

**ENGINEERING AND OPERATIONS SERVICES
NEW YORK STATE SUPERFUND STANDBY CONTRACT
Multi-Site Preliminary Site Assessments**

FIELD ACTIVITIES PLAN

Hempstead Area Dry Cleaners (Site No. 130096)

Glen Head Groundwater Plume (Site No. 130xxx)

Techem, Inc. (Site No. 130524)

Kings Park Cleaners (Site No. 152168)

Turf Specialists (152160)

33 Wheeler Rd. Parking Lot (Site No. 152161)

Gabriel Manufacturing (Site No. 344041)

Camarota Cleaners (Site No. 546044)

Work Assignment No. D002676-45

May 1999



Prepared for:

**New York State
Department of
Environmental Conservation**

50 Wolf Road, Albany, New York 12233

John Cahill, *Commissioner*

Division of Environmental Remediation

Michael J. O'Toole, *Director*

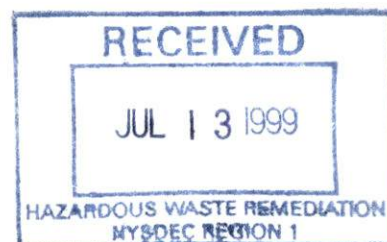
By:

Lawler, Matusky & Skelly Engineers LLP

**ENGINEERING AND OPERATIONS SERVICES
NEW YORK STATE SUPERFUND STANDBY CONTRACT**

MULTI-SITE PRELIMINARY SITE ASSESSMENTS

**Hempstead Area Dry Cleaners (Site No. 1-30-096)
Glen Head Groundwater Plume (Site No. 1-30-XXX)
Techem, Inc. (Site No. 1-30-524)
King Park Cleaners (Site No. 1-52-168)
Turf Specialists (Site No. 1-52-160)
33 Wheeler Road Parking Lot (Site No. 1-52-161)
Gabriel Manufacturing Co., Inc. (Site No. 3-44-041)
Camarota Cleaners (Site No. 5-46-044)**



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**New York State Department of Environmental Conservation
Division of Environmental Remediation**

May 1999

**LAWLER, MATUSKY & SKELLY ENGINEERS LLP
ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS
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MULTI-SITE PRELIMINARY SITE ASSESSMENTS

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MULTI – SITE PRELIMINARY SITE ASSESSMENTS

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CHAPTER 1

INTRODUCTION

Lawler, Matusky & Skelly Engineers (LMS) has been given the work assignment of conducting Preliminary Site Investigations (PSAs), at the following sites (Figure 1-1): Hempstead Area Dry Cleaner in the Town of Hempstead, Glen Head Groundwater Plume in the Town of Oyster Bay, Techem Incorporated in the Town of New Hyde Park, Kings Park Cleaners in the Town of Kings Park, Turf Specialist in the Town of Holbrook, 33 Wheeler Road in the Town of Central Islip, Gabriel Manufacturing in the Town of Stony Point, and Camarota Cleaners in the Town of Mechanicville (NYSDEC Site Nos. 1-30-096, 1-30-xxx, 1-30-524, 1-52-168, 1-52-160, 1-52-161, 3-44-041, and 5-46-044, respectively).

1.1 SITE HISTORY AND DESCRIPTIONS

1.1.1 Hempstead Area Dry Cleaner (Site No. 1-30-096)

This site includes three active and former dry cleaners along Fulton Avenue in Hempstead, Nassau County (Figure 1-2). The area is primarily mixed use including commercial, government offices, and residential. The commercial uses are primarily located along Fulton Avenue, the residential areas are north and south of Fulton Avenue.

The groundwater contamination that is believed to be associated with these sites was discovered during remedial investigations at the Franklin Dry Cleaners Site (NYSDEC Site No. 1-30-050). The Franklin Cleaners Site is located in a downgradient position of the Hempstead Area Dry Cleaners and series of upgradient groundwater probes for the Franklin site exhibited significant groundwater contamination. Based on this information, a PSA is needed in this area to identify the source(s) of groundwater contamination. A number of groundwater and soil probes will be collected and analyzed for volatile organic compounds (VOCs) to determine if the known contamination originates from the dry cleaners in the Fulton Avenue area.

The soils in the Hempstead area consist of fine to coarse sand, with some gravel and silt. Groundwater is assumed to be 20 to 30 feet below ground surface and is assumed to flow towards the south.

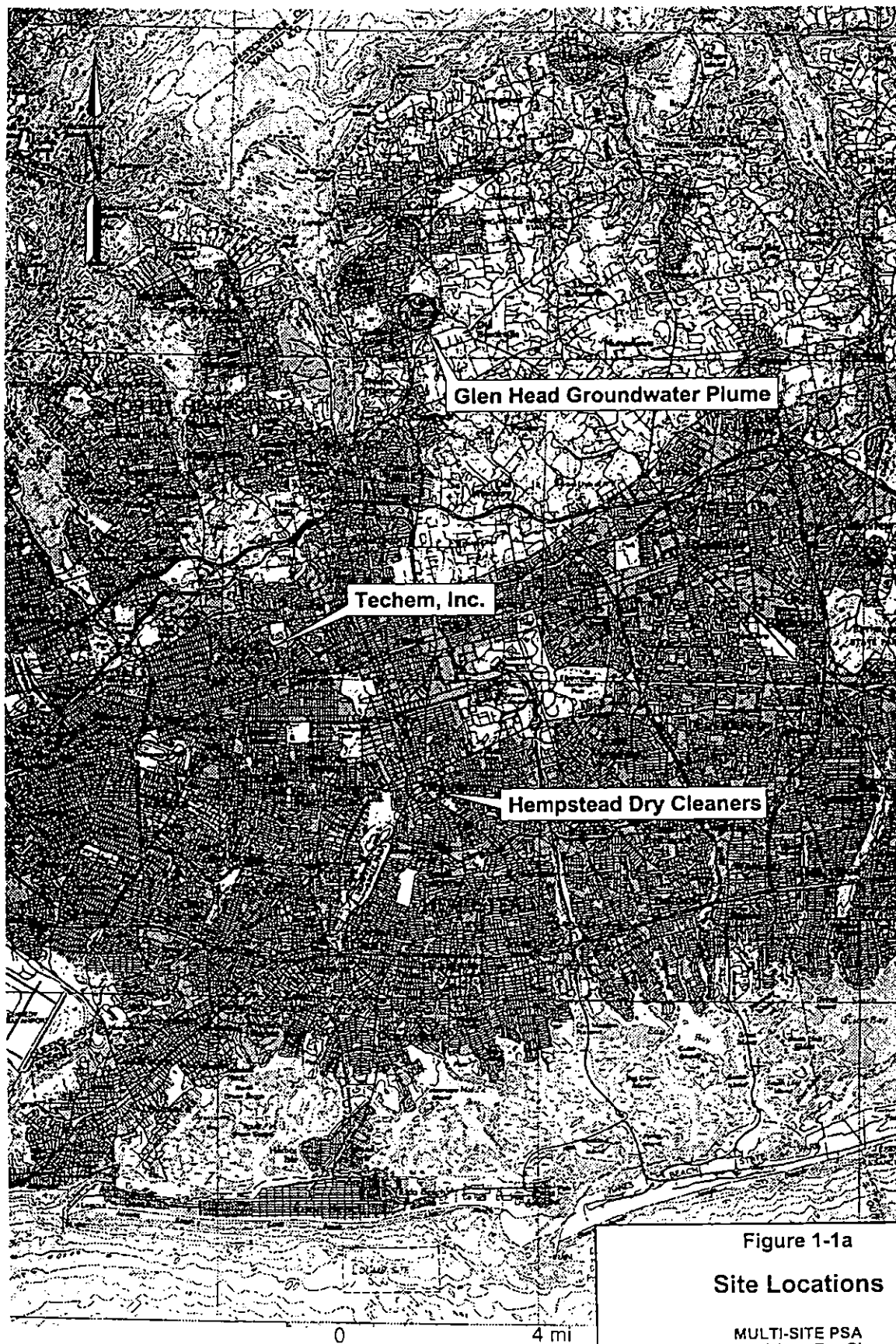


Figure 1-1a

Site Locations

MULTI-SITE PSA
Hempstead Area Dry Cleaners
NYSDEC I.D. No. 130xxx

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Pearl River, New York

Map source:
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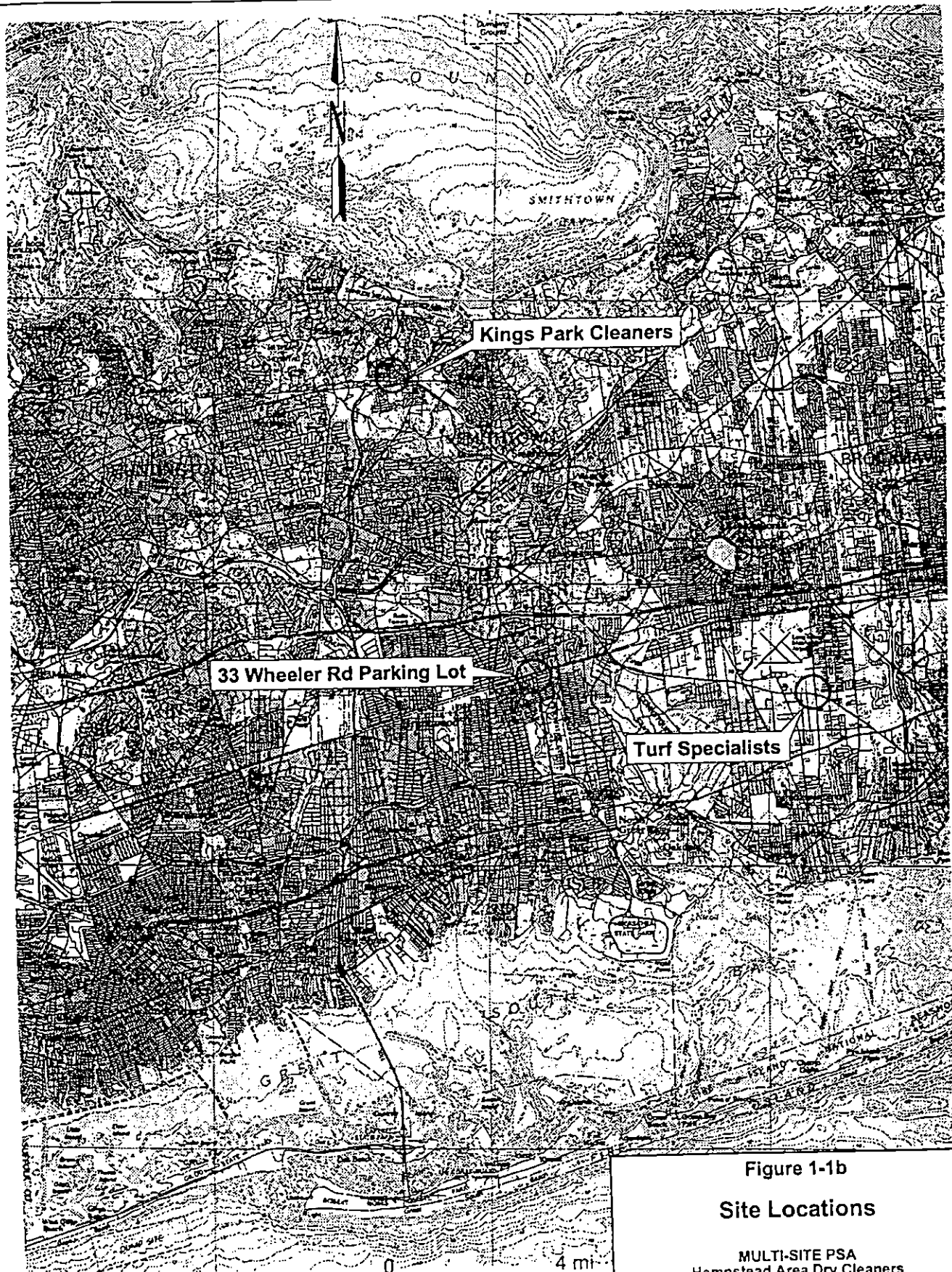


Figure 1-1b

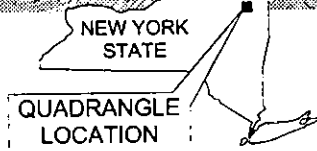
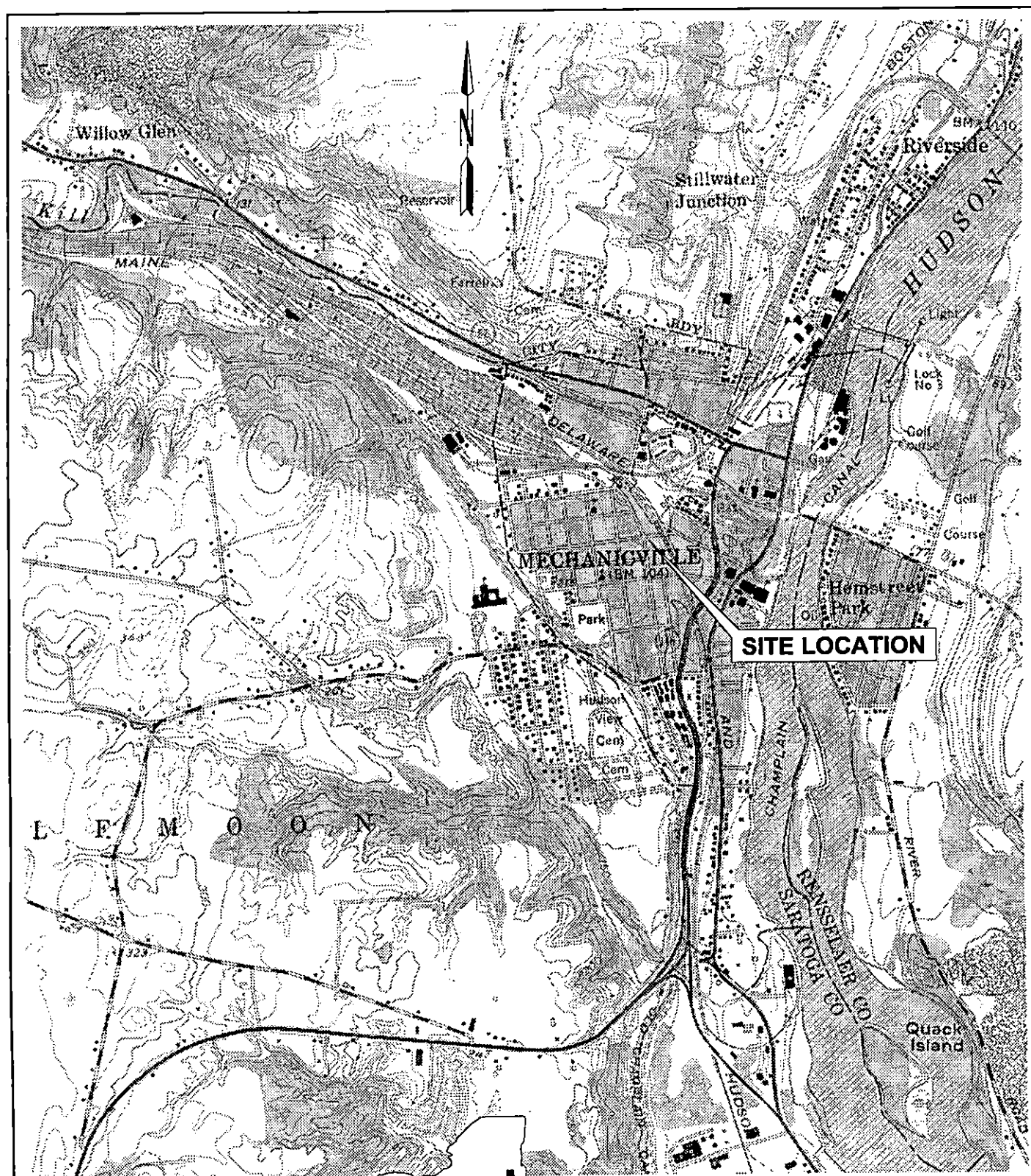
Site Locations

MULTI-SITE PSA
Hempstead Area Dry Cleaners
NYSDEC I.D. No. 130xxx

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

Map source:
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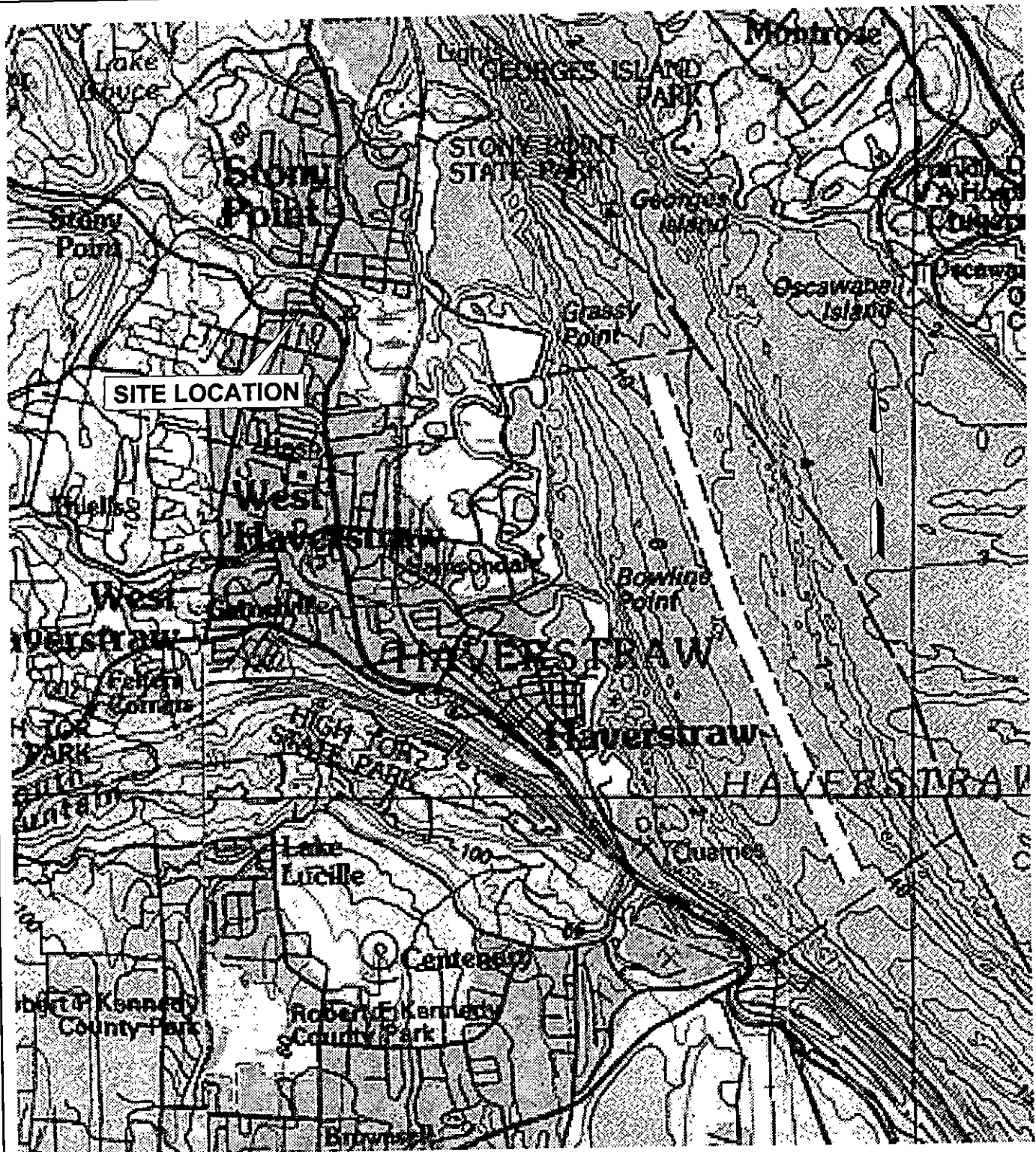
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Figure 1-1c

Site Location

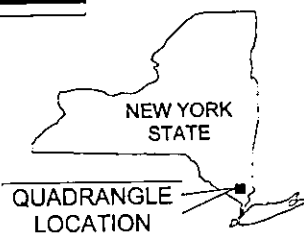
MULTI-SITE PSA
Camarota Cleaners
NYSDEC I.D. No. 546044

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Pearl River, New York



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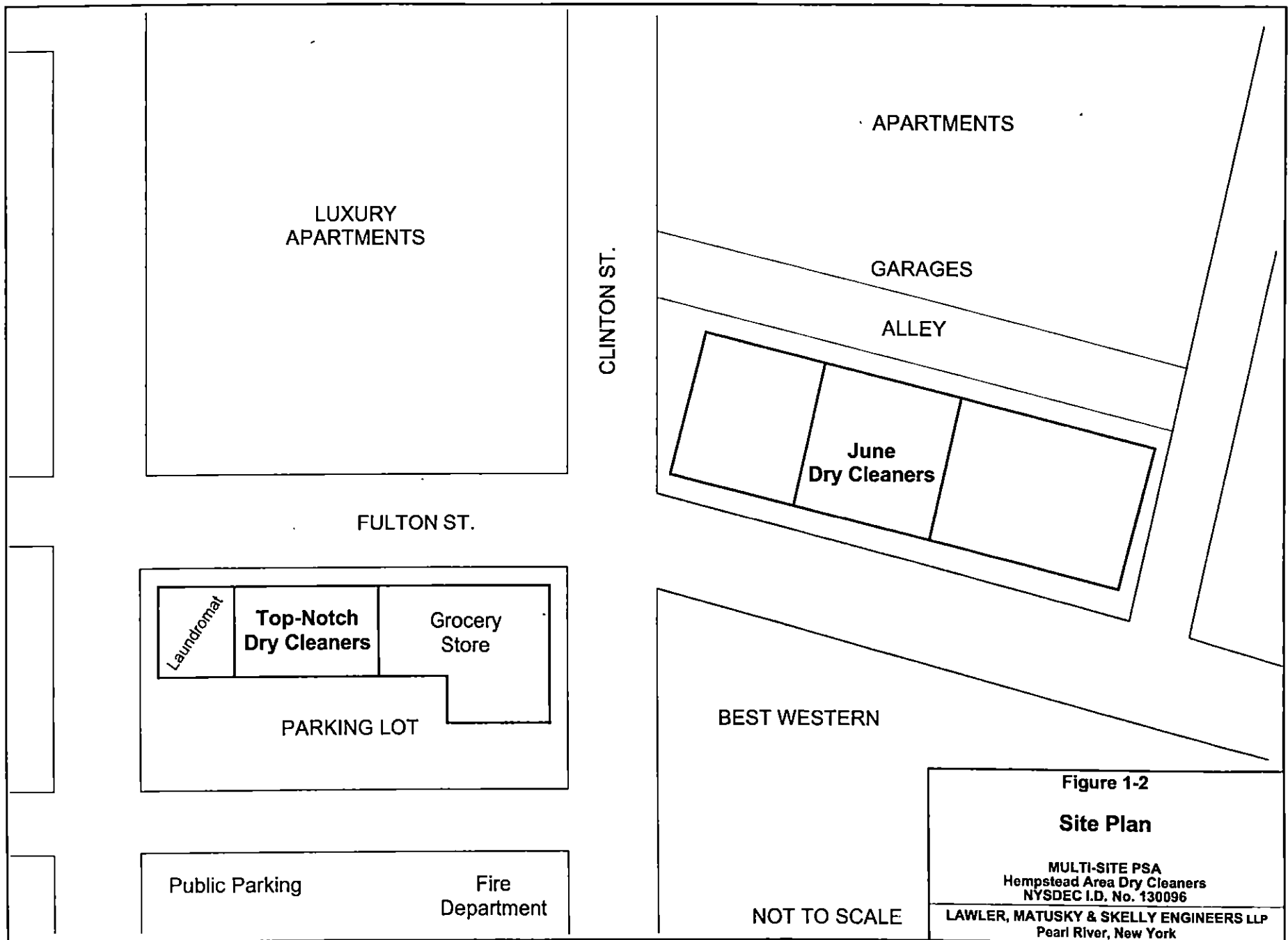
Map source:
USGS quadrangles
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Figure 1-1d

Site Location

MULTI-SITE PSA
Gabriel Manufacturing
NYSDEC I.D. No. 344041

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1.1.2 Glen Head Site (Site No. 1-30-xxx)

The site is located along Glen Head Road in the Village of Glen Head on the north shore of Long Island in Nassau County (Figure 1-3). The area is primarily commercial along Glen Head Road and residential north and south of Glen Head Road. The Glen Head site is adjacent to the former Trans Technology System property that has known groundwater contamination as a result of past activities at this site. Investigations at the Trans Technology property indicated that the groundwater in the reported upgradient position had concentrations of up to 16,000 µg/l of tetrachloroethylene (PCE). The area immediately surrounding the site is a natural topographic high and it is possible that a localized groundwater flow direction exists which is different from the regional flow direction. The regional groundwater flow direction is toward the north. Based on this information the NYSDEC must conduct a PSA within this area to determine the location of the source(s) of contamination found at in the area. A number of hydropunches and monitoring wells will be completed in the area to determine the likely origin of the noted contamination.

The site is underlain by glacial sands, gravels, silts, and clays. The watertable at this site is approximately 110 ft below the ground surface depending on the topography.

1.1.3 Techem Incorporated (Site No. 1-30-524)

The site consists of a 100' x 80' parcel that is located west of the corner of Falmouth Avenue and Denton Avenue in Hempstead, Nassau County (Figure 1-4). The property contains a one story industrial building that completely covers the lot with the exception of a rear storage yard and narrow alley. The site is currently classified as a Class 2a site on the New York State registry of inactive hazardous waste sites. This site formerly manufactured acid-based chromium, cadmium, cyanide, nickel, and zinc electroplating solutions from 1973 to the mid-1990's. The on-site building contained 5 offices, a laboratory, and 3 interior chemical storage areas. The United States Environmental Protection Agency (USEPA) conducted a 2-phase removal action at the site in 1994 and 1995. In the first phase 1250 drums were removed from the rear storage yard and 1500 small containers were removed from the interior of the building. The second phase of the removal action involved the excavation of contaminated soils. The removal action was limited to removal of chemical wastes and soils that were an immediate health threat. The removal action was suspended once the immediate was eliminated.

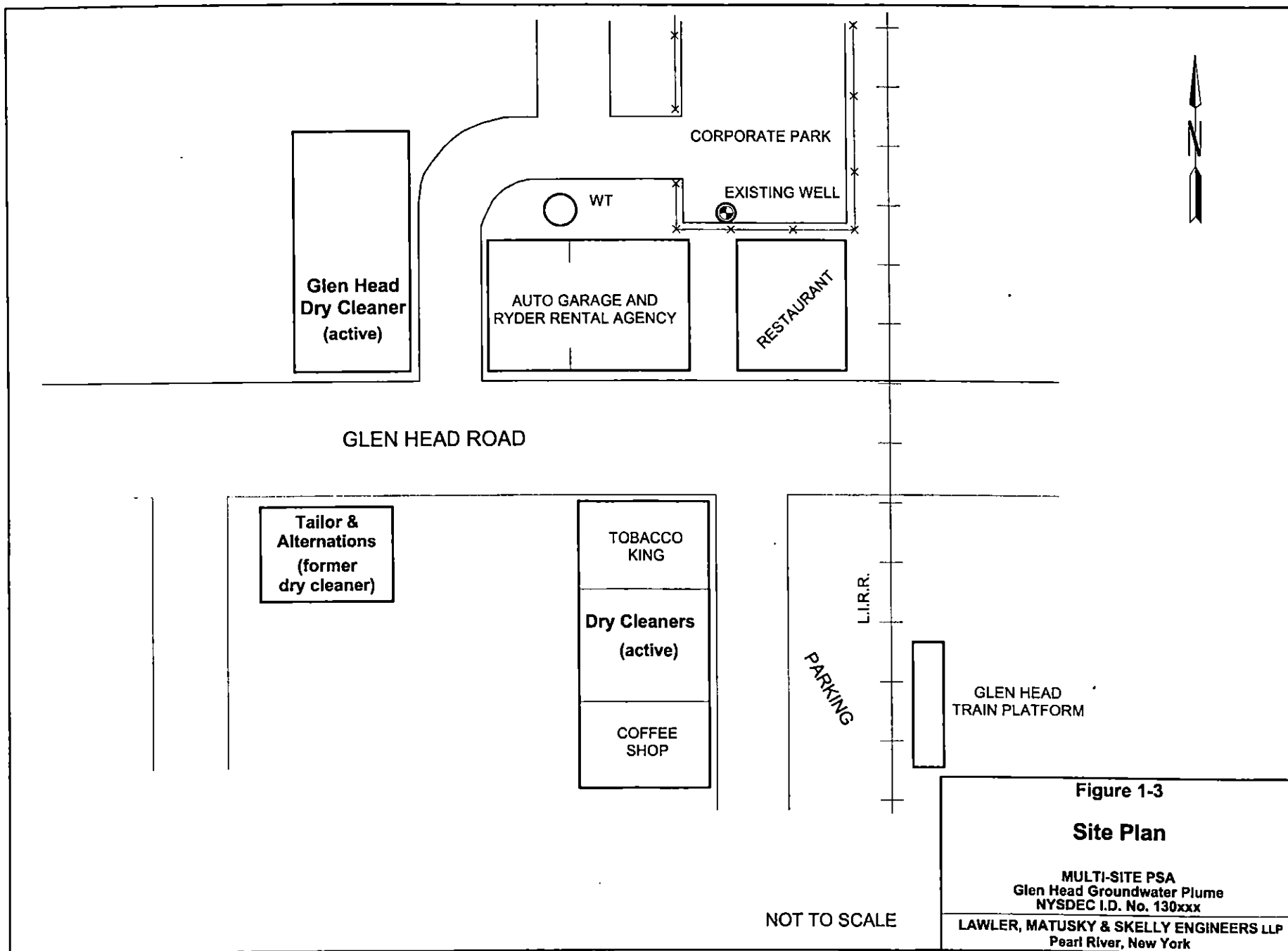


Figure 1-3

Site Plan

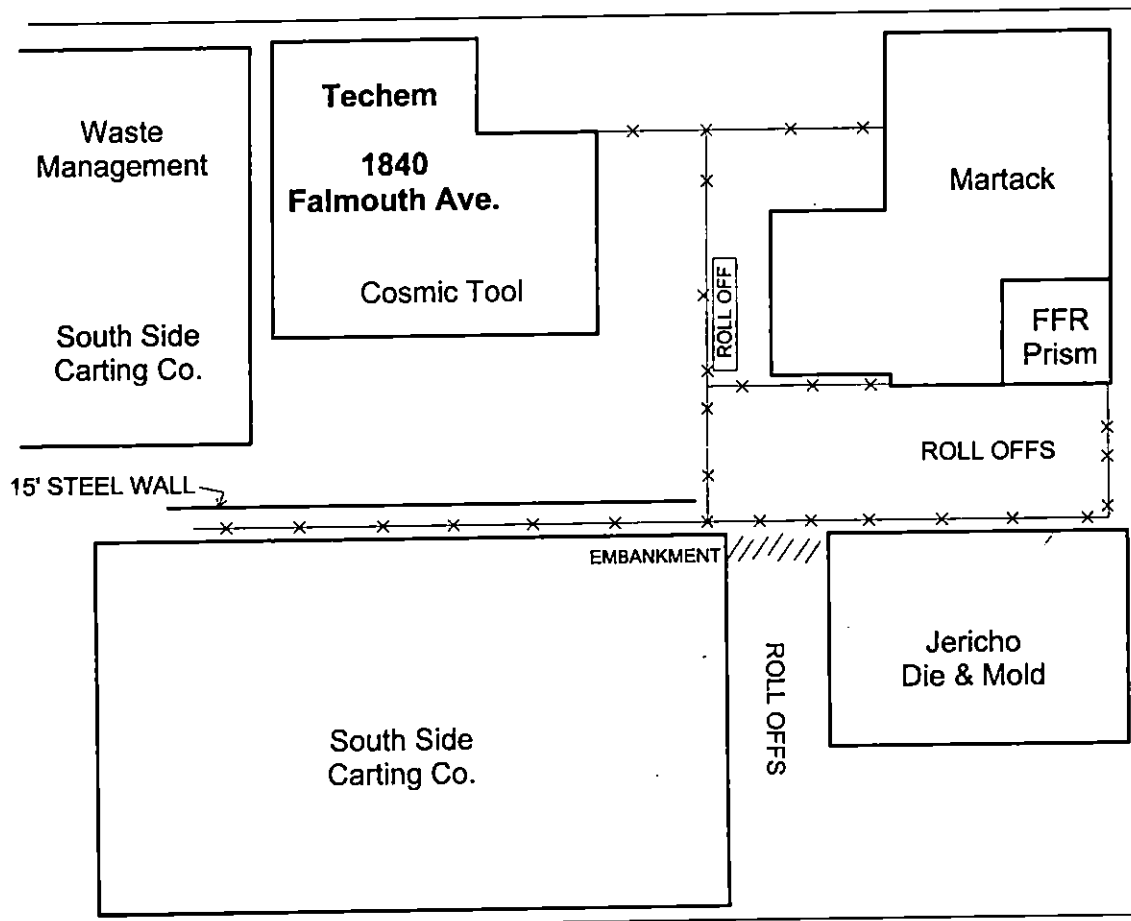
MULTI-SITE PSA
Glen Head Groundwater Plume
NYSDEC I.D. No. 130xxx

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FALMOUTH AVE.

DENTON ST.



GILFORD AVE.

NOT TO SCALE

Figure 1-4

Site Plan

MULTI-SITE PSA
Techem, Inc.
NYSDEC I.D. No. 130524

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Pearl River, New York

Since there is no comprehensive sampling data available for the site on the remaining soil contamination and the potential site impact to groundwater, a PSA will be conducted at this site. The PSA will include collection of soil and groundwater samples to confirm the on-site source and determine if an impact to groundwater exists.

The soils in the Hempstead area consist of fine to coarse sand, with some gravel and silt. Groundwater depth is assumed to be 55 to 65 ft below ground surface and flows to the south.

1.1.4 Kings Park Cleaner (Site No. 1-52-168)

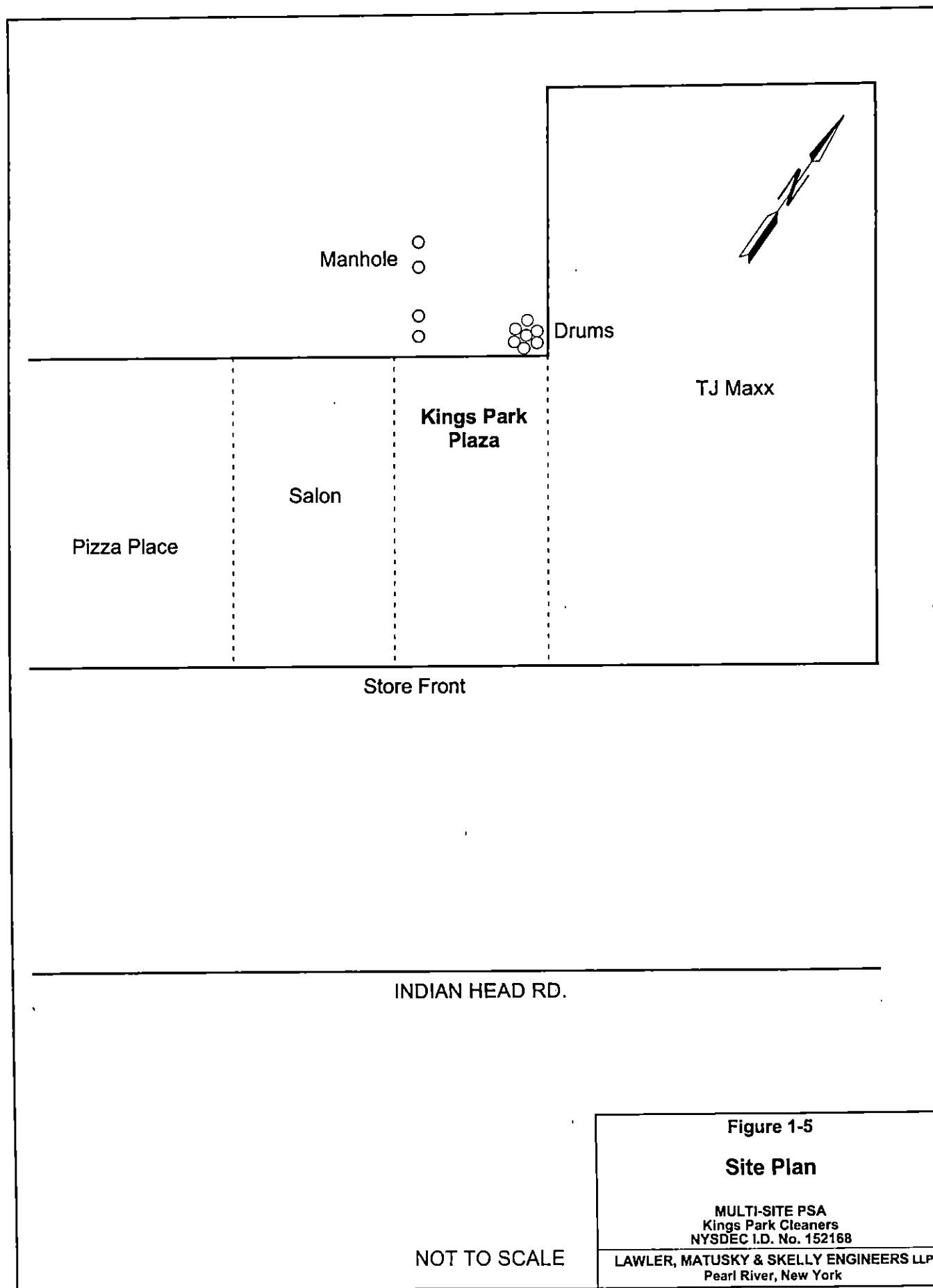
This site is located in a strip mall west of Indian Head Road in Kings Park, Suffolk County (Figure 1-5). The site is an active dry cleaning facility with a known discharge of dry cleaning chemicals (PCE and dichlorobenzene) to on-site leachpools located to the rear of the mall. Currently the dry cleaner is under orders from the Suffolk County Health Department to remove the contaminated materials from the leachpools. Although information and sampling data on the leachpool cleaning has not been submitted to the health department observations made during the site visit suggest that the leachpools have been cleaned.

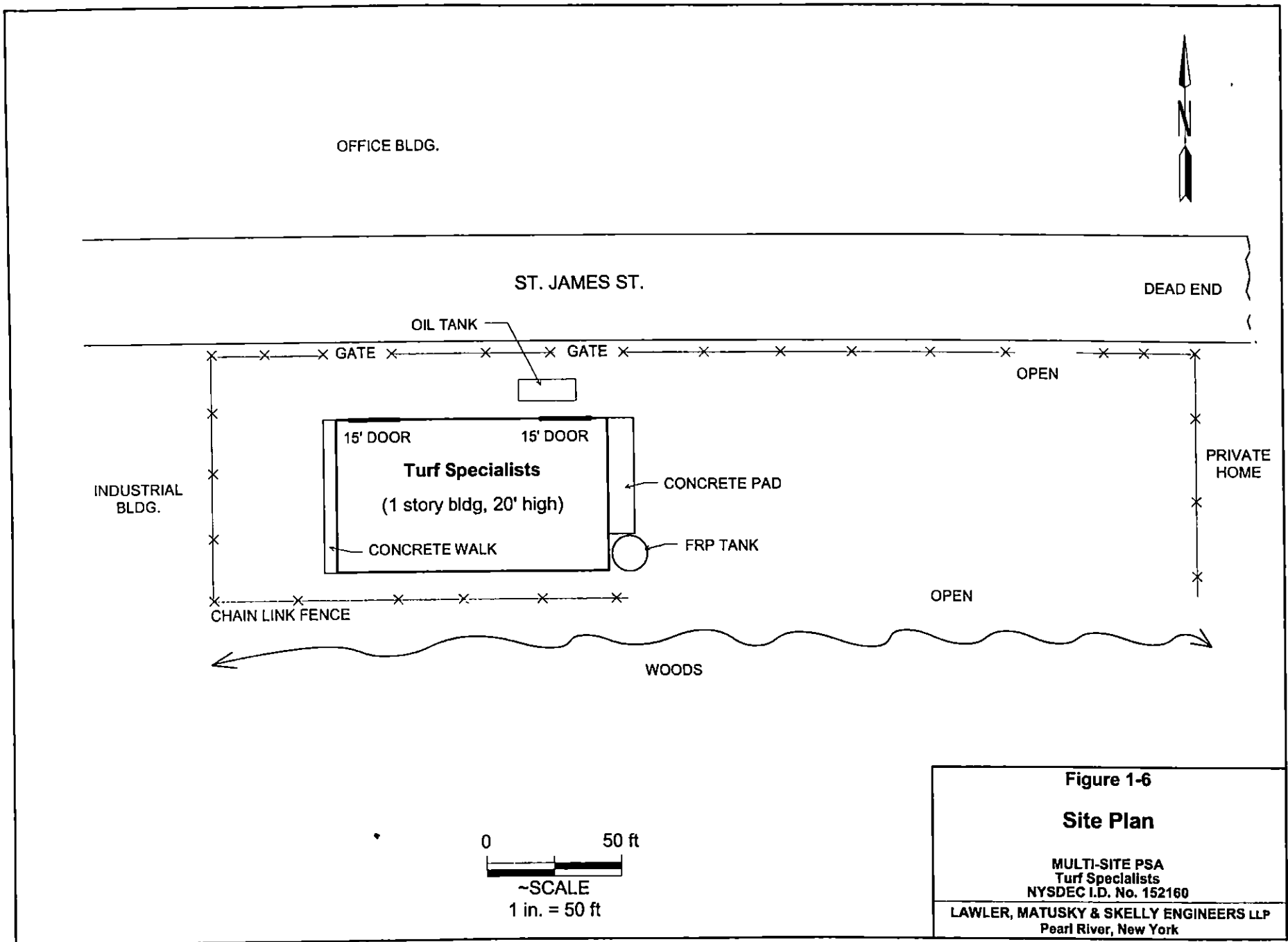
Since the leachpool cleaning was limited to the immediate pool areas and surrounding soils it did not address the potential impact to groundwater at the site. The PSA field investigation will include the installation of up to 4 on-site monitoring wells on the mall property to determine if an impact to groundwater exists at this site.

On-site soils consist of fine to medium sand, and gravel. Groundwater is located approximately 65 feet below ground surface and is assumed to flow towards the north.

1.1.5 Turf Specialist (Site No. 1-52-160)

This site is located at 444 St. James Street in the Town of Brookhaven, Village of Holbrook, Suffolk County (Figure 1-6). The area is mixed use commercial and residential and the last known use of the site was Turf Specialists, a lawn care and landscaping company. The site is currently abandoned and consists of a single story block industrial building and fenced storage yard. A number of drainage structures are located across the site and were reportedly used to dispose of pesticides and herbicides when Turf Specialists occupied the site. During the site inspection a number of drums and smaller chemical containers were noted through an open window.





The PSA at this site will include the collection of soils and groundwater to determine if this site poses a significant threat to human health and the environment. The NYSDEC is also planning on conducting a drum removal from this site. As needed LMS will provide inspection services of the NYSDEC removal contractor.

On-site soils consist of fine to medium sand, and gravel. Groundwater is located approximately 20 feet below ground surface and is assumed to flow towards the southwest.

1.1.6 33 Wheeler Road (Site No. 1-52-161)

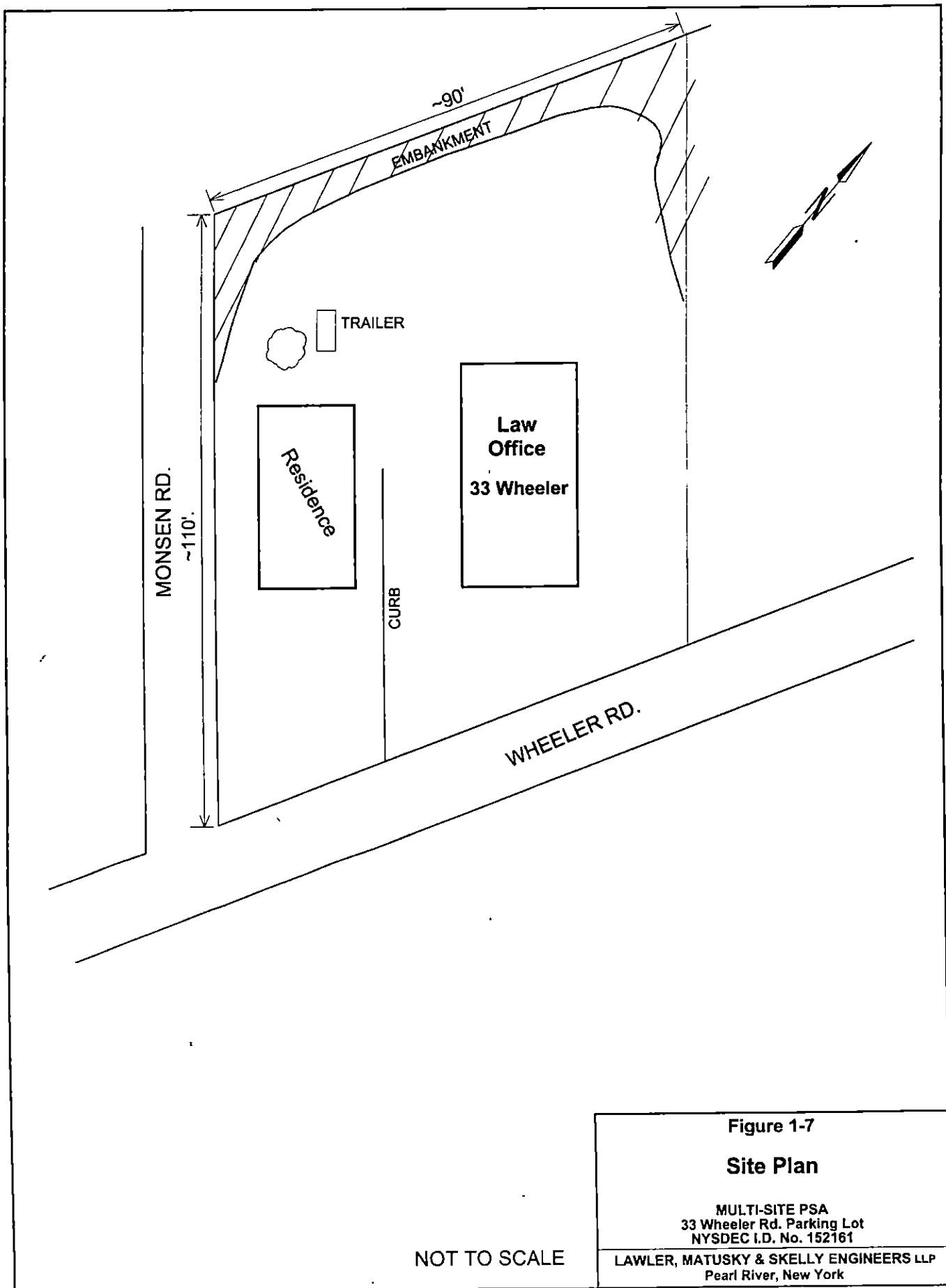
This site is located on two small adjacent lots in Central Islip, Suffolk County (Figure 1-7). Currently the site is used as a number of apartments and office spaces. The primary area of concern at this site is the rear portions of the lots, which were apparently filled with contaminated soils. The fill was placed in the 1990's during the construction of a parking lot. The area is currently unpaved and the fill materials appear to be crushed and screened construction and demolition debris. Limited analytical testing on the fill materials indicate that TCLP lead levels exceed regulatory limits (TCLP lead levels up to 143 mg/l were found). Several other metals and VOCs were also found at elevated concentrations in the fill material.

The on-site fill materials appear to be a heterogeneous mixture of crushed fill materials. The fill materials appear to reach a maximum thickness of 8 to 10 ft to the rear (eastern) portion of the property. The underlying natural soils consist of fine to coarse sand, with some gravel and silt. Groundwater is assumed to be approximately 55 feet below ground surface and is assumed to flow towards the south.

The objective of this PSA is to confirm the presence of hazardous waste at this site and provide estimates of the amount of hazardous fill materials on this site. In addition to the soils investigation a limited groundwater investigation will be conducted during the PSA to determine if an impact to groundwater exists.

1.1.7 Gabriel Manufacturing (Site No. 3-44-041)

This active manufacturing site is located in Stony Point, Rockland County (Figure 1-8). The on-site processes use VOCs, and a release of these compounds have resulted in groundwater contamination. The primary contaminants of concern include chlorinated solvents and freon.



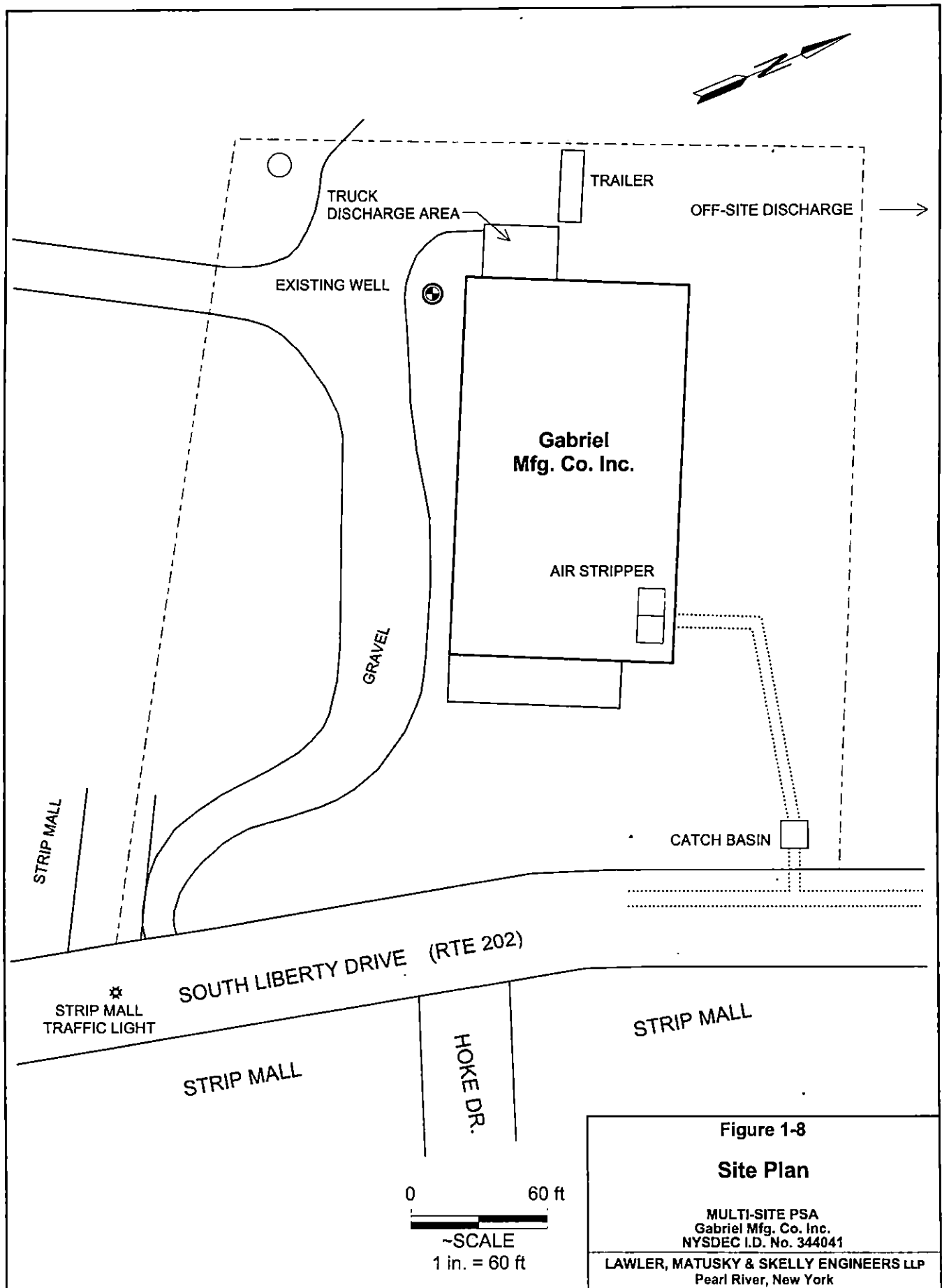
NOT TO SCALE

Figure 1-7

Site Plan

MULTI-SITE PSA
33 Wheeler Rd. Parking Lot
NYSDEC I.D. No. 152161

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



The objective of this PSA is to conduct a groundwater investigation to determine if a significant impact to the groundwater exists and to conduct a soil sampling program to determine if a on-site soil contamination source exists.

1.1.8 Camarota Cleaners (Site No. 5-46-044)

The Camarota Cleaners site is located in Mechanicville in Saratoga County (Figure 1-9). This site is a former dry cleaners and a number of wells installed as a result of a petroleum spill indicate that the groundwater has been impacted with dry cleaning chemicals (PCE).

The NYSDEC will sample the existing on-site wells and if the results indicate that a significant impact to groundwater exists additional PSA sampling activities will be conducted by LMS. The sampling activities will focus on locating an on-site source of the PCE and will include the collection of probe soils during a 3 day sampling effort at the site.

The nature of the subsurface at this site is unknown but is likely characteristic of much of the surrounding area. Typically these deposits include glacial deposits of fine sands, silts, and clay. The depth to groundwater is not known but is likely within 30 feet of the ground surface.

1.2 OBJECTIVES OF THE SAMPLING EFFORT

The objectives of the PSA at the Glen Head site are to determine the contaminant source area, source property and the direction of groundwater flow at the site. The PSA objective at the Kings Park Cleaners site is to evaluate the impact of on-site contaminants on the groundwater. At the Gabriel Manufacturing site the objectives of the PSA are to determine the source area of the contamination and the impact on groundwater quality. The PSA at Camarota Cleaners will be conducted to delineate the source area at the site. At Techem Inc. and the 33 Wheeler Road site PSAs will be conducted to confirm the location of a source area and to determine the impact on groundwater in the area. The Turf Specialist PSA will take place to determine if an on-site source is present. At Hempstead Area Dry Cleaner the objective of the PSA is to identify a source property and an on-site source. The PSA conducted at each site will also be used to recommend the proposed classification of each site on the NYSDEC Registry of Inactive Hazardous Waste Disposal Sites (the Registry).

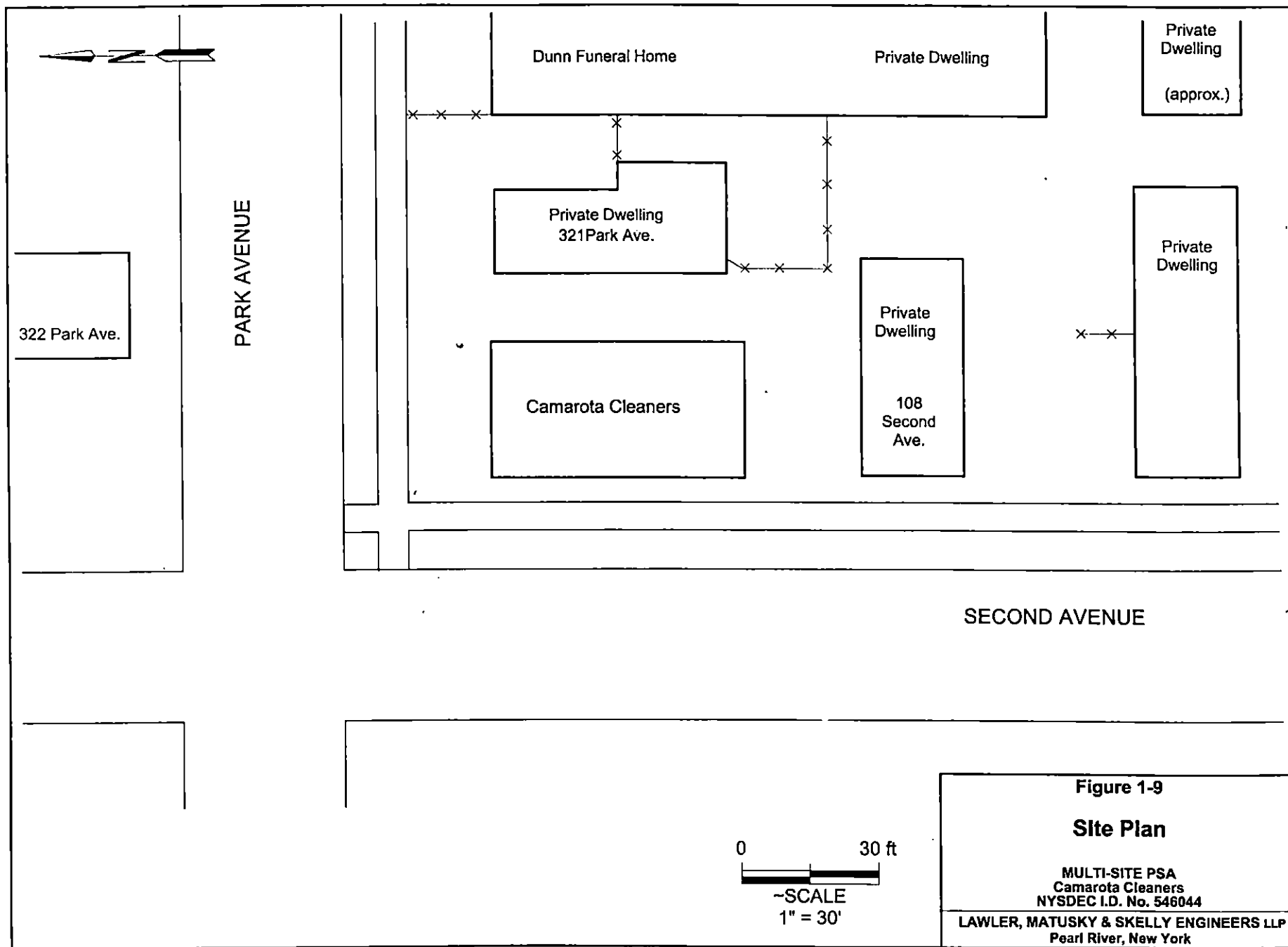


Figure 1-9

Site Plan

MULTI-SITE PSA
Camarota Cleaners
NYSDEC I.D. No. 546044

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

CHAPTER 2

PREPARATORY ACTIVITIES

2.1 Site Visit / File Review / Detailed Site History

Under this subtask, site visits for six of the sites were conducted on 14 April 1999 to determine if there were any hazards or other access problems for drilling at each site. A site visit for one other site was conducted on 4 May 1999. The remaining site will be visited as needed prior to the field work to verify the known site conditions. A meeting was held at the NYSDEC offices in Albany, New York on 16 April 1999 to discuss the scope of the PSAs. A task by task cost estimate for each of the eight sites was prepared, submitted to NYSDEC, and discussed.

2.2 Subtask 2.1 – Literature Search/File Search

This subtask will include obtaining and reviewing all relevant and reasonable obtainable files on each of the eight sites. The purpose of this subtask will be to assemble the necessary background data to complete the PSA. The following agencies will be contacted and their files reviewed.

- NYSDEC - Division of Environmental Enforcement
- NYSDEC - Region 1, 3, and 5
- USEPA- Region 2
- Nassau County Department of Health
- Saratoga County Public Health Department
- Suffolk County Department of Health
- Rockland County Department of Health
- NYSDOH

If this subtask identifies any unknown source areas on the individual sites the field investigation subtasks will be modified accordingly to adequately address these areas.

The file review will also include obtaining the tax map and property owner's names and addresses for all properties to be investigated. This information will be obtained from the county or local real estate tax office.

2.3 Site Inspections/Mobilization/Demobilization

This subtask includes a site inspection by each site's site coordinator to locate each of the sampling points prior to the drill rig mobilizing to the site. The location of the sampling points is needed in

order to do a utility markout prior to initiating drilling. This subtask also includes mobilizing any equipment needed to the site and removing this equipment at the end of the project.

For the Turf Specialists site this subtask will also include inspection services for the removal of the drums and chemical containers noted during the site visit. The inspection services provided by LMS will be limited to documenting the activities of the drum removal contractor. The subcontracting services associated with the actual removal action are not included in this work assignment. At this time it is anticipated that an NYSDEC or USEPA removal contractor will be assigned the actual drum removal action.

CHAPTER 3

SAMPLE LOCATIONS

This chapter summarizes the samples that will be collected at each of the PSA sites. The sample locations are preliminary and may require relocation due to site access restrictions at the time of field investigations, the presence of underground utilities, or other unforeseen access restrictions.

3.1 HEMPSTEAD AREA DRY CLEANER

3.1.1 Soil Probes

At 6 locations on this site soil probes will be advanced to a total depth of 20 ft bgs (Figure 3-1). A total of 24 soil samples will be obtained, with four samples, at the 4-8, 12-14, 16-18, and 18-20 ft bgs intervals, collected from each location. Each sample will be submitted to the contract laboratory for VOC analysis according to NYSDEC ASP 8260B. Soil probing and sampling procedures are described in Chapters 4 and 5.

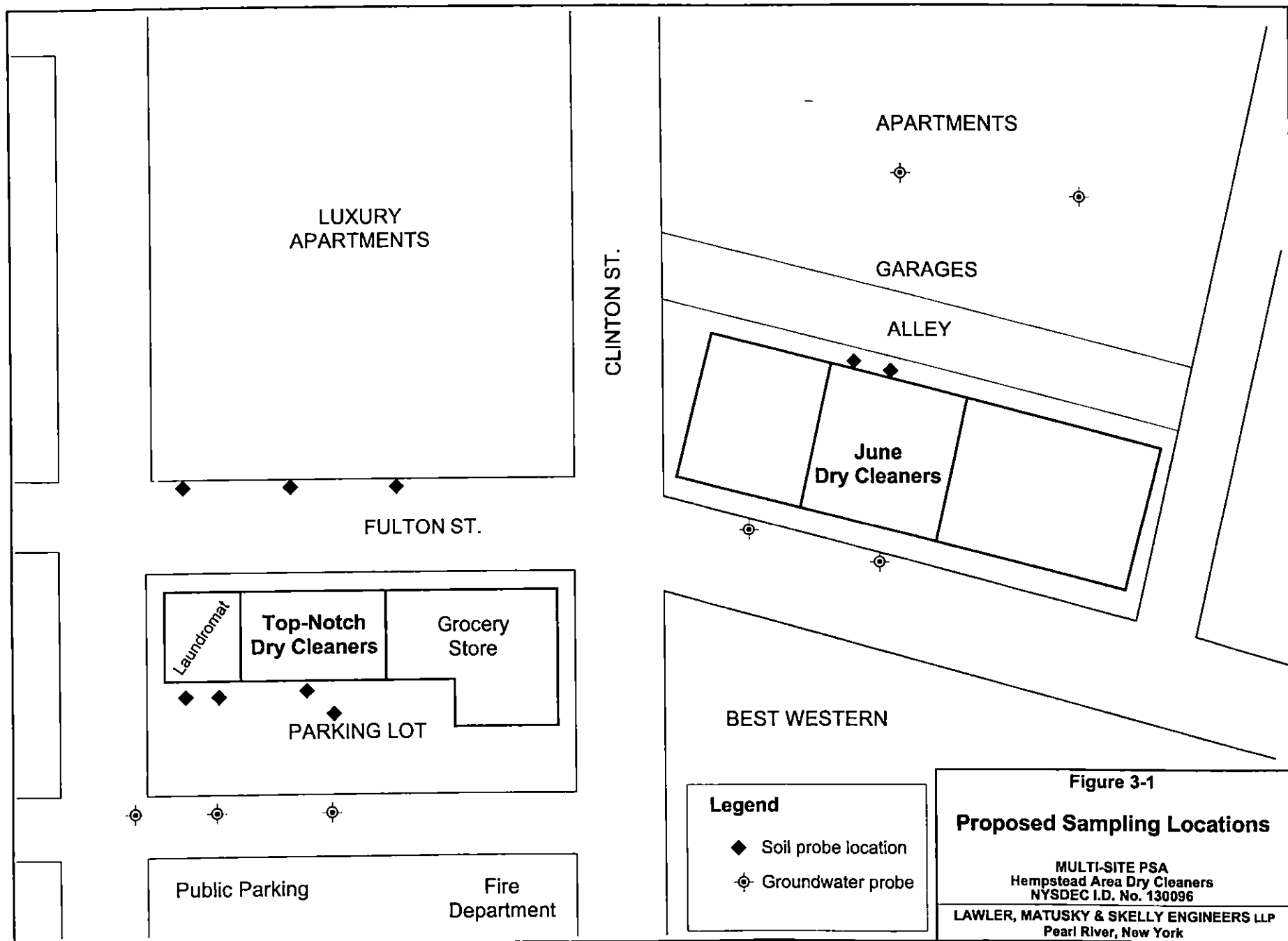
3.1.2 Groundwater Probes

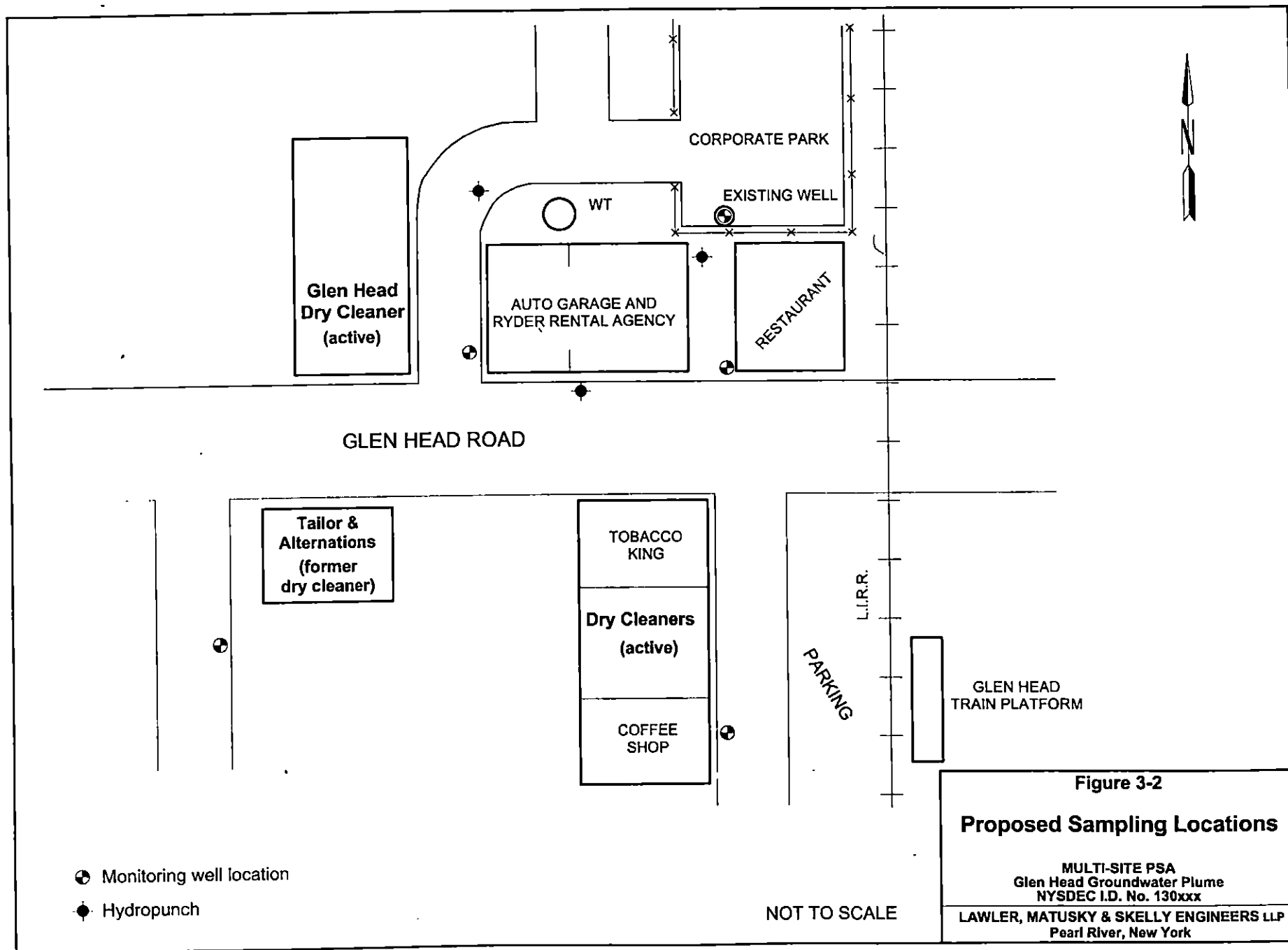
A total of 20 groundwater probe locations will be sampled at this site (Figure 3-1). At each location a sample will be collected from three discrete intervals, resulting in a total of 60 samples. The shallowest interval will be near the water table, at approximately 20 ft bgs. The additional intervals are at approximately 35 and 55 ft bgs. The samples will be submitted to the contract laboratory for VOC analysis following NYSDEC ASP 8260B. Detailed descriptions of groundwater probing and sampling procedures are located in Chapters 4 and 5.

3.2 GLEN HEAD GROUNDWATER PLUME

3.2.1 Hydropunches

Hydropunch sampling will be conducted at four locations on the Glen Head site to collect groundwater samples from discrete intervals (Figure 3-2). Each sample point will be advanced to a maximum depth of 150 ft below ground surface (bgs). Sample collection will utilize a hydropunch sampling system and groundwater samples will be collected from discrete intervals at 150 ft, 130 ft, and at the approximate depth of the water table (110-115 ft bgs). The completion depth, sampling depths, and sampling system at each sample location will depend on the field conditions





encountered during drilling. A total of 12 groundwater samples will be collected from the hydropunches for VOC analysis using NYSDEC ASP 8260B. Hydropunching and hydropunch sampling procedures are described in Chapters 4 and 5.

3.2.2 Monitoring Wells

Four 2-in. PVC monitoring wells will be installed such that they are screened in the upper 10 ft of the water table at the site (Figure 3-2). Each well will be an overburden well completed to a depth of 120 ft bgs. One groundwater sample will be collected from each well and submitted for contract laboratory analysis using method NYSDEC ASP 8260B. Monitoring well installation and sampling procedures are described in Chapters 4 and 5.

3.3 TECHEM INCORPORATED

3.3.1 Soil Probes

Soil probes will be advanced at 10 locations on-site to confirm the source of metals contamination (Figure 3-3). During advancement of the probe, soil samples will be collected at 0-4, 8-12, 20-22, and 40-42 ft bgs intervals. Forty (40) soil samples collected during probing will be submitted to the contract laboratory for VOC analysis using NYSDEC ASP 8260B and TAL metals plus cyanide by NYSDEC ASP 6010B/7470A and 335.2, respectively. An additional 40 soil samples will be submitted for RCRA Characteristics: corrosivity, ignitability, and reactivity by NYSDEC ASP 9045C, 1010, D-XV-17, and D-XV-21. Soil probe and sampling procedures are described in Chapters 4 and 5.

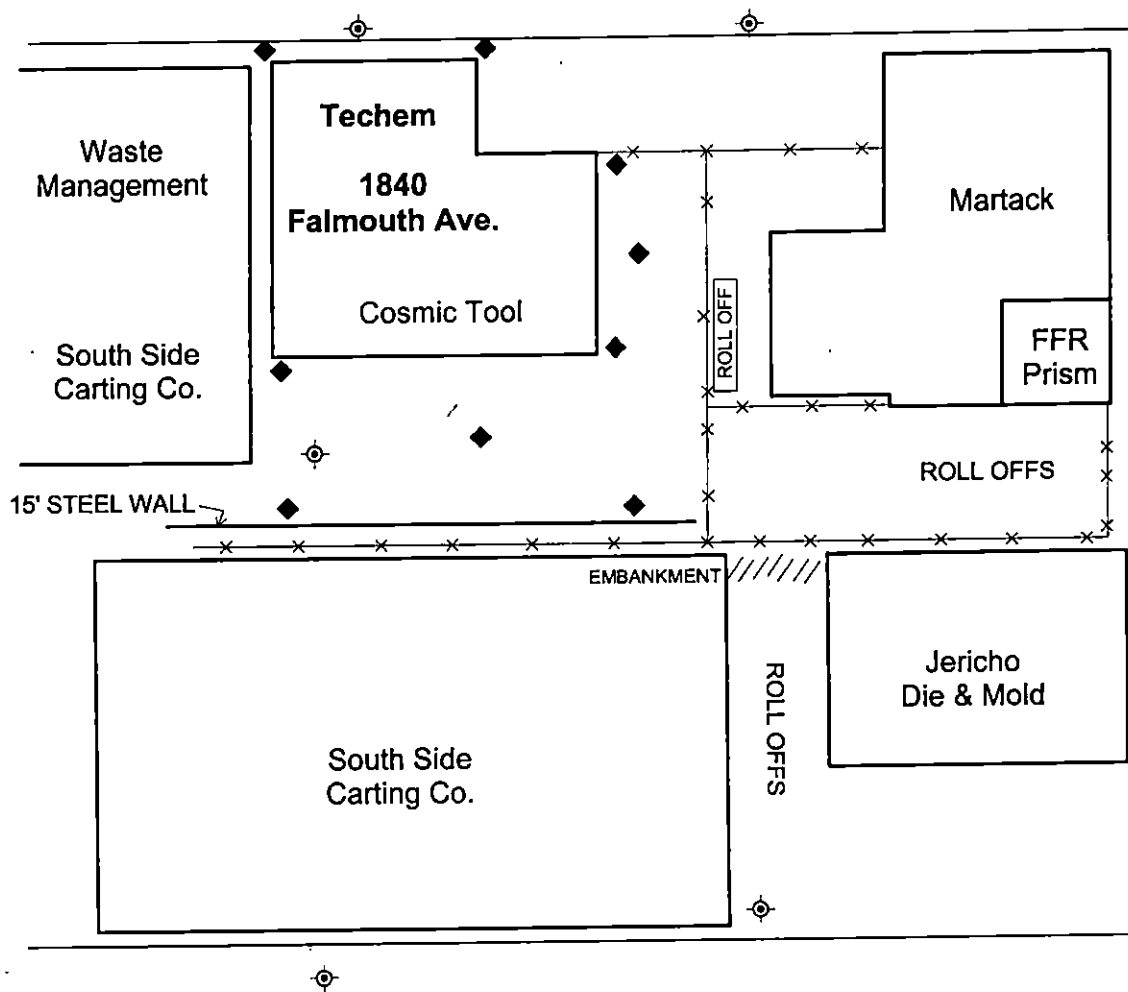
3.3.2 Groundwater Probes

Groundwater probes will be completed at a total of 6 locations (Figure 3-3) with one sample collected from each location and submitted to the contract laboratory for VOC analysis using NYSDEC ASP 8260B. Twelve additional samples will be collected for analysis of TAL metals plus cyanide by NYSDEC ASP 6010B/7470A and 335.2. These filtered and unfiltered samples will be collected from just below the water table, at a depth of approximately 55 ft bgs. Groundwater probe and sampling procedures are described in Chapters 4 and 5.



FALMOUTH AVE.

DENTON ST.



GILFORD AVE.

Legend

- ◆ Soil probe location
- ⊙ Groundwater probe

NOT TO SCALE

Figure 3-3

Proposed Sampling Locations

MULTI-SITE PSA
Techem, Inc.
NYSDEC I.D. No. 130524

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

3.4 KINGS PARK CLEANERS

3.4.1 Monitoring Wells

Four 2-in. PVC monitoring wells will be completed to a depth of 80 ft bgs at the site (Figure 3-4). Each well will be an overburden well and will be screened over 10 feet, just below the water table (65 ft bgs). Groundwater from each well will be sampled and analyzed for VOCs following NYSDEC ASP 8260B. Monitoring well installation and sampling procedures are described in Chapters 4 and 5.

3.4.2 Soil Probes

Up to 16 soil probes will be advanced to sample the on-site leachpools (Figure 3-4). Advancement of these probes are dependent on the findings during sampling of the monitoring wells. The completion depths for each probe will be determined based on field conditions at the site. If soil probe samples are collected they will be submitted to the contract laboratory for VOC analysis using NYSDEC ASP 8260B. Soil probe and sampling procedures are outlined in Chapters 4 and 5.

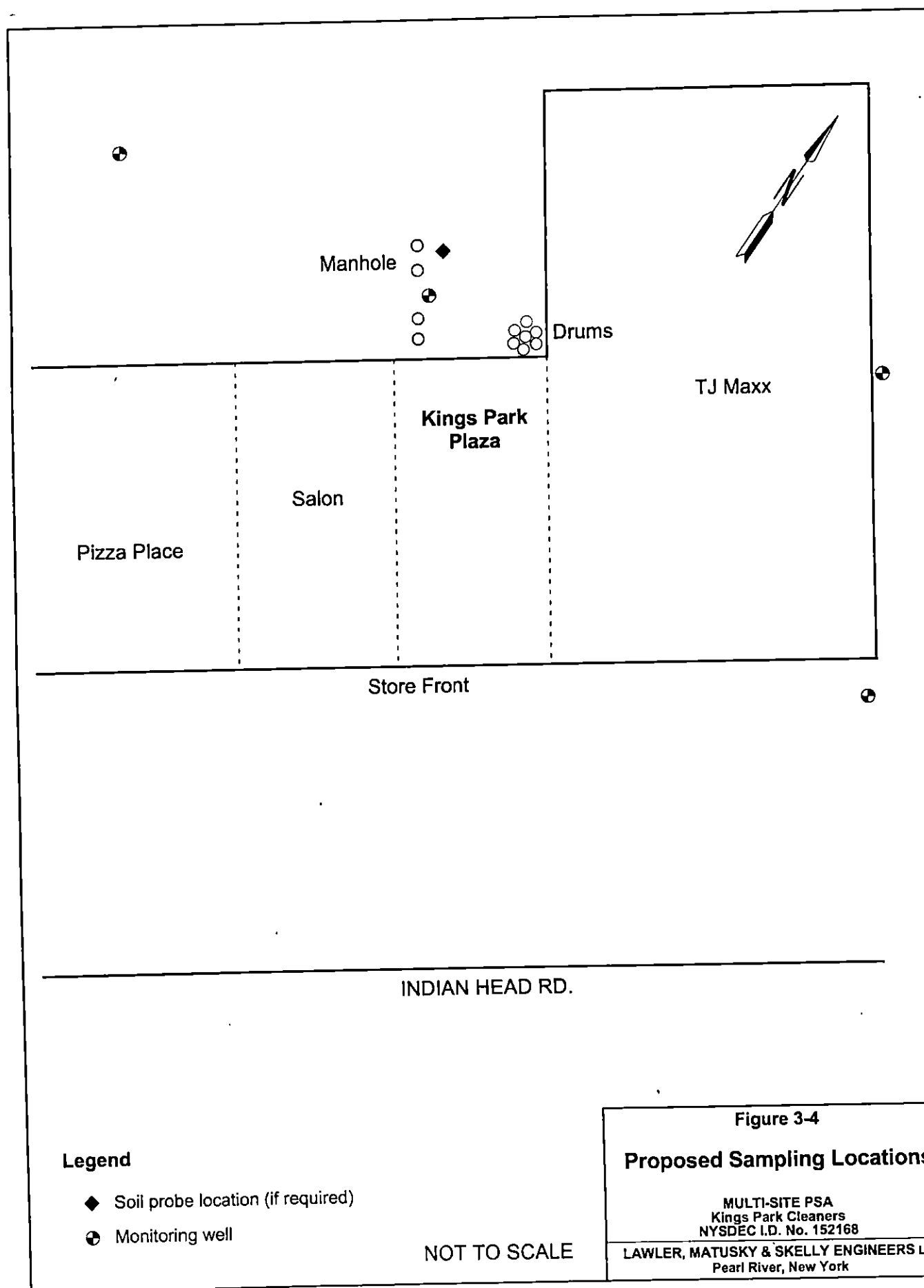
3.5 TURF SPECIALIST

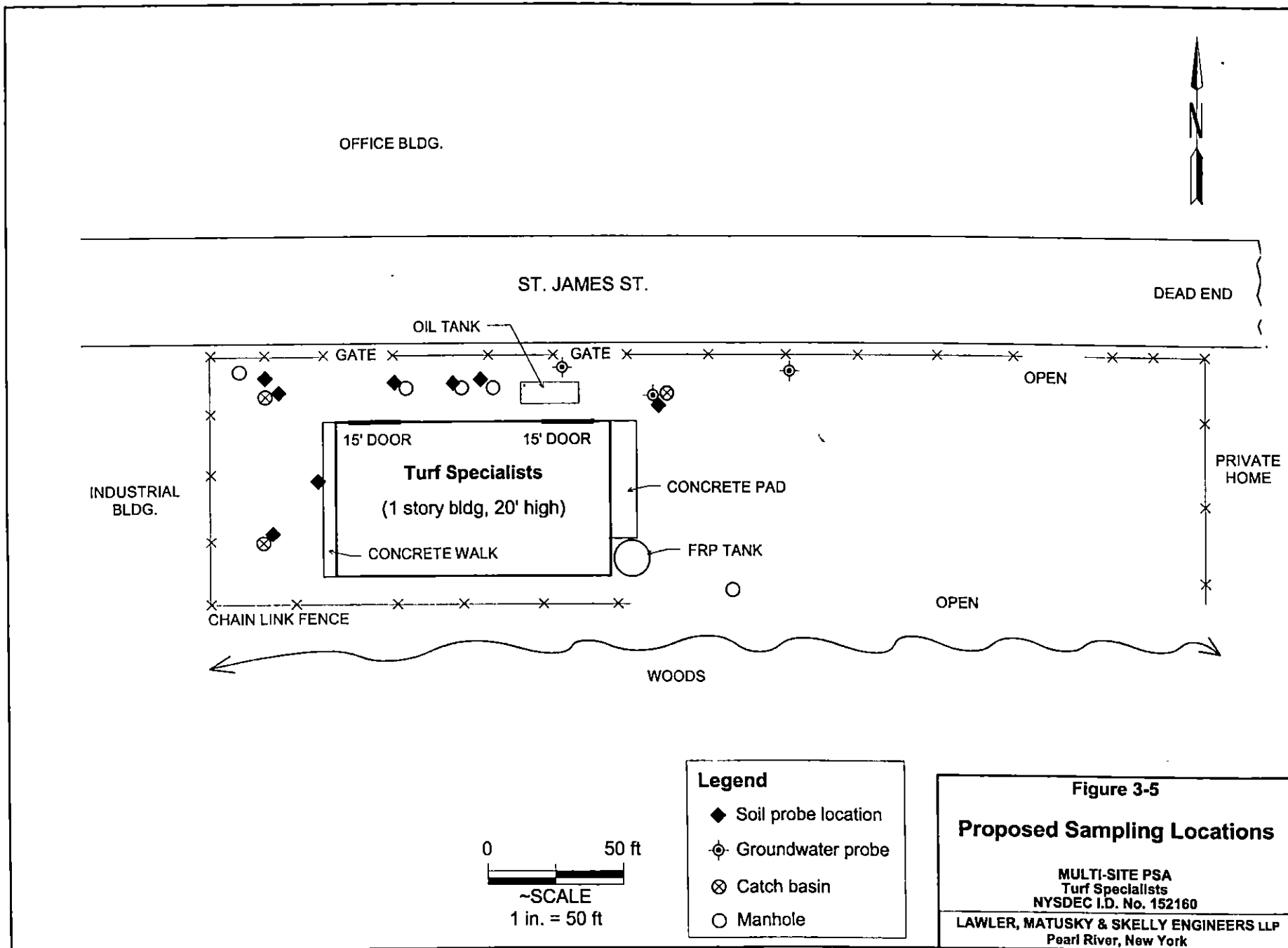
3.5.1 Soil Probes

Soil probes will be completed at the 10 drainage structures located on the site (Figure 3-5). Three samples will be collected at each drainage structure for a total of 30 samples. At each drainage structure, samples will be collected from the sediment at the structure bottom, the soil 2 ft below the bottom of the structure, and the soil at the water table (approximately 20 ft bgs). The samples will be submitted to the contract laboratory for VOC, SVOC, pesticide, and herbicide analysis using NYSDEC ASP 8260B, 8270C, 8081A, and 8151A, respectively. Soil probe and sampling procedures are described in Chapters 4 and 5.

3.5.2 Groundwater Probes

Groundwater probe samples will be collected from 6 different locations on-site (Figure 3-5). At each location, one sample will be collected from approximately 22-24 ft bgs (the depth to the water table). Each sample will be submitted to the contract laboratory for VOC, SVOC, pesticide, and herbicide analysis using NYSDEC ASP 8260B, 8270C, 8081A, and 8151A, respectively. Groundwater probing and sampling procedures can be found in Chapters 4 and 5.





3.6 33 WHEELER ROAD

3.6.1 Soil Probes

Soil probes will be advanced to 8 ft bgs at 20 locations on this site (Figure 3-6). A total of 80 soil samples will be collected, with one sample collected from the 0-2, 2-4, 4-6, and 6-8 ft bgs intervals at each location. The samples will be submitted to the contract laboratory for VOC and TAL Metals analysis using NYSDEC ASP 8260B and 6010B/7470A, respectively. In addition, 20 soil samples will be submitted for TCLP and RCRA metals analyses by NYSDEC ASP 1311/6010B/7470A, respectively. Soil probing and sampling procedures are outlined in Chapters 4 and 5.

3.6.2 Groundwater Probes

Groundwater probes will be advanced in five locations to a depth of approximately 55 ft bgs (Figure 3-6). At each location one sample will be collected from groundwater near the water table for VOC analysis by NYSDEC ASP 8260B. An additional 10 groundwater probe samples will be collected for analysis of TAL metals by NYSDEC ASP 6010B/7470A and 335.2, respectively. Five of the additional samples will be submitted to the contract laboratory filtered in the field and 5 will be submitted unfiltered. Groundwater probing and sampling procedures are described in Chapters 4 and 5.

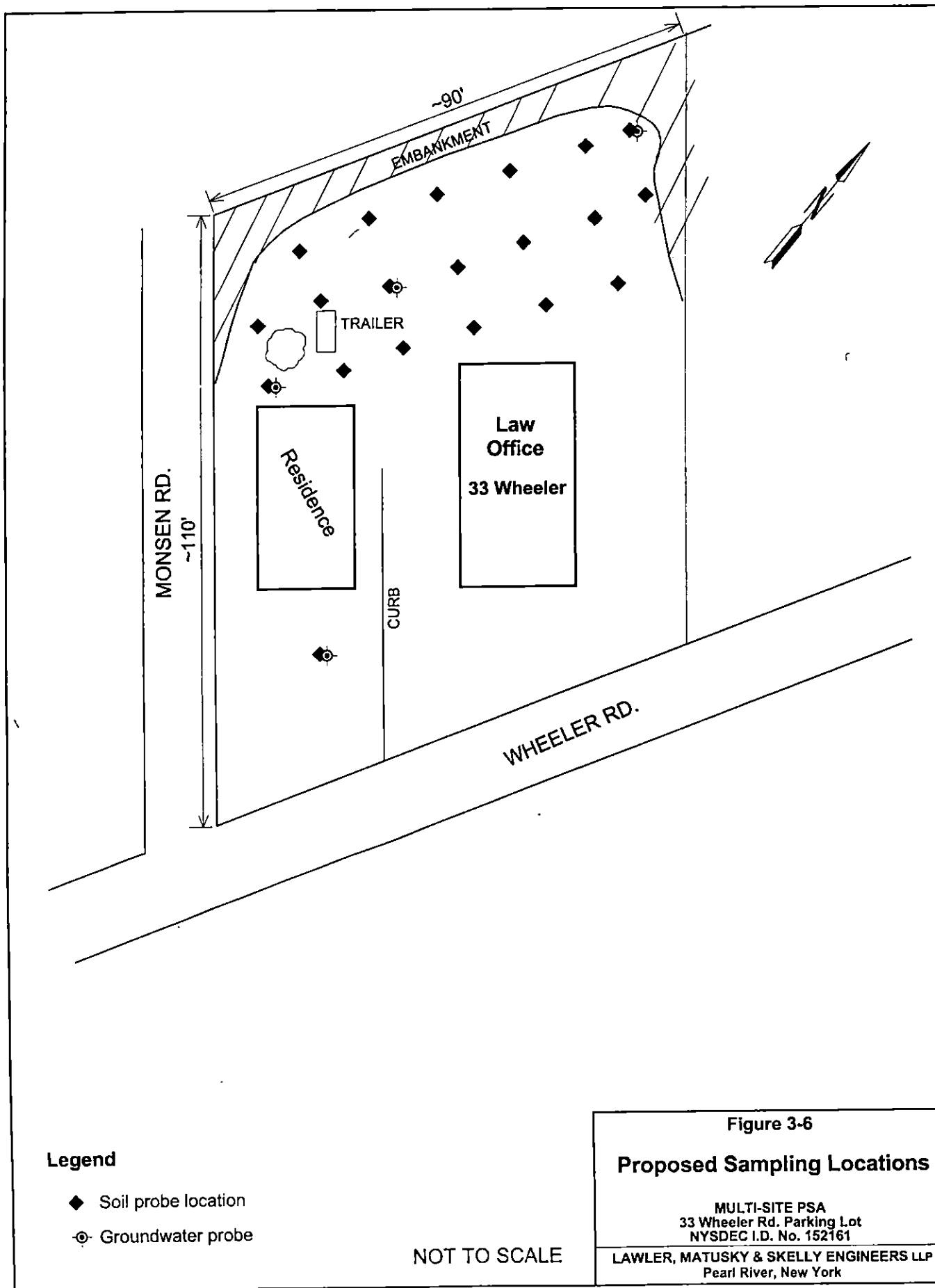
3.7 GABRIEL MANUFACTURING

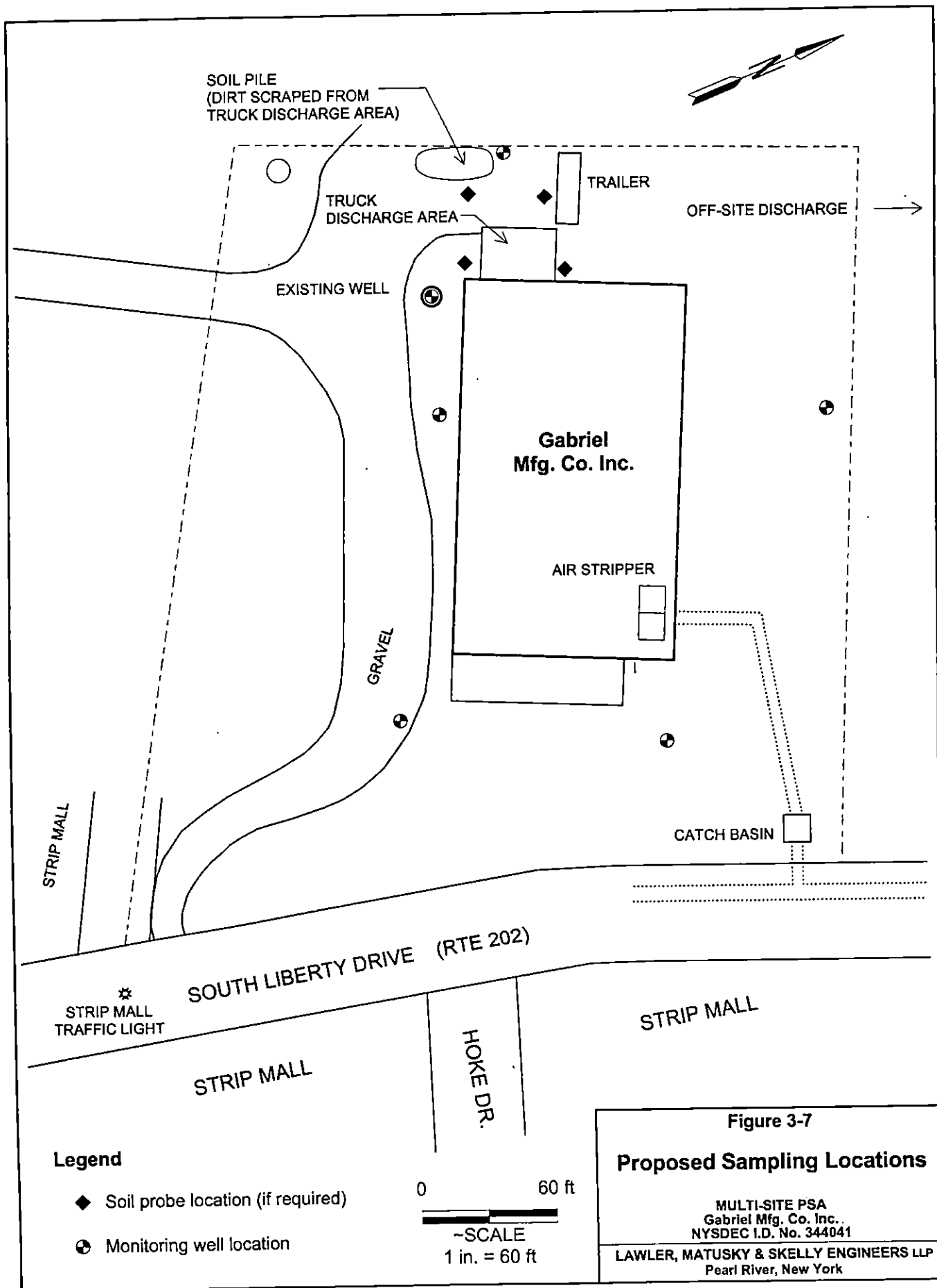
3.7.1 Monitoring Wells

Five 2-in PVC bedrock monitoring wells will be completed to various depths at this site (Figure 3-7). PVC well screen will be installed in the bottom 10 ft of the borehole and PVC riser will complete the well to the surface. Groundwater from each well will be sampled and submitted to the contract laboratory for analysis of VOCs and Freon 11/12 using NYSDEC ASP 8260B. Monitoring well installation and sampling procedures are described in Chapters 4 and 5.

3.7.2 Soil Probes

Soil probing will be conducted at four locations (Figure 3-7) at this site with samples collected at the 4-8, 12-14, 16-18, and 18-20 ft bgs intervals. A total of 16 soil probe samples will be submitted to the contract laboratory for VOC and Freon 11/12 analysis by NYSDEC ASP 8260B.





3.7.3 Grab Soil Samples

Four grab soil samples will be collected from a soil pile located behind the truck discharge area (Figure 3-7). The grab soil samples will be submitted to the contract laboratory for VOC and Freon 11/12 analysis by NYSDEC ASP 8260B.

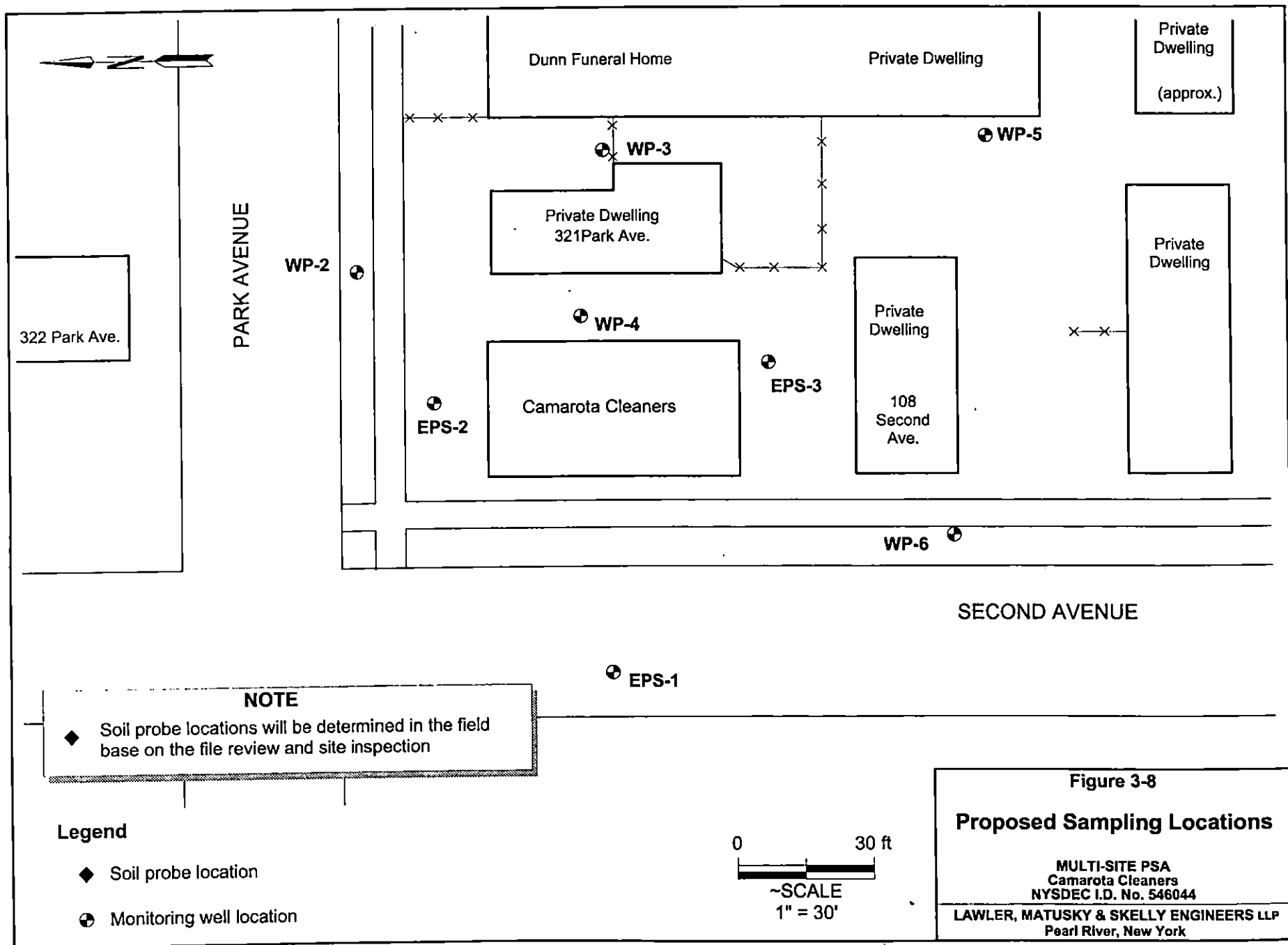
3.8 CAMAROTA CLEANERS

3.8.1 Monitoring Wells

A total of six existing monitoring wells will be sampled at this site (Figure 3-8). One groundwater sample will be collected from each well and submitted to the contract laboratory for VOC analysis by NYSDEC ASP 8260B. Monitoring well sampling procedures are outlined in Chapter 5.

3.8.2 Soil Probes

Soil probes will be advanced at 8 locations (Figure 3-8) on-site in an effort to locate the source(s) of contamination. At each probe point a sample will be collected from the following intervals: 2-4, 4-8, 8-12, 12-14, 16-18, and 18-20 ft bgs. Soil samples collected during probing will be submitted to the contract laboratory for VOC analysis using NYSDEC ASP 8260B. Soil probe and sampling procedures are described in Chapters 4 and 5.



CHAPTER 4

FIELD INVESTIGATION PROCEDURES

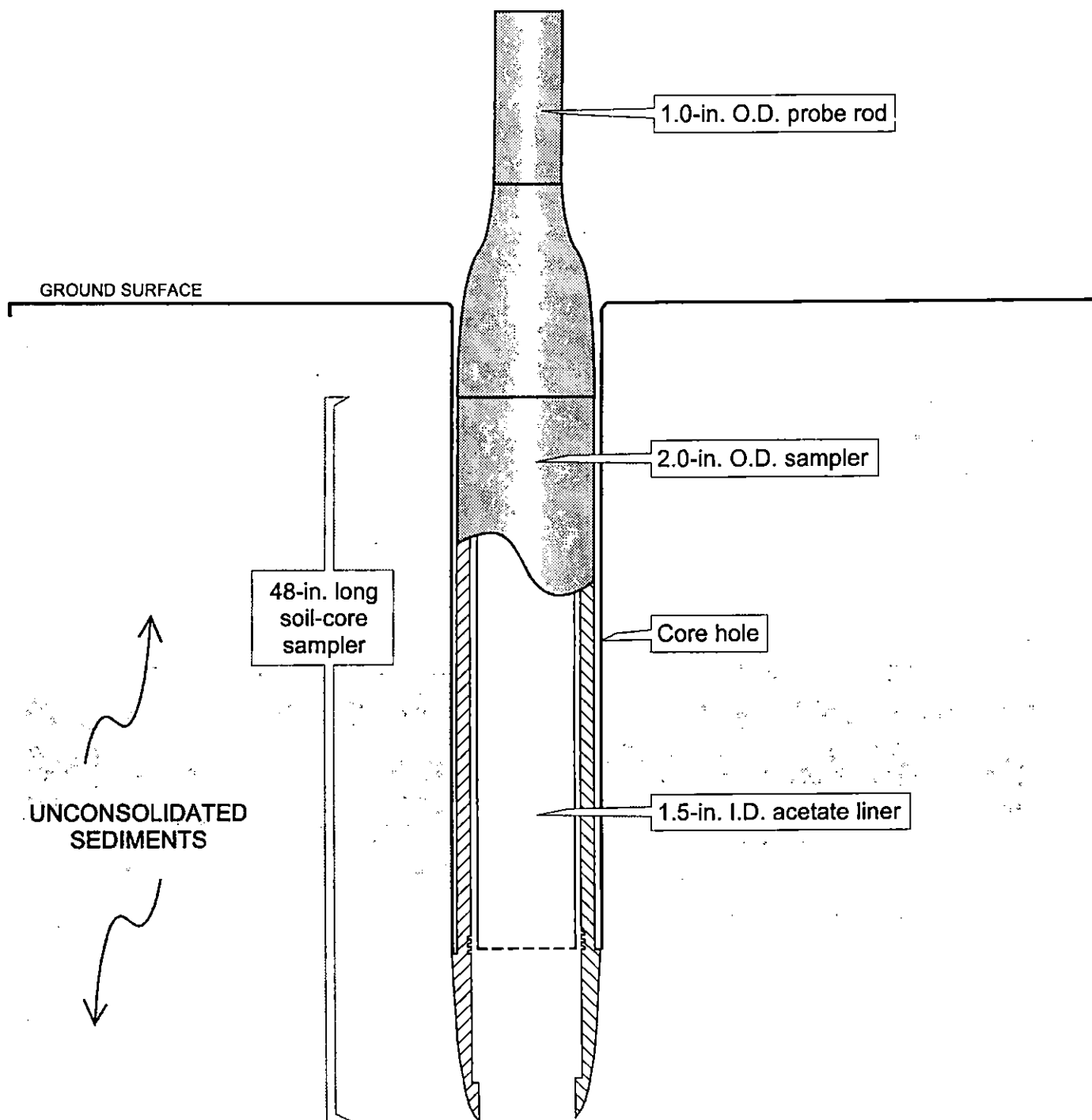
4.1 SOIL PROBES AND GRAB SOIL SAMPLES

The probe samples will be advanced using a truck mounted probe unit utilizing a direct push hydraulic hammer system. Soil sampling will be accomplished in 4-ft runs, using a 1.5-in. inside diameter (ID) macro core soil sampler (Figure 4-1). This sampler is adequate for soil sampling to a depth of approximately 16 feet. Beyond this depth, a smaller 1.0-in. ID large bore sampler will be used. This sampler collects samples in 2-ft runs, but otherwise operates similar to the macro core sampler. The sampler is pushed or hammered to the desired sampling depth via the hydraulic system. Soil cores are recovered in a dedicated acetate liner which is fitted in the steel sampler prior to advancement. Upon removal from the sampler, both ends of the liner are capped and the soil sample is scanned with a photoionization detector (PID) or flame ionization detector (FID) to detect volatile organic compounds (VOCs). PID and/or FID readings will be noted on a probe log along with sample interval, soil description, moisture content, color and evidence of contamination (odor, sheen). Soil samples will be transferred to laboratory cleaned glass jars and labeled with the appropriate site name, job number, sample location/identification, date, time, sampler, and parameters for analysis. Upon completion of sampling activities, the soil probe point will be backfilled to grade level as needed with probe hole cuttings. If groundwater at the Camarota Cleaners site is impacted by contamination at the site all 8 PSA sites will require soil probing. If the groundwater at Camarota Cleaners is not impacted, no soil probes will be completed at the site.

Grab soil samples will be collected from a soil pile at the Gabriel Manufacturing site. The samples will be collected by using stainless steel hand trowels to remove soil at each sample location to a depth of approximately 6 in. The grab soil samples are to be scanned with a PID or FID to detect volatile organic compounds VOCs. PID and/or FID readings will be noted along with sample interval, soil description, moisture content, color and evidence of contamination (odor, sheen). Soil samples will be transferred to laboratory cleaned glass jars and labeled with the appropriate site name, job number, sample location/identification, date, time, sampler, and parameters for analysis.

4.2 GROUNDWATER PROBES

Groundwater samples will be collected by advancing a groundwater screen sampler (Figure 4-2) to the lower sampling interval with the probe unit. When the screen sampler reaches the desired



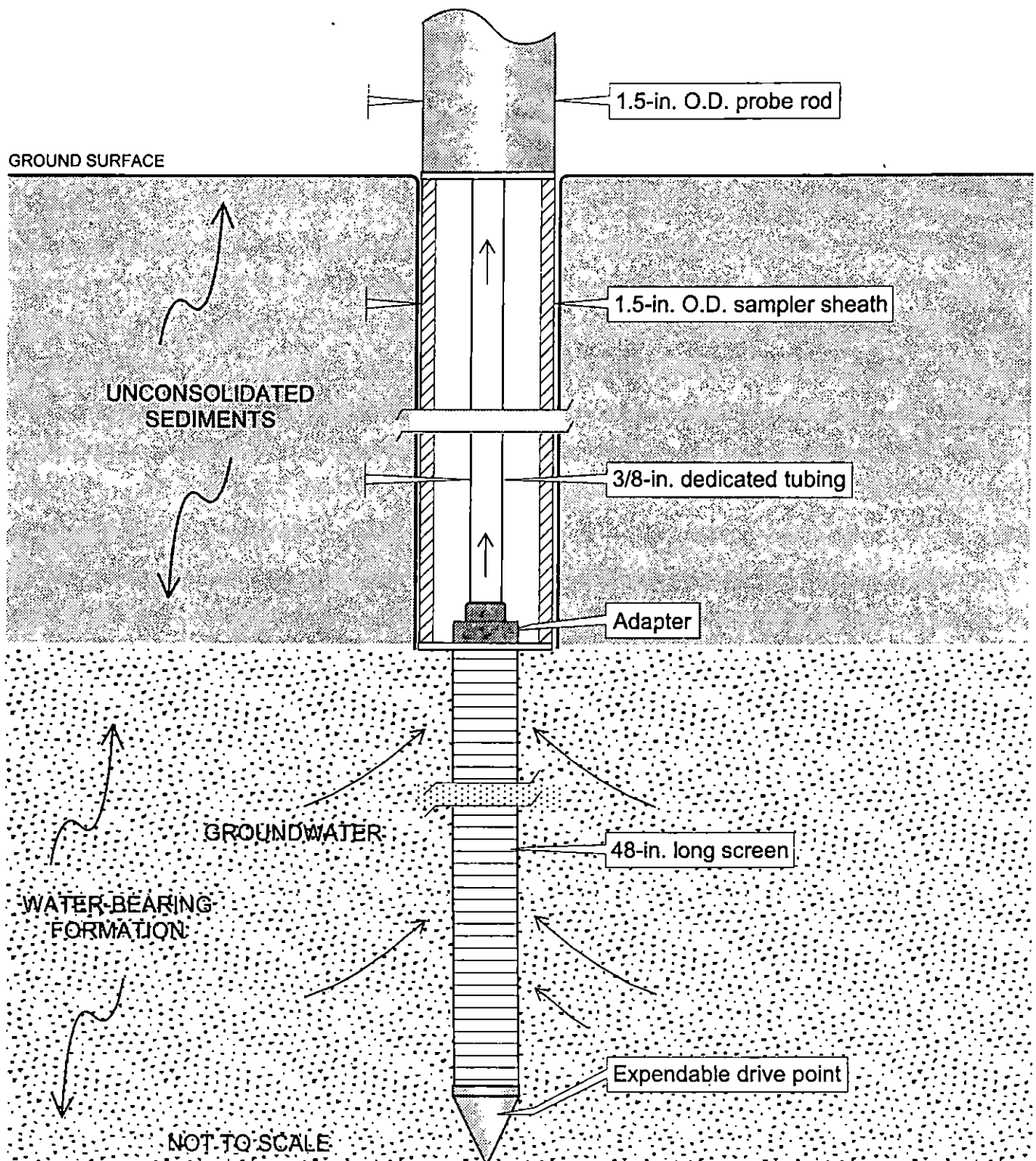
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Figure 4-1
Soil Core Sampler
Cross Section

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Figure 4-2
Probe Unit
Groundwater Sampler
Cross Section

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Work Assignment 45

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depth, the probe rods and the screen sheath are raised exposing the screen allowing groundwater to infiltrate into the rods. In granular soil and some deeper probe sampling situations, a small screen is fitted into the base of the rods and the rods are fitted with an expendable drive point and driven to the desired depth. The rods are then raised and water is allowed to infiltrate into the rods. Prior to sample collection the groundwater probes will be purged until 3 times the standing water within the rods are removed. At those sites where probe groundwater samples are collected the additional purging will be conducted in an effort to collect a relatively turbid free groundwater sample. If the purging process appears to be lowering the turbidity the purging will continue for up to 30 minutes.

The groundwater samples will be transferred to laboratory-cleaned glass VOC vial and labeled with the appropriate sample location, interval, date, time, sampler, and required analyses. Each of the groundwater samples will be shipped by overnight carrier to the LMS contract laboratory for analysis.

Groundwater probes will be conducted at the Techem Incorporated, Turf Specialist, 33 Wheeler Road, and Hempstead Area Dry Cleaner sites.

4.3 HYDROPUNCH SAMPLING

Groundwater samples will be collected using a hydropunch sampling system (Glen Head Groundwater Plume site). Groundwater samples will be collected at the water table (approximately 110 ft bgs), 130, and 150 ft. below the ground surface (3 samples at each location for a total of 12 groundwater samples). The required borehole will be advanced using a truck-mounted drill rig. Each of the boreholes will be completed using 4.25-in. hollow-stem augers (HSA). All drilling and sampling activities will be supervised by an LMS geologist. Soil sampling will be conducted at up to six depths in each borehole according to the standard penetration test method ASTM 1586-D. This procedure involves sampling the overburden in 2-ft intervals with a 2-ft-long, 2-in. O.D. split-spoon sampler driven by a 140-lb hammer falling 30 in. The soil samples will be examined and described on a boring log, noting the following characteristics: moisture content, lithology, color, texture, and evidence of contamination (odor, staining, sheen, organic vapor readings, and other sample-specific notations). Depth, blow counts, and sample recovery will also be noted on the same log.

Once the desired sampling depth is reached the drilling rods will be removed from the boring and a steam-cleaned hydropunch tool attached to the rods. The rods will then be lowered back into the boring and the hydropunch driven to the targeted sampling depth. Once the hydropunch tool has been driven to the desired depth, it will be retracted several inches to expose the sample port. The hydropunch tool will then be allowed to fill with the groundwater sample. Once the hydropunch tool

is filled, it will be returned to the surface and the groundwater sample transferred to the appropriate sample container. Drilling then resumes until the next desired interval is reached and the hydropunch tool is again lowered down the borehole to repeat the process described above.

The groundwater samples will be transferred to laboratory-cleaned glass VOC vial and labeled with the appropriate sample location, interval, date, time, sampler, and required analyses. Each of the groundwater samples will be shipped by overnight carrier to the LMS contract laboratory for analysis.

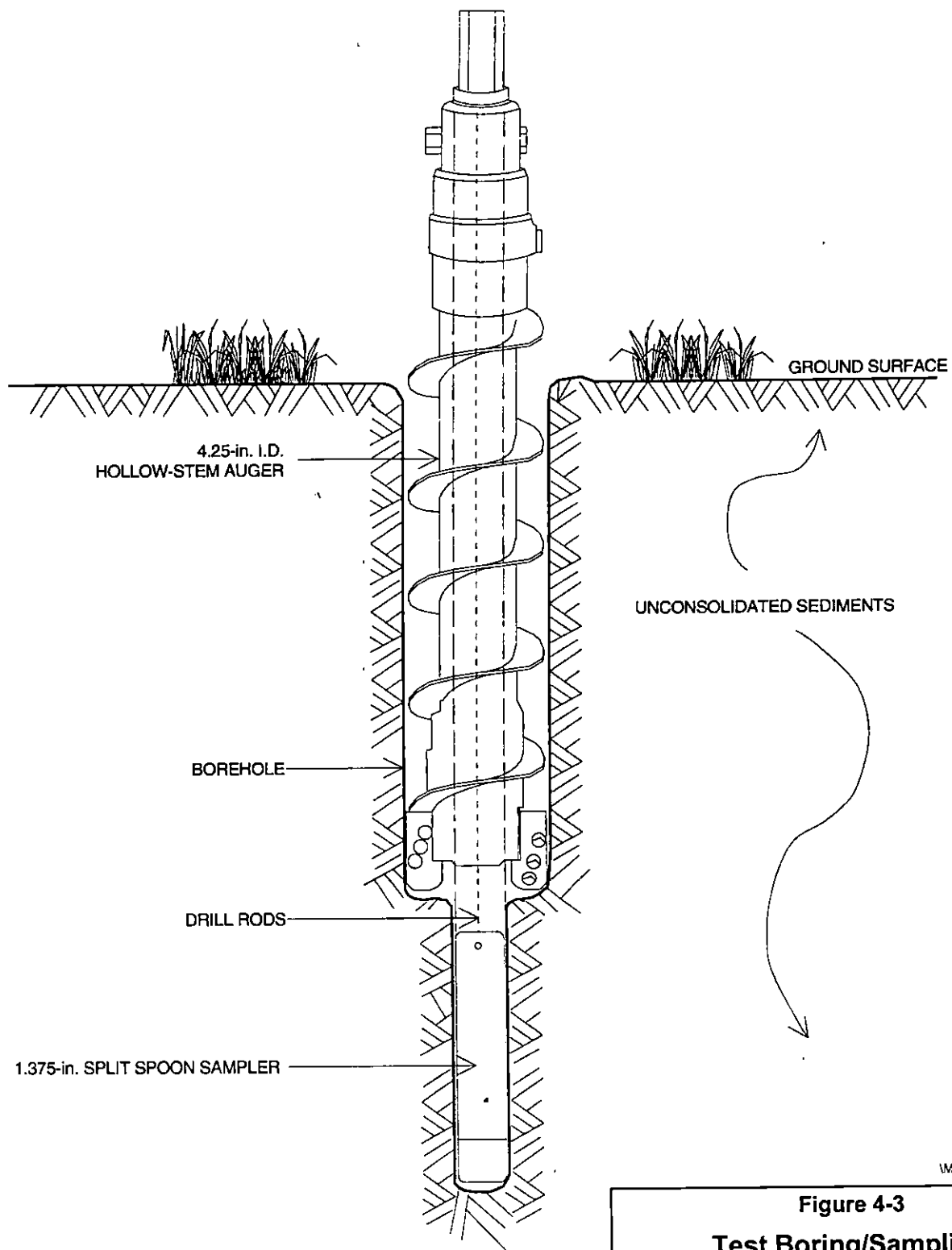
Once groundwater sampling is completed, the boreholes will be grouted with a high solids bentonite grout below the watertable if the borehole has not collapsed. The remainder of the borehole above the watertable will be filled with the clean drilling cuttings from the unsaturated zone. A concrete or blacktop patch will then be placed over the borehole. Any remaining drilling cuttings which are not used as backfill material will be containerized in a neat and orderly fashion and transported to a staging area for later disposal. Any drilling fluids or purge water will also be containerized for future disposal.

4.4 MONITORING WELL INSTALLATION

4.4.1 Procedure

The borings for the proposed monitoring wells will be advanced using a truck-mounted drill rig using 4.25-in. hollow stem augers. Soil sampling will be conducted in 2-ft intervals, taken every 5 ft from the ground surface to the end of the boring. At any locations where paired monitoring wells are installed (a deep and shallow monitoring well), split spoon sampling will be performed only for the deeper well. Soil samples will be collected by using a 1.375-in ID split-spoon sampler according to the standard penetration test method ASTM-D 1586 (Figure 4-3). As each split spoon is taken, the soils will be scanned with either a PID or FID for signs of VOC contamination and logged by the on-site LMS geologist. A test boring log (Figure 4-4) will include information regarding blow counts, PID or FID readings, sample interval, soil description, moisture content, color and evidence of contamination (odor, sheen).

When the boring has been advanced to the desired depth, the drill rods will be removed from the augers and the well screen and riser will be lowered into place. As the augers are slowly retracted, the filter pack will be simultaneously placed into the annulus of the borehole. The filter pack will be added until it is 2 ft above the top of the screen. For the proposed monitoring wells in excess of 50 ft a thick bentonite slurry will be pumped into the well using a side discharge tremie pipe. The final 5 to 10 feet of the annulus will be grouted by pumping a cement-bentonite mixture through a side discharge tremie pipe. During construction of any proposed shallow monitoring wells (less than 50 ft



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Figure 4-3
Test Boring/Sampling
Cross Section

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deep), a minimum of 2 feet of bentonite pellets will be allowed to free-fall into the annulus over the sand pack. The remainder of the annulus will then be sealed by pumping a cement-bentonite mixture through a side discharge tremie pipe. A typical overburden monitoring well construction is shown on Figure 4-5. Upon completing a monitoring well, a completion sheet will be logged (Figure 4-6). This will include a diagram of the well, volume and type of material used, and various intervals over which the different materials were used.

If any of the monitoring wells at the PSA sites are paired, the deepest well will be completed first. The shallow well of a pair will be completed without split-spoon sampling since the stratigraphy will be known from the deep well.

Scoping and costing for the proposed monitoring wells at the Gabriel Manufacturing site in Stony Point, NY was completed prior to the site visit on 4 May 1999. Previous to this visit it was anticipated that four overburden wells would be installed at the site to a maximum depth of 80 ft. Based on information gathered during the site visit it appears that the depth to bedrock is significantly shallower and the depth of the existing supply well on-site is significantly greater than previously believed. As requested by the NYSDEC the proposed drilling program for the monitoring wells has been revised to include one additional well and bedrock wells as appropriate. The actual monitoring well depths and locations will be dictated by the field conditions encountered during installation of the first wells. Depth to groundwater and groundwater flow direction at the site is still uncertain and this makes it necessary to develop two alternatives scenerios for the monitoring well installation.

If groundwater levels are found to be below the overburden it is proposed that all five wells should be installed as bedrock wells. This will require over 500 linear feet of drilling, versus the 320 linear feet originally proposed. Bedrock drilling will require a combination of installation of 4-in spin casing to set the surface casings and NX coring for drilling within the rock. One monitoring well would be located upgradient of the suspected source (discharge) area and installed to a depth of 60 ft below ground surface (bgs). One well would be installed to a depth of 60 ft bgs in the suspected source area. This well would be relatively shallow in bedrock to establish the degree of hydraulic connection between shallow bedrock and deep bedrock at the existing supply well. A downgradient well near the existing well would be installed to a depth of 150 ft bgs and an additional downgradient well would be installed further from the existing well to a depth of 200 ft bgs. The downgradient wells would be installed relatively deeper in order to detect downward migration of any contaminant that may not be captured by pumping of the existing supply well. The location and depth of the fifth bedrock well will be determined upon advisement from NYSDEC, however for costing purposes a depth of 150 ft was assumed.

If it is determined that the water table is actually present in the overburden a combination of overburden and bedrock wells will be required. As such, some wells will require only hollow stem auger drilling while others will require a combination of auger and coring to complete the monitoring wells. For the case where the water table is in this configuration it is proposed that 3 overburden and 2 bedrock wells will be installed. The first overburden well would be installed upgradient of the source area to 50 ft bgs (maximum anticipated depth to top of bedrock). The second overburden well would be at the suspected source area, also to a depth of 50 ft bgs. The third overburden well, installed downgradient of the existing supply well, would reach a depth of 50 ft bgs. One bedrock well would be installed to 100 ft bgs at the suspected source area and a deeper bedrock well, downgradient of the existing well would reach a depth of 200 ft bgs.

4.4.2 Construction Materials

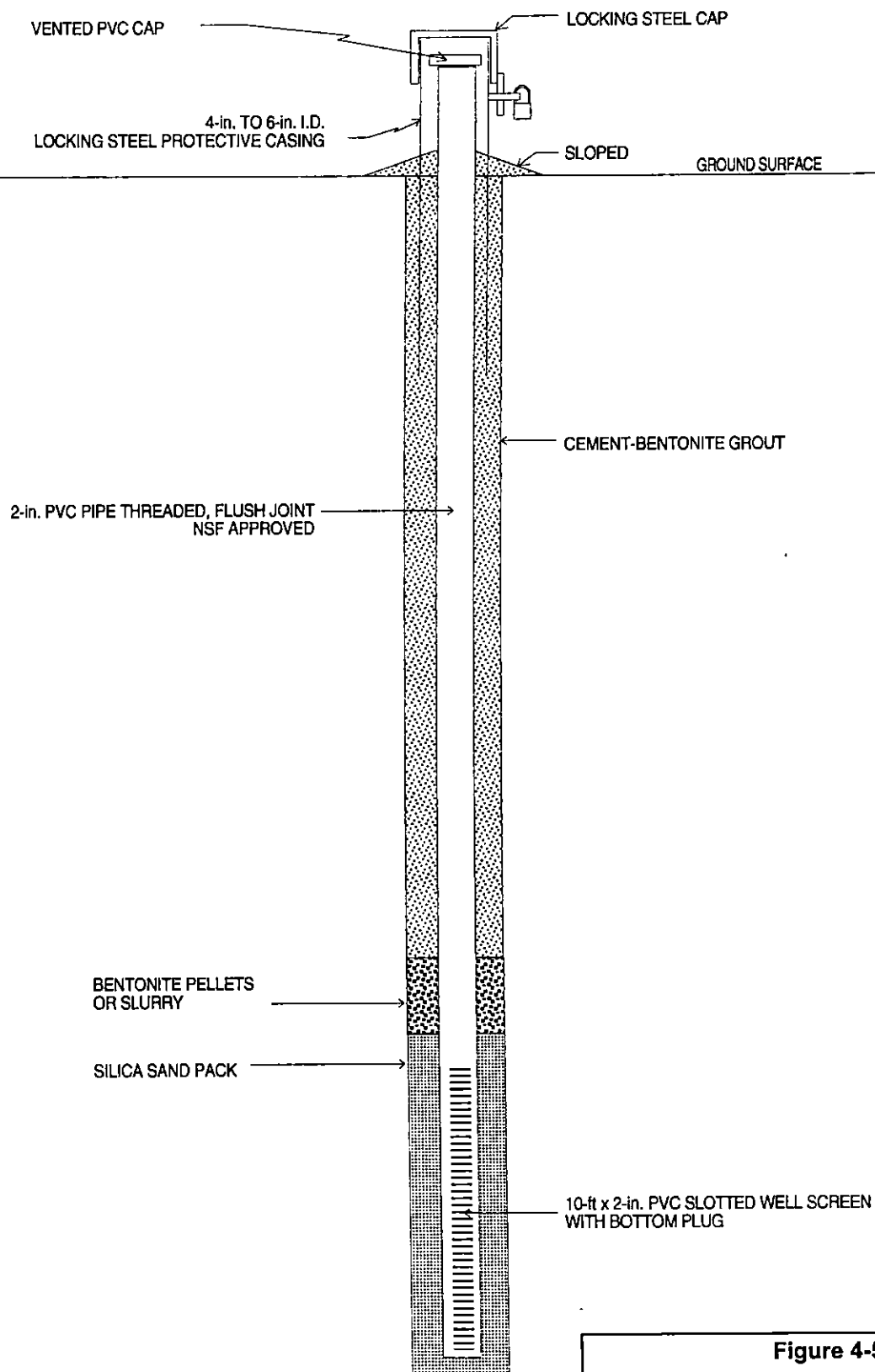
The new monitoring wells will be constructed using 2-in. diameter schedule 40 PVC pipe. The screen will be a 10-slot sized screen and the sand pack will be a No. 1 Morie graded sand or equivalent.

The well seal will be constructed of bentonite. In cases where the well seal must be placed at depth, a bentonite slurry mixed to the consistency of thick pudding will be used. For shallow wells, bentonite pellets will be used to form the well seal. Adequate time will be allowed for the pellets to fully hydrate before the well is completed. The cement-bentonite grout for the monitoring wells will be made from Type 1 Portland cement, bentonite powder, and potable water in the following proportions: 94 lbs of Portland cement; 3 to 5 lbs of bentonite powder; and 6.5 gallons of water.

At the surface, each monitoring well will be fitted with a secured protective flush-mount casing. The flush-mounted casings will include a positive sealing cover and an inner locking cap. Each flush-mounted casing will be outfitted with an internal drain consisting of a layer of No. 1 Morie sand or equivalent in direct hydraulic contact with the surrounding formation. The concrete pad for a flush-mounted casing will be a minimum of 2 feet square, and will be slightly raised and sloped from the well to provide for drainage away from the well.

4.4.3 Well Development

The monitoring wells will be allowed to set for a minimum of 24 hours prior to being developed by the drilling subcontractor. The goal of the development is to provide a low turbidity sample by removing any fine grained materials from the well case and sand pack. The wells will be developed using a submersible pump fitted with dedicated tubing or by bailing with a dedicated disposable bailer. Developing involves quickly pumping high volumes of water from the screened zone of the well. The rapid removal of water causes the water within the well and screen to rapidly rush into the well. This action serves to flush any fines from the well casing and sand pack. As development



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Figure 4-5
Typical Overburden Monitoring Well
Cross Section

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NOT TO SCALE

MONITORING WELL COMPLETION LOG

PROJECT NUMBER:

PROJECT NAME:

WELL No.:

CLIENT:

LOCATION:

DATE DRILLED:

DATE DEVELOPED:

WELL CONSTRUCTION COMPLETED:

DEVELOPING METHOD:

PROTECTIVE
CASING ELEVATION

CASING
ELEVATION

GRADE
ELEVATION



NOT TO SCALE

INSPECTOR:

DRILLING CONTRACTOR:

TYPE OF WELL:

STATIC WATER LEVEL:

DATE:

MEASURING POINT:

TOTAL DEPTH OF WELL:

TOTAL DEPTH OF BORING:

DRILLING METHOD

TYPE:

DIAMETER:

CASING:

SAMPLING METHOD

TYPE:

DIAMETER:

WEIGHT:

FALL:

INTERVAL:

RISER PIPE LEFT IN PLACE

MATERIAL:

DIAMETER:

LENGTH:

JOINT TYPE:

SCREEN

MATERIAL:

INTERVAL:

DIAMETER:

STRATIGRAPHIC UNITS SCREENED:

SLOT SIZE:

FILTER PACK

GRADE:

SAND:

GRAVEL:

NATURAL:

AMOUNT:

INTERVAL:

SEAL(s)

NOTES:

Portland Cement

INTERVAL:

AMOUNT:

Bentonite Slurry

INTERVAL:

AMOUNT:

Bentonite Pellets

INTERVAL:

AMOUNT:

Other:

INTERVAL:

AMOUNT:

LOCKING CASING: ☐ YES ☐ NO KEY NO:

LMS LAWLER, MATUSKY & SKELLY ENGINEERS LLP

Figure 4-6

Monitoring Well Completion Log

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MultiPSA\TestBoringLog.dsf

continues, the tubing in the well will be rapidly surged up and down within the screened zone to allow for additional flushing action in the well. If necessary, a surge block will be used to agitate the well water and suspend fine particles. At several points during the development, estimates of well yield and measurements of turbidity, temperature, pH, and conductivity will be made. The new monitoring wells will be developed until the groundwater reaches a turbidity of 50 nephelometric units (NTU) or less, or until the development continues for two hours.

4.4.4 Elevation Survey

A licensed land surveyor will establish the locations and elevations of the newly installed and existing monitoring wells (if present) at the Glen Head site, Kings Park Cleaners site, and the Gabriel Manufacturing site to allow for accurate water level measurements and groundwater contour maps. All elevations will be determined to a common datum. Elevation readings will be accurate to within 0.01 ft, and will be established by determining the location and distance of each monitoring well with respect to at least two nearby permanent objects. Horizontal measurements will be accurate to within 0.01 ft. A site sketch will then be prepared showing the approximate locations and elevations of all existing and new monitoring wells.

4.4.5 Groundwater Level Monitoring

To better determine the characteristics of groundwater, a groundwater level monitoring program will be conducted at the Gabriel Manufacturing site. The majority of this activity is anticipated to occur during other site investigation/sampling tasks that are scheduled for this site.

4.5 RELATED FIELD INVESTIGATION PROCEDURES

4.5.1 Decontamination

All equipment that comes into direct contact with potentially contaminated soils, sediments, and groundwater will be decontaminated before being removed from the site. In addition, equipment used for the installation of soil borings will be decontaminated between each boring location to prevent cross-contamination. Downhole equipment used during the construction of the monitoring wells will be steam cleaned. Sampling equipment will also be decontaminated between sampling locations at LMS's laboratory, or dedicated sampling equipment (e.g., bailers) will be employed.

Equipment decontamination procedures to be used at each site will consist of the following steps:

- Physically remove packed dirt, grit, mud, and debris with a wire or soft bristle brush.

- Scrub all potentially contaminated surface areas with a water/detergent solution.
- Rinse off scrub solution with a potable water rinse.
- Allow to drip and air dry on-site.
- Scan equipment with a PID or FID to assure the absence of contamination prior to removal from the site. If levels above background are detected, repeat the cleaning procedure.

4.6 WASTE HANDLING AND DISPOSAL

Investigation derived wastes (IDW) include disposable personal protective equipment (PPE), soil cuttings, decontamination rinse water, well development water, and general trash. These wastes will be handled as described below.

4.6.1 Drill Cuttings from Hydropunch Sampling and Monitoring Well Installation

For costing purposes LMS has assumed that the drilling cuttings will be containerized for off-site disposal for the Glen Head and Kings Park Cleaners sites since these areas are developed and suitable locations to disperse soil cuttings are not available. Soil cuttings at the Gabriel Manufacturing site will be spread on the site property. If a suitable locations is identified on the other site properties during the site inspection, soil cuttings may be distributed on a portion of the site.

LMS has estimated that the most cost-effective method to handle the drilling cuttings is to mobilize a covered low-profile hazardous waste roll-off to the site to store these materials until LMS completes testing on the materials. After analytical testing determines the classification of the cuttings (hazardous, contaminated, or clean) the cuttings will be disposed of properly.

Soil cuttings generated during drilling operations will be placed in low profile, plastic lined roll-offs placed at the site by the soil disposal subcontractor. Drill cuttings will be placed in 55 gal drums or other suitable containers at the boring locations and transferred to the roll-off upon completion at each drilling location. LMS will sample the cuttings and coordinate the disposal with the soil disposal subcontractor after the drilling operations are completed. Disposal options include:

- Disposal as clean fill.
- Disposal at an industrial waste landfill if soils are non-hazardous, but exceed cleanup criteria.
- Disposal at an approved treatment, storage, and disposal (TSD) facility if soils exceed hazardous criteria.

4.6.2 Well Development and Purge Water

Well development and purge water will be discharged to the ground surface at the site. If a suitable location is not available to discharge the water at the site, LMS will attempt to obtain permission from the applicable County to discharge the water to the sanitary sewer system. For costing purposes, LMS assumes that one of these methods will be viable for disposing of the water. If neither of these methods are available, the water will be containerized for offsite disposal.

4.6.3 Decontamination Water

Water generated from the decontamination of equipment and personnel will be discharged to the ground surface.

4.6.4 Disposable Personal Protective Equipment (PPE) and General Trash

Used PPE and other trash will be stored in appropriate trash bags or 55-gal drums on site. Upon completion of the field activities, the trash generated will be transported back to an LMS facility for proper disposal.

4.7 SITE RESTORATION

LMS and its subcontractors will restore any damaged landscaped areas. All probe holes or hydropunch holes will be patched using cold patch or concrete.

CHAPTER 5

SAMPLING AND ANALYTICAL PROCEDURES

Sampling and analytical procedures to be conducted at the eight PSA sites are presented below. These procedures are in accordance with the NYSDEC guidelines included in "Sampling Guidelines and Protocols" (March 1991) and "Exhibit 3: Guidelines for Exploratory Boring, Monitoring Well Installation, and Documentation of These Activities." A summary of the analyses to be performed on the environmental samples is included in Table 5-1. A summary of the QA/QC samples is included on Table 5-2. Analytical and QA/QC procedures are further detailed in the multi-site PSA Quality Assurance Project Plan (QAPjP) that was prepared for the sites.

5.1 AIR MONITORING

Air monitoring will be performed during conduct of the field activities as part of the procedures described in the Health and Safety Plan (HASP) for the site. Monitoring equipment to be used will include a photoionization detector (PID) or flame ionization detector (FID) for detection of volatile organic compounds (VOCs), and a combustible gas indicator (CGI) with oxygen meter.

Monitoring will be conducted continuously during the field activities. If the PID or FID readings (non-methane) are 0.5 ppm above background or greater for a period of 1 minute and the source of the reading is unknown, personal protective equipment (PPE) will be upgraded to Level C. Work will be halted if the PID or FID reading exceeds 25 ppm above the background. The source of the emissions will be investigated prior to upgrading to Level B. If the CGI reading exceeds 10% of the lower explosive limit (LEL), the site will be evacuated immediately. A RAM-1 or data-ram will be used at the Techem Incorporated, Turf Specialist, and 33 Wheeler Road sites to monitor dust levels.

Detailed information on the air monitoring procedures to be followed during the RI will be included in the site-specific HASP.

TABLE 5-1

ANALYTICAL SUMMARY TABLE
NYSDEC Multisite Preliminary Site Assessment II

SUBTASK	MATRIX	TYPE OF SAMPLE	NUMBER OF SAMPLES	ANALYSIS	PROTOCOL	METHOD
Camarota Cleaners	soil	PR	8	VOCs	NYSDEC ASP	8260B
	groundwater	MW	6	VOCs	NYSDEC ASP	8260B
Gabriel Manufacturing	soil	PR	16	VOCs + Freon 11/12	NYSDEC ASP	8260B
	soil	G	4	VOCs + Freon 11/12	NYSDEC ASP	8260B
	groundwater	MW	5	VOCs + Freon 11/12	NYSDEC ASP	8260B
Glen Head Groundwater Plume	groundwater	MW	4	VOCs	NYSDEC ASP	8260B
	groundwater	HP	12	VOCs	NYSDEC ASP	8260B
	soil	D	1	Full TCLP, Corrosivity, Ignitability, Reactivity	NYSDEC ASP	1311, 8260B, 8270C, 8081A, 8151A, 6010B/7470A, 9045C
						1010, D-XV-17 & 21
Hempstead Area Dry Cleaners	soil	PR	24	VOCs	NYSDEC ASP	8260B
	groundwater	PR	60	VOCs	NYSDEC ASP	8260B
Kings Park Cleaners	soil	PR	16	VOCs	NYSDEC ASP	8260B
	groundwater	MW	4	VOCs	NYSDEC ASP	8260B
	soil	D	1	Full TCLP, Corrosivity, Ignitability, Reactivity	NYSDEC ASP	1311, 8260B, 8270C, 8081A, 8151A, 6010B/7470A, 9045C
						1010, D-XV-17 & 21
Techem, Inc.	soil	PR	40	VOCs	NYSDEC ASP	8260B
			40	TAL Metals		6010B/7470A
			40	Cyanide		335.2
			40	RCRA Characteristics: Corrosivity, Ignitability, Reactivity		9045C, 1010, D-XV-17 & 21
	groundwater	PR	6	VOCs	NYSDEC ASP	8260B
			12	TAL Metals (total & dissolved)		6010B/7470A
			6	Cyanide		335.2
Turf Specialists	soil	PR	30	VOCs	NYSDEC ASP	8260B
			30	SVOCs, BN & A		8270C
			30	Pesticides		8081A
			30	Herbicides		8151A
	groundwater	PR	6	VOCs	NYSDEC ASP	8260B
			6	SVOCs, BN & A		8270C
			6	Pesticides		8081A
			6	Herbicides		8151A
33 Wheeler Rd. Parking Lot	soil	PR	80	VOCs	NYSDEC ASP	8260B
			80	TAL Metals		6010B/7470A
			20	TCLP, RCRA Metals		1311, 6010B/7470A
	groundwater	PR	5	VOCs	NYSDEC ASP	8260B
			10	TAL Metals (total & dissolved)		6010B/7470A

* PR: probe; MW: monitoring well; HP: hydropunch; D: disposal; G: grab sample.

TABLE 5-2 (Page 1 of 3)

QC ANALYSIS SUMMARY TABLE
NYSDEC Multisite Preliminary Site Assessment II

SUBTASK	QC SAMPLES	MATRIX	TYPE OF EST. SAMPLES	DAYS OF SAMPLING	No. OF SAMPLES	ANALYSIS	PROTOCOL	METHOD
Camarota Cleaners	Equipment Rinse	soil	PR	3	1	VOCs	NYSDEC ASP	8260B
	MS/MSD/MSB	soil	PR		3	VOCs		8260B
	Equipment Rinse	groundwater	MW**	2	1	VOCs	NYSDEC ASP	8260B
	Trip Blank	groundwater	MW		1	VOCs		8260B
	Blind Duplicate	groundwater	MW		1	VOCs		8260B
	MS/MSD/MSB	groundwater	MW		3	VOCs		8260B
Gabriel Manufacturing	Equipment Rinse	soil	PR	2	1	VOCs + Freon 11/12	NYSDEC ASP	8260B
	MS/MSD/MSB	soil	PR		3	VOCs + Freon 11/12		8260B
	Equipment Rinse	soil	G	2	1	VOCs + Freon 11/12	NYSDEC ASP	8260B
	MS/MSD/MSB	soil	G		1	VOCs + Freon 11/12		8260B
	Blind Duplicate	groundwater	MW	2	1	VOCs + Freon 11/12	NYSDEC ASP	8260B
	Equipment Rinse	groundwater	MW**		1	VOCs + Freon 11/12		8260B
	Trip Blank	groundwater	MW		1	VOCs + Freon 11/12		8260B
	MS/MSD/MSB	groundwater	MW		3	VOCs + Freon 11/12		8260B
Glen Head Groundwater Plun	Equipment Rinse	groundwater	MW**	2	1	VOCs	NYSDEC ASP	8260B
	Trip Blank	groundwater	MW		1	VOCs		8260B
	Blind Duplicate	groundwater	MW		1	VOCs		8260B
	MS/MSD/MSB	groundwater	MW		3	VOCs		8260B
	Equipment Rinse	groundwater	HP	20	1	VOCs	NYSDEC ASP	8260B
	Trip Blank	groundwater	HP		10	VOCs		8260B
	MS/MSD/MSB	groundwater	HP		3	VOCs		8260B
Hempstead Area Dry Cleaner	Equipment Rinse	soil	PR	3	1	VOCs	NYSDEC ASP	8260B
	MS/MSD/MSB	soil	PR		6	VOCs		8260B
	Equipment Rinse	groundwater	PR	10	2	VOCs	NYSDEC ASP	8260B
	Trip Blank	groundwater	PR		5	VOCs		8260B
	MS/MSD/MSB	groundwater	PR		9	VOCs		8260B

TABLE 5-2 (Page 2 of 3)

QC ANALYSIS SUMMARY TABLE
NYSDEC Multisite Preliminary Site Assessment II

SUBTASK	QC SAMPLES	MATRIX	TYPE OF EST. DAYS OF No. OF			ANALYSIS	PROTOCOL	METHOD
			SAMPLES	SAMPLING	SAMPLES			
Kings Park Cleaners	Equipment Rinse	soil	PR	5	1	VOCs	NYSDEC ASP	8260B
	MS/MSD/MSB	soil	PR		3	VOCs		8260B
	Equipment Rinse	groundwater	MW**	2	1	VOCs	NYSDEC ASP	8260B
	Trip Blank	groundwater	MW		1	VOCs		8260B
	Blind Duplicate	groundwater	MW		1	VOCs		8260B
	MS/MSD/MSB	groundwater	MW		3	VOCs		8260B
	Techem, Inc.	Equipment Rinse	soil	PR	5	1	VOCs	NYSDEC ASP
MS/MSD/MSB		soil	PR		6	VOCs	8260B	
Equipment Rinse		soil	PR		1	TAL Metals	NYSDEC ASP	6010B/7470A
Spike & Duplicate		soil	PR		4	TAL Metals		6010B/7470A
Equipment Rinse		soil	PR		1	Cyanide	NYSDEC ASP	335.2
Spike & Duplicate		soil	PR		4	Cyanide		335.2
Equipment Rinse		groundwater	PR	6	1	VOCs	NYSDEC ASP	8260B
Trip Blank		groundwater	PR		3	VOCs		8260B
MS/MSD/MSB		groundwater	PR		3	VOCs	8260B	
Equipment Rinse		groundwater	PR		1	TAL Metals	NYSDEC ASP	6010B/7470A
Spike & Duplicate		groundwater	PR		2	TAL Metals		6010B/7470A
Equipment Rinse		groundwater	PR		1	Cyanide	NYSDEC ASP	335.2
Spike & Duplicate		groundwater	PR		2	Cyanide		335.2

TABLE 5-2 (Page 3 of 3)

QC ANALYSIS SUMMARY TABLE
NYSDEC Multisite Preliminary Site Assessment II

SUBTASK	QC SAMPLES	MATRIX	TYPE OF EST. DAYS OF		No. OF	ANALYSIS	PROTOCOL	METHOD
			SAMPLES	SAMPLING				
Turf Specialists	Equipment Rinse	soil	PR	5	1	VOCs	NYSDEC ASP	8260B
	MS/MSD/MSB	soil	PR		6	VOCs		8260B
	Equipment Rinse	soil	PR		1	SVOCs, BN & A	NYSDEC ASP	8270C
	MS/MSD/MSB	soil	PR		6	SVOCs, BN & A		8270C
	Equipment Rinse	soil	PR		1	Pesticides	NYSDEC ASP	8081A
	MS/MSD/MSB	soil	PR		6	Pesticides		8081A
	Equipment Rinse	soil	PR		1	Herbicides	NYSDEC ASP	8151A
	MS/MSD/MSB	soil	PR		6	Herbicides		8151A
	Equipment Rinse	groundwater	PR	3	1	VOCs	NYSDEC ASP	8260B
	Trip Blank	groundwater	PR		2	VOCs		8260B
	MS/MSD/MSB	groundwater	PR		3	VOCs	NYSDEC ASP	8260B
	Equipment Rinse	groundwater	PR		1	SVOCs, BN & A		8270C
	MS/MSD/MSB	groundwater	PR		3	SVOCs, BN & A	NYSDEC ASP	8270C
	Equipment Rinse	groundwater	PR		1	Pesticides		8081A
	MS/MSD/MSB	groundwater	PR		3	Pesticides	NYSDEC ASP	8081A
	Equipment Rinse	groundwater	PR		1	Herbicides		8151A
	MS/MSD/MSB	groundwater	PR		3	Herbicides	NYSDEC ASP	8151A
33 Wheeler Rd. Parking Lot	Equipment Rinse	soil	PR	6	1	VOCs	NYSDEC ASP	8260B
	MS/MSD/MSB	soil	PR		12	VOCs		8260B
	Equipment Rinse	soil	PR		1	TAL Metals	NYSDEC ASP	6010B/7470A
	Spike & Duplicate	soil	PR		8	TAL Metals		6010B/7470A
	Equipment Rinse	groundwater	PR	5	1	VOCs	NYSDEC ASP	8260B
	Trip Blank	groundwater	PR		3	VOCs		8260B
	MS/MSD/MSB	groundwater	PR		3	VOCs	NYSDEC ASP	8260B
	Equipment Rinse	groundwater	PR		1	TAL Metals		6010B/7470A
	Spike & Duplicate	groundwater	PR		2	TAL Metals		6010B/7470A

* PR: probe; MW: monitoring well; HP: hydropunch.

** - Equipment Rinse not required for GW samples from monitoring wells if dedicated bailers are used.

5.2 SOIL SAMPLING

5.2.1 Soil Sampling Procedures

Soil samples from the probe points are recovered using either a macro core sampler or a large bore sampler. Grab samples are collected with stainless steel trowels. All soil samples will be screened for organic vapors. VOC samples will be placed directly into laboratory-cleaned jars. The soil for sample parameters other than VOCs will be placed in a stainless steel bowl, homogenized, and then placed into the sample container. The jars will be labeled with the appropriate site name, job number, sample location/ identification, date, time, sampler, and parameters for analysis. All samples will be stored in coolers maintained at 4°C prior to transport to the analytical laboratory.

5.2.2 Soil Sample Analysis

Soil samples will be collected at all the PSA sites except Glen Head Groundwater Plume. The Hempstead Area Dry Cleaners, Kings Park Cleaners, and Camarota Cleaners site samples will be analyzed for VOCs only, using NYSDEC ASP 8260B. The Gabriel Manufacturing site samples will be analyzed for VOCs and Freon 11/12 by NYSDEC ASP 8260B. Techem, Inc. soil samples will be collected for VOC analysis by NYSDEC ASP 8260B, TAL metals plus cyanide by NYSDEC ASP 6010B/7470A and 335.2, and RCRA Characteristics: corrosivity, ignitability, and reactivity by NYSDEC ASP 9045C, 1010, D-XV-17, and D-XV-21. Samples collected at Turf Specialists will be analyzed for VOCs, SVOCs BN & A, Pesticides, and Herbicides by NYSDEC ASP methods 8260B, 8270C, 8081A, and 8151A, respectively. Soil samples from the 33 Wheeler Road site will be analyzed for VOCs using NYSDEC ASP 8260B, TAL metals using NYSDEC ASP 6010B/7470A, and TCLP and RCRA metals by NYSDEC ASP 1311/6010B/7470A, respectively.

A full summary of the number of samples, analysis, protocols, and analytical method which will be used is found on Table 5-1.

5.3 GROUNDWATER SAMPLING

5.3.1 Groundwater Probe Sampling Procedures

Groundwater samples will be collected by advancing a groundwater screen sampler with the probe unit. When the screen sampler reaches the desired depth, the probe rods are raised four feet allowing water to infiltrate into the rods. A dedicated length of polyethylene tubing fitted with a check valve is then inserted through the probe rods to the screen. By manually surging the tubing, water is drawn to the surface. The tubing will be surged until at least three times the volume of water in the probe rods is purged so as to insure that the groundwater sample is from the correct interval. The sample is then collected by transferring it directly into the sample container. Once this sample is obtained, the entire assembly will be raised to the next sampling interval above. A new length of dedicated tubing, fitted with a check valve, is then inserted through the probe rods, and the process repeated.

After the sample is collected, the entire assembly is raised to the shallow interval and the process repeated. Groundwater samples will be transferred directly from the tubing into appropriate laboratory-cleaned jars. The jars will be labeled with the appropriate site name, job number, sample location / identification, date, time, sampler, and parameters for analysis. All samples will be stored in coolers maintained at 4°C prior to transport to the laboratory.

5.3.2 Groundwater Probe Sample Analysis

Probe groundwater samples will be collected from the Hempstead Area Dry Cleaners, Techem Incorporated, Turf Specialist, and 33 Wheeler Road sites. All of the probe groundwater samples will be analyzed for VOCs by NYSDEC ASP 8260B. Filtered and unfiltered groundwater samples collected from probes at the Techem Incorporated site will also be analyzed for TAL metals plus cyanide using NYSDEC ASP 6010B/7470A and 335.2, respectively. In addition to VOCs, the Turf Specialist groundwater probe samples will analyzed for SVOCs using NYSDEC ASP 8270C, pesticides using NYSDEC ASP 8081A, and herbicides using NYSDEC ASP 8151A. At the 33 Wheeler Road site filtered and unfiltered groundwater probe samples will also be analyzed for TAL metals using NYSDEC ASP 6010B/7470A and 335.2

A full summary of the number of groundwater probe samples, analysis, protocols, and analytical method which will be used is found on Table 5-1.

5.3.3 Hydropunch Sampling Procedures

If the existing site conditions indicate that the hydropunch tool is the most efficient groundwater sampling method, a hydropunch tool will be driven to the desired depth and retracted several inches to expose the sample port. The hydropunch tool will then be allowed to fill with groundwater. Once the hydropunch tool is filled, it will be returned to the surface and the groundwater sample transferred to the appropriate sample container. The vials will be labeled with the appropriate site name, job number, sample location/identification, date, time, sampler, and parameters for analysis. All samples will be stored in coolers maintained at 4°C prior to hand delivery to the mobile laboratory for analysis.

If the retrievable well point sampling system is selected, the borehole will be completed to the target depth of 120 ft. At this depth a steam-cleaned 2-in. steel well point and 2-in. steel riser will be installed. Once installed the augers will be retracted and the formation allowed to cave and form a natural sandpack around the well point. The well point will then be purged until at least three borehole volumes have been removed using a 2-in submersible pump with dedicated tubing. Once the purging is completed the required groundwater sample will be collected directly from the tubing at the ground surface. The well point and riser will then be retracted to the next sampling depth and the purging and sampling repeated. This sample collection procedure will be repeated at each of the required sampling depths.

5.3.4 Hydropunch Sample Analysis

Hydropunch samples will be collected at the Glen Head Groundwater Plume site and submitted for VOCs analysis using NYSDEC ASP 8260B.

A full summary of the number of groundwater probe samples, analysis, protocols, and analytical method which will be used is found on Table 5-1.

5.3.5 Groundwater Monitoring Well Sampling Procedures

Prior to sampling at each monitoring well, the initial static water level and well depth will be measured to within 0.01 ft using an electric water level meter. The volume of water to be purged from the well prior to sampling will be calculated based on the borehole diameter and height of the water column. The deep monitoring wells will be purged with either a submersible pump and a dedicated length of tubing, or a dedicated disposable polyethylene bailer. Due to a small volume of water, shallow wells will be purged manually with a disposable polyethylene bailer.

Purging will begin at the bottom of the well to remove accumulated fines. The pumping rate will be adjusted to maintain a steady recovery and pumping volume. If a steady state can be achieved, and the silt has been removed from the bottom of the well, the intake of tubing will be gradually raised to the top of the water column to ensure that the entire water column is purged. If the well purges dry before the calculated required volume has been removed, the well will be allowed to recover and then purged again to ensure that groundwater in the immediate area of the well has been removed. In general, a minimum of three borehole volumes will be purged from each well unless the well purges dry before this is accomplished. Turbidity, specific conductance, pH, and temperature will be measured at intervals during the purging with precalibrated instruments. The objective of the purging process is to ensure representative groundwater samples with turbidity values of 50 NTU or less so as to meet NYSDEC water clarity requirements for sample analysis.

After purging, the wells will be allowed to recover to at least 90% of the initial water column volume before sampling. Samples will be collected from the top of the water column with dedicated disposable Teflon[®] bailers. Temperature, pH, specific conductance, and turbidity will be measured at the start and end of sampling. Field data for each monitoring well will be recorded on individual well sampling logs (Figure 5-1). Samples will be placed in appropriate laboratory-cleaned jars. The jars will be labeled with the appropriate site name, job number, sample location / identification, date, time, sampler, and parameters for analysis. Preservatives will be added to the samples in the field when necessary. All samples will be stored in coolers maintained at 4°C prior to transport to the analytical laboratory.

5.3.6 Groundwater Monitoring Well Sample Analysis

Groundwater samples will be collected from the monitoring wells installed at the Glen Head Groundwater Plume, Kings Park Cleaners, Gabriel Manufacturing, and Camarota Cleaners. The samples from the Glen Head Groundwater Plume, Kings Park Cleaners, and Camarota Cleaners sites will be submitted for VOC analysis by NYSDEC ASP 8260B. Samples collected from the Gabriel Manufacturing site will be analysed for VOCs and Freon 11/12 using NYSDEC ASP 8260B. Each of the results from the monitoring well analysis will be validated by an independent third party.

A full summary of the number of groundwater samples, analysis, protocols, and analytical method which will be used is found on Table 5-1.

WELL SAMPLING LOG

Figure 5-1

METERS USED

Date: _____
Crew: _____
Job No: _____
Project: _____
Project Site: _____

Temp: _____
pH: _____
Cond: _____
Turb: _____

Well ID No:
Well Condition:
Well Depth/Diameter:
Well Casing Type:
Screened Interval:
Casing Ht/Lock No:
Reference Pt:
Depth to Water (DTW):
Water Column; Ht/Vol:
Purge Est:
Purge Date/Time(s):
Purge Method:
Depth(s):
Rates (gpm):
Purged Volume:
DTW After Purging:
Yield Rate: L-M-H
Purge Observations:

DTW Before Sampling:
Sample Date/Time(s):
Sampling Method:
Sampling Depth(s):
DTW After Sampling:
Sampling Observations:
Chain-of-Custody No(s):
Analytical Lab(s):

SAMPLE CHEMISTRIES

	Temp. (°C)	pH	Sp. Cond.	Turb.
Start	_____	_____	_____	_____
End	_____	_____	_____	_____

SAMPLE ANALYSES

Parameters	Inv. No.	Pres. Meth.	Filt. (Y/N)
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PURGE CHEMISTRIES

VOL.	TEMP. (°C)	pH	SP. COND.	TURB.
------	---------------	----	--------------	-------

Comments:

Air Temp:
Weather Conditions:

Crew Chief Signature: _____ Date: _____

5.4 STOCKPILED DRILLING CUTTING

5.4.1 Stockpiled Drilling Cuttings Sampling Procedures

A single soil sample will be collected from the on-site roll-offs for analysis to determine the best disposal option. The sample will be a composite of the stored material in each of the roll-offs. The composite will be collected by taking even amounts from 4 to 6 locations in the material stored in the roll-offs. If drums are used to containerize drilling cuttings instead of a roll-off, a sample will be collected from each drum, homogenized, and a single composite sample will be submitted for analyses. This sample will be homogenized in a laboratory cleaned stainless steel bowl or pan and then transferred to the appropriate laboratory-cleaned jars. The jars will be labeled with the appropriate site name, job number, sample location / identification, date, time, sampler, and parameters for analysis. All samples will be stored in coolers maintained at 4°C prior to transport to the analytical laboratory.

5.4.2 Stockpiled Drilling Cuttings Sample Analysis

A single composite sample will be required from roll-offs at both the Glen Head Groundwater Plume and Kings Park Cleaners sites. The single composite soil sample taken from the stockpiled soil cuttings will be submitted to the LMS stand-by laboratory and analyzed for full Toxicity Characteristic Leaching Procedure (TCLP), and hazardous characteristics.

5.5 QUALITY ASSURANCE / QUALITY CONTROL (QA/QC) SAMPLES

QA/QC samples to be collected during this investigation include equipment rinsates, trip blanks, matrix spike/matrix spike duplicate/matrix spike blank (MS/MSD/MSB), and spike and duplicate. Trip blanks will be used in conjunction with water sampling only. Equipment rinsates will be submitted for each VOC and metals soil sampling event as well as any groundwater sampling event not using dedicated disposable equipment. The equipment rinsates will be collected by pouring analyte-free water provided by the analytical laboratory through a typical sampling tool into a clean set of sample containers at one of the sampling locations. This is performed to ensure that the samples are not being contaminated during the collection procedure.

In addition to the field blank sample set, a trip blank will accompany each groundwater sample shipment to the laboratory that includes samples for VOC analysis. The purpose of the trip blank is to identify any cross-contamination that may result from volatilization of contaminants from the samples. A laboratory-supplied sealed VOC sample vial with analyte-free water will be used as a trip blank. The trip blanks will be analyzed for TCL VOCs.

The NYSDEC analytical protocols require the collection of MS/MSD samples for organics and spike and duplicate samples for inorganics for each group of samples collected for a given matrix type. MS/MSD and spike and duplicate samples will be collected at a randomly-selected sample location during each sampling round. In the case of groundwater samples, the MS/MSD samples will be collected by obtaining an additional bailer-full of water immediately after collection of a sample. For probe samples to be analyzed for TCL VOCs, MS/MSD samples will be collected from that same interval. For probe soil samples to be collected for TAL metals and cyanide spike and duplicate soil samples may be collected from adjacent intervals and composited in a stainless steel bowl, if a sufficient soil volume is not recovered in one interval.

A full summary of the anticipated QA/QC samples for each of the subtasks is found on Table 5-2. This table includes the MSB which will also be run for QA/QC purposes. The MSB samples are generated in the laboratory, and are not field samples.

5.6 SAMPLE HANDLING

Following collection and labeling, all samples will be packed in ice coolers maintained at 4°C. Samples will be shipped to the standby laboratory so as to avoid breakage during transport and to minimize cross-contamination. The samples will be delivered to the analytical laboratory via an overnight courier under appropriate chain-of-custody protocols.

CHAPTER 6

FIELD ACTIVITIES SCHEDULE

The field activities schedule for the Multi – Site Preliminary Site Assessments is presented in Table 6-1.

TABLE 6-1 (page 1 of 2)

**NYSDEC STANDBY CONTRACT
MULTI-SITE PSAs, SITE #s 130096, 130XXX, 130524, 152168, 152160,
152161, 344041, 546044
WORK ASSIGNMENT #D002676-45
FIELD ACTIVITIES SCHEDULE**

<u>Task</u>	<u>Subtask</u>	<u>Work Task</u>	<u>Start-End Date or Due Date</u>
2		IMPLEMENTATION OF THE SCOPE OF WORK	
	2.1	Literature Search/File Search	06/16/99-07/06/99
	2.2	Site Inspection/Mob-Demob	07/06/99-07/30/99
	2.3	Probe Work	
		Gabriel Manufacturing	08/02/99-08/03/99
		Hempstead Area Dry Cleaners	08/04/99-08/20/99
		Techem Inc.	08/23/99-09/07/99
		Turf Specialist	09/08/99-09/17/99
		33 Wheeler Road	09/20/99-10/01/99
		Camarota Cleaners	10/04/99-10/06/99
	2.4	Drilling/Hydropunch	
		Gabriel Manufacturing	08/02/99-08/17/99
		Glen Head Groundwater Plume	08/19/99-09/15/99
		Kings Park Cleaners	09/20/99-10/01/99
	2.5	Sampling	
		Gabriel Manufacturing	
		Soil sampling	08/02/99-08/03/99
		Well sampling	08/17/99-08/18/99

TABLE 6-1 (page 2 of 2)

NYSDEC STANDBY CONTRACT
MULTI-SITE PSAs, SITE #s 130524, 546044, 344041, 152161,
152160, 152168, 130096, 130XXX
WORK ASSIGNMENT #D002676-45
FIELD ACTIVITIES SCHEDULE

<u>Task</u>	<u>Subtask</u>	<u>Work Task</u>	<u>Start-End Date or Due Date</u>
		Hempstead Area Dry Cleaners	
		Soil and groundwater sampling	08/04/99-08/20/99
		Glen Head Groundwater Plume	
		Hydropunch and well sampling	08/19/99-09/15/99
		Techem Inc.	
		Soil and groundwater sampling	08/23/99-09/07/99
		Turf Specialists	
		Soil and groundwater sampling	09/08/99-09/17/99
		33 Wheeler Road	
		Soil and groundwater sampling	09/20/99-10/01/99
		Kings Park Cleaners	
		Well sampling	10/04/99-10/05/99
		Camarota Cleaners	
		Soil and groundwater sampling	10/04/99-10/06/99
2.6		Additional Investigations (if necessary)	
		Hempstead Area Dry Cleaners	TBD*
		Kings Park Cleaners	TBD*
		Camarota Cleaners	TBD*

*To Be Determined – Field activities must be completed prior to 10/31/99

CHAPTER 7

PROJECT STAFFING

7.1 LMS STAFF AND RESPONSIBILITIES

The field activities to be conducted at the eight PSA sites as outlined in this Field Activities Plan will be performed by the LMS staff identified in Figure 7-1. The areas of responsibility of the key staff involved in the field activities are summarized as follows:

Mr. Edward A. Maikish, P.E. (NSPE Grade 7), will be the program administrator for this work assignment. Mr. Maikish will be directly responsible to the NYSDEC for the conduct of the program and will provide overall supervision and guidance of project personnel. He will ensure staff and resources availability for completion of the project, approve assignments, work scopes, budgets, and staffing plans, and provide technical advice on the project approach.

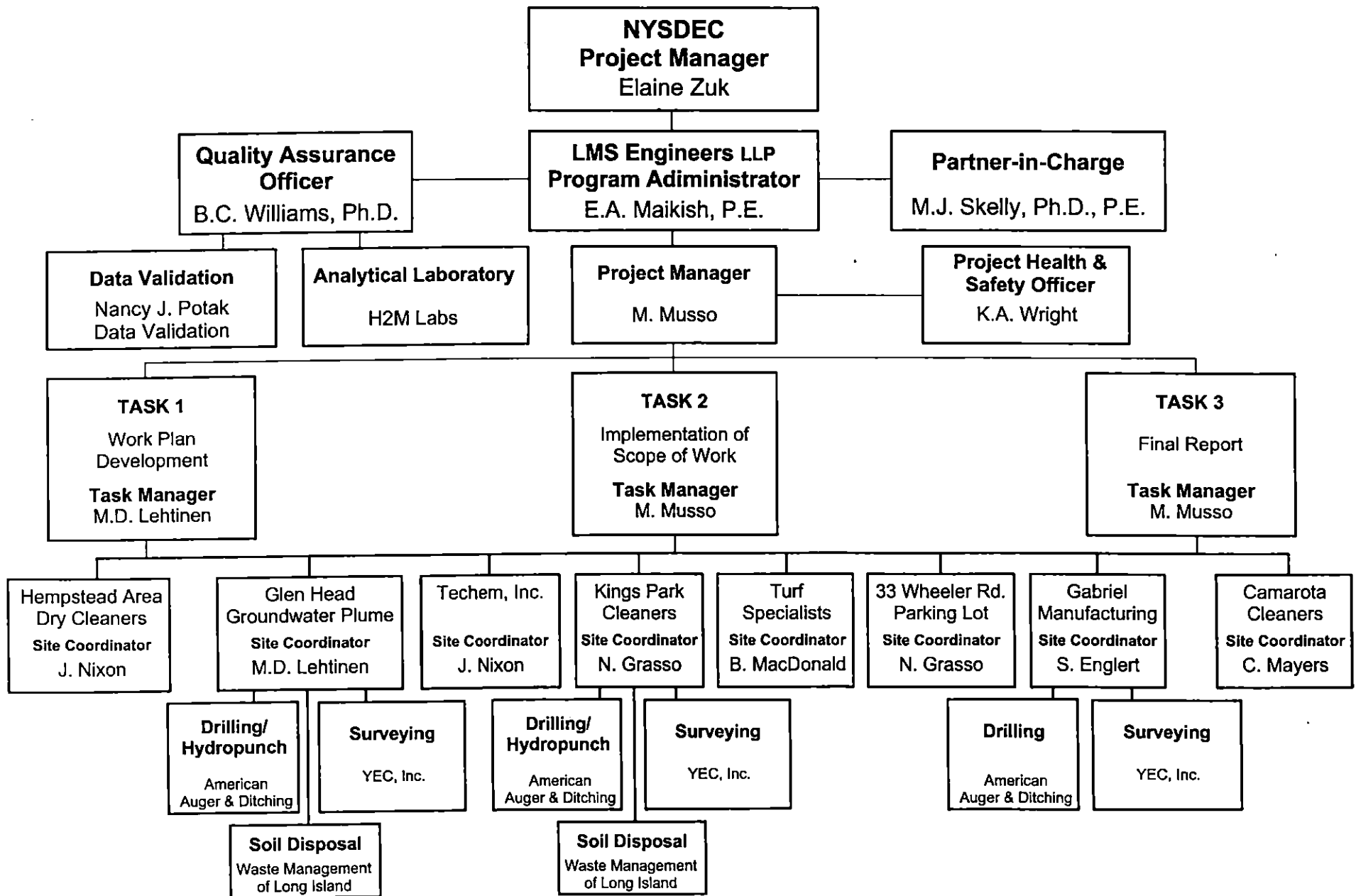
Dr. Michael J. Skelly, P.E. (NSPE Grade 9), will be the partner-in-charge for this work assignment. As partner-in-charge he will review the major technical conclusions drawn and administrative decisions made.

Mr. Michael Musso (NSPE Grade 4), will be the project manager for the Multi-Site PSAs and will be the primary LMS contact for the NYSDEC. Mr. Musso's responsibilities will include technical and administrative management of site coordinators and subcontractors, personnel and equipment scheduling, tracking and management of the project budget, and technical review of all submittals.

Ms. Karen Wright (NSPE Grade 5) will serve as the project's Health and Safety Officer (HSO). In this role, she was responsible for overseeing the preparation of and approving the site-specific Health and Safety Plan (HASP) and ensuring compliance with the HASP provisions. Ms. Wright will also ensure that all field personnel have received appropriate health and safety, first aid, and CPR training, and have met the requirements of LMS' medical monitoring program.

Dr. Bradley C. Williams (NSPE Grade 5) will be the project Quality Assurance Officer (QAO). In this capacity, Dr. Williams coordinated the preparation of and reviewed the site-specific quality assurance project plan (QAPjP). Dr. Williams will also provide ongoing surveillance of project activities to ensure conformance with the QAPjP, will coordinate laboratory analyses of environmental and quality assurance/quality control (QA/QC) samples, and will coordinate data

**Figure 7-1
Project Staffing Plan
Multi-Site PSA**



validation activities. Dr. Williams will also be responsible for reviewing project sampling and analytical procedures to ensure representative sample collection and performance of analytical methodologies within specified criteria. Upon completion of data validation, Dr. Williams and his staff will prepare a data usability report qualifying the analytical results as necessary.

Mr. Michael D. Lehtinen (NSPE Grade 3) will serve as site coordinator for the Glen Head site and also as task manager for Task 1 – Work Plan Development, as task manager he was responsible for the preparation and review of the work plans. For the Glen Head site his duties will include technical and administrative coordination of the drilling, and surveying subcontractors, supervision of environmental sampling, and scheduling of field activities. Mr. Lehtinen will also provide technical support to the project manager to resolve any problems with subcontractors, site owners, access to sampling locations, and the field activities for all of the PSA sites.

Mr. John Nixon (NSPE Grade 1) will serve as site coordinator for both the Techem site, and the Hempstead Area Dry Cleaners site. In this capacity he will serve as the on-site HSO and will oversee all field activities associated with these sites. He will be responsible for operation of the LMS probe rig that will be used on each of these sites. Mr. Nixon will also be responsible for conducting the file review of these two sites and preparing the final report for each site.

Mr. Neal Grasso (NSPE Grade 1) will serve as site coordinator for both the 33 Wheeler Road site, and the Kings Park Cleaners site. In this capacity he will serve as the on-site HSO and will oversee all field activities associated with these sites. Mr. Grasso will also be responsible for conducting the file review of these two sites and preparing the final report for each site.

Mr. Brett MacDonald (NSPE Grade 1) will serve as site coordinator for the Turf Specialist, and the drilling task manager for the Glen Head site. In this capacity he will serve as the on-site HSO and will oversee all field activities associated with these sites. Mr. MacDonald will also be responsible for conducting the file review of these two sites and preparing the final report for each site.

Mr. Charles Mayers (NSPE Grade 1) will serve as site coordinator for the Camorata Cleaners site. In this capacity he will serve as the on-site HSO and will oversee all field activities associated with this site. This includes operation of LMS' probe rig at and supervision of any required sampling. Mr. Mayers will also be responsible for conducting the file review of this site and preparing the final report for this site.

Mr. Scott Englert (NSPE Grade 1) will serve as site coordinator for the Gabriel Manufacturing site. In this capacity he will serve as the on-site HSO and will oversee all field activities associated with

this site. This includes operation of LMS' probe rig at and supervision of any required drilling, and sampling. Mr. Englert will also be responsible for conducting the file review of this site and preparing the final report for this site.

7.2 SUBCONTRACTORS

The subcontractors to be employed in completion of the field work at the sites are listed in Table 7-1, along with areas of subcontracting and their scope of work.

TABLE 7-1

PROPOSED SUBCONTRACTORS LIST
Multi-Site PSAs

AREA OF SUBCONTRACTING	SCOPE OF WORK	PROPOSED SUBCONTRACTOR
Surveying	Elevation/location survey of monitoring wells.	YEC, Inc. (MBE)
Analytical Laboratory	Perform chemical analysis on all samples.	H2M Labs, Inc.
Data Validation	Evaluate selected samples analyzed by analytical laboratory for compliance with NYSDEC Analytical Services Protocol (ASP) and project data quality objectives.	Nancy J. Potak Data Validation (WBE)
Drilling	Perform soil borings, hydropunching, and installation of monitoring wells.	American Auger and Ditching (WBE)
Soil Disposal	Provide containers for soil and dispose of material in accordance with sample results.	Waste Management of Long Island

CHAPTER 8

SUPPORTING DOCUMENTS

8.1 Health and Safety Plan

A site specific HASP was developed for each PSA site. Each HASP will be reviewed and updated based on any additional data and any new field activities and will become the site specific HASP for the specific PSA site. All field activities will be performed in accordance with the procedures described in the HASP. Field personnel, including all subcontractors, will be supplied with a copy of the HASP and must sign a copy indicating that they have reviewed the plan prior to entry to the site.

8.2 Quality Assurance Project Plan

A QAPjP was developed combining the eight PSA sites. This QAPjP will be reviewed and updated based on any new sampling activities and will become the site specific QAPjP for the PSA sites. The QAPjP specifies quality assurance objectives for the data collection effort as well as the field and laboratory QA/QC requirements. All sampling and analysis will be conducted in accordance with the procedures and protocols specified in the QAPjP.