Report. V00213. 1998-06-01.
Site AR.

SITE ASSESSMENT REPORT

500 Mamaroneck Avenue
Harrison, New York

June 1998

Prepared for:

500 Mamaroneck Avenue Associates
500 Mamaroneck Avenue
Harrison, NY

Prepared by:

ENVIRONMENTAL RESOURCES MANAGEMENT
175 Froehlich Farm Boulevard
Woodbury, NY 11797

ERM

EnviroClean's Commitment to Quality

Our Quality Policy

We will fully understand and document our client's requirements for each assignment.

We will confirm to those requirements at all times and satisfy the requirements in the most efficient and cost effective manner.

Our quality policy and procedures include an absolute commitment to provide superior service and responsiveness to our clients.

Our Quality Goals

To serve you.

To serve you well.

To continually improve that service.

Our Quality Improvement Process

Train each employee.

Establish and implement requirements based on a preventative approach.

Maintain a standing Quality Improvement Team to ensure continuous improvement.

Empower Corrective Action Teams to analyze, correct and eliminate problems.

Continually strive to improve our client relationships.

John A. DeFilippi, P.E.
Chairman

Andris H. Ledins, P.E.
President

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Section 1

1.0 INTRODUCTION

Environmental Resources Management (ERM) has prepared this Voluntary Cleanup Site Assessment Report on behalf of 500 Mamaroneck Avenue Associates (owner) to document conditions at their property located at 500 Mamaroneck Avenue, Harrison, New York (site). The site, a five-story office building, is being marketed by the Bank of Nova Scotia and title will pass to the new owner. AKRF, INC. (AKRF), completed a Phase I Environmental Investigation in April of 1997.

A potential purchaser engaged Dames and Moore, Inc. to collect soil and groundwater samples to assess potential impacts from past property usage. Dames and Moore produced preliminary sampling results which indicated residual soil concentrations of Resource Conservation Recovery Act (RCRA) metals, polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) in excess of regulatory standards or guidelines. Groundwater samples collected by Dames & Moore, however did not indicate any significant levels of contaminants.

1.1 PURPOSE OF REPORT

In May 1998, the site owner retained ERM, to further evaluate conditions at the site retained ERM. ERM recommended the installation of additional soil borings to:

- Verify the presence and establish concentrations of PAHs and PCBs.
- More completely delineate the areal and vertical extent of any residual inorganic, PCB or PAH soil contamination.

This report details the results of sampling program carried out at 500 Mamaroneck Avenue, by ERM, evaluates the fate and transport of the residual contaminants detected and recommends a remedial alternative

consistent with the property usage. Additional groundwater sampling was not recommended because the Dames & Moore results did not indicate significant impacts.

1.2 *BACKGROUND*

The site is located on the east side of Mamaroneck Avenue, approximately 2000 feet south of Union Avenue at 500 Mamaroneck Avenue in Harrison, New York, as shown on Figure 1. The Town of Harrison defines the property as Block 482, Lot 8. The current configuration is shown on Figure 2.

1.2.1 *Study Area Description & History*

The site is approximately 34.5 acres and is occupied by a five-story commercial office. The building construction began in 1983, with tenant occupancy beginning around 1986. Approximately 14 acres of the site have been improved in conjunction with the construction of the office complex. This includes bituminous paved parking areas parking covering approximately 9 acres and a building foot print of approximately 1.5 acres. The remaining sections of the developed portion of the site include landscaped shrubbery and lawns. The undeveloped portion of the property is located to the east of the office complex and serves as a buffer for the adjacent residences.

Site topography has changed substantially as a result of construction activities. Approximately 340,000 cubic yards of soil and rock were removed during site development. This material was removed only from that portion of the site that was being developed (the portion closest to Mamaroneck Avenue) and it was disposed of off-site. Water is provided by the local municipal system and the site therefore has no drinking water

well(s). One shallow well supplies water to a decorative waterfall on the property. Septic waste is handled via the municipal sewer system.

The site rises gradually over the parking area, and then is relatively level over the eastern portion. A small wet area is located in the north-central portion of the property, immediately east of the northern portion of the parking area.

The surrounding properties are primarily commercial structures along Mamaroneck Avenue (to the south and north of the subject property) and single family residences to the east. To the west of the site is Saxon Woods Park. Saxon Woods Park is separated from the site by Mamaroneck Avenue. Non-residential buildings in the vicinity of the site include office complexes, a law office and a home and garden store.

Based on review of available aerial photographs, the site appears undeveloped until 1954. In the 1954, the Harrison Town incinerator is visible along Mamaroneck Avenue. From 1954 until 1980, there were no major changes at the site, i.e., the incinerator appears in all of the aerials. In the 1986 aerial, the office building on the site is under construction. This corresponds with Town records which list the date of construction of the building as 1986.

1.2.2 *Site Geology*

Based on the U.S.G.S. 1967 (photoinspected 1975) Topographic Map of the Mamaroneck. New York Quadrangle, site elevation ranges from approximately 130 feet at the eastern property line to 60 feet along the western side of the property. Based on the topography and general site features, groundwater beneath the study site is expected to flow west towards the Mamaroneck River, located approximately 200 feet west of the site boundary.

According to the September 1994 General Geology Map of Putnam and Westchester Counties. New York, the bedrock beneath the study site consists of Harrison Gneiss. Bedrock outcrops were observed along the eastern side of the property.

1.2.3 *Previous Investigations*

Previous investigations carried out at the site include: Goldberg Zoino and Associates (GZA), May 1986; Environmental Risk Limited (ERL), April 1988; U.S. Hydrogeological, Inc. (USHI), October, 1988; AKRF, Inc. (AKRF), April 1997 and Dames & Moore, Inc., 1998 (late February or early March). Except for the Dames & Moore sampling, these investigations are Phase I Environmental Assessments, however, GZA, ERL and USHI collected limited soil and/or groundwater samples as part of their work.

Specifically, GZA collected two soil samples from the southeastern portion of the developed portion of the property. The samples were collected from a berm constructed of material, which appeared to contain debris from past MSW operations (see Figure 2). The samples were composited and analyzed for priority pollutant metals after extraction following the EP Toxicity procedure. According to the GZA report, all metals results were at least an order of magnitude below relevant standards.

ERL collected a groundwater sample from the on-site production well (Figure 2). The sample was submitted for analysis for volatile organic compounds (VOCs) using U.S. Environmental Protection Agency (USEPA) methods 601 and 602, EP Toxic metals and cyanide. None of the analyses performed revealed contaminants above method detection limits.

USHI collected two soil samples from the undeveloped eastern portion of the property (see Figure 2). The samples were analyzed for cadmium, chromium and lead. The results are: <1.41 and <1.56 milligrams/kilogram (mg/kg) for cadmium; 41.7 and 65.3 mg/kg for chromium; and 77.6 and 136 mg/kg for lead, respectively. These were total metals analyses and therefore cannot be compared to EP Toxicity values. However, USHI concluded that although the levels appear to be slightly elevated, they are consistent with typical soil metals concentrations from urban settings and do not indicate contamination from operation of the incinerator.

As discussed above, Dames & Moore collected soil and groundwater samples on behalf of a potential buyer. Initially they proposed the installation of 8 soil borings , however, 2 of their borings were not installed due to the presence of underground utilities. Figure 2 presents the locations of the Dames & Moore boring locations. The soil samples were analyzed for VOCs , PAH and PCB semi-volatile organic compounds (SVOCs) and RCRA metals. Only the results of the Dames & Moore sampling were supplied to the property owner, therefore, the analytical methodology is unknown. However, it is likely that standard USEPA analytical methods were used because the samples were collected as part of a due diligence investigation for a property transfer.

No VOCs exceeded regulatory guidelines in any of the six soil samples collected. Dames & Moore's report stated that the PAHs and PCBs exceed regulatory guidelines in one sample collected in the northeastern section of the property. The PAHs detected in this sample included benzo(a)pyrene at an estimated concentration of 320 micrograms/kilogram (µg/kg), chrysene at 670 µg/kg and benzo(a)anthracene at 600 µg/kg. The PCB concentration in this sample was 13,000 µg/kg of Aroclor 1242. The report also states that RCRA metals exceed regulatory guidelines in all of the samples. However, that

conclusion is based on a total metals analysis of the soils. Considering the proximity of bedrock at the site, it is likely that metal concentrations in the overburden soil would be abnormally elevated due to dissolution or weathering of the bedrock. Without a thorough analysis and understanding of background metals concentrations in the Harrison area, a comparison of the Dames & Moore metals data to regulatory guidelines is premature.

Groundwater samples were collected from the existing on-site well and from borehole No 3. The groundwater samples were analyzed for VOCs and RCRA metals. No parameters were detected above its respective regulatory guidance criterion.

A copy of the previous investigation reports is presented in Appendix A.

Section 2

2.0 SITE INVESTIGATION

To better understand and more completely define the extent of potential impacts from past activities at the site, ERM installed 21 soil borings at the 500 Mamaroneck Avenue site. Because more than 340,000 cubic yards of soil and bedrock were excavated from the site during construction, borings were located in areas suspected to contain the greatest thickness of overburden soil. Several borings were also collocated with borings installed by Dames & Moore and in the former location of the municipal incinerator.

As discussed in Section 1.2.3, contaminants have not been detected in any samples collected from the on-site well. Additionally, Dames & Moore collected a groundwater sample from boring No. 3. This sample also did not contain contaminants in excess of regulatory guidelines. Dames & Moore also analyzed soil samples for VOCs. Except for common laboratory contaminants, such as acetone and methylethyl ketone, VOCs were not detected in the Dames & Moore soil samples. ERM therefore concluded that collection of groundwater samples was not warranted.

ADT, INC of New Hyde Park, New York Park installed the borings using a GeoProbe™ under the supervision of an ERM geologist. Each boring was advanced to a total depth of ten feet or until refusal. Continuous 3-foot samples were collected using a MacroCore™ sampler and each sampled screened for VOCs using a field instrument equipped with a photoionization detector (PID). The MacroCore™ sampler was decontaminated between borings using a detergent wash followed by distilled water rinse.

The initial round or boring installations was carried out on May 12, 1998. Borings GP-1 through GP-15 at the locations indicated on Figure 2. At several locations only a thin mantle of soil was observed. At other

borings, cinder-like material was observed. VOCs were not observed in any of the samples collected. The field notes from the boring installation are provided in Appendix B.

Because of the presence of numerous utilities including electric, water and sewer lines in the front of the building, it was necessary to conduct a Geophysical survey to clear boring locations. NAEVA Geophysics Inc. (NAEVA) of Tappan, New York conducted the survey. While on-site, NAEVA also surveyed the area near Dames & Moore boring No. 8 where PCBs were detected at a depth of 4 to 6- feet. Although the ground penetrating radar (GPR) survey identified a depression in the bedrock surface in this location, ERM was unsuccessful in collecting a sample at the same depth as indicated by the Dames & Moore data from this location.

On May 26, 1998, ADT returned to the site and installed borings at locations GP-16, GP-20 and GP-21 (Figure 2). The installation of these borings followed the protocol described above. Note that ERM boring location GP-16 was near Dames & Moore Boring No. 8.

Because of concerns regarding crossing sewer and water lines located in front of the building with the GeoProbe™ rig, borings GP-17, GP-18 and GP-19 were installed using a Tripod drilling apparatus. Soil samples were collected using a standard 2-foot split-barrel core sampler (split spoon), which was decontaminated as described above.

After collection, samples were stored on ice and shipped for immuno-assay screening for PCBs and PAHs. Ohmicron field immuno-assay screen kits were used because they provide the lowest detection limits of available immuno-assay screening kits. The Ohmicron kits also meet the requirements of USEPA SW-846 immuno-assay methodologies. Based on the results of the screening and sample location with respect to previously

selected samples were sent to the American Environmental Network (AEN) laboratory in Monroe Connecticut.

The soil samples were analyzed for PAHs using USEPA method 8270B, PCBs using USEPA method 8081, and RCRA metals after extraction using the Toxicity Characteristic Leaching Procedure (TCLP). After the preliminary results from the set of samples collected on May 12, 1998 were obtained, AEN was requested to reanalyze several samples for PAHs and PCBs after extraction of the samples using the TCLP leaching procedure. This additional analysis was undertaken to assess the mobility of the PAHs and PCBs, which were detected.

Section 3

3.0 SAMPLING RESULTS

Immuno-assay screening results for the PAHs ranged from 8 to 888 µg/kg with a method detection limit (mdl) of 4 µg/kg. PCB concentrations, as determined by immuno assay testing ranged from non-detect (ND) to 323 µg/kg with an mdl of 500 µg/kg. After review of the field screening results, 14 samples were selected for laboratory analysis. The selected samples contained both low and high concentration samples and samples collected near previously sampled areas.

The data from the soil samples collected on May 12, 1998 was received by ERM and reviewed to determine the necessity for additional sampling collection or analysis The results from the May 12th sampling indicated the presence of PAHs, and PCBs in several of the soil samples above applicable regulatory limits. Concentrations of PCBs ranged from 56 µg/kg to 4,200 µg/kg. Concentrations of PAHs ranged from 110 to 7,800 µg/kg, with individual PAH concentrations of benzo(a)anthracene (Borings GP-12A, GP-12B, GP-13A), benzo(b)fluoranthene (Borings GP-12B, GP-13A), benzo(k)fluoranthene (Borings GP-12B, GP-13A), benzo(k)fluoranthene (Boring GP-12B), benzo(a)pyrene (Borings GP-12A, GP-12B, GP-13A), chrysene (Borings GP-12A, GP-12B, GP-13A) and dibenzo(a,h)anthracene (Boring GP-12B) exceeding the Clean-up Objectives of NYSDEC TAGM 4046. The total estimated PCB concentration of 4,200 µg/kg obtained in ERM boring GP-11A exceeds the surficial total PCB clean-up criterion of 1,000 µg/kg.

Several RCRA metals were detected in the May 12th samples above the laboratory mdl. However, RCRA metal concentrations did not exceed regulatory criteria. As discussed in Section 3.0, the RCRA metals testing was carried out using the TCLP extraction procedure and the results indicate that although RCRA metals are present in the soil at 500 Mamaroneck Avenue, they are not mobile. Therefore, it was decided to

reanalyze several of the May 12th samples for PAHs ad PCBs using the TCLP extraction procedure. Soil samples from GP-11A, GP-12A, GP-12B and GP-13A were therefore reanalyzed to assess the mobility of these compounds.

The results of the TCLP leaching and reanalysis indicated that PCBs were not detected above the mdl. PAH concentrations in the TCLP extracted samples ranged from an estimated value of 0.2 µg/L to 4 µg/L. These concentrations are at least two orders of magnitude less than the applicable TAGM Clean-up Objective. Based on these TCLP data, it can be concluded that the PAHs in PCBs in the soil at the 500 Mamaroneck Avenue are not mobile.

Four samples from the May 26th and 27th sampling were sent for laboratory analysis. PCBs, above the mdl, were present in three of the samples (GP-19B/C, GP-19D/E/F and GP-21A), however, total PCB concentrations did not exceed regulatory recommended clean-up objectives. PAH concentrations ranged from 450 µg/kg to 22,000 µg/kg in the May 26th and 27th samples. The concentration of benzo(a)anthracene (Borings GP-19B/C, GP-19D/E/F, GP-20A), benzo(b)fluoranthene and benzo (k)fluoranthene (Boring GP-19D/E/F), benzo(a)pyrene (Borings GP-19B/C, GP-19D/E/F and GP-20A) and dibenz(a,h)anthracene (Boring GP-19D/E/F) exceed TAGM 4046 Soil Clean-up Objectives. As indicated above, if the TCLP extraction were used, PAH the concentrations in these samples would be expected to be at least 3 orders of magnitude lower, which would likely reduce the measured PAH concentrations below the applicable standard. Additionally, the PAH concentrations in the May 26th and 27th which exceeded standards were from samples collected at depths ranging from 3 to 12-feet below land surface. The TAGM 4046 clean-up criteria are based on direct contact with the PAH contaminated soil and it is unlikely for direct contact with these soils to occur.

Section 4

4.0 *FATE AND TRANSPORT*

Chemicals released into the environment are susceptible to several degradation pathways. These include chemical (i.e., hydrolysis, oxidation, reduction, etc.), photolysis or photooxidation and biodegradation. One or more of these processes may transform compounds. The transformation processes are controlled by the physical properties of the compound, i.e., a compound's ability to absorb light or the presence of functional groups that can be oxidized by naturally occurring environmental oxidants such as oxygen.

Chemicals entering the environment are dispersed through various physical process including volatilization, dissolution in ground or surface water, bioadsorbtion and transport by fish and birds. The physical properties of the specific compound released into the environment will control the transport.

4.1 *POLYCYCLIC AROMATIC HYDROCARBONS*

Polycyclic aromatic hydrocarbons (PAHs) are formed during the incomplete combustion of coal, oil, gas, wood, garbage or other organic substances. PAHs can either be man-made or occur naturally. Although a few of the PAHs are used to make dyes, pesticides and plastics, and others are contained in asphalt most of these chemicals are not widely used except in research. PAHs are found throughout the environment in the air, water and soil. There are more than 100 different PAH compounds.

As pure chemicals, PAHs generally exist as colorless, white or pale yellow-green solids. They have a faint, pleasant odor. Most PAHs do not occur alone in the environment, i.e., they generally part of a complex mixture, for example, in crude oil, coal tar, creosote, and road and roofing tars.

The movement of PAHs in the environment depends on properties like their water solubility, vapor pressure and molecular weight. PAHs, in general, do not easily dissolve in water. In soil they are tightly bound to soil particles. PAHs can breakdown in the air by photolysis or through reactions with other chemicals. This process generally takes a period of days to weeks. Decomposition in soil and water takes longer, from weeks to months and is due mostly to the actions of microorganisms.

Transport and partitioning of PAHs in soil can be evaluated by consideration of individual PAH octanol-water partitioning coefficient (K_{ow}) and organic carbon partitioning coefficient (K_{oc}). K_{oc} indicates the chemicals potential to bind to organic carbon in soil and sediment, K_{ow} is used to estimate the potential for an organic chemical to move from water, a polar environment into a more nonpolar environment such as bound to soil. Some of the transport and partitioning characteristics, such as K_{oc} and K_{ow} are roughly correlated to the PAH molecular weight. These properties can be grouped as follows:

- Low molecular weight compounds (152-178 grams/mole [g/mol]) - acenaphthene, acenaphthylene, anthracene, fluorene and phenanthrene.
- Medium molecular weight compounds (202 g/mol) - fluoranthene and pyrene.
- High molecular weight compounds (228-278 g/mol) - benzo(a)anthracene, benzo(b)fluoranthene, benzo(k) fluoranthene, benzo(g,h,I)perylene, benzo(a)pyrene, chrysene, dibenz(a,h)anthracene and indeno(1,2,3,c,d)pyrene.

As described above, the K_{oc} indicates a chemical's potential to bind to organic carbon in sediment and soil. The low molecular weight PAHs have K_{oc} values in the range of 10^3 to 10^4, which indicates a moderate potential to be adsorbed. The medium molecular weight compounds K_{oc} values in the 10^4 range and high molecular weight compounds have K_{oc}

values in the range of 10^5 to 10^6, which indicate a strong tendency to adsorb to soil and sediment.

At the 500 Mamaroneck Avenue site, the high molecular weight compounds predominate suggesting that the PAHs present at the site will be strongly bound to the soil and will not be mobile. This is confirmed by the TCLP leaching data.

4.2 *POLYCHLORINATED BIPHENYLS*

Polychlorinated biphenyls (PCBs) are a class of nonpolar, chlorinated hydrocarbons with a biphenyl nucleus ($C_{12}H_{10}$) on which one to ten of the hydrogens have been replaced by chlorine. Commercial PCBs were manufactured and sold as mixtures containing multiple isomers with different degrees of chlorination. Most PCB congeners are colorless, odorless crystals; the commercial mixtures are clear viscous liquids (the more highly chlorinated mixtures are more viscous: for example Aroclor 1260 is a sticky resin). Although the physical and chemical properties vary widely across the class, PCBs have low water solubilities and low vapor pressures. PCBs are stable compounds and do not degrade easily.

Commercial PCB mixtures were used in a wide variety of applications, including dielectric fluids in capacitors and transformers, heat transfer fluids, hydraulic fluids, lubricating and cutting oils, and as additives in pesticides, paints, copying paper and carbonless copy (NRC) paper. By far, the preponderance of the PCBs were used in capacitors and transformers. The commercial utility was based largely on their chemical stability, including low flammability and desirable physical properties including electrical insulating properties. They are considered ubiquitous in the environment.

PCBs have low volatility and are highly lipophilic, i.e., PCBs prefer nonpolar environments, with the consequence that more than 99 percent of the environmental PCB mass found in soil. PCBs bind strongly to soil (Koc values likely in the 10^5 to 10^6) and may remain there for years or decades. PCBs will typically not travel deeply into the soil with rainwater. Specifically, the solubility of commercial mixtures of PCBs decreases in increasing chlorination, from a solubility of 420 µg/L for Aroclor 1016 to 12 µg/L for Arochlor 1260. The higher chlorinated species predominate at the 500 Mamaroneck Avenue site, indicating low potential for migration. This is confirmed by the TCLP leaching testing, which did not reveal PCBs in the extract.

Section 5

5.0 FINDINGS AND RECOMMENDATIONS

The soil sampling carried out by ERM detected PAHs and PCBs above regulatory guidance criteria in only 6 soil samples out of the 46 collected at the 500 Mamaroneck Avenue site. Upon reanalysis of 4 of these samples, using the TCLP leaching procedure, the concentrations of PAHs and PCBs were below regulatory guidance, indicating that these compounds are not mobile. This observation is consistent with the transport phenomena associated with PAHs and PCBs. Impacts to groundwater from these compounds are therefore not likely.

The PAH and PCBs are associated with samples where there is a greater thicknesses of soil, specifically along the southern parking lot boundary and in front of the building. The PAHs and PCBs were generally detected in samples collected at depths greater than 3-feet below land surface. However, it must be pointed out that in general there is only a thin mantel of soil above the bedrock at the site. This is consistent with the observation that more than 340,000 cubic yards of soil and bedrock removed from the site during construction of the building complex.

WRONG - IMPACTED BY DEPOSITION FROM STACK

Sixty percent of the 500 Mamaroneck property is undeveloped and has not been impacted by past or present activities. The building complex and parking lots cover approximately sixty four percent of the developed portion of the property, the remaining land is landscaped. Therefore the PAHs and PBCs potentially contained in soil are isolated both from a direct contact and leaching perspective. Additionally, as discussed above, because more than 340,000 cubic yards of soil and bedrock were removed during construction and disposed of off-site, the potential amount of PAHs and PCBs remaining on-site is extremely limited.

5.1 *RECOMMENDATIONS*

ERM recommends that no further investigative or remedial activities be conducted at the site. This recommendation is based on:

- Isolation of the PAHs and PCBs potentially present in site soil by the building complex, bituminous paving and landscaping. Direct contact with these contaminants is not likely and an exposure pathway is therefore not present.
- TCLP leach testing indicates that the PAHs and PCBs present on site are not mobile. This finding is consistent with the physical properties of these classes of compounds. More importantly, contamination of other media is not likely, groundwater is not used on the site and therefore, no exposure pathway through groundwater is possible. X WRONG

Limited exceedances of recommended clean-up criteria. Only 4 borings contained soil exceeding criteria, therefore there is only a very limited area, which is potentially impacted.

Section 6

6.0 *REFERENCES*

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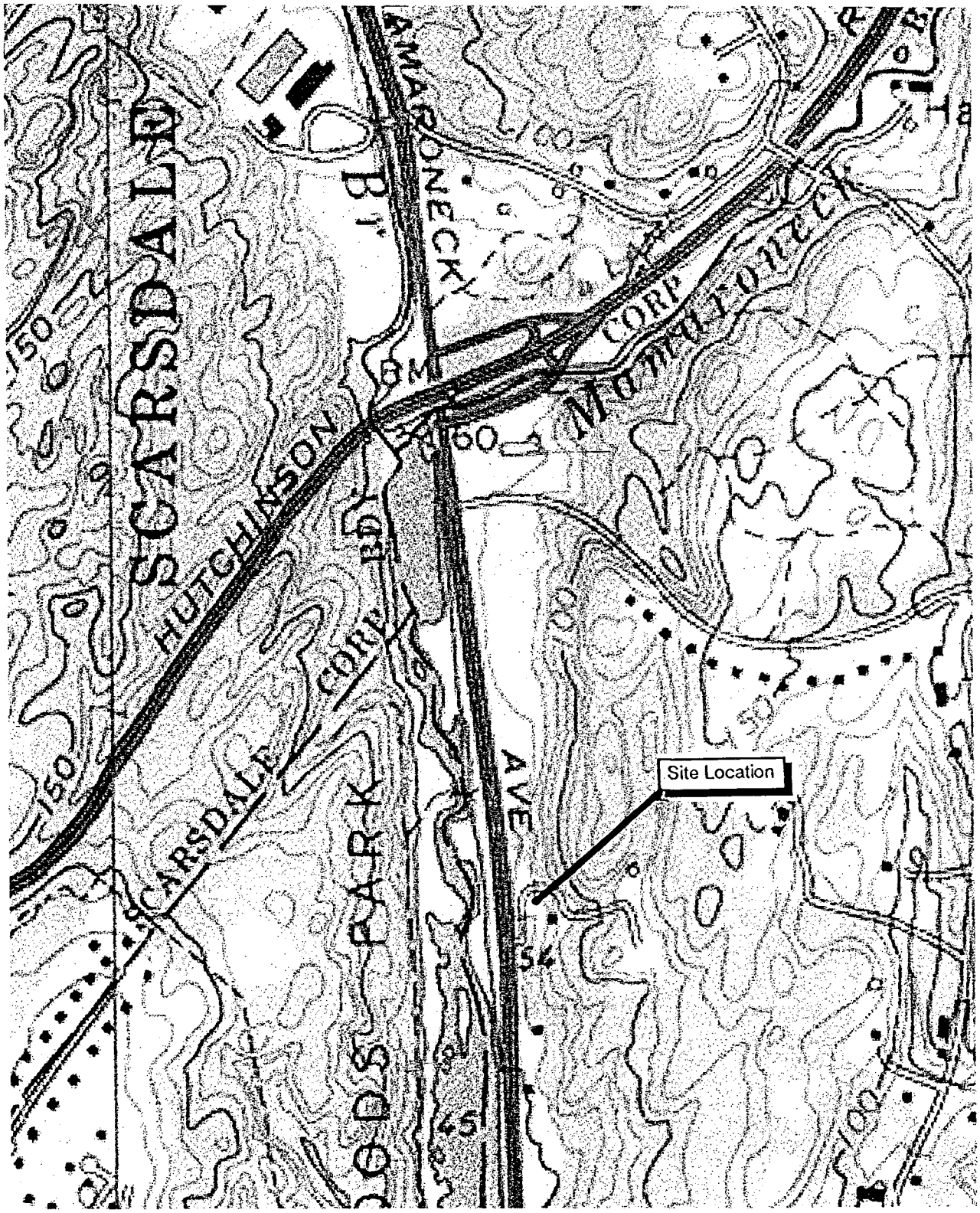
FIGURES



TITLE

SITE LOCATION MAP

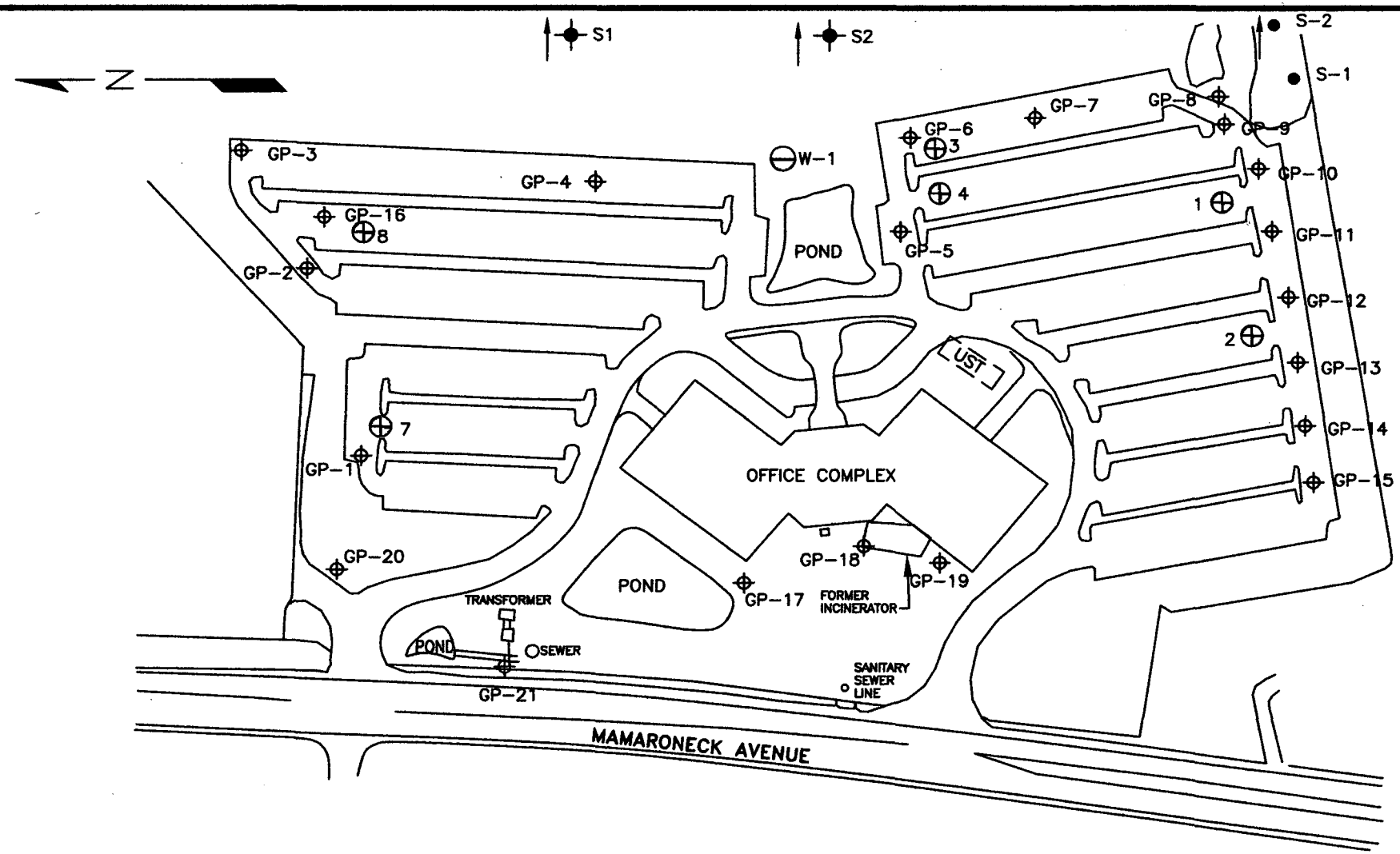
PREPARED FOR

500 MAMARONECK ASSOCIATES

ERM-Northeast
Environmental Resources Management

SCALE	FIGURE
NONE	1

DRAWN:	JOB NO.:	FILE NAME:	DATE
E.M.F.	1454.001		6/18/98



- ERM BORING LOCATIONS – 1998
- DAMES & MORE SAMPLING LOCATIONS – 1998
- U.S. HYDROGEOLOGIC, INC. SAMPLING LOCATIONS – 1989
- GROUNDWATER SUPPLY WELL
- GZA SAMPLING LOCATIONS – 1986

TITLE

SITE PLAN

PREPARED FOR

500 MAMARONECK AVENUE ASSOCIATES

ERM–Northeast
Environmental Resources Management

ERM

SCALE	FIGURE
NONE	2

DRAWN:	JOB NO.:	FILE NAME:	DATE
E.M.F.	14540001	14540001	6/18/98

TABLES

Table 1. Soil Sampling Results - 500 Mamaroneck Avenue, Harrison, New York - May, 1998

Boring		GP-1A		GP-1B	GP-2A		GP-3A		GP-4A	GP-5A	GP-5B	GP-6A		GP-7A	GP-8A	GP-8B	GP-8C	GP-9A	GP-9B		GP-10A	GP-10B
Depth (feet below land surface)		0 - 4		4 - 7.5	0.5 - 2.25		0 - 1.75		0 - 2.25	0 - 3.5	3.5 - 6.5	0 - 1		0.25 - 2.25	0 -3	3 - 6	6 - 8	0 - 3	3 - 5.5		0 - 3	3 - 6
Date Sampled		12-May-98		12-May-98	12-May-98		12-May-98		12-May-98	12-May-98	12-May-98	12-May-98		12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98		12-May-98	12-May-98
Parameter																						
	Toxicity Characteristic																					
RCRA Metals (ug/L)	Standards (ug/l)																					
Arsenic	5,000	3.8	U		38	U	38	U				38	U						38	U		
Barium	100,000	318			961		681					1760							1190			
Cadmium	1,000	2	U		2	U	2	U				2	U						2.5	B		
Chromium	5,000	5	U		5	U	5	U				5	U						5	U		
Lead	5,000	49.6	B		58	B	43	B				27.9	B						266			
Mercury	200	2	U		2	U	2	U				2	U						2	U		
Selenium	1,000	39	U		39	U	39	U				39	U						56.1	B		
Silver	5,000	2	U		2	U	2	U				2	U						2	U		
PBCs (ug/Kg)	Recommended Soil Cleanup Objective (ug/kg)																					
Aroclor-1016		47	U		37	U	35	U				35	U						38	U		
Aroclor-1221		96	U		74	U	71	U				71	U						76	U		
Aroclor-1232		47	U		37	U	35	U				35	U						38	U		
Aroclor-1242		47	U		37	U	35	U				35	U						38	U		
Aroclor-1248		47	U		37	U	35	U				35	U						22	J		
Arclor-1254		47	U		37	U	35	U				35	U						32	J		
Aroclor-1260		47	U		37	U	35	U				35	U						16	J		
Total PCBs	1, 000 (surface)																		70			
Total PCBs	10,000 (subsurface)																					
PAHs (ug/Kg)																						
Acenaphthene	50,000***	140	U		110	U	420	U				110	U						450	U		
Acenaphthylene	41,000	140	U		110	U	420	U				110	U						450	U		
Anthracene	50,000***	140	U		110	U	420	U				45	J						450	U		
Benzo(a)anthracene	224 or MDL	140	U		110		420	U				110	J						450	U		
Benzo(b)fluoranthene	1,100	140	U		140		420	U				120							450	U		
Benzo(k)fluoranthene	1,100	140	U		110	U	420	U				47	J						450	U		
Benzo(g,h,i)perylene	50,000***	140	U		110	U	420	U				47	J						450	U		
Benzo(a)pyrene	61 or MDL	140	U		61	J	420	U				88	J						450	U		
Chrysene	400	140	U		150		420	U				120							450	U		
Dibenz(a,h)anthracene	14 or MDL	140	U		110	U	420	U				110	U						450	U		
Fluoranthene	50,000***	140	U		110	U	420	U				110	U						450	U		
Fluorene	50,000***	140	U		110	U	420	U				110	U						450	U		
Indeno(1,2,3-cd)pyrene	3,200	140	U		110	U	420	U				49	J						450	U		
Naphthalene	13,000	140	U		110	U	420	U				110	U						450	U		
Phenanthrene	50,000***	140	U		110	U	420	U				150							450	U		
Pyrene	50,000***	140	U		180		420	U				180							450	U		
2-Methylnaphthalene	36,400																					
Immuno Assay (UG/Kg)	MDL																					
PAHs	4 ug/Kg	16		142	408		287		142	32	28	407		106	85	41		113	24		23	79	69
PCBs	500 ug/Kg	ND		ND	5	J	1	J	62	J ND	ND	105	J	ND	ND	1	J	ND	ND		ND	ND	ND

Notes:
Toxicity Characteristic Standards - taken from 40 CFR 261.24 Table 1 Maximum Concentration of Contaminants for the Toxicity Characteristic, revised 31 August 1993
Recommended Soil Cleanup Objective - from NYSDEC TAGM 4046, Division of Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels, revised 24 January 1994
***As per TAGM 4046 total semi-volatiles < 500,000 ug/kg; individual semi-volatiles < 50,000 ug/kg

U - Analyzed for, but not detected
J - Compound determined to be present at an estimated value less than the specified minimum dection limit but greater than zero
B- Analyte detected in blanks as well as sample

Table 1. Soil Sampling Results - 500 Mamaroneck Avenue, Harrison, New York - May, 1998

Boring		GP-11A	GP-11A	GP-11B	GP-11C	GP-12A	GP-12A	GP-12B	GP-12B	GP-12B	GP-12C	GP-13A	GP-13A	GP-13C	GP-14A	GP-15A	GP-16A
Depth (feet below land surface)		0 - 3	0 - 3	3 - 6	6 - 10	0 - 3	0 - 3	3 - 6	3 - 6	3 - 6	6 - 7	0 - 3	0 - 3	6 - 7	0 - 3	0 - 2	0 - 3
Date Sampled		12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	12-May-98	26-May-98
Parameter			TCLP				TCLP		Dilution	TCLP			TCLP				
RCRA Metals (ug/L)	Toxicity Characteristic Standards (ug/l)																
Arsenic	5,000	38 U		38 U		38 U		38 U				38 U					
Barium	100,000	2570		1610		856		900				1430					
Cadmium	1,000	18.5		8.6		4.6 B		4.2 B				20					
Chromium	5,000	5 U		5 U		5 U		5 U				5 U					
Lead	5,000	1220		704		178		224				541					
Mercury	200	2 U		2 U		2 U		2 U				2.2					
Selenium	1,000	39 U		58.5 B		39 U		39 U				39 U					
Silver	5,000	2 U		2 U		2 U		2 U				2 U					
PBCs (ug/Kg)	Recommended Soil Cleanup Objective (ug/kg)																
Aroclor-1016		800 U	1 U	38 U		41 U	1 U	37 U		1 U		33 U	1 U				
Aroclor-1221		1600 U	2 U	78 U		84 U	2 U	74 U		2 U		67 U	2 U				
Aroclor-1232		800 U	1 U	38 U		41 U	1 U	37 U		1 U		33 U	1 U				
Aroclor-1242		800 U	1 U	38 U		41 U	1 U	37 U		1 U		33 U	1 U				
Aroclor-1248		800 U	1 U	57		19 J	1 U	48		1 U		48	1 U				
Arclor-1254		800 U	1 U	38 U		26 J	1 U	69		1 U		69	1 U				
Aroclor-1260		800 U	1 U	260		11 J	1 U	34 J		1 U		34 J	1 U				
Total PCBs	1, 000 (surface)	4200		317		56		151				151					
Total PCBs	10,000 (subsurface)																
PAHs (ug/Kg)																	
Acenaphthene	50,000***	120 U	10 U	120 U		120	10 U	700	710 D	4 J		1300	2 J				
Acenaphthylene	41,000	120 U	10 U	120 U		110 J	10 U	790	740 D	10 U		440 J	10 U				
Anthracene	50,000***	120 U	10 U	120 U		600	0.2 J	2200	2300 D	0.7 J		1200	0.2 J				
Benzo(a)anthracene	224 or MDL	54 J	10 U	46 J		920	10 U	4500	5000 D	10 U		1600	10 U				
Benzo(b)fluoranthene	1,100	72 J	10 U	83 J		1100	10 U	3800	5000 D	10 U		2600	10 U				
Benzo(k)fluoranthene	1,100	46 J	10 U	110 J		440	10 U	1800	1500 D	10 U		910	10 U				
Benzo(g,h,i)perylene	50,000***	120 U	10 U	120 U		260	10 U	650	930 D	10 U		340 J	10 U				
Benzo(a)pyrene	61 or MDL	60 J	10 U	43 J		830	10 U	2900	3800 D	10 U		1200	10 U				
Chrysene	400	160	10 U	82 J		1100	10 U	4500	6000 D	10 U		2300	10 U				
Dibenz(a,h)anthracene	14 or MDL	120 U	10 U	120 U		120 U	10 U	250	150 J	10 U		440 U	10 U				
Fluoranthene	50,000***	120 U	10 U	98 J		1800	10 U	6500 E	7800 D	0.8 J		440 U	0.6 J				
Fluorene	50,000***	120 U	10 U	120 U		210	10 U	1400	1500 D	2 J		730	0.7 J				
Indeno(1,2,3-cd)pyrene	3,200	120 U	10 U	120 U		290	10 U	860	1200 D	10 U		400 J	10 U				
Naphthalene	13,000	120 U	10 U	120 U		60 J	10 U	1000	1200 D	10 U		440 U	10 U				
Phenanthrene	50,000***	93 J	10 U	120 U		1300	0.9 J	4700	5500 D	4 J		2000	0.8 J				
Pyrene	50,000***	92 J	10 U	81 J		1500	10 U	6200 E	6700 D	0.7 J		440 U	0.4 J				
2-Methylnaphthalene	36,400																
Immuno Assay (UG/Kg)	MDL																
PAHs	4 ug/Kg	55		122	132	370		332			170	332		156	57	89	140
PCBs	500 ug/Kg	323 J		162 J	82 J	105 J		45 J			82 J	62 J		1 J	11 J	ND	ND

1,50
7,800
13K

Notes:
Toxicity Characteristic Standards - taken from 40 CFR 261.24 Table 1 Maximum Concentration of Contaminants for the Toxicity Characteristic, revised 31 August 1993
Recommended Soil Cleanup Objective - from NYSDEC TAGM 4046, Division of Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels, revised 24 January 1994
***As per TAGM 4046 total semi-volatiles < 500,000 ug/kg; individual semi-volatiles < 50,000 ug/kg

U - Analyzed for, but not detected
J - Compound determined to be present at an estimated value less than the specified minimum dection limit but greater than zero
B- Analyte detected in blanks as well as sample

U —
60
~~70~~ — 13K

Table 1. Soil Sampling Results - 500 Mamaroneck Avenue, Harrison, New York - May, 1998

Boring		GP-17A/B	GP-17B/C	GP-17D/E	GP-18A/B	GP-18C/D	GP-18D/E	GP-19A/B	GP-19B/C	GP-19D/E/F	GP-20A	GP-20B	GP-21A	GP-21B	GP-21C
Depth (feet below land surface)		0 - 3	3 - 6	6 - 10	0 - 3	3 - 6	6 - 10	0 - 3	3 - 6	6 - 12	0 - 3	3 - 6	0 - 3	3 - 8	6 - 10
Date Sampled		27-May-98	27-May-98	27-May-98	27-May-98	27-May-98	27-May-98	27-May-98	27-May-98	27-May-98	26-May-98	26-May-98	26-May-98	26-May-98	26-May-98
Parameter															
	Toxicity Characteristic														
RCRA Metals (ug/L)	Standards (ug/l)														
Arsenic	5,000								300 U	300 U	300 U		300 U		
Barium	100,000								1050	1070	1320		1820		
Cadmium	1,000								5.8	5 U	6.1		55.6		
Chromium	5,000								11	15.7	10 U		10 U		
Lead	5,000								311	104	653		588		
Mercury	200								2 U	2 U	2 U		2 U		
Selenium	1,000								500 U	500 U	500 U		500 U		
Silver	5,000								10 U	10 U	10 U		10 U		
PBCs (ug/Kg)	Recommended Soil Cleanup Objective (ug/kg)														
Aroclor-1016									33 U	33 U	33 U		33 U		
Aroclor-1221									67 U	67 U	67 U		67 U		
Aroclor-1232									33 U	33 U	33 U		33 U		
Aroclor-1242									33 U	33 U	33 U		33 U		
Aroclor-1248									22 J	24 J	33 U		21 J		
Arclor-1254									42	74	33 U		62		
Aroclor-1260									20 J	50	11 J		36 J		
Total PCBs	1, 000 (surface)								84	148	11		119		
Total PCBs	10,000 (subsurface)														
PAHs (ug/Kg)															
Acenaphthene	50,000***								100 J	5500 J	49 J		38 J		
Acenaphthylene	41,000								81 J	330 U	24 J		330 U		
Anthracene	50,000***								150 J	12000	220 J		89 J		
Benzo(a)anthracene	224 or MDL								560	13000	920		290 J		
Benzo(b)fluoranthene	1,100								8401	5700 J	740		210 J		
Benzo(k)fluoranthene	1,100								600	5500 J	700		230 J		
Benzo(g,h,I)perylene	50,000***								280 J	7000 J	280 J		230 J		
Benzo(a)pyrene	61 or MDL								1000	9700	850		260 J		
Chrysene	400								680	13000	1100		300 J		
Dibenz(a,h)anthracene	14 or MDL								300 J	5400 J	300 J		260 J		
Fluoranthene	50,000***								1000	22000	1500		450		
Fluorene	50,000***								78 J	7000 J	66 J		37 J		
Indeno(1,2,3-cd)pyrene	3,200								400 J	7400 J	380 J		310 J		
Naphthalene	13,000								32 J	4400 J	330 U		330 U		
Phenanthrene	50,000***								350 J	42000	860		320 J		
Pyrene	50,000***								1300	30000	1300		370 J		
2-Methylnaphthalene	36,400								330 U	3900 J	330 U		330 U		
Immuno Assay (UG/Kg)	MDL														
PAHs	4 ug/Kg	222	42	26	36	16	8	19	888	494	618	444	244	7	99
PCBs	500 ug/Kg	ND	3 J	12 J	ND	90 J	42 J	121 J	ND	121 J	ND	247 J	63 J	42 J	90 J

Notes:

Toxicity Characteristic Standards - taken from 40 CFR 261.24 Table 1 Maximum Concentration of Contaminants for the Toxicity Characteristic, revised 31 August 1993

Recommended Soil Cleanup Objective - from NYSDEC TAGM 4046, Division of Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels, revised 24

***As per TAGM 4046 total semi-volatiles < 500,000 ug/kg; individual semi-volatiles < 50,000 ug/kg

U - Analyzed for, but not detected

J - Compound determined to be present at an estimated value less than the specified minimum dection limit but greater than zero

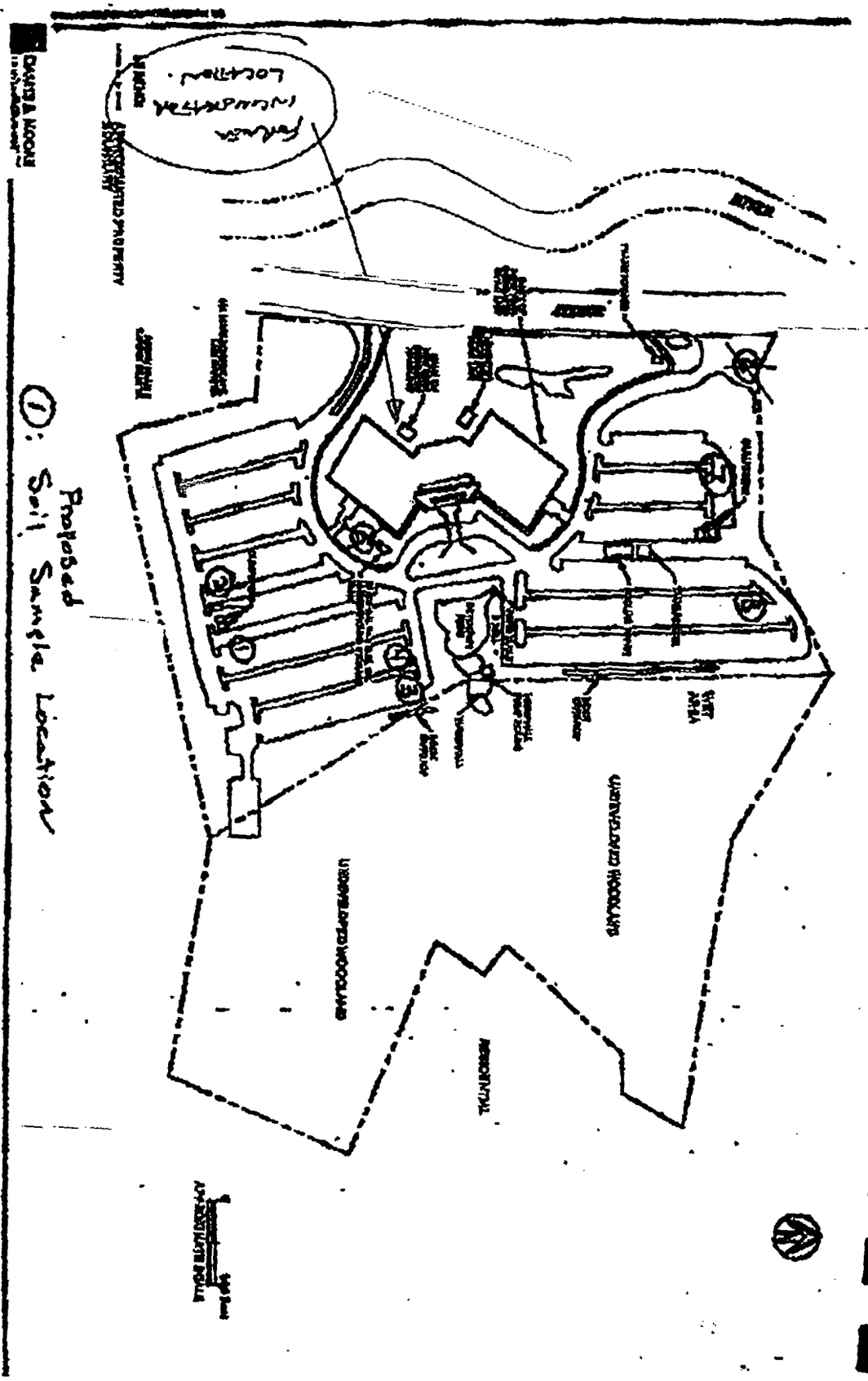
B- Analyte detected in blanks as well as sample

Appendices

A

APPENDIX A

Previous Reports


Proposed Location
Proposed Soil Sample Locations
Borings ③ & ⑥ not made.

DRAFT

Soil Sample ID / Depth	SB-1A 6'-8'	SB-2 0'-2'	SB-3 2'-4'	SB-4 0-2'	SB-7 2'-4'	SB-8 4'-6'	BS-1 1'	Regulatory Guideline
PARAMETER DETECTED								
VOCs (ug/Kg)								
Acetone	190	NA	43	NA	NA	60	NA	200
2-Butanone	40	NA	19	NA	NA	18	NA	300
Ethylbenzene	6	NA	ND	NA	NA	ND	NA	5,500
Styrene	2J	NA	ND	NA	NA	ND	NA	16,000,000
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Naphthalene	28J	NA	ND	NA	ND	160J	NA	13,000
2-Methylnaphthalene	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Acenaphthylene	ND	NA	ND	NA	ND	48J	NA	41,000
Acenaphthene	ND	NA	ND	NA	ND	62J	NA	50,000
Phenanthrene	44J	NA	26J	NA	ND	ND	NA	50,000
Anthracene	ND	NA	6J	NA	ND	ND	NA	50,000
Di-n-butylphthalate	ND	NA	22JB	NA	ND	ND	NA	NE
Fluoranthene	49J	NA	40J	NA	29J	650	NA	50,000
Pyrene	99J	NA	37J	NA	25J	1,200	NA	50,000
Benzo (a) anthracene	41J	NA	ND	NA	ND	600	NA	224
Chrysene	85J	NA	ND	NA	ND	670	NA	400
bis(2-Ethylhexyl) phthalate	1,500	NA	120J	NA	ND	15,000	NA	880*
Benzo (b) fluoranthene	39J	NA	ND	NA	ND	300J	NA	880*
Benzo (k) fluoranthene	34J	NA	ND	NA	ND	230J	NA	1,100
Benzo (a) pyrene	ND	NA	ND	NA	ND	320J	NA	61
Indeno (1,2,3-cd) pyrene	ND	NA	ND	NA	ND	84J	NA	880*
Benzo (g,h,i) perylene	ND	NA	ND	NA	ND	55J	NA	50,000
PCBs (ug/Kg)								
Aroclor-1242	ND	NA	ND	ND	ND	13,000	NA	NE
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	ND	[illegible]	[illegible]
Aroclor-1260	ND	NA	91	ND	ND	ND	NA	NE
Total PCBs	49J	NA	180	ND	ND	13,000	NA	1,000/ 10,000**
8 RCRA Metals (mg/Kg)								
Arsenic	23.1	4.3	14.1	5.6	7	8.4	8.3	7.5 or background
Barium	1000	349	312	410	245	198	133	300 or background
Cadmium	2.6	0.22U	0.24U	0.22U	0.23U	0.22U	0.35U	1.0 or background
Chromium	163	83.4	60.9	97.5	97.7	40.7	46.9	10 or background
Lead	1770	208	593	34	24.5	372	97.8	background
Mercury	1.1*N	0.10U*N	0.12U*N	0.078U*N	0.092U*N	0.19*N	0.35*N	23*
Selenium	5.6	2	5.6	1.6	2.3	3.9	3.9	2.0 or background
Silver	6.2	0.22U	6.2	0.22U	0.23U	1.2B	0.35U	390*

Notes:

Soil samples collected on March 5, 1998

ug/Kg: microgram per kilogram or part per billion.

mg/Kg: milligram per kilogram or parts per million.

B: Indicates compound was found in the associated blank.

J: Value is less than the laboratory reporting limit but greater than zero.

NA: Not Analyzed

ND: Not Detected above lab quantitation limits.

NE: None Exists

[ ] Exceeds Regulatory Guidance Limit

Regulatory Guideline: "New York State Department of Environmental Conservation (NYSDEC) Hazardous Waste Remediation Division Technical and Administative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-92-4046", November 16, 1992.

* Federal Guidance - listed if more stringent than state guidance value or if no state guidance value published
Source: Smith, Roy L., Ph.D., Office of RCRA, Technical & Program Support Branch, US EPA Region III.
Risk-Based Concentration (RBC) Table. April 19, 1996. [Category: "soil ingestion-residential" (most stringent)]

** PCB Cleanup Guideline 1,000 ug/kg in surface soils, 10,000 ug/kg in subsurface soils

DRAFT

Groundwater Sample ID	FW-1	SB-3-GW	Regulatory Guideline
PARAMETER DETECTED			
VOCs (ug/L)	ND	ND	Various
SVOCs (ug/L)			
Diethylphthalate	ND	0.7J	50
Di-n-butylphthalate	0.6JB	ND	NE
bis(2-Ethylhexyl) phthalate	0.8J	ND	4.8*
8 RCRA Metals (mg/L)			
Arsenic	2.0U	2.0U	25
Barium	278	682	1,000
Cadmium	1.3B	1.5B	10
Chromium	1.0U	1.3B	50
Lead	1.1B	1.8B	25
Mercury	0.2U	0.3	2
Selenium	2.0U	2.0U	10
Silver	1.0U	1.0U	50

Notes:
Groundwater samples collected on March 5, 1998
ug/L: microgram per liter or part per billion.
mg/L: milligram per liter or parts per million
NA: Not Analyzed
ND: Not Detected above laboratory quantitation limits.
NE: None Exists
J: Value is less than the laboratory reporting limit but greater than zero.
B: Indicates compound was found in the associated blank.
Samples collected from PW-1 collected in pre-preserved containers for total 8 RCRA Metals Analysis
Samples collected from SB-3-GW filtered prior to preservation for dissolved metals analysis
Regulatory Guideline: "Water Quality Regulations, Surface Water and Groundwater Classifications and Standards 6NYCRR, Title 6, Chapter X, Parts 700-705", September 1991, amended October 7, 1993.
* Federal Guidance - listed if more stringent than state guidance value or if no state guidance value published
Source: Smith, Roy L., Ph.D., Office of RCRA, Technical & Program Support Branch, US EPA Region III. *Risk-Based Concentration (RBC) Table*. April 19, 1996. [Category: "tap water" (most stringent)]

AKRF, Inc.

ENVIRONMENTAL CONSULTANTS
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PHASE I ENVIRONMENTAL SITE ASSESSMENT
500 MAMARONECK AVENUE
HARRISON, NEW YORK
PROJECT NUMBER: 5235

Prepared for:
500 Mamaroneck Avenue Associates
500 Mamaroneck Avenue
Harrison, New York
10528-1600

Prepared by:
AKRF, Inc.
149 Water Street
Norwalk, Connecticut 06854

April 1997

Christopher J. Kopley
Vice President

117 East 29th Street • New York, NY 10016

80 Maple Avenue • White Plains, NY 10601

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FIGURES

APPENDICES

EXECUTIVE SUMMARY

AKRF, Inc. (AKRF) was retained by 500 Mamaroneck Avenue Associates to perform a Phase I Environmental Site Assessment of the property located at 500 Mamaroneck Avenue in Harrison, New York. The approximately 34.5 acre site consisted of a five-story office building with an approximately 52,000 square foot footprint. The remaining portions of the study site included bituminous paved tenant parking areas and landscaped shrubbery, lawns, and two ponds. The eastern portion of the study site contained undeveloped wooded land. Construction of the structure began in 1984, and tenants began occupancy around 1987. Prior to its current usage, the northern portion of the study site was used as a domestic refuse transfer station (from 1970 to the early 1980's) and a domestic refuse incinerator (from 1954 to 1969).

No on-site leaks, discharges, or evidence of spillage of hazardous materials were observed at the study site. No current uses indicated potential environmental concerns. No off-site sources of contamination were identified. The following conditions were noted:

- Historical research indicates that prior study site uses include a solid waste transfer station, and a domestic refuse incinerator.

- One water supply well was identified on-site. The well was reported to be used to fill the eastern pond twice a year subsequent to draining and cleaning the pond, and is not used as a potable water source. Water pumped out of the pond is discharged to the Westchester County storm sewers.

- The study site utilizes a 20,000-gallon fuel oil underground storage tank. The fiberglass reinforced tank, installed in 1982, is permitted until January 18, 1999, and appears to meet current New York State Department of Environmental Conservation (NYSDEC) and Environmental Protection Agency (EPA) tank regulations.

Past usage of the study site as a transfer station and incinerator may have affected soil and groundwater beneath the study site.

1.0 INTRODUCTION

AKRF, Inc. (AKRF) was retained by 500 Mamaroneck Avenue Associates to perform a Phase I Environmental Site Assessment of the property located at 500 Mamaroneck Avenue in Harrison, New York, as shown on Figure 1 - Site Location Map. The study site is defined by the Town of Harrison as Block 482, Lot 8 and is shown on Figure 2 - Site Plan. The approximately 34.5 acre study site is currently occupied by one five-story commercial office building with a sub-basement. The building was originally constructed in 1983, with tenant occupancy beginning around 1986. The remaining portions of the study site include bituminous paved parking areas and landscaped shrubbery and lawns. Properties abutting the site include: 550 Mamaroneck Avenue, an office building, to the north; residential buildings to the east; 450 Mamaroneck Avenue, an office building, to the south; law offices and the Acorn Farm & Garden Center to the east along the southern parking area; and the Mamaroneck River to the east across Mamaroneck Avenue.

The scope of services for this assessment included the following:

- A review of published geological and groundwater information to determine the possibility of contamination from off-site sources.

- A review of historical Sanborn Fire Insurance Maps for the study site and adjacent properties.

- The following federal regulatory databases were reviewed to determine the regulatory status of the site, adjacent properties, and properties within a predetermined study area: National Priority List (NPL); Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); Emergency Response Notification System (ERNS); Toxic Chemical Release Inventory System (TRIS); and the US EPA Civil Enforcement Docket.

- The following state regulatory databases were reviewed to determine the regulatory status of the site, adjacent properties, and properties within a predetermined study area: hazardous material spills (SPILLS); Resource Conservation and Recovery Act Notifiers (RCRA); Chemical Bulk Storage (CBS); Solid Waste Facilities (SWF); Petroleum Bulk Storage (PBS); and Major Oil Storage Facilities (MOSF).

- A review of available local Building Department, Engineering Department, Health Department, Fire Department, and Tax Assessor's records was conducted to obtain any information pertinent to the assessment of the environmental condition of the study site. Specifically, records regarding past and present on-site fuel oil tanks and historical uses were requested and reviewed.

2.0 PHYSICAL SITE DESCRIPTION

Visual inspection of the site and adjacent areas was performed on February 12, 1997 by Mr. Timothy J. Groninger of AKRF, accompanied by Mr. John Stilgebauer, building superintendent. The inspection was conducted at 8:00 a.m. At the time of the inspection, the weather was fair (35° F) and overcast. Photographs documenting the site inspection are included in Appendix A.

2.1 General Site Conditions

The study site contained of a four-story office building and associated parking. The site consisted of approximately 34.5 acres, including approximately 17 acres of undeveloped woodland located along the eastern side parcel. The building was originally constructed in 1983, with tenant occupancy beginning in 1986. Bituminous paved parking areas were located north, east, and south of the building. One artificial pond with an artificial waterfall was located east of the building, and one smaller pond was located west of the building. The waterfall was supplied water via an on-site well located along the northern edge of the pond. The pump for the waterfall was located within a pump house. A 5-gallon bucket of antifreeze was observed in the pump house, which Mr. Stilgebauer used as coolant for the pump. According to Mr. Stilgebauer, water in the pond is replaced twice a year when the pond is cleaned. Study site stormwater, including storm drains located throughout the parking lot, and the outflow from the pond, discharge to county storm sewers located along Mamaroneck Avenue. A fill cap and access vault cover for an underground fuel oil storage tank were noted between the southeastern wall and the sidewalk. Mr. Stilgebauer stated that the tank had a 20,000 gallon capacity.

The western side of the study site was landscaped with lawn areas and a small pond surrounded by taller grasses and other vegetation. Several air conditioning units were noted along the western edge of the building. No unusual staining, odors, or storage of hazardous materials were observed over the study site exterior.

The building consisted of five stories and a sub-basement. The building was constructed of a lift-slab on steel frame with a glass facade and contained offices for the following tenants: Advantis, American Express Financial Services, Bank of New York, Canada Life Insurance Company of New York, Castle Oil Corporation, Food City Markets, Frenchrail, Tom Julius, Metric Tours, Rail Europe Group, Rich Worldwide, and Schulman Realty. Tenants occupied each floor, and maintenance/facilities and a cafeteria occupied the second floor.

The sub-basement utilities included: five fuel oil boilers, two 300-ton Trane air conditioning units, four Graham blower control units, four 40-hp air supply fans, four 20-hp air return fans, and the pneumatic control system compressor. The compressor blow-out piping was connected to a floor drain. According to Mr. Stilgebauer, the floor drain was connected to the County sanitary sewer. Sub-basement chemical storage included six 55-gallon drums labeled "EGI Coolant," used as

antifreeze for the boiler cooling water, and several bags of asphalt mix. The drums were empty, and Mr. Stilgebauer informed AKRF that he was in the process of switching coolant brands.

The fire control system for the building was located in the central portion of the basement, which was referred to as the first floor by the building owners. The fire control system consisted of ceiling-mounted water sprinkler units. Chemical storage in the fire control room included paints, thinners, and motor oil, which were observed to be neatly stored in a combustion cabinet.

The elevator room, located east of the elevator shaft on the basement ("first") floor included five hydraulic units that appeared to be in good condition. No staining or other evidence of leakage was noted. Mr. Stilgebauer informed AKRF that maintenance for these components was contracted off-site; no on-site oil storage was necessary. One partially empty five-gallon pail of #27 hydraulic oil was observed in the elevator room. The electric and telephone rooms, located on the basement ("first") floor, were observed to be clean and free of debris. The cafeteria, located in the northern portion of the basement ("first") floor, included a full kitchen, several refrigeration units, stoves, and a dishwashing machine. Dishwashing wastewater was discharged to a floor drain, which was reported to be connected to County sanitary sewer.

2.2 Topography and Hydrogeology

The site elevation ranges from approximately 130 feet at the eastern property line to 60 feet along the western side of the study site, based on the National Geodetic Vertical Datum (NGVD) of 1929, according to the U.S.G.S. 1967 (photoinspected 1975) Topographic Map of the Mamaroneck, New York Quadrangle. Based on topographic mapping and features, groundwater beneath the study site is expected to flow west towards the Mamaroneck River, located approximately 200 feet west of the study site.

According to the September 1994 General Geology Map of Putnam and Westchester Counties, New York, the bedrock beneath the study site consists of Harrison Gneiss. Bedrock outcrops were observed along the eastern side of the property, as shown on Figure 2.

2.3 Storage Tanks (USTs and ASTs)

2.3.1 Underground Storage Tanks (USTs)

One registered underground storage tank was located on-site, approximately 50 feet southeast of the southeastern corner of the building. The 20,000 gallon tank, containing No. 2 fuel oil, is used to heat the building.

Off-site USTs are discussed in Section 4.2.2.

2.3.2 Aboveground Storage Tanks (ASTs)

No aboveground storage tanks were noted during the site inspection.

2.4 Polychlorinated Biphenyls (PCBs)

Two concrete pad-mounted electric transformers were identified on-site. One of the transformers, located on the northwestern corner of the study site, was owned by Consolidated Edison. The second transformer, located north of the building between rows of parking, was owned by 500 Mamaroneck Avenue Associates. Both transformers were observed to be in good condition with no visible signs of staining.

2.5 Utilities

Consolidated Edison (ConEd) supplies electricity and Westchester County provides potable water and sanitary sewer service to the study site. According to representatives from the Harrison Building Department, water and sewer service were connected at the time of the building's construction.

2.6 Waste Management and Chemical Handling

Five dumpsters were located on the study site; three were located in the southern parking area and two were located in the northern parking area. No hazardous materials or staining were noted around the dumpsters. The dumpsters were reported to be emptied daily by A-1 Compaction. Waste paper for recycling was observed in a room on the eastern side of the second floor. Floor drains were connected to the sanitary sewer system, and site drainage discharged to Westchester County storm sewers, located along Mamaroneck Avenue.

Maintenance- related chemicals, such as cleaning agents, paints, oils, antifreeze, and deicing agents were stored in sufficient quantity for short term use. Observed chemicals were neatly stored in clearly marked containers. No long term storage of these chemicals was observed.

3.0 ADJACENT LAND USE

According to the Town of Harrison Building Department, the subject property is located in an area zoned SB-1, Special Business, which allows for commercial office space. The study site is abutted by: 550 Mamaroneck Avenue to the north (multi-story commercial office building); residential areas to the east; 450 Mamaroneck Avenue (multi-story commercial office building housing Citicorp North America), the Law Offices of Clune, Hayes, Frey, Bentzen, & Cline, P.C. (single-story converted office space) and Acorn Farm & Garden Center (retail) to the west; and the Mamaroneck River to the west across Mamaroneck Avenue.

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4.0 SITE HISTORY AND RECORDS REVIEW

4.1 Prior Ownership and Usage

4.1.1 Sanborn Mapping

Maps of the study site and vicinity were requested from the Sanborn Mapping and Geographical Information Service. Sanborn maps dated 1996, 1995, 1994, 1993, 1992, 1990, 1950, and 1934 were available and were reviewed. Details from the maps are as follows:

1996 The subject property and surrounding areas appeared similar to present conditions. The study site was identified on the map as a glass office building constructed in 1987. Two office buildings were mapped north of the study site, beyond which was the Kentucky Riding Stables. Harrison High School and a utility substation were located northeast of the study site, beyond a row of houses on Union Avenue. Additional residential areas were identified to the east and southeast. No coverage was available to the south and west.

1995 - 1990 The study site and surrounding areas appeared similar to the 1996 map.

1950 The study site was undeveloped. Property boundaries in this vicinity appeared different to the property lines noted in later maps. North-adjacent office buildings shown in later maps were not present. The Kentucky Riding Stables was labeled the Kentucky Riding Academy. The utility substation and Harrison High School were not present. None of the residences shown in later maps along Union Avenue were present. Residential areas located to the east and southeast of the study site were noted to be less densely developed.

1934 The study site and surrounding areas appeared similar to the 1950 map. Residential areas located southeast of the study site were noted to be less densely developed than in the 1950 map.

4.2 Regulatory Review

AKRF reviewed federal, state, and local records to identify the use, generation, storage, treatment, and/or disposal of hazardous materials and chemicals, or releases of such materials which may impact the subject site. AKRF personnel reviewed databases maintained by the US EPA and New York State Department of Environmental Conservation (NYS DEC) for the study site and adjacent areas.

4.2.1 Federal

The federal records reviewed included the National Priority List (NPL) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS); Emergency Response Notification System (ERNS); Toxic Chemical Release Inventory System (TRIS); and the Civil Enforcement Docket.

National Priority List (NPL)

The NPL is the US EPA's database of hazardous waste sites identified for probable remedial action under the Superfund Program.

No NPL sites were identified within a one-mile radius of the study site.

Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)

CERCLIS is a compilation of known or suspected, uncontrolled or abandoned hazardous waste sites which the EPA has investigated, or plans to investigate, for a release or threatened release of hazardous substances pursuant to the Superfund Act of 1980 (CERCLA).

No CERCLIS sites were identified within a one-half mile radius of the site

Emergency Response Notification System (ERNS)

This federal database is compiled from the Emergency Response Notification System records and stores information on reported releases of petroleum and other potentially hazardous substances.

The subject property is not currently listed as an ERNS site.

Toxic Chemical Release Inventory System (TRIS)

The TRIS contains information reported to the US EPA and/or NYS DEC by a variety of industries on their annual estimated releases of certain chemicals to the environment. Data includes the maximum amount stored on-site; the estimated quantity emitted into the air, discharged into bodies of water, injected underground, or released to land; methods used in waste treatment and their efficiency; and data on transfer of chemicals off-site.

No TRIS sites were identified within a one-quarter mile radius of the project site.

United States Environmental Protection Agency Civil Enforcement Docket

This database is the US EPA's system for tracking civil judiciary cases filed on behalf of the agency by the Department of Justice.

The subject property is not currently included on the US EPA's Civil Enforcement Docket.

4.2.2 State

The state regulatory databases reviewed included the listings of hazardous material spills (SPILLS), Leaking Storage Tanks (LRST), Resource Conservation and Recovery Act Notifiers (RCRA), Chemical Bulk Storage (CBS), Solid Waste Facilities (SWF), Petroleum Bulk Storage (PBS), and Major Oil Storage Facilities (MOSF).

New York SPILLS Database

The New York SPILLS database includes a list of toxic spills, which are divided into six groups: Active Status - Tank Failures, Active Status - Tank Test Failures, Active Status - Other Spills, Closed Status - Tank Failures, Closed Status - Tank Test Failures, and Closed Status - Other Spills.

New York Leaking Storage Tanks

The New York Leaking Storage Tanks (LRST) database includes a list of tank test failures and a list of tank failures that have not yet been resolved.

No leaking storage tanks were recorded within a one-half mile radius of the site.

Resource Conservation and Recovery Act (RCRA) Notifiers Listings

The NYS DEC's Bureau of Hazardous Waste Facility Compliance regulates hazardous waste from the point of generation to the point of disposal. The identified sites tracked on this list are those which have filed notification forms in accordance with the Resource Conservation and Recovery Act requirements regarding their hazardous waste activity. These sites include treatment, storage and disposal facilities (TSDs); small-quantity and large-quantity generators; and transporters of hazardous waste regulated under RCRA.

No RCRA Treatment, Storage, and Disposal facilities were identified within a one-mile radius of the study site. No RCRA generator/transporter sites were reported within a one-quarter mile of the property.

Chemical Bulk Storage (CBS) Database

The New York CBS is a list of facilities that store regulated non-petroleum substances in aboveground tanks with capacities greater than 185 gallons and/or in underground tanks of any size.

No chemical bulk storage facilities are listed within a one-quarter mile radius of the site.

Solid Waste Facilities (SWF)

This database includes a listing of landfills, incinerators, transfer stations, recycling centers and other sites that manage solid waste.

No solid waste facilities are listed within a one-mile radius of the subject property.

Petroleum Bulk Storage (PBS) Database

The New York State PBS lists commercial facilities with registered petroleum tanks located either above or below ground and less than 400,000 gallons.

The study site and three other petroleum bulk storage sites are listed as containing storage tanks. Details of these facilities are as follows:

Facility/Address	Capacity (gallons)	Contents	Date Installed	Status	Approximate Distance/ Hydrogeologic Direction
500 Mamaroneck Avenue	20,000	fuel oil	12/82	in use	study site
Mendik Realty Company, Inc./ 550 - 600 Mamaroneck Avenue	15,000	fuel oil	1/69	in use	570 feet south/ lateral gradient
	15,000	fuel oil	1/71	in use	
Citicorp North America, Inc./ 450 Mamaroneck Ave.	5,000	fuel oil	10/80	in use	580 feet north/ lateral gradient
The Bank of New York/ 440 Mamaroneck Avenue	6,000	gasoline	3/80	in use	718 feet north/ lateral gradient
	6,000	gasoline	3/80	in use	
	7,500	fuel oil	12/79	in use	
	7,500	fuel oil	12/79	in use	
	275	fuel oil	12/79	in use	

Major Oil Storage Facilities (MOSF) Database

These facilities may be on-shore facilities or vessels with petroleum storage capacities of 400,000 gallons or more.

No Major Oil Storage Facilities were recorded within a one-quarter mile radius of the study site.

4.2.3 Local

Records maintained by the Tax Assessor, Fire Marshal, Health, Building and Engineering Departments were investigated to determine the potential presence of hazardous materials. These records typically include fuel oil, gasoline and used oil tank installation applications and permits and records of prior uses. Available files pertaining to this property were obtained and reviewed.

Tax Assessor

According to the Village-Town of Harrison Tax Assessor's property card, the property, referred to as Block 482, Lot 8, is listed as a developed lot owned by 500 Mamaroneck Avenue Associates. This property was combined from Lots 26, 26.1, and 8 in two transactions in 1983. The current study site parcel comprises 34.54 acres. Previous site owners, as documented in the Tax Assessor's office, are as follows:

Owner of Record	*Date Purchased*
500 Mamaroneck Avenue	May 16, 1985***
Lowell M. Schulman	July 6*, July 28, 1983**
Arthur Marros	January 14, 1953**
Peter Panousis	prior to 1940**
Town of Harrison	prior to 1940*

Notes: *Lots 26 and 26.1
**original Lot 8
***new Lot 8, incorporating the original Lot 8, and Lots 26 and 26.1

Building Department

According to records maintained by the Building Department, no complaints or violations were on file for the study site or surrounding areas. According to a zoning map viewed by AKRF personnel in the Building Department, the site is located in an SB-1 Zone, Special Business. The areas north and south of the study site are also zoned SB-1 The area east of the study site is zoned for residential use. .

According to Building Department records, the study site was used as a municipal refuse

incinerator from 1954 to 1970 and a municipal refuse transfer station from 1970 to 1983. Construction for the foundation of the present structure began in October 1984, and construction of the main four-story office building began in April 1985.

Engineering Department

According to Ms. Carol McGowan of the Village-Town of Harrison Engineering Department, 500 Mamaroneck Avenue is connected to municipal sanitary sewer and potable water services. The study site is within the Mamaroneck Valley Water District of the Westchester Joint Water Works.

Health Department

A Freedom of Information Letter was sent to the Westchester County Department of Health. At the time of release of this report, no information had been provided by this agency.

Fire Marshal

According to an employee of the Village-Town of Harrison Fire Department, the Fire Marshal of the Village-Town of Harrison transferred all records to the Village-Town of Harrison Building Department. No information regarding underground storage tanks, oil and/or chemical spills, storage of hazardous materials or fires was on file for the study site property.

5.0 CONCLUSIONS

AKRF, Inc. (AKRF) was retained by 500 Mamaroneck Avenue Associates to perform a Phase I Environmental Site Assessment of the property located at 500 Mamaroneck Avenue in Harrison, New York. The approximately 34.5 acre site consisted of a five-story office building with an approximately 52,000 square foot footprint. The remaining portions of the study site included bituminous paved tenant parking areas and landscaped shrubbery, lawns, and two ponds. The eastern portion of the study site contained undeveloped wooded land. Construction of the structure began in 1984, and tenants began occupancy around 1987. Prior to its current usage, the northern portion of the study site was used as a domestic refuse transfer station (from 1970 to the early 1980's) and a domestic refuse incinerator (from 1954 to 1969).

No on-site leaks, discharges, or evidence of spillage of hazardous materials were observed at the study site. No current uses indicated potential environmental concerns. No off-site sources of contamination were identified. The following conditions were noted:

- Historical research indicates that prior study site uses include a solid waste transfer station,

and a domestic refuse incinerator.

- One water supply well was identified on-site. The well was reported to be used to fill the eastern pond twice a year subsequent to draining and cleaning the pond, and is not used as a potable water source. Water pumped out of the pond is discharged to the Westchester County storm sewers.

- The study site utilizes a 20,000-gallon fuel oil underground storage tank. The fiberglass reinforced tank, installed in 1982, is permitted until January 18, 1999, and appears to meet current New York State Department of Environmental Conservation (NYSDEC) and Environmental Protection Agency (EPA) tank regulations.

Past usage of the study site as a transfer station and incinerator may have affected soil and groundwater beneath the study site.

6.0 QUALIFICATIONS

The purpose of this assessment was to convey a professional opinion about the potential presence or absence of contamination, or possible sources of contamination on the property, and to identify existing and/or potential environmental problems associated with the property. The work was performed by AKRF personnel in accordance with our February 5, 1997 proposal and is subject to AKRF's General Terms and Conditions. The assessment was performed in accordance with customary principles and practices in the environmental consulting industry, and in accordance with ASTM Standard E 1527-94, *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Practice*. It is intended for use as a guide in determining the presence or absence of hazardous materials on the subject property at the time of the inspection. Environmental characteristics at this site and surrounding sites will change.

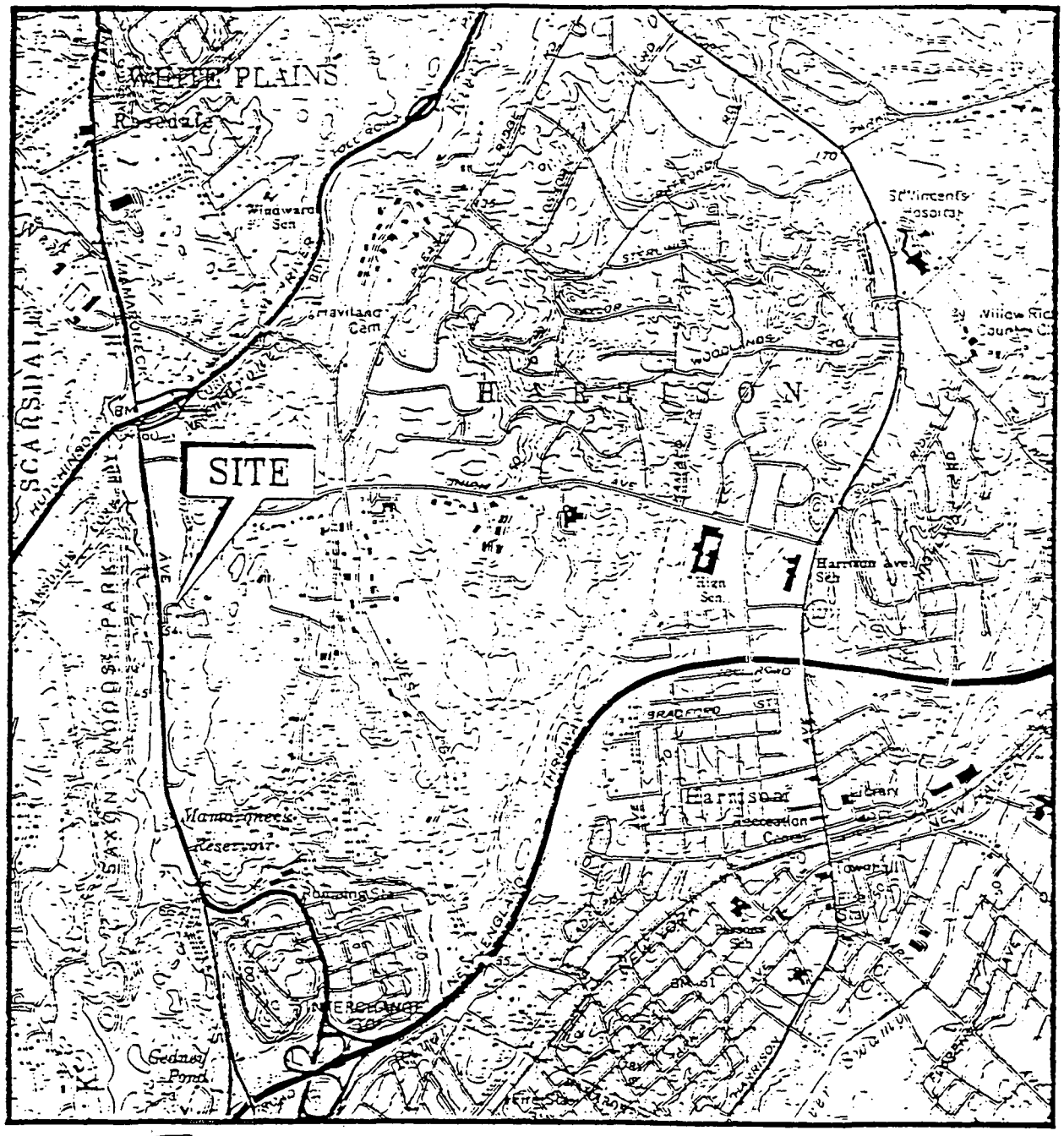
This Phase I Assessment is not, and should not be construed as, a guarantee, warranty, or certification of the presence or absence of hazardous substances.

7.0 REFERENCES

1. U.S. Geological Survey; Mamaroneck Quadrangle - N.Y. - Conn.; 7.5 Minute Series (Topographic); Scale 1:24,000.

2. Environmental Risk Information & Imaging Services; *500 Mamaroneck Avenue, Harrison, New York; ERIIS Custom Detail Radius Report*; February 12, 1997.

3. United Stated Department of Agriculture, Soil Conservation Service; *Soil Survey of Putnam and Westchester Counties, New York*; September 1994.



QUADRANGLE LOCATION

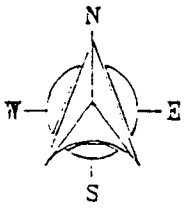
SCALE IN FEET

0' 500' 1000' 1500' 2000' 3000' 4000'

SCALE: 1"=2000'

SOURCE:

USGS TOPOGRAPHIC MAP - MAMARONECK, N.Y.-CONN. QUADRANGLE - DATED 1967 PHOTOREVISED 1975.



500 MAMARONECK AVENUE
MAMARONECK, NEW YORK

SITE LOCATION MAP

AKRF, Inc.
Environmental Consultants
149 Water Street Norwalk, Connecticut 06854

DATE 2/12/97

PROJECT No. 5235

FIGURE No. 1

ENVIRONMENTAL

AUDIT

October 26, 1989

Prepared By:

U.S. Hydrogeologic, Inc.
328 Main Mall
Poughkeepsie, NY 12601

Prepared For:

Henry M. Celestino
Schulman Management
925 Westchester Ave.
White Plains, NY 10604

Project Manager:

John A. Conrad
Senior Hydrogeologist

This preliminary investigation assesses the likelihood that contamination from hazardous or regulated materials stored, used or disposed of is present on the property described herein. This report has been prepared in conformance with reasonable investigatory practices, including the review of public records, inspection of site vegetative and topographic features and such other analytic procedures as we considered necessary in the circumstance.

October 26, 1989

Job Number: SH90200

Site Identification:	Town of Harrison, Westchester County Tax Block 428, Lot 8, (formerly Lots 8, 26, and 26.1)
Property Size:	34.65 acres

1.0 Introduction

This Environmental Audit is intended to identify potential environmental risks associated with the storage, use, transport, or disposal of hazardous or regulated materials on a 34.65 acre parcel in the Town of Harrison, Westchester County, New York, Tax Block 428 Lot 8, (formerly lots 8, 26, and 26.1).

The specific components of this investigation are as follows:

1. Investigation of the site's history, including a review from readily available sources that document changes or activities of concern on the subject property and adjacent properties. For this analysis, aerial photographs taken during the years 1947 - 1986 were reviewed in addition to road maps, USGS topographic maps, Town of Harrison tax maps, assessment records, and interviews with current facility owner/operators. A complete list of sources and personal communications are provided in Section 5.0 of this report.

2. Review of records maintained by state and local environmental agencies, including NYSDEC petroleum and chemical bulk storage records, the USEPA National Priority List and the NYSDEC list of inactive hazardous waste sites, Westchester County Health Department records.

3. Site inspection of the property, with particular concern for topographic or vegetative indications of surface or subsurface contamination.

4. Laboratory analysis of soil and groundwater samples.

This written analysis is an assessment of the 34.65 acre site in the Town of Harrison, New York, and is not valid for any other property or location. It is a representation of the property analyzed as of the dates of record reviews and the site inspection. This report cannot be held accountable for activities or events resulting in contamination after the date of site inspection or historic research.

This Audit was performed in accordance with generally accepted practices. The findings and conclusions contained herein must be considered not as scientific certainties, but as probabilities based on our professional judgement concerning the significance of the limited data gathered during the course of this study. Specifically, this assessment does not and cannot represent that the site contains no contamination from hazardous materials.

This Audit is based in part on certain information provided by state and local officials and other parties referenced herein, and on information contained in the files of state and/or local agencies available at the time of this Audit. No attempt was made to independently verify the accuracy or completeness of all information reviewed or received during the course of this site assessment.

It is intended for the sole use of Schulman Management and must be used in its entirety.

2.0 Site Location and Description

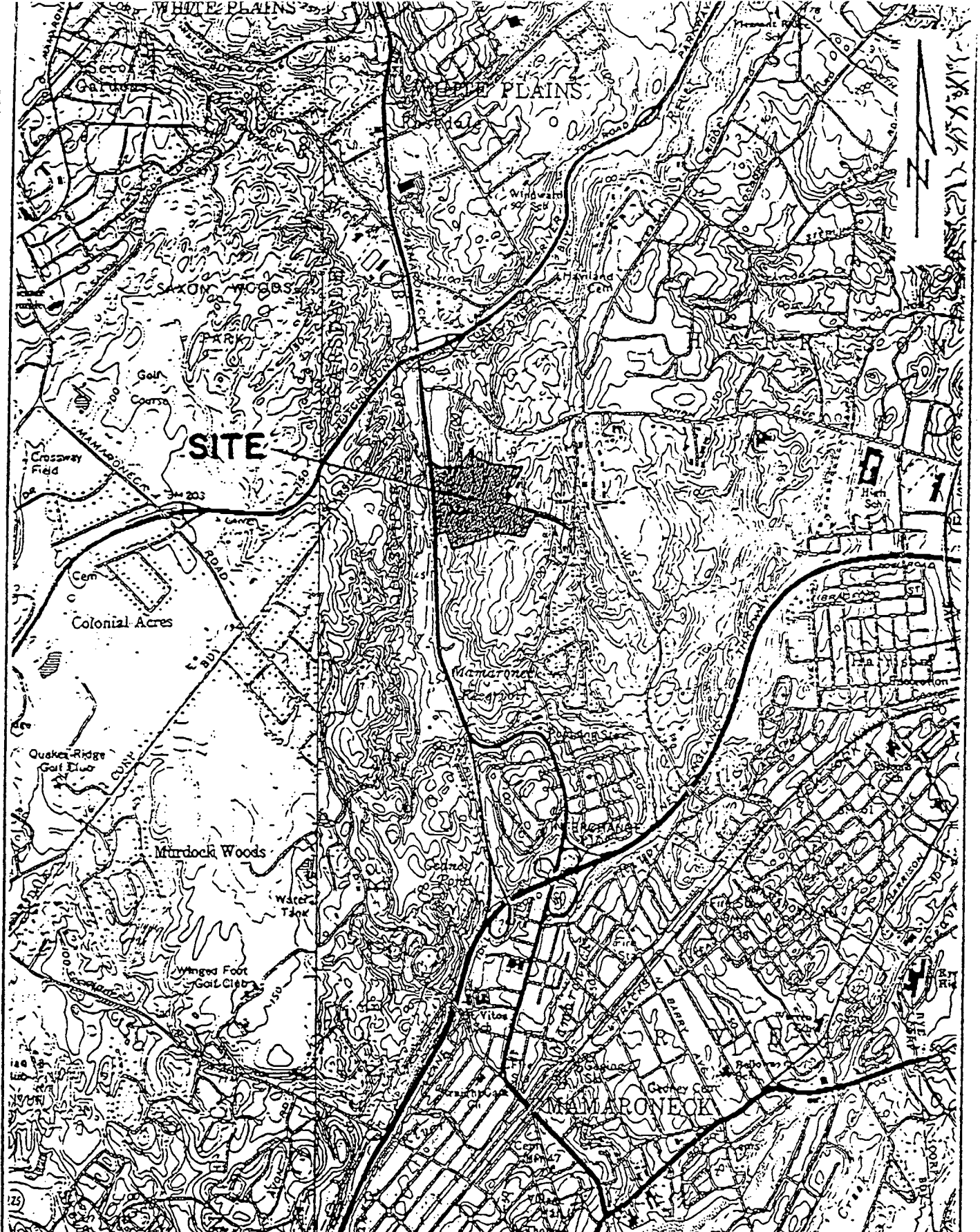
The subject property consists of 34.65 acres in the Town of Harrison, Westchester County, New York. The property is located on the east side of Mamaroneck Avenue, approximately 2000 feet south of Union Avenue (Location Map). The entire site is comprised of one tax parcel, Lot 8 (formerly Lots 8, 26, and 26.1), and has approximately 1000 linear feet of frontage along Mamaroneck Avenue. The property also has 25 feet of frontage on Winfield Avenue.

Approximately 14 acres of the site have been improved in conjunction with the construction of one five-story office complex, totalling 275,000 square feet. Each story contains 55,000 square feet in gross floor area. The parking area covers approximately 9 acres. Water is provided by the municipal system. The site has no drinking water wells. One shallow well supplies water to a decorative waterfall on the property. Septic waste is handled via the municipal sewer system. Site features are shown on the Site Features Map.

Site topography has changed substantially as a result of on-site construction activities. Approximately 200,000 cubic yards of soil and rock were removed during site development. This material was removed only from that portion of the site that was being developed (the portion closest to Mamaroneck Avenue) and it was disposed of off-site.

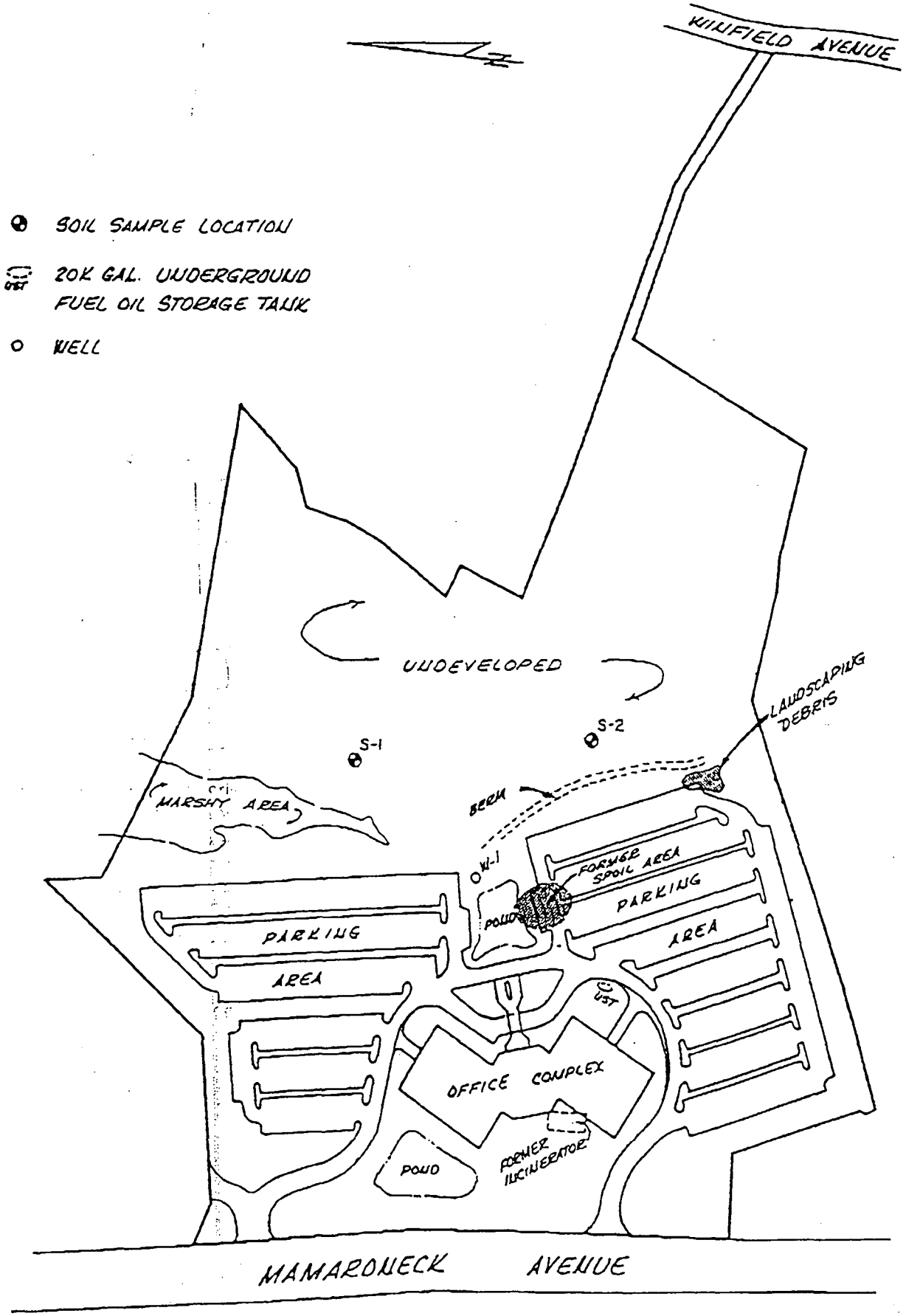
The site currently rises gradually over the parking area, and then is relatively level over the eastern portion. A small wet area is located in the north-central portion of the property, immediately east of the northern portion of the parking area.

The surrounding properties are primarily commercial structures along Mamaroneck Avenue (to the south and north of the subject property) and single family residences to the east. To the west of the site is Saxon Woods Park. Non-residential buildings in the vicinity of the site include office complexes, a law office and a home and garden store. All adjacent parcels are down-gradient of the undeveloped portion of the subject property.



BASE MAP: USGS Topographic Quadrangles - Mamaroneck, 1967, photoinspected 1975 & Mount Vernon, 1966, photorevised 1979

SITE LOCATION	DATE: 10/89
	SCALE: 1"=2000'
U.S. HYDROGEOLOGIC, INC.	JOB NO. SH90200
	PAGE NO. 4



NOTE: All locations are approximate.

BASE MAP: Compiled from Westchester County Tax Maps & GZA Environmental Assessment - Figure 2, Site Plan, May 1986

SELECTED SITE FEATURES & SAMPLE LOCATIONS	DATE: 10/89
	SCALE: N/A
U.S. HYDROGEOLOGIC, INC.	JOB NO. SH90200
	PAGE NO. 5

3.0 Background Investigation

3.1 Site History

Subject Property:	Tax Map Town of Harrison Block 428, Lot 8 (formerly Lots 8, 26, and 26.1)	
		Date of Purchase
Current Owners[1]:	Schulman, Lowell M.	1983 to present
Previous Owners[1]:	Lot 8: Arthur Marros	to 1983
	Lot 26: Town of Harrison	to 1983
	Lot 26-1: Richard Harmony	to 1983

The site currently contains one primary structure: a five-story office building (275,000 square feet) and associated paved parking and landscaping. Tax records list one office building, built in 1986, and one receiving dish of steel and aluminum construction installed in 1989. Records also show that this site is provided with municipal water and sewer.

A series of aerial photographs showing the subject property and surrounding property during the years 1947-1986 were reviewed in order to assess changes on the subject property and surrounding area.

Tax records show that the site is the former location of the Town of Harrison incinerator. This incinerator was reportedly built in 1954, and demolished in 1984.

A review of aerial photographs shows that up until 1954 the subject property appeared to be vacant land. In the 1954 aerial, the Town incinerator is clearly visible. From 1954 until 1980, the aerials show no major changes on the site. The incinerator appears in all of these aerials. In several of the aerials, a faint path or roadway is visible leading from the incinerator to the rear of the property. Also consistently visible in these aerials is a small area of soil disturbance located near Mamaroneck Avenue, north of the incinerator, on the subject property. No additional large scale soil disturbance or debris was noted on the subject property during this time period.

In the 1986 aerial, the current building on the site is under construction. This corresponds with Town records which list the date of construction of the building as 1986.

From 1947 to 1960, there were signs of soil disturbance on properties located adjacent to and north of the subject property. This did not appear to be associated with construction of buildings which later occurred on the sites. In the 1960 aerial, which is of poor resolution, there is no sign of continued soil disturbance. A 1971 aerial of the area shows two buildings located on those adjacent sites which formerly showed signs of soil disturbance.

[1]Information on current or former property ownership is gathered from property cards and/or Westchester County records. This does not constitute a title search.

Two previous environmental assessments have been conducted. Copies of these reports are included in Appendix B. The first study is dated May 1986 and included limited soil and groundwater analysis. No areas of environmental concern were identified. A second study dated April 1988 again identified no environmental concerns.

3.2 Regulatory Review

A routine check of state and federal documents and sources was performed to identify recorded hazardous waste or regulated substance activities on the subject property.

The property is not listed with state or federal agencies as an inactive hazardous waste site. The nearest inactive hazardous waste site is Mamaroneck Senior Citizens Housing (Site Code 36002) in the Village of Mamaroneck, approximately 2.2 miles southeast of the subject property. Sampling of soil and wastes in May 1988 confirmed the presence of hazardous industrial waste resulting from activities in the 1950s to the early 1970s on the 7.85 acre Mamaroneck Senior Citizen's Housing site.

One underground storage tank is currently registered with the NYSDEC for this property. The tank is used for storing heating oil. Tank capacity is 20,000 gallons. The tank registration number is 494429.

The property is not currently registered with federal or state governmental agencies as a small quantity generator of hazardous waste, nor are the adjacent properties.

3.3 Site Investigation

The site inspection was conducted on October 12, 1989 in order to address any potential concerns raised during the investigations of historical records and regulatory agency records (above, Section 3.1 and 3.2) and to identify any additional indications of contamination from the storage, use and/or disposal of hazardous or regulated materials. An unoccupied portion of the facility was inspected, as well as the surrounding developed and undeveloped property. A visual inspection of adjacent and nearby properties was performed in conjunction with this inspection.

Structures

The site contains a 275,000 square foot office structure, constructed in 1986 by the current property owners. The building is a concrete and glass structure. There was no evidence of asbestos containing materials (ACM) in the walls or ceilings and there was no ACM visible on the hot water heating pipes inspected during the course of the internal inspection.

Internal areas inspected appeared to be free of lead paint, consistent with the age of construction. There is no evidence of older painted material in the building.

One transformer is present on the site, identification number 44W77W83. The transformer is the property of Consolidated Edison Company and is installed during construction of the existing facility, in 1986. Con Ed has verified that this transformer contains no PCBs. The transformer is stationed on concrete pads and secured; there was no evidence of oil leakage around the transformer.

Internal areas currently occupied by building lessees was not inspected; however, both tenants utilize the building for office purposes or for computer disassembly and reassembly. No chemicals are reported stored in these areas by the facility maintenance engineer, and no hazardous waste is generated by activities on the site.

The 20,000-gallon underground fuel oil storage tank is situated along the edge of the south parking area. The tank was installed in May 1986 and is constructed of fiberglass-reinforced plastic with steel piping. A vapor monitor leak detection system is in place. According to the facility engineer, product inventory is updated daily and there have been no leak or spill incidents. The tank was precision-tested following installation.

The area surrounding the bulk petroleum underground storage tank was relatively free of discoloration. Minor spillage, likely occurring during the course of filling the tank, was evident. The stained area was restricted to immediately around the fill pipe, and is not considered an indication of soil contamination.

Property

The property surrounding the building is comprised of a portion which is developed as parking and landscaping for the building, and a portion which is currently undeveloped. Both areas were physically inspected.

There was no indication of site contamination in the developed portion of the property. There was no surface staining in the parking area or the landscaped portion of the property. Drainage culverts did not appear to be stained, and the storm water detention area was generally free of foreign material (small amounts of leaves and other natural debris were present in the upper portion of the water detention area). Standing water in the lower portion of the detention area appeared to be slightly murky but was not discolored in any way. Further, there was no evidence of a sheen or oily film on this water.

At the extreme southeastern portion of the parking lot was a small landscaping debris area. The debris consisted of discarded plants, grass clippings, wooden baskets, and a few empty one to five gallon oil cans. There was no surface staining evident in this area. Slight turbidity of the standing water is likely the result of a sand pile present up-gradient of the water.

There was no evidence of contamination in the undeveloped portion of the site. This portion of the property is generally well-vegetated with mature hardwoods, indicative of an area undisturbed for a long period of time. The understory on the site appeared healthy, and consistent with the surrounding woodlands. There were no indications of vegetative stress in the trees or the understory, particularly in low-lying areas.

There is a sizable wet area in the northern portion of the property, immediately east of the parking area. This water was free of foreign material, and there was no evidence of water discoloration or sheens.

There is an elongate topographic high, or berm, immediately east of the south parking lot. This berm extends from the southeastern corner of the parking area to the beginning of the waterfall. White pines have been planted at regular intervals along its length. Vegetation along the berm is thick and healthy.

There was no evidence that material had been buried or disposed of in the undeveloped portion of the property. No berms, sinkholes, trenches or other evidence of buried material were identified. Further, there was no evidence of access roads or paths entering the undeveloped portion of the property, with the exception of the above mentioned construction road.

Prior reports on the property identified a berm located in the south-central portion of the property (see GZA report, Appendix B) and a "spoil area (misc. debris)" (EIS on 500 Mamaroneck Avenue, map on page C-2).

Those two areas are located entirely within the area disturbed during site development. It is assumed that a substantial amount of soil from the spoil area was removed from the site. The elevation of the current parking area is approximately 12-16 feet lower than the spoil areas, as estimated from a comparison of a map of 1983 site conditions and proposed site plan drawing.

Soil Samples

Two soil samples were collected from the site for laboratory analysis. The locations of these samples, S-1 and S-2, are shown on the Sample Location Map. Each sample was analyzed for cadmium, chromium and lead. The results of the analysis are summarized below:

Test	Sample S-1	Sample S-2
Cadmium	<1.41	<1.56
Chromium	65.4	41.7
Lead	136	77.6

* concentrations are mg/kg

Although each sample showed slightly elevated levels of the three metals, neither sample location exhibited high concentrations indicative of incinerator residue. Higher than normal metal concentrations are to be expected in industrial/urban settings. Analytical results are included in Appendix A.

Water Sample

One water sample (W-1) was analyzed from the single on-site well. The sample was collected from a tap near the wellhead and analyzed for volatile organic compounds (VOCs) according to EPA Method 602. No VOCs were detected. Analytical results are included in Appendix A.

4.0 Conclusions and Recommendations

Based on the records review, site inspection, and soil and groundwater analysis, no evidence of soil or groundwater contamination has been identified on the subject property. Although municipal waste was handled and incinerated at the site for several years, there appear to be no residual contaminants in the soil or water as a result of this activity. Large amounts of soil were reportedly removed from the site during development of the present office complex.

No potential areas of environmental concern were identified as a result of this study, and no additional investigations are recommended.

5.0 Sources of Information

Documents

Aerial photographs dated 1947, 1954, 1960, 1980, and 1986, various scales and resolution. Available at Westchester County Department of Planning, White Plains, NY. 1971 aerial photograph from Town of Harrison Building Department.

Environmental Impact Statement for 500 Mamaroneck Avenue, November, 1983. Prepared by J. Michael Divney Associates.

Environmental Risk Ltd., 1988, Site inspection report provided to Schulman Realty, Co., 9 p.

Goldberg, Zoino & Assoc., 1986, Environmental Assessment Report provided to Schulman Management Corporation, 5 p.

Inactive Hazardous Waste Disposal Sites in New York State, April, 1989, New York State Department of Environmental Conservation (NPL Reference).

Personal Communications

Monteiro, James. Town of Harrison Building and Maintenance Department.

APPENDIX A: LABORATORY ANALYTICAL RESULTS

CHEMTECH
CONSULTING GROUP, INC. 380 West 11th Street / New York, New York 10014 (212) 255-2100

October 17, 1989

Rudikoff & Rohde Inc.
328 Main Mall
Poughkeepsie, New York 12601

PROJECT NO.: 8910023

Attn: Mr.Paul H. Ciminello

Ref.:

SAMPLE NO.: 1 DESCRIPTION: S1

TEST	UNITS	RESULTS
Cadmium	mg/kg	<1.41
Chromium	mg/kg	65.4
Lead	mg/kg	136

DATE RECEIVED: 10/17/89

SAMPLE NO.: 2 DESCRIPTION: S2

TEST	UNITS	RESULTS
Cadmium	mg/kg	<1.56
Chromium	mg/kg	41.7
Lead	mg/kg	77.6

DATE RECEIVED: 10/17/89 DATE SAMPLED: 10/16/89

SAMPLE NO.: 3 DESCRIPTION:

TEST	UNITS	RESULTS

DATE RECEIVED: 10/17/89 DATE SAMPLED: 10/16/89

Divyajit Mehta
Laboratory Manager

CAMO LOG NO.: 89-10-4767

AROMATICS

EPA METHOD 602

PARAMETERS	(01) W-1 Well Sample
Benzene	<1
Toluene	<1
Ethylbenzene	<1
Xylene, Total	<3
Chlorobenzene	<1
1,4-Dichlorobenzene	<1
1,3-Dichlorobenzene	<1
1,2-Dichlorobenzene	<1

NOTE: All results expressed in ug/L unless noted otherwise.

CAMO LABORATORIES

A DIVISION OF CAMO POLLUTION CONTROL, INC.

POUGHKEEPSIE AREA FACILITY:
CAMO LABORATORY
367 VIOLET AVENUE
POUGHKEEPSIE, N.Y. 12601
(914) 473-9200

CHAIN OF CUSTODY

CLIENT Henry M. Celestino
Bill: Corporate Vice President
Schulman Realty Group

925 Westchester Avenue
White Plains, NY
10604-3583

SAMPLER L. Gamble, U.S. Hydrogeologic,

SAMPLE NO./ID	LOCATION/CONTAINER	DATE	TIME	SAMPLE TYPE	COMP	GRAB	No. of CONT.	ANALYSIS REQUIRED
W-1	well sample	10-12	1315	WATER ~~SOIL~~		X	1	BTX (602)
S-1	surface, pond area	10-12	1330	SOIL		X	1	Cd, Cr, Pb
S-2	surface, low area	10-12	1350	SOIL		X	1	Cd, Cr, Pb

Relinquished by: Lloyd Gamble — Received by: — Date — Time

Relinquished: — Received by: — Date — Time

Dispatched by: — Date — Time

Received for Laboratory by: Kathy Sullivan — Date 10/12 — Time 5:05 PM

Method of Shipment:

Comments: W-1 analyze for BTX (602) - large container unpreserved

CAMO Containers

1-week turnaround for W-1

APPENDIX B: PREVIOUS ENVIRONMENTAL REPORTS

ENVIRONMENTAL RISK LIMITED
:20 Mountain Avenue Bloomfield, CT 06002 (203) 242-9933

April 11, 1988

Mr. Michael Curran
Schulman Realty Co.
925 Westchester Avenue
White Plains, NY 10604

RE: Schulman Realty Property, 500 Mamaroneck Avenue, Harrison, NY
ERL Project No. 7920-C85-88

Dear Mike:

Pursuant to your request, Environmental Risk Limited (ERL) has conducted a site inspection and limited environmental sampling as an update to the May 30, 1986 environmental assessment of the above referenced location prepared by Goldberg Zoino Associates of New York, PC (GZA).

The scope of ERL's assessment update included a review of the May, 1986 GZA environmental assessment, a site inspection by an ERL environmental scientist and the sampling and analysis of groundwater from an existing, on site bedrock well. A copy of the May, 1986 GZA report has been included as Attachment I.

On March 29, 1988, Gary Iadorola of ERL visited the subject property to observe site conditions and collect environmental samples. Observations from the site visit follow.

The property development is essentially the same as that reported by GZA in 1986, with the major exception being that construction of the building is complete. In summary, approximately ten acres of the site is developed into an office building with a 55,000 square foot footprint. The building is currently vacant, and there are no manufacturing or other commercial establishments observed on this property that generate any known hazardous wastes. In consideration of the proposed building use as office space, the only wastes that may be generated are those associated with operation and maintenance of an office facility. Surrounding the building on three sides are paved parking areas. Mamaroneck Avenue borders the front of the building to the west. The developed, ten acre parcel is surrounded on three sides by approximately 24 acres of undeveloped wooded open space and wetland.

The building is serviced by city water and sewers. The heat source is supplied by an on site boiler. Number two heating fuel used for the boiler is stored on site in a buried, 20,000-gallon steel tank. This tank was reported by Schulman Management to have been installed during 1986 with a protective coating and cathodic protection. It is generally recommended that this tank be integrity tested at least every five years.

The property was reported by GZA and Schulman personnel to be the former location of the Town incinerator and waste transfer station. It was further reported by GZA that during construction, most debris associated with the former incinerator and transfer station was removed as part of the construction site development. A soil berm at the south end of the parking area was identified as the only area that contained debris that may have been associated with the former incinerator and transfer station (e.g., glass, metal, plastic, and slag). Two samples of these soils were collected by GZA and analyzed for the E.P. Toxic heavy metals. The results of the analysis were reported to be an order of magnitude lower than the hazardous concentrations. Hard copies of the past laboratory analysis were not included in the GZA report.

ERL also reviewed the site in regards to the need, feasibility, and/or the practicality to install groundwater monitoring wells at this property.

During construction, the original grade was lowered by approximately eighteen feet, with an estimated 330,000 cubic yards of soil and rock removed from the site. As a result of this extensive site work, the building and the majority of the developed area are underlain by bedrock with little or no soil mantle. Therefore, if monitoring wells were installed, they would be installed into bedrock.

Through discussions with Schulman personnel, ERL learned that a bedrock production well exists near the center of the site downslope of the former incinerator. The primary purpose of the well is to supply water to an on-site waterfall. This well provides an ideal point to access groundwater in the bedrock under the site. Because the well is and has been under pumping conditions (approximately ten GPM), it is probable that the groundwater obtained is from a larger area than groundwater that may have been obtained by monitoring a static monitoring well.

On March 29, 1988, ERL obtained a groundwater sample from the on site production well. The sample was submitted to Connecticut Testing Laboratories of Meriden, Connecticut for analysis. The analysis included the EPA Method 601 and 602 volatile organic compounds (characteristic of petroleum hydrocarbons and chlorinated solvents), the E.P. Toxic metals, and cyanide. The results of these analysis show none of the analyzed compounds were found above the laboratory detection limits. Subsequently, the analyzed parameters meet currently established USEPA action limits and standards for drinking water quality. Copies of the laboratory analysis are included in Attachment II.

The results of the groundwater analysis provide further confidence to the May, 1986 conclusion made by GZA that there is no on-site indication of the presence of hazardous materials or oils in the environment at the 500 Mamaroneck Avenue site. Furthermore, based upon the past and recent history of the site and the environmental data collected to date, additional groundwater monitoring at this site does not appear warranted.

ENVIRONMENTAL RISK LIMITED

If you have any questions concerning this matter, please call me or Gary Iadorola at (203) 242-9933.

Very truly yours,

ENVIRONMENTAL RISK LIMITED

Frederick W. Johnson
Senior Associate

FWJ/dc
Attachments (2)
cc: H. Guy Liebler, Schulman

Attachment II

Laboratory Analysis of Groundwater
Samples Collected March 29, 1988

WATER

SOIL

AIR

April 7, 1988

Environmental Risk LTD.
120 Mountain Ave.
Bloomfield, Ct. 06002

Att: Fred Johnson

RE: Lab. No. 38-305-1
P.O. No. 7920
Inv. No. 3228

Dear Mr. Johnson:

The following is a report of analysis on samples received March 29, 1988.

	WP-1
Arsenic - mg/l	ND<0.05
Barium - mg/l	ND<0.5
Cadmium - mg/l	ND<0.01
Chromium, Total - mg/l	ND<0.05
Lead - mg/l	ND<0.05
Mercury - mg/l	ND<0.002
Selenium - mg/l	ND<0.01
Silver - mg/l	ND<0.01
Cyanide, Total - mg/l	ND<0.05

Please contact me if you have any questions.

Very truly yours,

Stephen J. Franco

Stephen J. Franco
Laboratory Director

SJF:hc

STEPHEN J. FRANCO
Laboratory Director

CERTIFICATION
PH-0547

CONNECTICUT TESTING LABORATORIES, INC.
140 Gracey Avenue
Meriden, Connecticut 06450
(203) 634-3731

EPA METHOD 602/8020/8015-ppb

	WP-1				
Benzene					
Toluene					
Ethyl Benzene					
P-Xylene					
M-Xylene					
O-Xylene					
1,4-Dichlorobenzene					
1,3-Dichlorobenzene					
1,2-Dichorobenzene					
Methyl Ethyl Ketone*					
Methyl Isobutyl Ketone*					
Acrylamide*	---				
Carbon Disulfide*	---				
Diethyl Ether*	---				
Paraldehyde*	---				

Blanks indicate the analyte was tested and found to be below the minimum detectable level.

The minimum detectable level was less than 1 ppb .

*The minimum detectable level for these (*) parameters was 50 ppb .

EPA METHOD 601/8010-ppb

	WP-1			
Chloromethane				
Bromomethane				
Vinylchloride *				
Chloroethane *				
Methylenechloride				
Trichlorofluoromethane				
11-Dichloroethylene				
11-Dichloroethane				
T12-Dichloroethylene				
Chloroform				
12-Dichloroethane				
111-Trichloroethane				
Carbontetrachloride				
Bromodichloromethane				
12-Dichloropropane				
T13-Dichloropropylene				
Trichloroethylene				
Dibromochloromethane				
112-Trichloroethane				
Cis13-Dichloropropylene				
2-Chlorethylvinylether *				
Bromoform				
1122-Tetrachloroethane				
Tetrachloroethylene				
Chlorobenzene				
Benzyl Chloride				
Bis (2-chloroethoxy)methane *				
Bis(2-chloroisopropyl)ether *				
Bromobenzene				
Chloracetaldehyde *				
1-Chlorohexane				
Chloromethyl methyl ether *				
Chlorotoluene				
Dibromomethane				
12-Dichlorobenzene				
13-Dichlorobenzene				
14-Dichlorobenzene				
Trichloropropane				

Blanks indicate the analyte was tested and found to be below the minimum detectable level.

The minimum detectable level was less than 1 ppb .

*The minimum detectable level for these (*) parameters was 10 ppb .

WATER

SOIL

AIR

March 31, 1988

Environmental Risk LTd.
120 Mountain Ave.
Bloomfield, Ct. 06002

Att: Fred Johnson

RE: Lab. No. 38-286-1
P.O. No. 7920
Inv. No. 3200

Dear Mr. Johnson:

The attached report are results of analysis for samples received March 29, 1988.

The samples were analyzed by Gas Chromatography and results are reported in ppb.

Please contact me if you have any questions.

Very truly yours,

Stephen J. Franco

Stephen J. Franco
Laboratory Director

STEPHEN J. FRANCO
Laboratory Director

CERTIFICATION
PH-0547

SJF:hc

CONNECTICUT TESTING LABORATORIES, INC.
140 Gracey Avenue
Meriden, Connecticut 06450
(203) 634-3731

EKL

CHAIN OF CUSTODY RECORD

Place Address Of Collection: White Plains, NY

Sampler's Name (Signature): Gary Sadowski

Consultant/Attorney (Signature):

Job Number: 7920

Sample Number	Sample Location	Type Container	Total Volume	Preservative	Date	Time	Sample Type: Water	TSDF	Air	Waste	Remarks
WP-1		2	Glass	40 ml	No	3-29-88	1230 PM	✓			
WP-1		1	Plastic	1 qt.	No	"	"	✓			
WP-1		1	Plastic	1 qt	Sodium Hydroxide	"	"	✓			

Relinquished By (Signature): Gary Sadowski — Received By (Signature): [illegible] — Date: 3-29-88 — Time: 2:45 PM

Relinquished By (Signature): — Received By (Signature): — Date: — Time:

Relinquished By (Signature): — Received By (Signature): — Date: — Time:

Name & Address Of Laboratory:

ANALYSIS REQUIRED
SAMPLE IDENTIFICATION ⊙

Parameters	Sample Number: WP-1	Parameters	Sample Number: WP-1
Al		NO_2-N	
As		(Ortho) PO_4-P	
Ba		(Total) PO_4-P	
Ca		Oil & Grease	
Cd		Phenols	
Cr-6		CN^--A	
Cr-T		CN^--T	✓
Cu		TKN	
Fe-D		Organic-N	
Fe-T		TOC	
Pb		pH	
Mg		STD Water	
Mn-D		Fecal Coliform	
Mn-T		Fecal Strep.	
Na		Total Coliform	
Ni		Fluoride	
K		Chloride	
Ag		8010	✓
Sn		8020	✓
V		8080	
Zn		8015	
TSS		TOX	
TDS		EP-TOX - Metals	✓
TS			
Sp Cond.			
NO_3-N			
Remarks			

CHEMTECH
CONSULTING GROUP, INC. 380 West 11th Street / New York, New York 10014 (212) 255-0100

October 17, 1989

Rudikoff & Rohde Inc.
328 Main Mall
Poughkeepsie, New York 12601

PROJECT NO.: 8910023

Attn: Mr.Paul H. Ciminello

Ref.:

SAMPLE NO.: 1 DESCRIPTION: S1

TEST	UNITS	RESULTS
Cadmium	mg/kg	<1.41
Chromium	mg/kg	65.4
Lead	mg/kg	136

DATE RECEIVED: 10/17/89

SAMPLE NO.: 2 DESCRIPTION: S2

TEST	UNITS	RESULTS
Cadmium	mg/kg	<1.56
Chromium	mg/kg	41.7
Lead	mg/kg	77.6

DATE RECEIVED: 10/17/89 DATE SAMPLED: 10/16/89

SAMPLE NO.: 3 DESCRIPTION:

TEST	UNITS	RESULTS

DATE RECEIVED: 10/17/89 DATE SAMPLED: 10/16/89

Divyajit Mehta
Laboratory Manager

CAMO LOG NO.: 89-10-4767

AROMATICS

EPA METHOD 602

PARAMETERS	(01) W-1 Well Sample
Benzene	<1
Toluene	<1
Ethylbenzene	<1
Xylene, Total	<3
Chlorobenzene	<1
1,4-Dichlorobenzene	<1
1,3-Dichlorobenzene	<1
1,2-Dichlorobenzene	<1

NOTE: All results expressed in ug/L unless noted otherwise.

GZA OF NEW YORK P.C.
GOLDBERG-ZOINO ASSOCIATES OF NEW YORK P.C.
GEOTECHNICAL-ENVIRONMENTAL CONSULTANTS

JAMES H. REYNOLDS
GENERAL MANAGER
SUITE 1000 RAND BUILDING
BUFFALO, NY 14203
716/855/8860

May 30, 1986
File No. E-6437 A

Schulman Management Corporation
925 Westchester Avenue
White Plains NY

Attn: Mr. Mike Curran

REPLY TO: ROBERT A. HELLER
DISTRICT MANAGER
581 LAFAYETTE BLVD.
BRIDGEPORT, CT 06604
203/334-6593

Gentlemen:

Per the request of Schulman Management Corporation, Goldberg-Zoino & Associates Inc., (GZA/Heller) has performed a site visit at a 34 acre piece of property at 500 Mamaroneck Avenue in Harrison, NY. The purpose of our site visit was to observe the site for evidence of the presence of oil or hazardous material in the environment at the site.

The subsequent sections of this letter contain GZA/Heller's observations at the site.

Field Visit

On May 15, 1986 Mr. David Greene of GZA/Heller met with Mr. Mike Curran of Schulman Management Corporation to observe site conditions and discuss site history with respect to land use and hazardous materials and oil. Observations from that site visit follow.

A site plan is attached for reference.

An office building with a footprint of 55,000± square feet is currently under construction at the site. Associated parking areas are also in the process of development.

Approximately 10± acres of the site are developed or in the process of development. The remaining 24± acres primarily on the east side of the property were observed to be undisturbed woodlands, marshy areas or are planned for open space.

According to Mr. Curran, the site was formerly the town incinerator/waste transfer station. The incinerator was apparently located where the office building is being constructed.

Based on visual observation and conversation with Mr. Curran all soil and large volumes of bedrock have been removed from the building area and adjacent future parking areas. The land surface has apparently been lowered by approximately eighteen feet and it is our understanding that 330,000± cubic yards of soil and rock have been removed.

According to personnel of DeLaurentis Excavating there was debris on the site prior to site development. Debris reportedly consisted of scrap metal, old cars and other non-burnable material from operation of the incinerator. Apparently the majority of this material was removed prior to the start of excavation. No evidence of significant deposits of any debris or residue from the incinerators were observed.

The only potential evidence of past site usage as an incinerator/transfer station was seen in the soils used to construct a ±150 ft. x 12 ft. x 10 foot berm on the southeast corner of the site. This soil consists of a grey silt with fragments of glass, metal, slag, ash and small amounts of plastic. Two soil samples were obtained from this berm area and were made into a single composite for the analysis of priority pollutant metals by EP toxicity methods. Samples were taken to confirm that contamination of these soils has not occured. Verbal results of the laboratory analysis indicate that the composite soil sample did not exhibit the characteristics of hazardous soils using EP Toxicity Methods. All metal results were at least an order of magnitude below relevant standards.

Summary and Conclusions

A limited environment assessment was conducted at 500 Mamaroneck Avenue in Harrison, New York. The assessment included a site visit and analysis of one composite soil sample for priority pollutant metals (results pending). No background research or subsurface explorations were performed. Based on studies conducted and observation made as part of the present assessment, it is GZA's opinion that there is no on-site indication of the presence of hazardous materials or oils in the environment at the site.

The laboratory report will be forwarded upon receipt by GZA/Heller.

Limitation

This report is subject to the attached limitations.

This study and report have been prepared on behalf of and for the exclusive use of our client solely for use in an environmental evaluation of the site. This report and the findings contained herein shall not, in whole or part, be disseminated or conveyed to any other party, nor used by any other party, without the prior written consent of GZA/Heller. However, GZA/Heller acknowledges and agrees that the report and attached Statement of Terms and Conditions may be conveyed to potential tenants associated with the site.

GZA

The report has been prepared in accordance with the Statement of Terms and Conditions set forth in the following section. No other warranty, expressed or implied, is made.

We trust the report presented herein satisfies your current requirements. The undersigned will be contacting you in several days to discuss any questions you may have. We have appreciated the opportunity to work with you on this project.

Very truly yours,

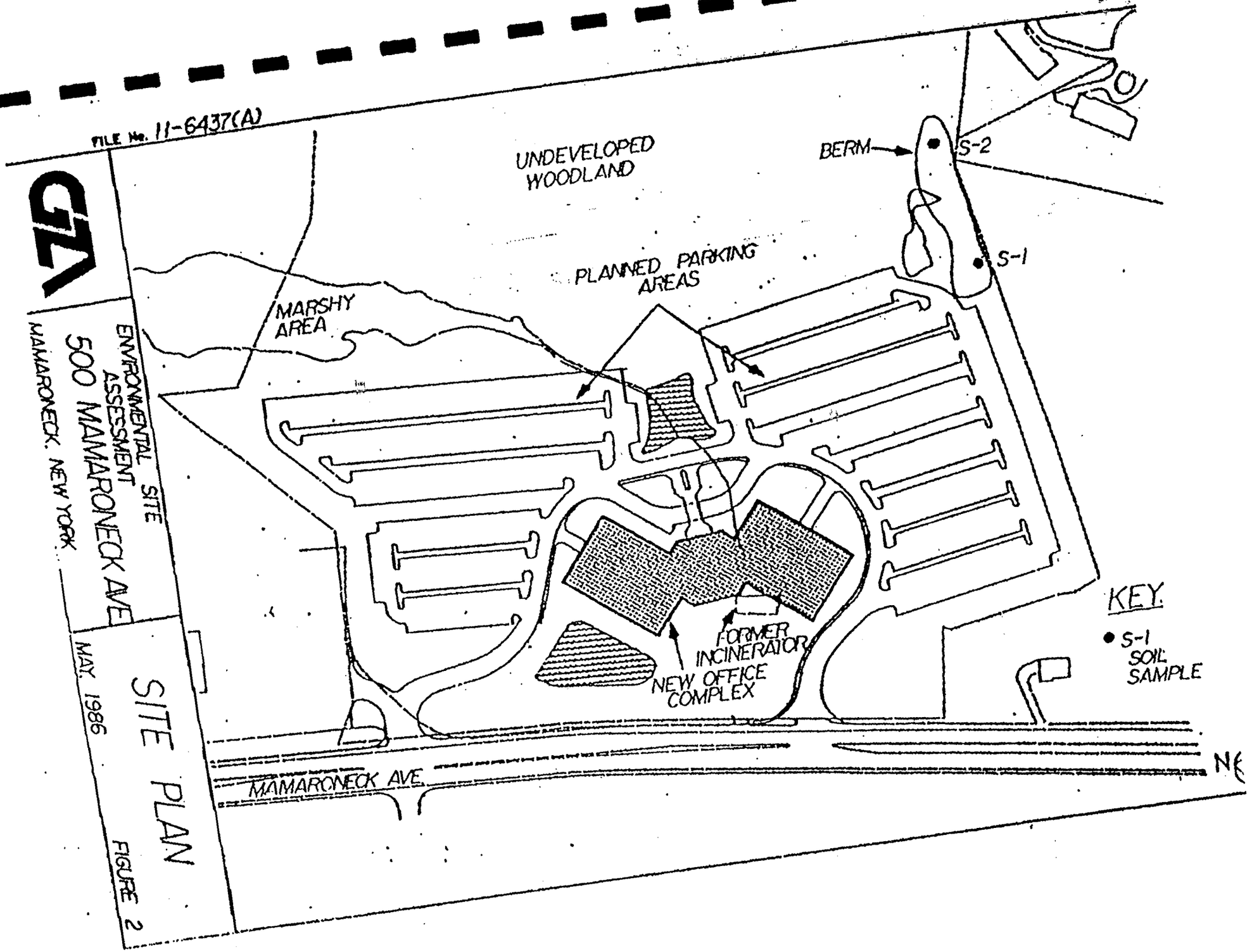
GOLDBERG - ZOINO & ASSOCIATES

Kathleen A. Cyr, P.E.
Senior Project Manager

Robert A. Heller, P.E.
Associate-in-Charge

KAC,RAH/gia

GZA


FILE No. 11-6437(A)
GZA
ENVIRONMENTAL SITE ASSESSMENT
500 MAMARONECK AVE.
MAMARONECK, NEW YORK
SITE PLAN
MAY, 1986
FIGURE 2
UNDEVELOPED WOODLAND
BERM
S-2
S-1
PLANNED PARKING AREAS
MARSHY AREA
FORMER INCINERATOR
NEW OFFICE COMPLEX
KEY
S-1 SOIL SAMPLE
MAMARONECK AVE.

APPENDIX A

LIMITATIONS

1. The observations described in this Report were made under the conditions stated therein. The conclusions presented in the Report were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by Client. The work described in this report was carried out in accordance with the attached Statement of Terms and Conditions.

2. In preparing this Report, GZA has relied on certain information provided by state and local officials and other parties referenced therein, and on information contained in the files of state and/or local agencies available to GZA at the time of the site assessment. Although there may have been some degree of overlap in the information provided by these various sources, GZA did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this site assessment.

3. Observations were made of the site and of structures on the site as indicated within the Report. Where access to portions of the site or to structures on the site was unavailable or limited, GZA renders no opinion as to the presence of hazardous material or oil, or to the presence of indirect evidence relating to structure. In addition, GZA renders no opinion as to the presence of indirect evidence relating to hazardous material or oil, where direct observation of the interior walls, floor, or ceiling of a structure on a site was obstructed by objects or coverings on or over these surfaces.

4. Unless otherwise specified in the Report, GZA did not perform testing or analyses to determine the presence or concentration of asbestos or polychlorinated biphenyls (PCB's) at the site or in the environment at the site.

5. The purpose of this report was to assess the physical characteristics of the subject site with respect to the presence in the environment of hazardous material or oil, as defined in Connecticut General Statutes Section 22a-452. No specific attempt was made to check on the compliance of present or past owners or operators of the site with federal, state, or local laws and regulations, environmental or otherwise.

GZA

B

APPENDIX B

Field Notes

Tu/5/12/98 Marina Tower Work /
5001 Alameda Ave, Alam

ERM/ADT onsite @ 0800

*

Soil Boring Scope:

Due to the presence of shallow bedrock plan to make 2 attempts for a visible soil boring at each previously selected area. If unable to penetrate past 2' bls, will move to next location.

Calibrated Photovac PID using 100ppm isobutylene standard. Measurement 100ppm = 100ppm

GP-1

attempt ① Drill rod encountered refusal @ 1' bls

attempt ② Drill rod encountered refusal @ 1' bls

attempt ③ A 0-4' Rec 80% PID 10.2 Time 1026
Fine to Med Sand, Gravel, Med Brown
Odorless

B 4.0-7.5' Rec 90% PID 0 Time 1042
Silty Sand & Gravel. Med/Dk Brown
Odorless Silt = 30% of matrix
Note: Hit void in borehole from 6.5-7'
Refusal @ 7.5' bls.

To 1/5/12/98 Cuddy Feder Worby / Harrison
1262.002

GP-3

attempt ① Refusal @ 4" bls
attempt ② " @ 12" bls
attempt ③ " @ 9" bls
attempt ④ " @ 15" bls
attempt ⑤ " @ 22" bls Sample Taken

A 0-1.75' Rec 80% PID 0.2 ppm Time 1113
Same description as GP-1 (0-4') except they are 2 layers of sandy clay (moderate plasticity, medium) Refusal @ 22" bls

GP-2

attempt ① Refusal @ 24" (2.0')
attempt ② Refusal @ 27" (2.25') Sample Taken
A 0-2.25' PID-93 ppm Rec 80% Time 1124
Silt w/ Gravel (10%), Med/Dark Brown Odorless

10/5/1998 Cuddy, Feder, Worby / Harrison

GP-4

attempt ① Refusal @ 2.2' bls

attempt ② Refusal @ 2.25 bls

A 0-2.25' Rec 90% PID 0.0 ppm Time 1148
Silty (15%) Sand (70%) w Gravel (15%), Med/dark brown, Odorless
- Refusal @ 2.25 bls

GP-5 A 0-3.5' Rec 90% PID 0.0 ppm Time 1237
Sand w/ Gravel - color and texture appear to be similar to pulverized bedrock, white + gray components.
This sample from the "sports" area

B 3.5-6.5 Rec 80% PID 0.0 ppm Time 1238
Same description as A (0-3.5'); White components are granular & there is an increase % of fine, powder-like material; Refusal @ 6.5' BLS

GP-6

attempt ① Refusal @ 11"
" ② " @ 6"
" ③ " @ 10"

A 0-1' BLS Rec 60% PID 0.0 ppm Time 1306

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GP-6A (continued)

Fine to Coarse Sand & Gravel. Gravel comprises 30% of soil matrix. Med brown. Refusal @ 1' BLS

GP-7

attempt ① Refusal @ 13"

" ② " @ 13"

attempt ③ Refusal @ 27" (2.25' bls)

A 0.25 - 2.25' Rec 90% PID 0.0 ppm Time 1419

Silty Sand w/ Gravel (30%). Med Brown. Odorless. Refusal @ 2.5' bls

GP-8 (location chosen because of sod staining where GW was cut)

A 0-3': Rec 60% PID 0.0 ppm Time 1426

Moist; Silty Sand w/ Gravel, sand component are fine to V. fine grained & comprises 80% of soil matrix; med/dark brown; odorless;

B 3-6' Rec 40% PID - 0.0 ppm Time 1435

Top 9" Wet Sand w/ Gravel, sand is med. to coarse grained; Gravel is angular to 1" diam & comprises 3-40% of matrix Color, black & white

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GP-8B (3-6' bls) - Bottom 9" Wet Clay - moderate plasticity medium brown, slight odor of sewage or organic decay.

C 6-8' Rec 50% PID - 0.0ppm Time 1447
Top 8" same description as 8B (Top 9")
Bot 4" same description as 8B (Bot 9")
Refusal @ 8' bls

GP-9

A 0-3' Rec 50% PID - 0.0ppm Time 1514
Same description as GP-7A

B 3-5.5' Rec 50% PID 0.0ppm Time 1531
Same description as GP-7A
Refusal @ 5.5' bls

GP-10

A 0-3' Rec 80% PID 0.0ppm Time 1544
Same description as GP-7A

B-3-6' Rec 30% PID 0.0ppm Time 1605
Same description as GP-7A except soil matrix was moist.
Refusal @ 6' BLS

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GP-11

A 0-3' Rec 60% PID 0.0 ppm Time 1623
Same description as GP-7A except:
① soil matrix is moist
② 30% of matrix is composed of unnatural material such as shard of glass + tile, wood chips, wood cinders, etc.

B 3-6' Rec 60% PID- 0.0ppm Time 1631
Same description as A(0-3' BLS) interval except interval 3-6' BLS also contains plastic and wire strands / metal scraps

C 6-10' Rec 30% PID-0.0ppm Time 1638
Wet Same description as interval B of this sample

NO REFUSAL @ 12' BLS

GP-12

A 0-3' Rec 70% PID.-0.0ppm Time 1653
Same description as GP-11 A(0-3) except 5-10% unnatural materials

B) 3-6' Rec 60% PID ppm Time 1658
Same description as GP-12 A(0-3') except soil matrix is moist.

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GP-12C (6-7' BGS) Rec 20% PID 0.0ppm Type [illegible]
Moist, Silty Sand w/ Gravel.
Gravel comprises 40% of soil matrix
Odor - Oil Unknown / unidentifiable
Wood fragments comprised 20% of matrix

GP-13

A (0-3') Rec % PID 0.0ppm Time 1717
Same description as GP-12C except dry.

B (3-6') VOID ENCOUNTERED
- No Recovery

C (6-7') - Rec 100% Wet PID 0.0ppm Time 1723
Top 6" Sandy clay, sand - med grained
High plasticity, Mod brown
Bot 6" Moist. Fine to coarse Sand with gravel. Color med brown and dk brown/black. Gravel comprises 30% of matrix

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GP-14
attempt ① Refusal @ 1' BLS
attempt ② Refusal @ 3' BLS
A (6-7') Rec 50% PID - 0.0ppm @ Time 1754
Same description as GP-13C (6-7')
Bot 6" except that soil color is med brown & soil matrix is relatively dry.

GP-15A Rec 60% PID 0.0ppm Time 1809
attempt ① Refusal @ 2' BLS
attempt ② Refusal @ 2' BLS
Same description as GP-14

- All boreholes were abandoned by backfilling using #2 Gravel pack to 6" bls followed by 3 to 4" of bentonite chips and surfaced with asphalt cold patch
- Due to the unusual virtually complete absence of VOCs, the PID was periodically tested through the day to ensure that it was continuing to operate properly

- ADT offsite @ 1900
- ERM offsite @ 2015 / Ed Ex NY @ 2100 / Office 2225 hrs

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ERM started @ 0630 hrs / on-site at 0800

ADT on-site @ 0800 w/ Truck mounted GeoProbe.

Discussed work scope w/ ADT and toured drilling Areas. Due to extremely heavy precipitation during previous couple of days the drilling areas in front of the building are relatively soggy. As such w/ ADT started @ GP-16 to allow for further drying time at other areas

Contacted John Stillgebauer who indicated all was in order relative to Certificate of Insurance for ADT.

Set up @ GP-16.

Joe Thomas came to drilling area to discuss work scope. Indicated that he did not want GeoProbe truck to drive over any underground utilities in front of the building.

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I indicated that the GeoProbe truck would likely not be able to ascend the slope up to the ~~well~~ boring location with the moist conditions at present, and that the specific lines he is concerned with, ~~are~~ water (sewer are likely @ 4' BLS (to be below the frostline) and 12' BLS (based on observation of the discharge trap). Never-the-less, he requested that we do not cross the building frontage.

Contact Greg Shpuda to discuss. Decided to remob on a different day with manual equipment - Tripod + Split barrel samplers. Arranged.

Though Joe Thomas considers this to be a failure on the Underground Utility Locating Service, because they did not markout the entire utility runs. It indicated that their work scope was limited to check individual locations only.

To maximize costs, decided to take samples at the 3 location where Joe Thomas has no concerns (GP-1, 2, 3)

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GP-16A

attempt 1 Refusal @ 26" BLS Time 0937
attempt 2 Refusal @ 19" BLS Time 0959
attempt 3 Refusal @ 22" BLS Time 1016
attempt 4 Refusal @ 22" BLS Time 1107

A (0.25–2.0) Rec 100% PID 00 ppm Time 0937
Sandy Silt with Trace Gravel; Sand components are fine to med grained. Gravel is subrounded. Color - Dark brown. Matrix contain approx 5% wood splinters

GP-21A (0–9') Rec 80% PID 0.0 ppm Time 1153
Silty Sand with little Gravel. Gravel is subrounded to subangular & ranges to 25cm; Dark brown; Sand components are fine (60%), med (20%) coarse (10%).

GP-21B (3–7') Rec 60% PID 0.1 ppm Time 1159
Silty Sand with little Gravel; Sand component is med grained. Gravel is subrounded & ranges to 1.5 cm in size; Color - med/dk brown. Soil matrix is dryer than previous interval.

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GP-21C (7-10') Rec 95% PID 0 ppm Time 1207
Soil description is the same as GP-21B (3-7' BLS)

Mob to GP-20. Due to a visual change in landscaping requested Joe Thomas confirm that boring location was actually part of the subject property. He indicated that it was in an easement area, but to proceed w/ drilling

GP-20A (0-3') Rec 80% PID 0.1 Time 1250
Silty Sand with ~~some~~ Gravel; Sand component are very fine (50%) to medium grained (10%). Gravel is subrounded to angular and ranges to 2.0 cm in dia. Color - Dark brown. Soil matrix is moist.

GP-20B (3-5.5') Rec % PID 0 ppm Time 1305
Soil description is the same as previous interval for this drilling location (GP-20A (0-3' BLS)

ADT decontaminated downhole tool & began breakdown of drilling equipment

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ERM & ADT offsite @ 1340 hrs

All samples collected have been preserved with ice and will be retained until remaining 3 borings can be completed. At that time sampler will be forwarded to Brent Mengille for PCB ~~sin~~ monday testing

Returned to office @ 1510 hrs.

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GP-17A (0-2'BLS) BC 3,3,4,5 Rec 60% PID ppm Time 1256
Top 8" Same description as GP-19B (2-4')
Bottom 8" Same description as GP-19 (4-6') Bot 7"

GP-17B (2-4'BLS) BC 5,6,7,9 Rec 60% PID ppm Time 1304
Top 6" Moist Silt, Compact, Color - Med Brown
odorless,
Bottom 9" Dry Silty ~~Sand~~ w/ ~~Some~~ little gravel;
Same description as GP-19C (Bot 7")

GP-17C (4-6'BLS) BC 4,5,5,6 Rec 20% PID ppm Time 1316
Sandy Silt w/ Some Gravel; Sand
components compose 5% of soil matrix
and are fine to med grained; Gravel
is angular to subangular and ranges to
3 cm; Color - Red/Dark brown.

GP-17D (6-8'BLS) BC 12,11,10,9 Rec 20% PID ppm Time 1324
Same description as GP-17C

GP-17E (8-10'BLS) BC 7,10,10,9 Rec 15% PID ppm Time 1330
Same description as GP-17C
Refusal @ 9.0' BLS

Sample ID GP-17 A/B (0-3'BLS) @ 1304
GP-17 B/C (3-6'BLS) @ 1316
GP-17 D,E (6-10'BLS) @ 1330

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GP-18A (0-2'BLS) BC 3,6,6,8 Rec 60% PID ppm Time 1154
Same description as GP-19A except soil matrix is very dry.

GP-18-B (2-4'BLS) BC 7,8,8,12 Rec % PID ppm Time 1152
Top 8" Same description as GP-18A (0-2')
Bot 8" Very Fine Sand w little Gravel; Gravel is subrounded to angular and ranges to 2.5 cm; Color light/med brown, Odorless.

GP-18C (4-6'BLS) BC 3,3,2,2 Rec 40% PID ppm Time 1159
Top 6" Same description as GP-18B (2-4'BLS) Bot 8"
Bottom 8" Same description as GP-18B (2-4'BLS) Bot 8". except Color is dark brown

GP-18D (6-8'BLS) BC 8,8,7,6 Rec 40% PID ppm Time 1210
Very Fine sand w/ some Gravel; same description as GP-18C (Bottom 8) except for gravel content.

GP-18E (8-10'BLS) BC 6,8,9,10 Rec 50% PID ppm Time 1223
Same description as GP-19D (6-8'BLS)

Sample ID: GP-18 A/B (0-3'BLS) @ 1152
GP-18 B/C (3-6'BLS) @ 1159
GP-18 D,E (6-10'BLS) @ 1223

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GP-19A (0-2') BC 2,2,2 Rec 60% PID 0 ppm Time 1004
Silt with little Gravel; Gravel is angular to subangular. Color - Med/Dk brown; Odorless; Soil matrix is moist

GP-19B (2-4' BLS) BC 6,7,7 Rec 30% PID 0 Time 1008
Moist Clayey Silt with Gravel; ~~Trace Clay~~ Trace Clay; little Gravel; Gravel is subangular to angular & ranges to 2cm in size; Color - Dk brown; Odorless

GP-19C (4-6' BLS) BC 7,7,11 Rec 50% PID 0 ppm Time 1015
Top 5" same description as 19B
Bot 1" Sandy silt w/ little Gravel and Rock fragment. Gravel content is subrounded to angular, Rock fragment due to cobble pulverized by the sampler; Med/dk brown; Odorless

GP-19D (6-8' BLS) BC 30,11,16 Rec 10% PID — ppm Time 1026
Fine to Coarse sand w/ little Gravel and Rock Fragments; Rock Fragments due to pulverized by sampler; Color - Grayish brown; Odorless; Matrix very dry

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GP-19E (8-10' BLS) BC 10,7,10 Rec 10% PID - ppm Time 1038
Medium to Coarse Sand w little Gravel.
Sand primarily medium grain sized (75%).
Gravel is subrounded to angular and
ranges to 1.5 cm; Color: red brown;
Odorless.

Note: due to the minimal recoveries of
the IC & D intervals an addition sample
was collected from 10-12' BLS to provide
sufficient sample volume to accommodate
the entire suite of analyses

GP-19F (10-12' BLS) BC 6,8,8,9 Rec 20% PID 0 ppm Time 1109
Wet. Clayey Silt with some Gravel. Gravel
is subrounded to subangular & ranges to
1.5 cm. Clay comprises 5-10% of wet matrix;
Color: Med/dk brown; Odorless
Sample interval contains glass & metal shards

Sample ID	Time
GP-19 A/B (0-3' BLS)	1008
GP-19 B/C (3-6' BLS)	1026
GP-19 D/E/F (6-12 BLS)	1109

w/5/27/98 500 Mamaroneck Ave Assoc/Harrison

ADT broke down + left loaded equipment to vehicle. / Offsite @ 1400 hrs

ERM offsite @ 1440 hrs/
FedEx - Westbury @ 1615 hrs.
Office @ 1640 hrs.