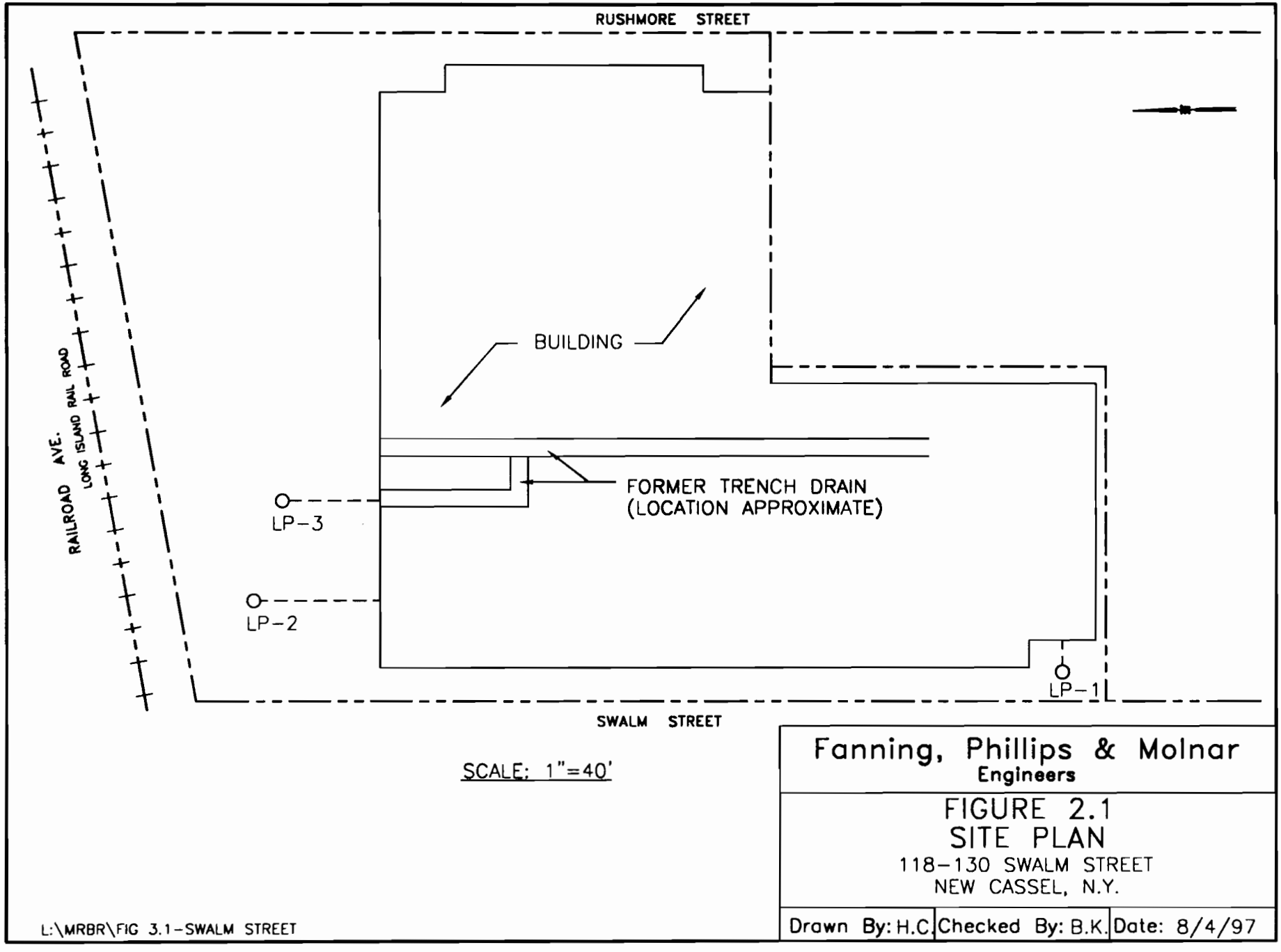

RUSHMORE STREET
RAILROAD AVE.
LONG ISLAND RAIL ROAD
BUILDING
FORMER TRENCH DRAIN
(LOCATION APPROXIMATE)
LP-3
LP-2
LP-1
SWALM STREET
SCALE: 1"=40'
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FIGURE 2.1
SITE PLAN
118-130 SWALM STREET
NEW CASSEL, N.Y.
Drawn By: H.C.
Checked By: B.K.
Date: 8/4/97
L:\MRBR\FIG 3.1-SWALM STREET

2.2 Current Site Operations

The Site is currently occupied by Liqui-Mark Inc., which is a manufacturer of water-based marking pens, alcohol-based marking pens, and ballpoint pens. Liqui-Mark Inc. has been operating at the Site since June, 1994. During an inspection by FPM in July, 1997, there were no floor drains identified at the facility. In addition, since the Site has been connected to the municipal sewer system since 1980, there is no subsurface disposal associated with Liqui-Mark's operations.

2.3 Site History

According to the Town of North Hempstead Building Department records obtained by FPM, the Site is zoned Industrial-B and was developed in 1961 with a one-story steel and masonry industrial building. A Sanborn map dated 1968 indicated that the building contained a mechanical engraving company and a plastic extrusion company. Information supplied by the owner of the Site indicated that BEAC took title of the Site through Andrigal Enterprises on October 21, 1977. The LMS report indicated that numerous tenants have occupied the Site since that time. These include All Records Distributors from 1971 to 1974, Allomatic Industries from 1979 to 1992, Louis Jordan Labs from 1978 to 1980, Varitek Machine Co. from 1979 to 1992, and possibly Atlas Graphics in 1985. The current tenant, Liqui-Mark Corporation, has occupied the building since June, 1994. It should be noted that BEAC's records indicate that not all the above-listed tenants were present at the Site.

SECTION 3.0
ENVIRONMENTAL SETTING

3.1 Hydrogeologic Setting

The regional geology of the New Cassel area was derived from US Geological Survey Paper #1825 entitled, "Geology and Hydrology of Northeastern Nassau County, Long Island, New York (Ibister, 1986)". In the vicinity of the Site, the geology consists of a basement layer of Precambrian-age bedrock which occurs at a depth of approximately 900 feet below mean sea level (MSL).

Overlying the bedrock is a series of unconsolidated glacial deposits which includes the Lloyd Sand which is a stratified deposit consisting of discontinuous layers of sand, gravel, sandy clay, silt, and clay. The upper surface of the Lloyd Sand occurs at approximately 650 below MSL.

Overlying the Lloyd Sand is the Raritan Clay which consists chiefly of gray, red, white, and blue clay and silty clay and lenses of sand and gravel. The upper surface of the Raritan Clay occurs at approximately 550 below MSL in the vicinity of the Site. Overlying the Raritan Clay is the Magothy Formation which consists chiefly of interbedded gray and white fine sand and clayey sand and black, gray, white, and some red clay. Gravelly zones are common at the bottom of the formation but are rare in the upper part. The upper surface of the Magothy Formation is estimated to occur at 100 feet below the ground surface.

Overlying the Magothy Formation is the Upper Glacial Formation which, in the New Cassel area, is composed primarily of outwash deposits consisting of well-sorted stratified sand and gravel. The Upper Glacial deposits are the uppermost unit and are estimated to be 50 feet thick in the Site vicinity.

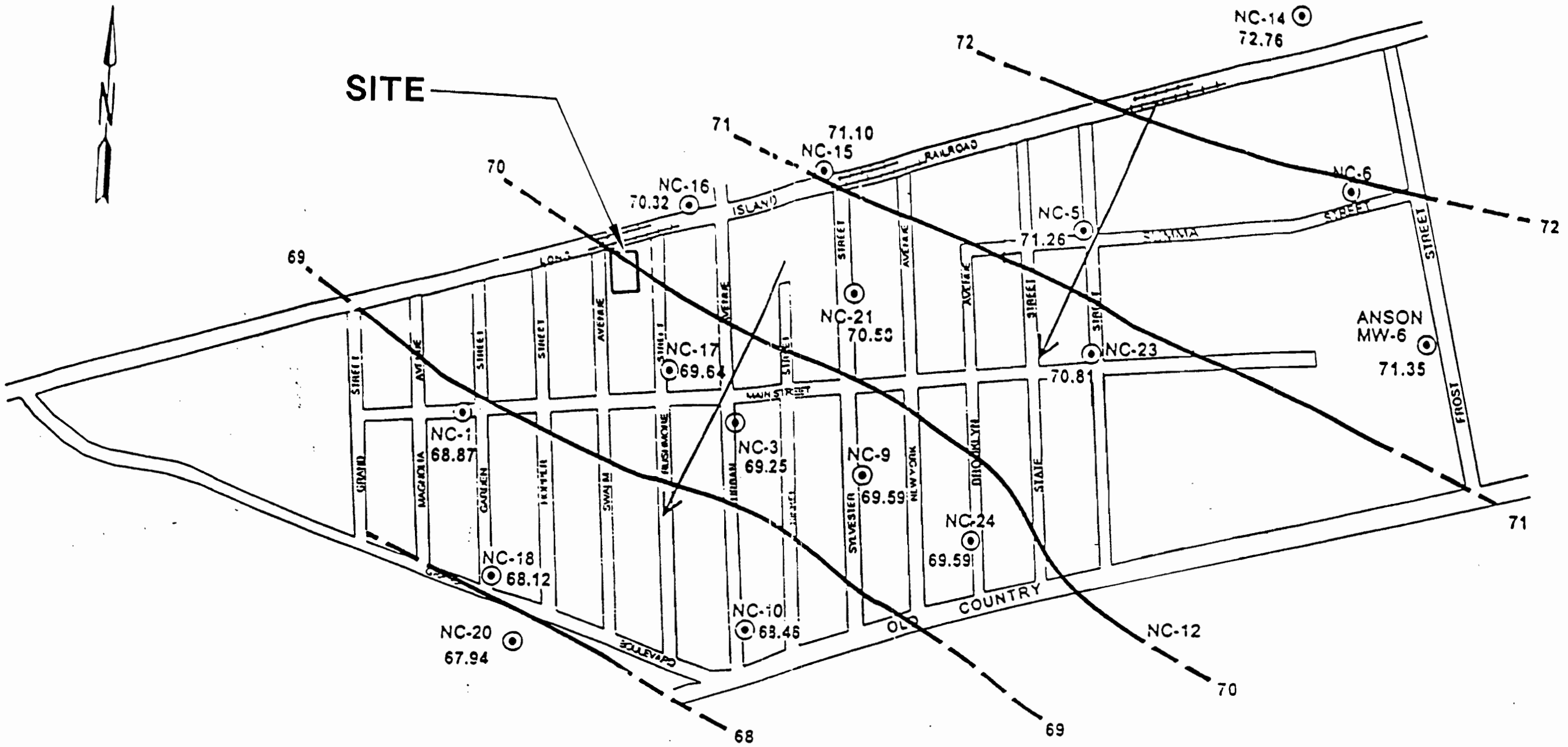
Based on the US Geological Survey Paper 82-4056 entitled, "Geology of the "20-foot" Clay and Gardiners Clay in Southern Nassau and Southwestern Suffolk Counties, Long Island, New York (Doriski and Wilde-Katz, 1982)", neither the 20-foot nor the Gardiners Clay exists under the NCIA.

The groundwater beneath the NCIA is recharged through infiltrating precipitation. The infiltrating precipitation accumulates above the bedrock and forms aquifers which correspond to the permeable geologic units. The depth to water is approximately 50 feet and the thickness of the Upper Glacial Formation is approximately 50 feet. Therefore, the Upper Glacial Aquifer may not exist in the Site vicinity and the first water-bearing unit may be the Magothy Aquifer.

The groundwater flow direction across the Site was ascertained from the Site Investigation Report for the New Cassel Industrial Area by LMS (February, 1995). The report showed that based on measurements from November 8 and 9, 1993, the groundwater flow direction in the vicinity of the Swalm Street Site was generally southwest (see Figure 2.1.1). Also, based on the groundwater elevation contour map of Nassau County for 1995, obtained from the NCDH, a groundwater divide exists approximately two miles north of the Site.

3.2 Surface Water and Drainage

The Site is located within an industrial park that has been serviced by the Nassau County Sewer System since approximately 1980. There are no wetlands, lakes, or streams in the Site area.



LEGEND:

NC-20 ⊙ Monitoring well

67.97 Water table elevation in feet above mean sea level

69 Water table contour (dashed line is inferred)

Groundwater flow direction

SOURCE:

NYSDEC REPORT, "NEW YORK STATE SUPERFUND CONTRACT SITE INVESTIGATION REPORT FOR NEW CASSEL INDUSTRIAL AREA SITE" (1995)

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FIGURE 2.1.1
GROUNDWATER FLOW CONTOUR LINES IN VICINITY OF SITE

Drawn By: JPS	Checked By BK	Date: 8/12/97

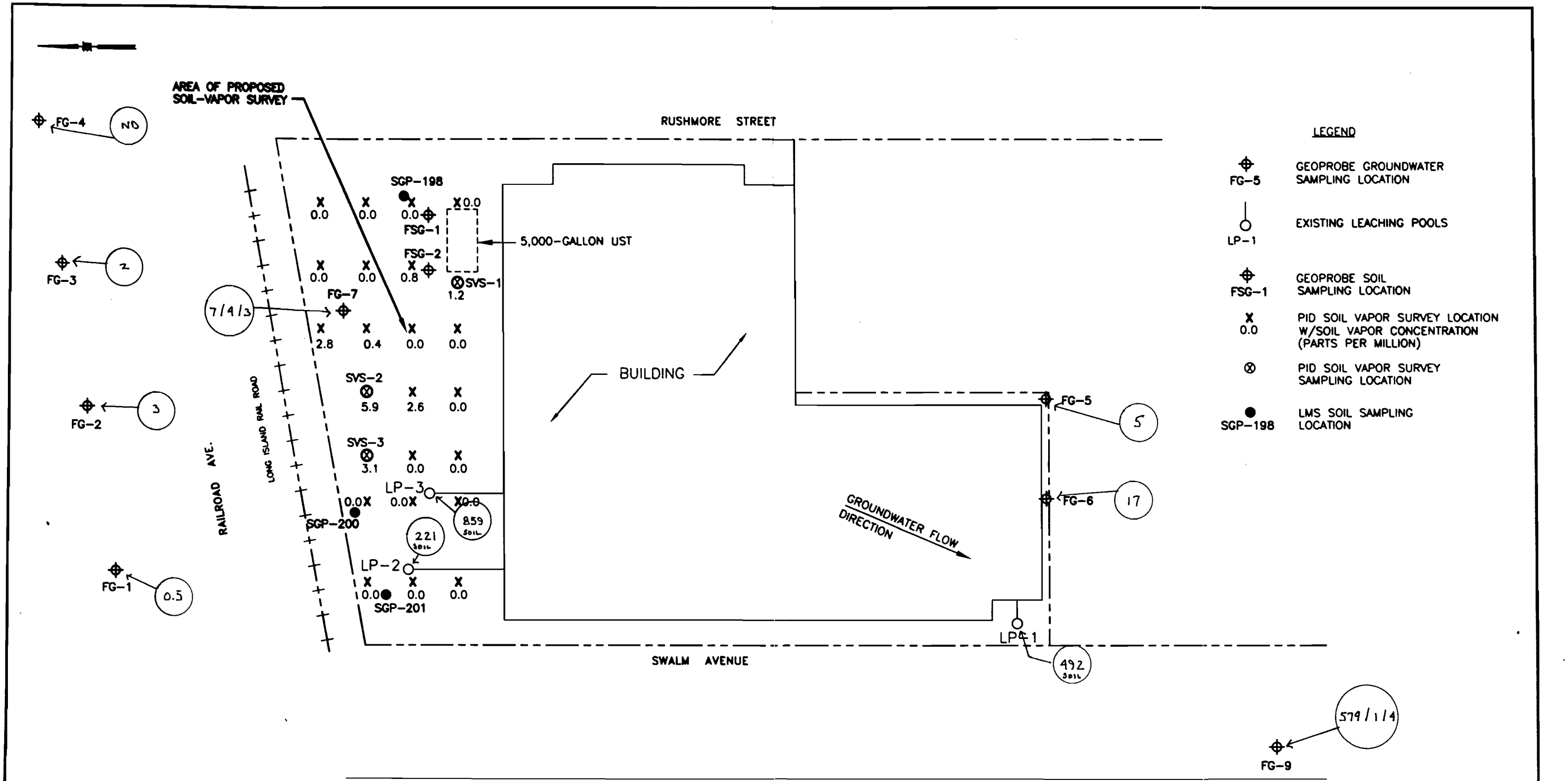
SECTION 4.0
REMEDIAL INVESTIGATION

The FRI field work was performed by FPM in December, 1998 and January, 1999. The NYSDEC was informed prior to the initiation of field work and a NYSDEC representative, Mr. Richard Gaborow, was present during portions of the field work. The following sections present the field procedures, results, and conclusions. Figure 4.1 shows all sampling locations.

4.1 Leaching Pool Sampling

Soil/sediment samples were obtained from leaching pool LP-1 located on the west side of the building along Swalm Street and leaching pools LP-2 and LP-3 located in the rear yard on the north portion of the Site (see Figure 4.1). LP-1 is no longer in use and appears to be a former cesspool which received sanitary waste from the building before connection to the Nassau County sewer. Pools LP-2 and LP-3 also did not appear to be in use and may have been associated with a former trench drain inside the building which was reportedly used by former tenants. The samples were obtained for the purpose of evaluating potential on-Site sources of soil and/or groundwater contamination and to determine whether further sampling will be required as described in Section 6.2.1 of the FRI Work Plan.

Sediment samples were collected from each leaching pool by hand-augering through the opened manhole cover. Each sample was obtained from an approximate depth of one foot below the sediment surface. Recovered sediments were visually inspected, described, and screened with a PID. The recovered sediment samples were transferred to laboratory-supplied sample containers using a decontaminated stainless steel sampling spoon. Each sample container was labeled with the Site location, sample location, date and time of sampling, and analysis to be performed. The labeled sample containers were placed in laboratory-supplied coolers containing ice to depress the temperature to four degrees



SCALE: 1"=40'

SITE MAP FROM PLOT PLAN PROVIDED BY LIQUI-MARK FILE

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Engineers

FIGURE 4.1
SAMPLING LOCATIONS
118-130 SWALM STREET
NEW CASSEL, N.Y.

Drawn By: H.C. & L.G. | Checked By: | Date: 2/24/99

LISAG/DRAW/MRBR/FIG 6.1 FIELD SAMP-SWALM STREET

Celsius. A chain of custody form was completed and placed with the samples to document the sequence of sample possession. The filled coolers were sealed and delivered via overnight courier to the subcontracted chemical analytical laboratory, Severn Trent Laboratories of Monroe, Connecticut. This laboratory is a NYSDOH-certified ELAP facility and the analyses were performed using USEPA Contract Laboratory Protocol (CLP) with NYSDEC ASP Category B deliverables. The leaching pool samples were analyzed for VOCs by USEPA Method 8260 plus 10 tentatively identified compounds (TICs).

4.2 Photoionization Detector Survey and Soil Sampling

4.2.1 Soil Vapor Survey

To determine if potential source areas are present in the soil in the area north of the building at the Site, FPM obtained 25 PID samples by creating a half-inch diameter, 30-inch-deep vent utilizing a slide hammer. The PID was used to measure the concentration of potential organic vapors by placing the tip of the PID in the opening of the vent immediately following the removal of the slide hammer. The PID readings were recorded at each location, and soil samples were chosen based on the results of the survey. The survey locations, soil sampling locations, and PID readings are shown on Figure 4.1.

The results of the soil vapor survey indicate that 6 of the 25 locations showed minor indications of organic vapors [up to 5.9 parts per million (ppm)]. Therefore, two soil samples were obtained at the locations of the two highest PID readings, (3.1 ppm and 5.9 ppm) and one soil sample was obtained from the vicinity of a small outdoor empty 55-gallon drum storage area, where a reading of 1.2 ppm was noted. The soil samples were obtained from a depth of one to two feet below ground surface at the soil vapor location using a decontaminated stainless-steel hand auger. The samples were transferred to laboratory-supplied sample containers using a decontaminated stainless steel sampling spoon. The filled sample

containers were labeled, managed, and tracked as described in Section 4.1. The samples were analyzed for VOCs by USEPA Method 8260 plus 10 TICs.

4.3 Geoprobe Soil Sampling

In addition to the soil samples collected during the soil vapor survey, two Geoprobe borings (FSG-1 and FSG-2) were performed at locations based on chemical analytical results of soil sampling performed previously by LMS (as shown on Figure 4.1). The purpose of these borings was to confirm the LMS results which showed tetrachloroethene at a concentration of 570 micrograms per kilogram (ug/kg) at a sampling depth of 18 to 19 feet (at SGP-198), and to determine the potential vertical extent of tetrachloroethene contamination in that area. To achieve this, samples were obtained by FPM at each boring location at depths of 18 to 20, 28 to 30, and 38 to 40 feet. Each sample was screened in the field with the PID to evaluate the presence of potential organic contaminants. A description of the soils were recorded from each sampling interval, and samples were transferred from the acetate sleeves to laboratory-supplied containers using a decontaminated stainless-steel sampling spoon. The filled sample containers were labeled, managed, and tracked as described in Section 4.1. The samples were analyzed for VOCs by USEPA Method 8260 plus 10 TICs.

4.4 Geoprobe Groundwater Sampling

Eight Geoprobe groundwater locations were sampled during the investigation, as shown on Figure 4.1. Nine Geoprobe locations were proposed in the FRI Work Plan. However, the NYSDEC approved a modification of the FRI Work Plan on December 23, 1998. The modification eliminated Geoprobe sampling location FG-8, and moved FG-9 to a location approximately 50 southwest of the location originally proposed in the FRI Work Plan. In addition, a third sample depth was added to locations FG-7 and FG-9. Samples were obtained from these locations approximately 5 feet below the water table, 15

feet below the water table, and 30 feet below the water table (the depth to groundwater at the Site is approximately 60 feet). Geoprobe groundwater samples were obtained from locations FG-1, FG-2, FG-3, FG-4, FG-5, and FG-6 at approximately 5 feet below the water table. Samples were obtained from each location using dedicated polyethylene tubing equipped with a check valve. The groundwater was surged by hand through the tubing directly into laboratory-supplied containers. Each groundwater sample container was labeled, managed, and tracked as described in Section 4.1. The samples were analyzed for VOCs by USEPA Method 8260 plus 10 TICs.

4.5 Quality Assurance/Quality Control

Quality Assurance/Quality Control (QA/QC) procedures were utilized during the performance of the FRI field work to ensure that the resulting chemical analytical data accurately represent subsurface conditions at the Site. The following sections include descriptions of the QA/QC procedures utilized and evaluations of the QA/QC results.

4.5.1 Equipment Decontamination Procedures

All sampling equipment was either dedicated disposable equipment or was decontaminated prior to use at each location. For groundwater sampling, dedicated disposable polyethylene tubing was used to obtain groundwater samples. The decontamination procedures utilized for all non-disposable sampling equipment (i.e., Geoprobe sampling rods, hand augers) were as follows:

1. The equipment was scrubbed in a bath of potable water and low-phosphate detergent followed by a potable water rinse;
2. The equipment was rinsed successively in methanol, hexane, and distilled water;
3. The equipment was allowed to air dry, if feasible, and wrapped in aluminum foil (shiny side out) for storage and transportation.

The decontamination procedures were evaluated by the use of equipment blank samples. These samples consist of aliquots of laboratory-supplied water which are poured over or through the dedicated or decontaminated sampling equipment and then submitted to the laboratory for analysis. An equipment blank sample was prepared for each matrix for each day that sampling was conducted at the Site and was analyzed for the target constituents for that day.

The results of the equipment blank samples are shown in Table 4.5.1 and are indicated by the "FB" prefix affixed to the sample numbers. The results indicate that the equipment decontamination procedures were successful in the prevention of cross-contamination between samples and that the sample results are not significantly impacted by the sampling procedures.

4.5.2 Other QA/QC Samples

Trip blank samples were utilized to evaluate the potential for VOC cross-contamination between samples in the same cooler. Trip blank samples consist of aliquots of laboratory water which are sealed in sample bottles at the laboratory and which are then transported to the field with the empty sample bottles. A trip blank was placed in each cooler on every day of sampling and was managed in the field and analyzed in the laboratory in the same manner as the primary environmental samples.

Trip blank sample results are shown on Table 4.5.1 and are indicated by the "TB" prefix on the sample numbers. The results show that the few detections of VOCs in the trip blank samples were for methylene chloride which is a common laboratory contaminant and that the detected concentrations were below the quantified instrument detection limit. Therefore, there is no clear indication of cross-contamination in the samples.

A blind duplicate sample for each matrix was obtained at a frequency of at least five percent of the total number of environmental samples and were used to attest to the precision of the laboratory. A

TABLE 4.5.1
QUALITY ASSURANCE/QUALITY CONTROL SAMPLES
118-130 SWALM STREET, NEW CASSEL NEW YORK

Sample Location Sample Depth (in feet) Sample Date Parameter	FB-1 - 12/16/98	FB-2 - 12/16/98	FB-3 - 12/17/98	FB-4 - 12/18/98	FB-5 - 12/18/98	FB-1 - 1/8/98	TB-1 - 12/16/98	TB-2 - 12/17/98	TB-1 - 12/18/98	TB-1 - 1/8/99	FG-1 - 12/17/98	FG-1 Duplicate 12/17/98	LP-1 - 12/18/98	LP-1 Duplicate 12/18/98
Volatile Organic Compounds in micrograms per liter														
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5 J	ND	ND
Methylene Chloride	0.7 J	0.8 J	ND	4 J	4 J	2 J	0.8 J	0.8 J	4 J	2 J	ND	ND	8	ND
Acetone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	70 B	73 B	33 B	ND
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6 J	0.7 J	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7	30
1,1,-Dichloroethene	ND	0.5 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5 J	ND	ND
1,2-Dichloroethene (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	54	ND
Chloroform	ND	ND	3 J	4 J	3 J	3 J	ND	ND	ND	ND	ND	ND	ND	4 J
2-Butanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	20	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.8 J	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	340 D	220
4-Methyl-2-Pentanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 J	ND	ND	24
2-Hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 J	3 J	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5 J	0.6 J	42	24
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1 J	1 J	2 J	ND
Xylene (total)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.7 J	0.6 J	ND	ND

Notes Only detected compounds are reported. See laboratory report for complete analytical data.
ND = Not Detected.
J = Indicates an estimated value which is less than the specified detection limit but greater than zero.
B = Indicates the analyte was found in both the sample and associated laboratory blank.
D = Indicates compound identified in an analysis at a secondary dilution factor.

blind duplicate consists of a separate aliquot of sample collected at the same time, in the same manner, and analyzed for the same parameters as the primary environmental sample. The blind duplicate samples are labeled in a manner such that they cannot be identified by the laboratory. The sample results are compared to those of the primary environmental sample to evaluate if the results are similar.

Blind duplicate sample results are shown on Table 4.5.1. The results show that, in general, the primary sample results and duplicate sample results vary by less than 10 percent and, therefore, the laboratory results show a high degree of precision. Variation between the primary and duplicate sample results may be affected by differences in sample matrix, particularly for soil samples. The results for the primary and duplicate soil samples are consistent with minor variations in sample matrix.

Matrix spike/matrix spike duplicate (MS/MSD) samples were collected at a frequency of one per 20 environmental samples for each matrix. The purpose of the MS/MSD samples is to confirm the accuracy and precision of the laboratory. The MS/MSD results were evaluated during the performance of data validation as discussed in Section 4.5.4 below.

4.5.3 Chain-of-Custody Procedures

For each day of sampling, chain-of-custody (COC) sheets were completed and submitted to the laboratory with the samples collected that day. A copy of each COC sheet was retained by FPM for sample tracking purposes. Each COC sheet included the project name, the sampler's signature, the sampling locations and intervals, and the analytical parameters requested.

4.5.4 Data Validation

All chemical analytical results were subjected to data validation by FPM according to the protocols and QC requirements of the analytical method, USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic Data Review (revision February, 1994), USEPA Region II CLP

Organic Data Review, (May, 1996), and the reviewer's professional judgement. The data validation was performed to verify that the analytical results are of sufficient quality to be relied upon to assess the potential contamination in the soils and groundwater at the Site. A Data Validation and Usability Report is included in Appendix A.

The majority of the data quality issues identified for the VOCs were related to low-level detections of common laboratory contaminants (methylene chloride, acetone, etc.) in blank samples and excessive matrix interference. The results of the data validation were used to qualify the analytical data received from the laboratory. The qualifications recommended in the data validation reports have been applied to the data tables presented in the following sections.

4.6 Soil/Sampling Results

Chemical analysis of the soil samples obtained from the leaching pools, soil vapor survey locations, and the Geoprobe sampling unit are discussed below.

4.6.1 Leaching Pool Sediment Quality Data

Sediment samples were collected for chemical analysis from each of the three leaching pools (LP-1, LP-2, and LP-3) at the Site. The samples consisted of mostly dark brown, fine to medium sand. Each of the sediment samples were screened in the field with a PID. The PID did not detect the presence of organic contaminants in the soils in any of the leaching pools.

The chemical analytical results from the leaching pool samples are presented in Tables 4.6.1 and are compared to the NYSDEC TAGM- 4046 Recommended Soil Cleanup Objectives (the Objectives).

Minor concentrations of VOCs (primarily tetrachloroethene and trichloroethene) were detected in each of the leaching pool sediment samples.

TABLE 4.6.1
LEACHING POOL SEDIMENT CHEMICAL ANALYTICAL RESULTS
118-130 SWALM STREET, NEW CASSEL NEW YORK

Sample Location / Sample Depth (in feet) / Sample Date / Parameter	LP-1 - 12/18/98	LP-2 - 12/18/98	LP-3 - 12/18/98	NYSDEC TAGM 4046 Soil Cleanup Objective
Volatile Organic Compounds in micrograms per kilogram				
Methylene Chloride	8	7	26 J	100
Acetone	33 B	26 B	39 JB	200
1,1-Dichloroethane	7	ND	5 J	200
1,2-Dichloroethene (total)	54	ND	ND	250
Chloroform	6	ND	ND	300
1,1,1-Trichloroethane	0.8 J	ND	9 J	800
Trichloroethene	340 D	8	120	700
Tetrachloroethene	42	180	660	1,400
Toluene	2 J	ND	ND	1,500

Notes:

Only detected compounds are reported. See laboratory report for complete analytical data.
ND = Not Detected.
J = Indicates an estimated value which is less than the specified detection limit but greater than zero.
B = Indicates the analyte was found in both the sample and associated laboratory blank.
D = Indicates compound identified in an analysis at a secondary dilution factor.
Bold values exceed NYSDEC Soil Cleanup Objective.

However, the VOCs were detected at concentrations that were less than half of the Objectives for each VOC. In addition, the results for methylene chloride and acetone may represent laboratory contamination since the methylene chloride was detected in the field and trip blanks and the acetone was detected in the laboratory method blanks. These VOCs are both common laboratory contaminants and their presence in the samples is questionable.

In addition to the target compounds, some minor VOC TICs were detected in each of the samples. However, the compounds detected have been determined to be common laboratory artifacts, and the reported detections of the TICs are, therefore, questionable. A more detailed discussion of the TICs is presented in the Data Validation and Usability Report in located in Appendix A.

4.6.2 Photoionization Detector Survey and Soil Sampling

Based on the results of the PID survey, three soil samples were obtained from a depth of one to two feet below ground surface. The soil encountered at this depth was generally a light brown-tan medium sand with a trace gravel. There was no visual indication of contamination noted in any of the samples. Each of the soil samples were screened in the field with a PID. The PID did not detect the presence of organic contaminants in the soil samples.

The chemical analytical results from the soil samples are presented in Tables 4.6.2, and are compared to the Objectives.

Minor concentrations of VOCs were noted in the samples obtained. One compound was detected in SVS-3, which was tetrachloroethene at a concentration of 14 ug/kg. Tetrachloroethene was also noted in SVS-2 at a concentration of 82 ug/kg. 1,1,2-Trichloroethane was detected in sample SVS-2 at a concentration of 14 ug/kg. The remaining compounds detected were quantified at a concentration below the minimum specified detection limit, but greater that zero.

TABLE 4.6.2
SOIL VAPOR SURVEY SOIL CHEMICAL ANALYTICAL RESULTS
118-130 SWALM STREET, NEW CASSEL NEW YORK

Sample Location / Sample Depth (in feet) / Sample Date / Parameter	SVS-1 - 12/18/98	SVS-2 - 12/18/98	SVS-3 - 12/18/98	NYSDEC TAGM 4046 Soil Cleanup Objective
Volatile Organic Compounds in micrograms per kilogram - ppb				
Methylene Chloride	2 J	2 J	ND	100
Acetone	7 J	7 J	ND	200
Trichloroethene	ND	2 J	ND	700
1,1,2-Trichloroethane	ND	14	ND	6,000
4-Methyl-2-Pentanone	1 JB	1 JB	ND	1,000
Tetrachloroethene	ND	82	14	1,400

Notes:

Only detected compounds are reported. See laboratory report for complete analytical data.
ND = Not Detected.
J = Indicates an estimated value which is less than the specified detection limit but greater than zero.
B = Indicates the analyte was found in both the sample and associated laboratory blank.
Bold values exceed NYSDEC Soil Cleanup Objective.

Based on the results of the chemical analysis of the soil samples, there are indications of the presence of minor concentrations of VOCs in the soils in the lot north of the building. All of the compounds detected were well below the Objectives.

4.6.3 Geoprobe Soil Sampling Results

Two Geoprobe sampling locations (FSG-1 and FSG-2) were performed at locations based on chemical analytical results of soil sampling performed previously by LMS. Samples were obtained at each location from 18 to 20 feet, 28 to 30 feet, and 38 to 40 feet below ground surface. The material encountered at each location was described as a light brown-tan well-graded, fine to coarse sand with gravel for both the 18 to 20 and 28 to 30 foot depth intervals. The 38 to 40 foot depth interval at both locations consisted of a tan-orange, fine to medium sand with silt. There was no visual indication of contamination in any of the samples obtained. Field screening using the PID did not indicate evidence of organic contamination.

The chemical analytical results from the Geoprobe soil samples are presented in Table 4.6.3 and are compared to the Objectives.

The results of the chemical analysis indicates that location FSG-2 (28 to 30 feet) was the only sample in which a compound was detected above the minimum specified detection limit, which was methylene chloride at a concentration of 5 ug/kg. Acetone was detected in all samples except FSG-2 at a concentration of up to 31 ug/kg (acetone was also detected in the method blank). However, as discussed previously, the presence of methylene chloride and acetone in the samples is questionable.

Therefore, the previous detection of tetrachloroethene in the samples obtained by LMS could not be confirmed. The previous LMS detection may have been the result of minor amounts of tetrachloroethene (570 ug/kg) in a vertically and horizontally limited area.

TABLE 4.6.3
GEOPROBE SOIL SAMPLING CHEMICAL ANALYTICAL RESULTS
118-130 SWALM STREET, NEW CASSEL NEW YORK

Sample Location Sample Depth (in feet) Sample Date Parameter	FSG-1 18-20 12/16/98	FSG-1 28-30 12/16/98	FSG-1 38-40 12/16/98	FSG-2 18-20 12/18/98	FSG-2 28-30 12/18/98	FSG-2 38-40 12/18/98	NYSDEC TAGM 4046 Soil Cleanup Objective
Volatile Organic Compounds in micrograms per kilogram							
Methylene Chloride	3 J	3 J	3 J	ND	5	4 J	100
Acetone	9 JB	8 JB	10 JB	ND	31 B	21 B	200
2-Butanone	ND	1 J	2 J	ND	ND	ND	300
Trichloroethene	ND	ND	ND	1 J	1 J	ND	700
4-Methyl-2-Pentanone	1 JB	0.9 JB	ND	ND	ND	ND	1,000

Notes:

Only detected compounds are reported. See laboratory report for complete analytical data.
ND = Not Detected.
J = Indicates an estimated value which is less than the specified detection limit but greater than zero.
B = Indicates the analyte was found in both the sample and associated laboratory blank.
Bold values exceed NYSDEC Soil Cleanup Objective.

4.7 Groundwater/Sampling Results

Groundwater samples were obtained from eight locations in the vicinity of the Site. Sampling locations FG-1, FG-2, FG-3, and FG-4 were located hydrogeologically upgradient of the Site on the north side of Railroad Avenue to evaluate potential contamination entering the Site from potential upgradient sources. Sampling locations FG-5 and FG-6 were located along the southern boundary of the Site property line to delineate the eastern extent of the groundwater contamination. Groundwater samples were obtained from approximately 5 feet below the water table at these locations. Groundwater was sampled from three depths at locations FG-7 and FG-9. These were approximately 5 feet below the water table, 15 feet below the water table, and 30 feet below the water table.

The chemical analytical results from the groundwater sampling are presented in Tables 4.7.1, and are compared to the NYSDEC Class GA Water Quality Standards (the Standards).

The groundwater chemical analysis shows that only three sample locations showed exceedances of the Standards. The exceedances were all for tetrachloroethene and occurred at FG-6 (at 8 ug/l), FG-7 (at 7 ug/l), and FG-9 (at 560 ug/l). All the exceedances were found in the shallow (water table) sample depths.

The results were compared to the previous sampling round by LMS (see Appendix B) for Section 4.0 of the FPM work plan which presents a summary of the prior groundwater sampling). The recent results show a significant decrease in the concentration of tetrachloroethene at and in the vicinity of the Site. For the upgradient samples, low levels of tetrachloroethene were detected (0.5 to 3 ug/l). This information, in conjunction with previous sampling of a well known as NC-16 which is located north of the railroad tracks and showed tetrachloroethene at 61 ug/l in a 1993 sample and 56 ug/l in a 1995 sample, provides strong evidence of an upgradient source.

TABLE 4.7.1
WATER SAMPLE CHEMICAL ANALYTICAL DATA
118-130 SWALM STREET, NEW CASSEL NEW YORK

Sample Location Sample Depth (in feet) Sample Date Parameter	FG-1 56-58 12/17/98	FG-2 56-58 12/17/98	FG-3 56-58 12/17/98	FG-4 56-58 12/18/98	FG-5 61-63 12/18/98	FG-6 61-63 12/16/98	FG-7 61-63 1/8/99	FG-7 76-78 1/8/99	FG-7 91-93 1/8/99	FG-9 61-63 1/8/99	FG-9 76-78 1/8/99	FG-9 91-93 1/8/99	NYSDEC Class GA Water Quality Standards
Volatile Organic Compounds in micrograms per liter													
Chloroethane	ND	2 J	ND	ND	ND	2 J	ND	ND	ND	ND	ND	ND	5
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	4 J	ND	ND	5
Acetone	70 B	23 B	ND	54 J	29 J	29 B	6 JB	3 JB	3 JB	12 JB	ND	ND	-
Carbon Disulfide	0.6 J	ND	ND	ND	ND	1 J	ND	ND	ND	ND	ND	ND	-
1,1,-Dichloroethene	ND	ND	ND	ND	ND	0.7 J	ND	ND	ND	ND	ND	ND	5
1,1-Dichloroethane	ND	ND	ND	ND	ND	5	ND	ND	ND	3 J	ND	ND	5
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	4 J	ND	ND	7
2-Butanone	ND	8 J	ND	16	10	10	4 J	ND	ND	10 J	ND	ND	-
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	2 J	ND	ND	ND	3 J	ND	ND	5
Trichloroethene	ND	ND	ND	ND	ND	1 J	ND	3 J	2 J	13 J	1 J	3 J	5
4-Methyl-2-Pentanone	1 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2 J	-
2-Hexanone	3 J	0.7 J	ND	ND	ND	4 J	ND	ND	ND	ND	ND	ND	-
Tetrachloroethene	0.5 J	3 J	2 J	ND	5	8	7	0.7 J	1 J	560	ND	0.7 J	5
Toluene	1 J	0.7 J	ND	0.8 J	ND	0.7 J	ND	0.5 J	ND	0.7 J	0.5 J	ND	5
Xylene (total)	0.7 J	0.6 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5

Notes: Only detected compounds are reported. See laboratory report for complete analytical data.
ND = Not Detected.
J = Indicates an estimated value which is less than the specified detection limit but greater than zero.
B = Indicates the analyte was found in both the sample and associated laboratory blank.
- = Indicates no standard available for the specified compound.
Bold values exceed NYSDEC STARS Guidance Values.

For the on-Site samples, FG-7 (which is located north of the building) and FG-6 (which is located south of the building), the tetrachloroethene concentrations detected were minimal. The off-Site downgradient sample FG-9 showed the highest concentration (560 ug/l) but it is significantly lower than previous samples in this area including LMS sample GP-184 which showed a concentration of 1,500 ug/l in 1995. Also, the concentrations of tetrachloroethene at FG-9 decreased to non-detect or near non-detect in the deeper samples obtained 15 and 30 feet respectively below the water table.

In summary, minimal concentrations were detected on-Site which is likely to be due, at least in part, to contamination from upgradient sources. The downgradient concentration is significantly lower than past sampling in that area.

SECTION 5.0
CONCLUSIONS

The data collected during the FRI and during previous field investigations were utilized to evaluate the subsurface conditions and draw the following conclusions regarding the Site.

The results of the soil/sediment sampling at the Site show that tetrachloroethene was detected in the leaching pools and soil at concentrations well below the Objectives. The highest concentration detected was less than half of the Objective. Other minor concentrations of VOCs were also detected, however, all were well below the Objectives.

For the groundwater, minor concentrations of tetrachloroethene were detected on Site as well as upgradient of the Site. One downgradient location FG-9 showed the highest concentration of tetrachloroethene, however, the concentrations have significantly decreased since the previous sampling round. The impacted zone is also confined to the area in the vicinity of the water table.

The decrease in groundwater concentrations appears to indicate that the source area for the tetrachloroethene in the groundwater, which may have existed upgradient of the Site, is no longer acting as a significant source of groundwater contamination. Therefore, it does not appear that further investigation of the soil at the Site is warranted.

SECTION 6.0
REFERENCES

Anson Environmental, Ltd., 1994. *Environmental Investigation, 35 Melville Park Road, Melville, New York.*

ERM-Northeast 1984. *Engineer's Report, I.W. Industries, Inc., Melville, New York.*

Fanning, Phillips and Molnar, May, 1997. *Remedial Investigation Work Plan for I.W. Industries, Inc., 35 Melville Park Road, Melville, New York.*

Fanning, Phillips and Molnar, October, 1994. *Preliminary Remedial Investigation Report for I.W. Industries, Inc., 35 Melville Park Road, Melville, New York.*

New York State Department of Environmental Conservation, 1997. *Remediation Department files.*

Suffolk County Department of Health Services, 1997. *Industrial files.*

Suffolk County Department of Health Services, 1996. *March, 1995 Suffolk County Groundwater Elevation Contour Map.*

Suffolk County Planning Department, *Data Book, 1983.*

Town of Huntington, 1997. *Zoning maps.*

U.S. Geological Survey, 1979. *Huntington Quadrangle.*

U.S. Geological Survey, 1972. *Water Transmitting Properties of Aquifers on Long Island, New York.*

U.S. Geological Survey, 1964. *Water-Supply Paper 1669-D, "Hydrogeology of the Huntington-Smithtown Area, Suffolk County, Long Island, New York".*

U.S. Soil Conservation Service, 1975. *Soil Survey for Suffolk County, New York.*

SECTION 7.0
DISCLAIMER

Conclusions from this data are limited to those areas focused on in the study and represent our best judgement using analytical techniques and our past experience. Even though our investigation has been scientific and thorough, it is possible that certain areas of this Site may pose environmental concerns that yet are undiscovered. In addition, environmental regulations may change in the future and could have an effect on our conclusions.

APPENDIX A

DATA VALIDATION REPORT

Fanning, Phillips and Molnar
Data Validation and Usability Report
BEAC
118-130 Swalm Ave
New Cassel, New York
Focused Remedial Investigation
FPM Project No. 486-97-02

Data Review
SDG No. A2567, A0059, and 2791A

Laboratory:	**Severn Trent Laboratories**
Sample Matrix:	**water and soil**
Number of Samples:	**37**
Analysis Performed:	**TCL VOCs**
Data Reviewer:	**Joseph Camanzo, Senior Chemist**
Date:	**February 23, 1999**

This validation report pertains to the following samples:

Sample ID

FSG-1 38-40'	LP-1	SVS-1
FSG-1 18-20'	LP-2	SVS-2
FSG-1 28-30'	LP-3	SVS-3
FG-6	FG-4	FG-9 93'
FG-1	FG-5	FG-9 78'
FG-2	FSG-2 18-20'	FG-9 63'
FG-3	FSG-2 28-30'	FG-7 93'
	FSG-2 38-40'	FG-7 78'
	FSG-2 2-2.5'	FG-7 63'

QC Samples

TB-1 (12/16/98)
FB-1 (12/16/98)-soil samples
FB-2 (12/16/98)-water samples
FG-10 (Field dup. of water sample FG-1)
TB-2 (12/17/98)
FB-3 (12/17/98)-water samples
LP-4 (Field dup. of soil sample LP-1)

TB-1 (12/18/98)
FB-4 (12/18/98)-soil samples
FB-5 (12/18/98)-water samples
T-1 (1/8/99)
FB-1 (1/8/99)-water samples
FSG-1 38-40' MS/MSD-soil samples
Batch QC MS/MSD-water samples
FG-9 93' MS/MSD-water samples

Deliverable

The above referenced Sample Delivery Group (SDG) was in a full data deliverable (CLP-like) data package format including Sample Data Summary Package and Sample Data Package. The reporting format followed the requirements of the NYSDEC Analytical Service Protocol (ASP), Rev. 10/95. The data package contained backup QA/QC results and raw data to allow for a data validation review.

Analytical Method

The analytical test methods used for the sample analyses were Target Compound List (TCL) Volatile Organic Compounds (VOC) by EPA Method 8260B.

Validation Guidance

The data was validated according to the protocols and QC requirements of the analytical method, U.S. Environmental Protection Agency (USEPA) Contract Laboratory Program National Functional Guidelines for Organic Data Review (revision February 1994), USEPA Region II CLP Organics Data Review (May 1996), and the reviewer's professional judgement.

ORGANICS

The following QA/QC criteria were reviewed:

- Quantitation/detection limits
- Holding times
- GC/MS tuning and Performance
- Initial calibrations
- Continuing calibrations
- Method blanks
- Field and trip blanks
- Field duplicate results
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD)
- Internal standard area and retention times

- Laboratory Control Samples (LCS)
- Data system printouts
- GC chromatograms and mass spectra
- Qualitative and quantitative compound identification
- Case narrative and deliverables compliance

The items listed above were in compliance with USEPA and ASP criteria and protocols with only exceptions discussed in the text below. The data have been validated according to the procedures outlined above and qualified accordingly.

VOLATILES

Data Validation Results

- Soil sample LP-1 results indicated surrogate compound 4-bromofluorobenzene percent recovery was 72%, below the QC limit of 74-121%. According to the National Functional Guidelines, this may indicate a matrix effect or some other interference, therefore the results for LP-1 may be bias low and are considered estimated with positive values flagged "J" and non-detects flagged "UJ'.

- The following table lists samples that exhibited internal standard (IS) area counts outside the +100%/-50% QC limit from the IS areas of the associated 12 hour continuing calibration run. Based on these results, for compounds quantitated against the affected IS, positive results are considered estimated flagged "J" and non-detects are flagged "UJ" when the IS is below the lower QC limit.

Sample	Internal Standard	Area Counts	QC Limit
LP-4	Chlorobenzene-d5	5261593	5671098-22684392
LP-4DL	Bromochloromethane	154997	2270218-9080870
	1,4-Difluorobenzene	399239	8245115-32980460
	Chlorobenzene-d5	366914	6522422-26089688

- The laboratory control sample (LCS) from SDG A2567, QCS spike for soil samples indicated the following spike compounds with recoveries outside their respective QC limits: chloroethane 160%, QC limit 78-119%; dibromochloromethane 80%, QC 81-121%; and trans-1,3-dichloropropene 2%, 80-128%. Additionally, QCS spike for water samples indicated the following spike compounds with recoveries outside their respective QC limits: chloroethane 125%, QC limit 78-119%; acetone 175%, QC 29-156%; and vinyl acetate 15%, 16-144%. The LCS from SDG A0059, QCS spike for water samples indicated the following spike compounds with recoveries outside their respective QC limits: chloroethane 125%, QC

limit 78-119%; and 2-butanone 150%, 55-146%. Therefore, for associated sample results positive results for these compounds are considered estimated flagged "J" and non-detect results are flagged "UJ" for compounds with recoveries below the lower QC limit or rejected "R" for compounds which are deep below the lower QC limit.

- The following table lists blanks, blank contaminants, concentrations (in ppb), and associated samples. In accordance to the EPA National Functional guidelines, based on the concentration of these compounds in the blanks and associated samples, the presence of methylene chloride, acetone, and 2-butanone (common laboratory contaminants) are negated "U" if the concentration in the samples is less than ten times the highest associated blank, after taking sample dilution into account. The presence of the remaining compounds (non-common lab contaminants) are negated in the samples if less than five times the concentration in the highest associated blank. Tentatively Identified Compounds (TICs) attributable from common lab contaminants such as, siloxane compounds and aldol condensate reaction products are rejected "R" in all samples since they are lab artifacts.

Blank ID	Compound (Conc. in ppb)	Associated Samples
VBLKKP	Acetone (6J) 4-Methyl-2-pentanone (1J)	FSG-1 38-40', FSG-1 18-20', FSG-1 28-30', FSG-1 38-40'MS/MSD
VBLKKQ	Acetone (15)	FSG-2 18-20', LP-1DL, LP-3, LP-4DL
VBLKKR	Acetone (13)	LP-1, LP-2, LP-4, FSG-2 28-30', FSG-2 38-40', SVS-3
VBLKKS	4-Methyl-2-pentanone (1J)	SVS-1, SVS-2
VBLKMF	Acetone (9J)	TB-1, TB-2, FG-6, FB-1, FB-2, FG-10, FG-1, FG-2
VBLKNF	Acetone (2J)	T-1, FB-1, FG-9 78', FG-7 63'
VBLKOG	Acetone (9J)	FG-9 93', FG-9 63', FG-7 93', FG-7 78'
TB-1 (12/16/98)	Methylene chloride (0.8J)	Samples from 12/16/98
FB-1	Methylene chloride (0.7J)	Soil samples from 12/16/98

FB-2	Methylene chloride (0.8J) 1,1-Dichloroethene (0.5J)	Water samples from 12/16/98
FB-3	Chloroform (3J)	Water samples from 12/17/98
TB-1 (12/18/98)	Methylene chloride (4J)	Samples from 12/18/98
FB-4	Methylene chloride (4J) Chloroform (4J)	Soil samples from 12/18/98
FB-5	Methylene chloride (4J) Chloroform (3J)	Water samples from 12/18/98
T-1	Methylene chloride (2J)	Samples from 1/8/99
FB-1 (1/8/99)	Methylene chloride (2J)	Water samples from 1/8/99

- The following table lists compounds that: exhibited percent relative standard deviation (%RSD) for response factors in the initial (I) calibration above the 30% QC criteria; exhibited percent difference (%D) between the initial calibration and continuing (C) calibration response factors greater than the 25% criteria; exhibited response factors (RF) less than the 0.05 criteria. These calibration QA/QC criteria are based on the EPA National Functional guidelines. Associated sample results for these compounds are considered estimated with positive values flagged "J". For non-detects, %RSD or %D greater than the QC limits but less than 90% are flagged "UJ"; %RSD or %D greater than 90% or RF deficiencies (<0.05) are rejected and flagged "R".

Calibration	Compound	Deficiency	Associated Samples
I–12/5/98	Chloroethane Acetone	%RSD=54.9 %RSD=43.1	Soil samples from SDG B2567
C–12/21/98	Chloroethane Acetone 2-Butanone 2-Hexanone 4-Methyl-2-pentanone	%D=66.7 %D=-39.5 %D=-40.3 %D=-31.0 %D=-29.2	FSG-1 38-40', FSG-1 18-20', FSG-1 28-30', FSG-1 38-40'MS/MSD
C–12/22/98	Chloroethane	%D=59.5	FSG-2 18-20', LP-1DL, LP-3, LP-4DL
C–12/23/98	Chloroethane	%D=70.2	LP-1, LP-2, LP-4, FSG-2 28-30', FSG-2 38-40', SVS-3

C–12/24/98	Chloroethane Carbon disulfide	%D=58.5 %D=-26.9	SVS-1, SVS-3
C–12/22/98 (water)	Acetone Bromoform	%D=48.1 %D=31.4	FB-3, FG-3, FG-5, FG-4, TB-1, FB-4, FB-5
I–1/12/99	Acetone	%RSD=44.7	Water samples from SDG A0059
C–1/14/99	Acetone 1,1,1-Trichloroethane Vinyl acetate	%D=-28.1 %D=25.3 %D=26.3	FG-9 93', FG-9 63', FG-7 93', FG-7 78'
C–1/15/99	Chloromethane Acetone Vinyl acetate	%D=32.8 %D=-38.4 %D=25.3	FG-9 93'MS/MSD

- The following samples were diluted at the reported dilution factors due to high target compound concentrations and to bring certain concentrations into linear calibration range. The detection limits of the analytes are elevated accordingly.

Sample ID	Dilution Factor
LP-1DL	5X
LP-3	5X
LP-4	2X
FG-9 63'	5X

Data Usability Results

Based on the evaluation of all information in the analytical data groups, the results are highly usable with the data validation qualifiers as noted. There were only incidental rejected values, however these results were for non-detects.

SDG Summary

All data are valid and usable with qualifications as noted in the data review.

Signed: Joseph Tamayo

Dated: 3/17/99

ATTACHMENTS

- Chain-of-Custody
- NYSDEC Sample Identification and Analytical Requirement Summary
- Laboratory SDG Case Narrative
- Definition of Data Validation Qualifiers (USEPA)
- Definition of Lab Qualifiers
- Qualified Results on Lab Form 1s

DATA VALIDATION QUALIFIERS (USEPA)

Organics

U - The analyte was analyzed for, but not detected above the reported sample quantitation limit.

J - The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

N - The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."

NJ - The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.

UJ - The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

R - The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

APPENDIX B

PREVIOUS ENVIRONMENTAL INVESTIGATIONS

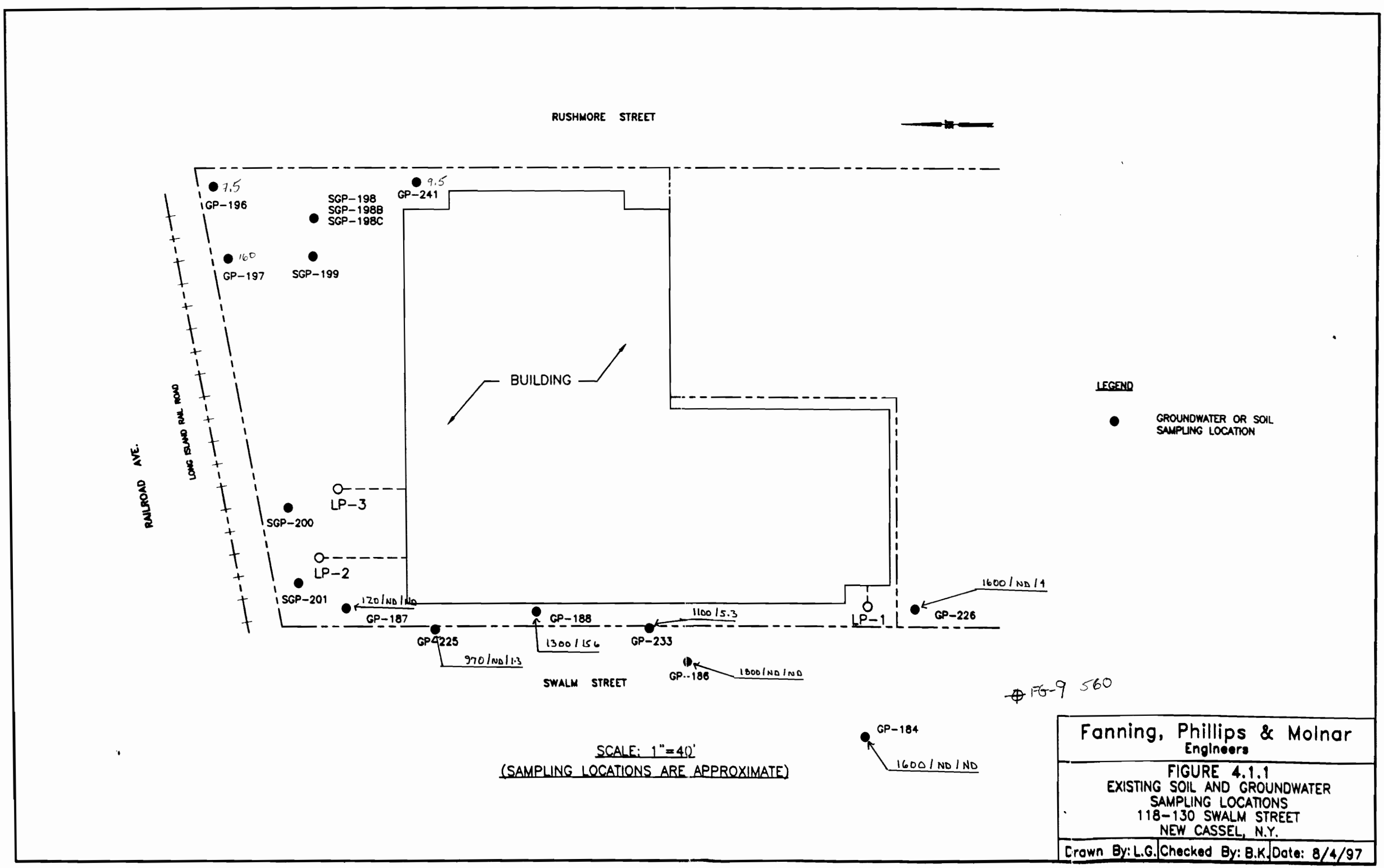
FPM

SECTION 4.0
PREVIOUS ENVIRONMENTAL INVESTIGATIONS

Information regarding the environmental history of the site was obtained from the March, 1997 LMS report entitled "Multisite PSA Task 4 Report". The report contained soil and groundwater sampling data for the 118-130 Swalm Avenue site. Based on the results of the investigation, LMS recommended that the site be placed on the registry of IHWDS as a Class 2 site.

4.1 Previous Soil Investigations

In October, 1995, LMS conducted a round of soil sampling at the NCIA. A total of four soil sampling points were located on the site, and the locations are shown on Figure 4.1.1. Samples were obtained from each location at varying depths and analyzed for Target Compound List VOCs. Target compounds were detected in three of the four locations sampled. The results are summarized in Table 4.1.1. In general, the concentrations of the detected compounds were found to be very low, and none of the concentrations were above NYSDEC soil cleanup objectives (SCOs) (TAGM-4046). The detected compounds were tetrachloroethene (PCE) (detected at a maximum concentration of 0.57 mg/kg which is well below the SCO of 1.4 mg/kg), methylene chloride (detected at a maximum concentration of 0.0018 mg/kg which is well below the SCO of 0.1 mg/kg and was also detected in an associated blank and, therefore, the result is questionable), trichloroethylene (TCE) (detected at one location at a concentration of 0.023 mg/kg which is well below the SCO of 0.7 mg/kg), and toluene (detected at a maximum concentration of 0.0025 mg/kg which is well below the SCO of 1.5 mg/kg).



176-9 560

Fanning, Phillips & Molnar
Engineers

FIGURE 4.1.1
EXISTING SOIL AND GROUNDWATER SAMPLING LOCATIONS
118-130 SWALM STREET
NEW CASSEL, N.Y.

Drawn By: L.G. | Checked By: B.K. | Date: 8/4/97

TABLE 4.1.1
SUMMARY OF SOIL SAMPLING RESULTS*
(SAMPLES OBTAINED OCTOBER, 1996)

Sample Location	Depth Interval	Compound (mg/kg)			
		Methylene Chloride	PCE	TCE	Toluene
SGP-198	10 - 11 ft.	0.0017	ND	ND	ND
SGP-198	18 - 19 ft.	ND	0.57	ND	ND
SGP-200	1 - 2 ft.	ND	0.030	0.023	0.0011
SGP-201	1 - 2 ft.	ND	0.0018	ND	0.0025
SGP-201	17 - 19 ft.	0.0018 B	ND	ND	ND
Soil Cleanup Objective	-	0.1	1.4	0.7	1.5

Notes:

mg/kg = milligrams per kilogram
B = Detected in associated blanks
ND = Not Detected
* = Results from Multisite PSA Task 4 Report (LMS, 1997).

gm\MRB&R\BEAC RIWP\tbl411

It should be noted that an error occurred in the Multisite PSA Task 4 Report by LMS (March, 1997). On page 6-13 of the report it is stated "Target compounds were detected in three of the four [soil] samples completed. Concentrations range from ND [non-detected] in SGP-200 (11-12 ft. and 14-15 ft.) to 0.708 mg/kg PCE at SGP-198 (18-19 ft.) (Figure 6-35)." Based on FP&M's review of the report, neither the data summary tables nor Figure 6-35 of the LMS report shows that PCE was detected at 0.708 mg/kg (the highest detection of PCE in soil at the site was 0.57 mg/kg).

4.2 Previous Groundwater Investigations

A summary of groundwater sampling results for the years 1995 and 1996 are presented in Table 4.2.1 (Appendix C contains the groundwater plume maps from the 1997 LMS report). All of the groundwater samples were analyzed for VOCs. A total of ten groundwater sampling points were located at and immediately adjacent to the site. The groundwater sampling locations are presented in Figure 4.1.1. Groundwater samples were obtained at each sampling location from three different depth intervals: the water table to 65 feet, 65 feet to 85 feet, and greater than 85 feet. The results of the groundwater sampling show that PCE was detected primarily in the shallow groundwater with significant decreases in concentration with increased depth. Therefore, the contamination at the site primarily exists in the zone from the water table (50 feet below land surface) to 65 feet below land surface. The groundwater contamination primarily consists of PCE; very minor amounts of cis-1,2-dichloroethylene and trichloroethylene were also detected at the site.

The groundwater results show that PCE exists in the groundwater beneath the site at concentrations as high as 1,800 ug/l at the site. It should also be noted that both upgradient groundwater samples

TABLE 4.2.1
SUMMARY OF GROUNDWATER SAMPLING RESULTS (ug/l)
1995 SAMPLES

Sample Location	Depth Interval		
	Water Table to 65 ft.	65 ft. to 85 ft.	>85 ft.
GP-184	PCE 1500 TCE 100	ND	BQL
GP-186	PCE 1800	ND	ND
GP-187	PCE 120	ND	ND
GP-188	PCE 1300	PCE 150 TCE 6.1	NS

OCTOBER, 1996 SAMPLES

Sample Location	Depth Interval		
	Water Table to 65 ft.	65 ft. to 85 ft.	>85 ft.
GP-196	PCE 7.5	PCE 6.0	PCE ND TCE 5.6 1,2-DCE 1.2
GP-197	PCE 160	PCE 1.3	ND
GP-225	PC3 970	ND	PCE 1.3
GP-226	PCE 1600	ND	PCE 1.4 TCE 2.4
GP-233	PCE 1100	PCE 5.3	NS
GP-241	PCE 9.5	ND	PCE ND TCE 5.5

Notes:

ND = Not Detected
NS = Not Sampled
ug/l = micrograms per liter

Additional VOCs detected include 1.2 ug/l cis-1,2-dichloroethylene at GP-196, >85 ft.; 2.4 ug/l trichloroethylene at GP-226, >85 ft.; and, 5.5 ug/l of trichloroethylene at GP-241, >85 ft.

obtained along the eastern side of the northern border, both showed detections of PCE (one of the upgradient samples showed a concentration of 160 ug/l). In addition, as per the Multisite PSA Task 4 Report, a well installed by the NCDH known as NC-16 and existing on the north side of the railroad tracks and north of the eastern edge of Swalm Avenue, showed PCE concentrations of 61 ug/l in a 1993 sample and 56 ug/l in a 1995 sample.

Based on the groundwater plume map shown in Figure 6.29 of the 1997 LMS report (see Appendix C), the vertical and lateral extent of groundwater contamination if fairly well defined. The only on-site area that is not well defined is the eastern edge of the plume along the southern boundary of the site. Also, the distribution of contamination apparently emanating from upgradient sources is not well defined.

4.3 Additional Data Needs

Based on a review of the previous sampling results and historical records for the site, additional data needs have been identified to fully characterize the nature and extent of contamination at the site and to evaluate potential remedial action for the site.

The following data needs are noted:

- Investigation of potential source areas of contamination in the soil at the site.
- Evaluation of potential upgradient contamination sources.
- Evaluation of the eastern extent of the groundwater plume along the southern boundary of the site.