Report. V00213. 2000-04-01.
site assessment

ENVIRONMENTAL RESOURCES MANAGEMENT

FINAL INVESTIGATION SITE ASSESSMENT REPORT

500 Mamaroneck Avenue
Harrison, New York 10528
(Volume I)

April 2000

Prepared for:

500 Mamaroneck Avenue Associates
500 Mamaroneck Avenue
Harrison, New York

Prepared by:

ENVIRONMENTAL RESOURCES MANAGEMENT
175 Froehlich Farm Boulevard
Woodbury, New York 11797

ERM®

FINAL INVESTIGATION SITE ASSESSMENT REPORT

500 Mamaroneck Avenue
Harrison, New York
(Volume I)

April 2000

Prepared for:

500 Mamaroneck Avenue Associates
500 Mamaroneck Avenue
Harrison, New York

Prepared by:

ENVIRONMENTAL RESOURCES MANAGEMENT
175 Froehlich Farm Boulevard
Woodbury, New York 11797

X8101.00.659

Table of Contents

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

(VOLUME II)

* Contained in June 1998 ERM Northeast Report

Section 1

Section 1

1.0 *INTRODUCTION*

Environmental Resources Management (ERM) has prepared this Final Investigation Site Assessment Report on behalf of 500 Mamaroneck Avenue Associates ("MMA") to document conditions at the property located at 500 Mamaroneck Avenue, Harrison, New York (site). This report provides data from an Investigation Work Plan submitted to the New York State Department of Environmental Conservation ("NYSDEC") in December 1998, (Appendix A) as well as data and information in response to all the NYSDEC comments to that Work Plan (Appendix A). This Investigation Report is submitted to the NYSDEC for approval as the final investigation work plan and report under paragraph I (A) (I) of the Voluntary Cleanup Agreement, Index # W3-0851-99-05 between the NYSDEC and MMA dated April 13, 2000 ("VCA"). The site covered by the VCA is occupied by a five-story office building, which was constructed on property previously owned and operated by the Town of Harrison as a municipal incinerator. As part of a Phase I Due Diligence Investigation carried out by Dames and Moore, Inc on behalf of a potential purchaser of the site in 1998, soil and groundwater samples were collected to assess potential impacts from past property usage. Dames and Moore's preliminary sampling results indicated residual soil concentrations of Resource Conservation Recovery Act (RCRA) metals, polycyclic aromatic hydrocarbons (PAHs) and polychlorinated biphenyls (PCBs) interpreted to be in excess of regulatory standards or guidelines. Groundwater samples collected by Dames & Moore, however, did not indicate any significant levels of contaminants. Follow up sampling, was carried out in May 1998 by ERM on behalf of MMA . As discussed later in the report, not all of the Dames & Moore results and interpretations, in particular the elevated PCB findings, were confirmed by ERM and subsequent testing carried out by Coneco, Environmental Corp.) The detection of residual on-site contamination by ERM resulted in submission of a Voluntary Clean up Program (VCP) application to the NYSDEC, which resulted in the

VCA. This report summarizes the previous site investigations, in particular the initial site investigation conducted in 1998, and the remediation site investigations conducted in 1998 and late summer 1999 pursuant to the Work Plan attached as Appendix A.

1.1 *ERM INVESTIGATIONS - MAY 1998 – JULY 1999*

In May 1998, ERM was retained to evaluate conditions at the site. ERM carried out a site investigation, which included the installation of 21 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.
- Establish the source of on-site contamination.

The results of the site investigation were detailed in a report prepared by ERM entitled Site Assessment Report 500 Mamaroneck Avenue, Harrison, New York, dated June 1998 and are attached hereto as Appendix B The report discussed the contaminant distribution, evaluated the fate and transport of the residual contaminants detected and recommended a remedial alternative consistent with the property usage. The report data confirmed that the contamination was most likely related to past site usage as a municipal incinerator and not the result of any activity or usage by MMA.

That assessment report was submitted to the NYSDEC to determine how best to address the contaminants present at the site. The NYSDEC indicated that appropriate closure of the site could be achieved through the State's VCP and an application was therefore completed and submitted to the NYSDEC. This Site Assessment Work Plan, dated December 1998, was included with the application. That Work Plan was reviewed and commented upon by NYSDEC. All NYSDEC comments were incorporated into the Investigation Work Plan implementation. That Work Plan (and NYSDEC comments) is attached as Appendix A.. All work was conducted on site from May to July 1999. This report documents and analyzes that investigation and constitutes in our opinion the Final Investigation Report under the VCA which we request NYSDEC to confirm pursuant to paragraph I (A) (1) of the VCA and to attach to the VCA as Exhibit "B", the Final Investigation Report.

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 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 properties.

Site topography has changed substantially as a result of construction activities. Approximately 340,000 cubic yards of soil and rock were removed prior to construction of the current office building development. This material was removed only from that portion of the site that was improved (the portion closest to Mamaroneck Avenue). Water is provided by the local municipal system and the site therefore has no drinking water well(s). A bedrock 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 seasonal wet area is located in the northeastern portion of the property, immediately east of the northern portion of the parking area. The wet area appears on the 1990 U.S. Department of the Interior Wetlands Inventory Map and is described as a Palustrine – Scrub/Shrub – Broad leaf – deciduous-seasonally flooded area. The area is not shown on the 1987 N.Y. State Fresh-Water wetlands map and is therefore not regulated by the NYSDEC.

The surrounding properties are primarily commercial structures along Mamaroneck Avenue (to the south and north of the subject property) and single family residences further 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*

The U.S.G.S. 1967 (photo inspected 1975) Topographic Map of the Mamaroneck. New York Quadrangle, shows that site elevation ranges from approximately 130 feet at the eastern property line to 60 feet along the western side of the property. The topography and general site features suggest that groundwater beneath the study site would 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*

Phase I's

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; Dames & Moore, Inc., 1998 (late February or early March), ERM, June, 1998 and Coneco Environment Corp. (Coneco), June 1999. Except for the Dames & Moore and Coneco sampling and ERM Site Assessment, these investigations can be categorized as general Phase I Environmental Assessments. GZA, ERL and USHI ~~did~~ 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 Municipal Solid Waste (MSW) operations (see Figure 3). The samples were composited and analyzed for RCRA metals 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 3). 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 3). 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 necessarily indicate contamination from operation of the incinerator.

Dames & Moore Data - 1998

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 (D-5 an D-6) were not installed due to the presence of underground utilities. Figure 3 presents the locations of the Dames & Moore boring locations. The soil samples were analyzed for VOCs, semi-volatile organic compounds (SVOCs) including PAHs and PCBs and RCRA metals. Only the results of the Dames & Moore sampling were obtained by ERM, 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 potential property transfer.

Dames & Moore's data sheet received indicated PAHs and PCBs in excess of Technical and Administrative Guidance Memorandum Number HWR-94-4046: Determination of Soil Cleanup Objectives and Cleanup Levels, dated January 24, 1994 (TAGM-4046) 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. Recommended Soil Cleanup Objectives are 61 µg/kg or method detection limit (mdl), 400 µg/kg or mdl and 224 µg/kg, respectively. The PCB concentration (Aroclor 1242) in this sample was 13,000 µg/kg. The TAGM-4046 Recommended Soil Cleanup Objectives for PCBs are 1,000 µg/kg (surficial [0-3 feet below grade]) and 10,000 µg/kg (subsurface [> 3 feet below grade]). No VOCs exceeded TAGM-4046 recommended objectives in any of the six soil samples collected. The data sheet also indicates that RCRA metals exceed TAGM-4046 guidelines in all of the samples. However, 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, comparison of the Dames & Moore metals data to TAGM-4046 objectives rather than site background was premature. In addition, no subsequent collected data have indicated any PCB samples in excess of TAGM-4046.

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 parameter was detected above its respective TAGM-4046 guidance criterion.

ERM-May/June 1998

As discussed previously, in May and June, 1998 ERM carried a Site Assessment at the 500 Mamaroneck Avenue property. This investigation consisted of the installation of 21 soil borings (ERM1 through ERM-21). The borings were installed to:

- evaluate the Dames and Moore findings and
- define areas with residual soil contaminants with concentrations above the TAGM-4046 Recommended Clean up Objectives.

Soil samples were collected continuously from land surface to a depth of 15-feet or to bedrock in each borehole. Each sample was screened using field immunoassay testing for PCBs and PAHs. Confirmatory samples were sent for laboratory testing and further analysis for PCBs and PAHs Four soil samples were further characterized through analysis for PCBs, PAHs and RCRA metals after extraction using the Toxicity Characteristic Leaching Procedure (TCLP). The latter analyses were carried out to assess the mobility of any residual constituents encountered during the assessment.

The June, 1998 ERM assessment revealed the presence of some residual chemicals, namely PAH's above the TAGM-4046 Recommended Soil Clean up Objectives in some of the borings. The contaminants above Clean-up Objectives were detected in the south parking lot of the site bordering the berm (ERM-12 and ERM-13). The location of the former incinerator (ERM-19) and in northwest corner adjacent to the access road (ERM-20).

Coneco Environmental Investigation - 1999

In early 1999, the property was sold to 500 Mamaroneck Avenue L.P. and Viviane Paris, LLC as Tenants in Common (W&M). Prior to the sale, W&M engaged Coneco to install additional borings to evaluate environmental conditions at the site. In March, 1999 Coneco installed 57 soil borings, collected a groundwater sample from the on-site well and sampled surface water and sediment at the site. Borings were advanced to bedrock with continuous collection of soil samples. As in the ERM investigation, some of the samples indicated residual concentrations of PAHs in excess of TAGM-4046 Recommended soil Clean-up Objectives. The locations of these borings were similar to the locations where ERM had observed exceedences, i.e. in the south parking lot adjacent to the berm and in the northwest corner of the property near the entrance roadway. Contaminants were not detected in the groundwater, surface water or sediment samples. The consultant investigation reports are presented in Appendix B.

Section 2

Section 2

2.0 *REMEDIATION SITE INVESTIGATION*

The scope of the Remediation Investigation Work Plan was based on discussions with the NYSDEC regarding the findings of the initial Site Assessment conducted by ERM in May/June 1998, the work carried out by Coneco in 1999 and NYSDEC's requests for additional information to complete the site assessment. This Work Plan is requested to be attached as Exhibit B of the VCA and designated the Final Investigation Work Plan. It was designed to fully define the extent of impacts from past activities at the Site. The specific data gaps from previous investigations identified by the NYSDEC were addressed by the collection of additional samples, analyzed for a broader range of analytes. The Remediation Investigation included:

- A geophysical survey implemented in areas where residually contaminated (PAHs, PCBs) soils were detected in previous investigations.
- Installation of 28 additional borings.
- Collection of groundwater, surface water and sediment samples.
- Analysis of all samples for the complete target analyte list (TAL) and target compound list (TCL).
- A site survey to accurately locate the numerous boring installed on the site and establish surface elevations.

The primary purpose of these tasks was to:

- Provide a better definition of on-site contamination and identify potential sources.
- Provide a means for calculation of the soil volume present over the bedrock surface in areas where residual contamination has been detected.
- Afford a means for evaluating whether there is sufficient soil volume to represent a significant source of contamination.

- Facilitate calculation of the costs associated with soil removal and offsite disposal, based on the determination of volume for areas of residually contaminated soils, should this become a potential remedial option.

Details of the subsurface investigation are discussed below. The work plan and NYSDEC comments are provided in Appendix A.

2.1 *GEOPHYSICAL SURVEY OF KNOWN IMPACTED AREAS*

NAEVA Geophysics Inc. (NAEVA) of Tappan, New York implemented a non-intrusive subsurface investigation on 12-14 May 1999. This investigation was carried out to determine the depth of bedrock from land surface in areas where previous investigations detected PAHs and PCBs above TAGM 4046 levels. Four areas were designated for further investigation during the Supplemental Site Investigation and were called Areas of Concern (AOC). The designation was based solely on data collected in previous investigations and the presumption that soil in these areas could contain PAHs and PCBs above TAGM 4046 levels. The Geophysical survey data were used in the placement of additional soil borings to more effectively delineate the extent of residual contamination within areas of concern (AOCs) and to calculate the volumes of contaminated soil in each of the AOCs. Finally, the survey also located underground utilities in the central portion of the Site to allow the installation of additional borings and the collection of soil samples from that area of the site.

The areas where the geophysical surveys were conducted are presented on Figure 3 and are designated as AOCs 1 through 4. A copy of the field notes generated by ERM's on-site representative observing the subsurface geophysical investigation has been attached as Appendix C.
Ground Penetrating Radar (GPR) was the primary geophysical technique used to determine bedrock topograghy/depth. It utilized two equipment

systems, the Sensors and Software (S&S) - Pulse-EKKO 100 and the S&S Noggin. The instruments were operated at 100 and 250 megahertz frequencies, respectively. A variety of electromagnetic instrumentation was employed to locate the underground utilities. The report generated by NAEVA detailing results of the subsurface geophysical survey has been attached as Appendix D.

GPR systems utilize the propagation and reflection of high frequency, electromagnetic energy to image subsurface structures. A pulse emitted from the transmitter travels through the ground and is partially reflected between the boundary of two media (or structures) having different electrical properties. In areas where bedrock is relatively shallow, GPR data will typically show a strong reflection between the bedrock surface and overburden.

Within each AOC, a survey grid consisting of a number of parallel lines over which GPR data were collected was established. Spacing between the lines was inconsistent due to random locations of cultural obstacles, such as parking curbs. Line spacing ranges from 30 to 90-feet. For quality control purposes, in AOC 3, an additional profile of GPR data was collected from a line, which crossed other grid lines perpendicularly.

Two measurements, at 8-inch intervals, were collected along each line to ensure quality control of data collected. Depth interpretation were compared between common points where GRP lines intersected in AOC 3 and depth data from a line in AOC 1 was compared to bedrock depth data from a borehole located along this same line as calibration checks.

Data obtained from the S&S Pulse-EKKO GPR unit showed better signal penetration than the Noggin unit. Therefore, data from the Pulse-EKKO GPR unit was used in the bedrock surface interpretation in nearly all profile traverses (data lines) with the exception of two lines, which were acquired traversing an incline. Geophysical survey results are presented in graphic and tabular form in NAEVA's report (AppendixD).

2.2 *SOIL BORING / SAMPLING PROGRAM*

A soil boring and sample collection program was carried out to collect data in support of the goals outlined in Section 2.0, namely, to provide better definition of the quantity and environmental conditions of on-site soils. NYSDEC was notified in advance as to the schedule of all field work. Trade-Winds Environmental Restoration Inc. of Bay Shore, New York installed 28 additional soil borings between 7-9 July 1999 using Earth-Probe™ drilling techniques and equipment under the supervision of an ERM hydrogeologist. A representative of Coneco, as agent for W &M observed all drilling and sample collection operations. Each boring was advanced until refusal and no further downward progress was possible. Continuous 2-foot samples were collected using MacroCore™ samplers equipped with acetate lines. The MacroCore™ sampler was decontaminated following each sample and between borings as per ERM protocols using an Alconox detergent wash solution followed by a distilled water rinse and subsequent air-drying. The acetate liners were designed for single use/disposable sampling strategies and were discarded following containerization of each sample. The acetate liners therefore required no prior decontamination.

Soil samples were screened in the field using a photoionization detector (PID) equipped instrument. PID screening of samples collected during this phase of the investigation yielded only one detection (Boring ERM-38 D [6.7.5-feet below land surface {bls}]) of 0.1 PPM. This detection was measured at the bottom of the instruments potential range and is consistent with the absence or very low detections (in the low parts per billion range) of VOCs observed during previous subsurface investigations at the Site.

The soil boring installation program was intended to supplement ERM's initial investigation, conducted in May 1998. The initial Site Assessment included installation and sampling of 21 soil borings. The current phase of investigation involved the installation and sampling of an additional 28 soil boring locations. Sediment samples were collected at 4 locations from the ponds/storm water detention basins located on the property. The samples were collected approximately 6-inches below the sediment surface using a properly decontaminated, stainless steel hand auger. To simplify the soil boring nomenclature shown on Figure 3, boring identification prefixes utilizing the environmental investigation firm's initials have replaced original boring designations. For example, ERM boring GP-16 is now designated ERM-16 Similarly Coneco boring B-55 has now been designated C-55, etc. Locations of borings ERM-22 through ERM-48 (GP-22 through GP-48 in the field notes) and sediment samples locations are depicted on Figure 3. Please note that soil boring at proposed locations, ERM-23 and ERM-24 were eliminated due to the presence of bedrock outcrops. Figure 3 also shows sampling locations from previous environmental investigations discussed in Section 1.2.3 of this report. At several locations only a thin mantle of soil, from which the sample was collected, was observed. The field notes from the soil boring installation program are provided in Appendix C.

After the drilling equipment was advanced to the requisite depth horizon, downhole sampling equipment was removed from the borehole and a discrete 2-foot depth interval sample collected. The sample was immediately screened for VOCs, physically characterization and logged, homogenized, aliquots placed in appropriate laboratory glassware, labeled, and stored on ice. As stated above, samples were continuously collected until drilling refusal was met. All samples were submitted for laboratory analysis. Chain of Custody documentation and Custody Seals were prepared and affixed to sample shipment coolers, which were forwarded to the laboratory via overnight courier.

2.3 *GROUND WATER SAMPLING PROGRAM*

Aqueous samples were collected to evaluate groundwater and surface water quality at the Site. One ground water sample was collected from the water cascade supply well from a dedicated discharge line. Surface water samples were collected from the Upper Pond (at the base of the water cascade) and from the seasonally wet area located east of the northeast corner of the Site. Sample analyses, QA/QC and report deliverables were identical to those of the Soil Sampling Program.

2.4 *LAND SURVEYING PROGRAM*

As part of environmental assessment activities at the Site, soil samples have been collected at more than 100 locations. Figure 3 identifies these boring locations. The surveying work scope included of all known boring locations for vertical elevation to the nearest hundredth of a foot (0.01-feet) and horizontal position to the nearest half foot (0.5-feet). All data was transposed onto a Site Plan consistent with and in scale with the original property surveying data. An electronic deliverables was prepared as part of the report package and was used to update maps with data pertinent to the environmental investigation.

This survey information will be used to assist in calculation of the volume of soils which may require disposal, and the anticipated costs associated with those efforts. This will be achieved by comparative analysis of land survey data and geophysical survey bedrock topography/depth data.

Section 3

Section 3

3.0 *SAMPLING RESULTS*

The results of the Remediation Investigation are present in the following sections.

3.1 *GEOPHYSICAL SURVEY*

For each AOC (as previously defined in Section 2.1), interpreted depth measurements were taken from the GPR profiles at intervals of approximately 12-feet and combined to generate contour maps showing the bedrock topography. The bedrock contour maps and site over lay maps are presented in Appendix D. Please note that NAEVA indicates in their report that is it unclear from the GPR records, when bedrock is less than 2-feet in depth, what the depth actually is. The bedrock depths were therefore set to 1-foot in these areas.

In general the bedrock surface was interpretable in nearly all profiles collected. The exception are profiles ERM 3 of AOC 1 and ERM 17 of AOC 4 which were collected along slopes causing poor signal penetration. Bedrock interpretation in these areas is limited. Finally, several of the profiles also contain discontinuities likely due the presence of reflection from unknown sources present in the bedrock which were strong enough to mask the bedrock reflections. The data also appear to contain small percentages of false reflections generated by sources of above ground interferences, such as a local form of radio transmission. These problems, however, had a minimal impact on the quality of the data collected as demonstrated by good repeatability (two measurements were taken over each transect) and the good correlation between GPR data and available borehole data. In AOC 3, the interpreted bedrock depths from the intersection profiles were in very close agreement showing variations of 0.75-feet or less. Data from the borehole located in AOC 1 documents the depth to bedrock as 6-feet. The bedrock depth obtained from the GPR measurements at this location was 5.75-feet. The interpretive analysis of GPR data yielded the approximated depths to bedrock at 4 AOCs shown below:

AOC	Location at Property	Approx. Depth to Bedrock (feet bls)	Topographic Characterization
1	Near NW entrance to property	5 - 7	dips slightly to the southeast
2	NE corner of property	0 - 7	dips generally to the west except for a bedrock ledge aligned in N to S orientation along the 80-foot transect
3	South side of property	5 - 8	Minor dips and rolls of bedrock topography but relatively flat overall.
4	West of the office building	3 - 8	Depth to bedrock progressively increases in an easterly direction towards the building

3.2 *LABORATORY ANALYSES*

The laboratory selected for analytical services was Severn Trent Laboratories (STL) of Monroe, Connecticut. STL's responsibilities included screening of each of the soil samples for PAHs and providing results to ERM in a timeframe so that the samples selected for full TCL/TAL analysis could be analyzed within established sample holding times. Based on results of the PAHs screening, sample location with respect to previously collected samples and the chemical analyses obtained during prior studies, ERM selected samples for further laboratory analysis.

The soil samples selected for further analysis were analyzed for the following:

- Target Compound List Volatile Organic Analysis plus 20 Tentatively Identified Compounds (TICs);
- Target Compound List Base / Neutral Acid Extractable Organics Analysis plus 30 TICs;

- Polychlorinated Biphenyls (PCBs);
- Target Compound List Organochlorine Pesticides; and
- Target Analyte List (TAL) Metals

Quality Assurance /Quality Control (QA/QC) samples were collected at a frequency of 1 per 20 samples, and analyses and analytical report deliverables are in accordance with NYSDEC ASP Category B formatting.

The PAH screening was carried out by extracting an aliquot of each of the soil samples with methanol and then analyzing the extract using gas chromatography (GC) utilizing USEAP Method 8100. The screening results where telefaxed to ERM by STC for review and identification of samples for complete analysis. Samples collected from boreholes where only one soil sample was obtained due to the presence of shallow bedrock were not screened.

Forty two (42) samples were sent to STL for screening analysis (See Table 2-1). From these, 25 samples, based on the results of the screening analysis and proximity to AOCs identified from previous investigations carried out at the site, were selected for full analysis. Sediment samples from the upper and lower ponds, the catch basin located in the northwest section of the site and from the swampy/wet area in the undeveloped wooded area on the eastern border of the property were also analyzed. Finally ground- and surface water samples from the on-site bedrock well, upper pond and eastern swampy/wet area were analyzed for TCL/TAL constituents.

After receipt of the analytical data from STL, a Data Usability Summary Report (DUSR) was prepared. Data quality, completeness and accuracy were assessed using the principles enunciated by the NYSDEC Division of Environmental Remediation Quality Assurance Group. The data quality was determined to be acceptable and data qualifiers were added where appropriate. Copies of the DUSRs are included in Appendix E.

3.3 *Sampling Results*

The results of the soil, surface and groundwater sampling are presented in Tables 2-2, 2-3, 2-4, and 2-5 for volatiles, base/neutral/acid extractables, pesticides/PCBs and metals, respectively.

3.3.1 *Volatiles*

No TAL volatile organic compounds were detected above the TAGM 4046 recommended soil clean-up objectives. The low levels of volatiles, such as methylene chloride, acetone and 2-butanone are likely laboratory artifacts because these compounds are also detected in both the field and trip blanks. Non-point source discharges of petroleum products, e.g., from automobile parking or emissions are the likely sources of the low levels of benzene, toluene, and xylenes detected in several samples.

3.3.2 *Semivolatiles*

Semivolatile organic compounds (SVOCs) were detected in the soil, and sediment samples collected at the 500 Mamaroneck Avenue site. SVOCS detected include PAHs, PCBs and phthalates. The SVOC results are presented in Tables 2-3 and 2-4 for Base/Neutral/Acid Extractables, and pesticides/polychlorinated biphenyls (PCBs), respectively.

Polynuclear aromatic hydrocarbons were the most frequently detected SVOCs and were the only contaminants detected with concentrations exceeding TAGM 4046 recommended soil clean up objectives. PAH concentrations exceeded soil clean up objectives in 19 of the 32 samples collected including ERM-28C, ERM-30A, ERM-31C, ERM-35A, ERM-36A,

ERM-37A, ERM-39A, ERM-40F, ERM-41A, ERM-42A, ERM-44A, ERM-45A, ERM-46A, ERM-47A, ERM-48B, Uppper and Lower Pond Sediments, and the northwest catch basin sediment. The PAHs detected most frequently were: phenanthrene, fluoranthene, pyrene, benzo(a)anthracene and chrysene. These compounds were detected more than 30 times in the 36 samples collected. Other 3, 5 and 6 ring PAHs were the next most frequently detected compounds. This group includes anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene and benzo(g.h.i)perylene. PAHs are frequently formed during the incomplete combustion of coal, oil, gas, wood, garbage or other organic substances and as such their presence is consistent, with the existence of a municipal incinerator on site. Some levels of PAH's are also consistently found in any urban industrial/commercial area.

The only SVOCs detected in the surface- and groundwater were low concentrations of phthalates. Phthalates are used in plastics to prevent brittleness and are ubiquitously detected in samples collected using plastic sampling devices such as bailers, from the samplers gloves and the sample bottle cap liners. The phthalates detected in the surface- and groundwater samples were observed at concentrations estimated to be 1 microgram per liter (μg/L or part per billion [ppb]) or less. It is therefore likely that the phthalates present in these samples result from incidental contact with plastic materials as discussed above.

PCBs and pesticides were also detected in the borehole soil samples. Concentrations of these compounds were all below TAGM-4046 Recommended Cleanup Goals. Specifically, low concentrations of pesticides residuals were detected in all soil samples/sediment samples collected. The most frequently detected pesticides were DDT and its degradation products DDE and DDD, and α and γ chlordane. Use of these compounds has been prohibited from many years and their detection therefore reflects past property usage or airborne emissions. This is confirmed by the detection of these compounds in the sediment collected from the wet area (swamp) in the eastern undeveloped section of the property. PCBs were detected in 22 out of the 25 borehole samples and in the sediment samples from the ponds and catch basins, including the eastern pond in the undeveloped portion of the property. The most frequently detected PCBs were Aroclor 1254 and 1260. However as stated above, PCB concentrations collected in these comprehensive investigations did not exceed TAGM-4046 Recommended Clean Up Goals.

3.3.3 *Metals*

TAL metals were detected in all samples collected at the 500 Mamaroneck Avenue site (Table 2-5). Soil metal concentrations were evaluated against TAGM-4046 levels, Eastern United States Background Soil metal concentrations and Elemental Concentration of Surface Materials in the Contiguous United States by Shacklette and Boerngen (Shacklette, H.T. and Boerngen, L.G. 1984. Element Concentrations in Soil and other Surficial Materials of the Conterminous United States. U.S. Geological Survey Paper 1220). The latter two references were used to establish site background metals concentrations because only a limited number of samples were collected from the undisturbed area of the site, i.e., from the undeveloped wooded area to the east of the site. This sample population is insufficient in size to use to determine statistically significant site background metals concentrations. Moreover based on the PCB and pesticide sampling results, the undeveloped portion of the site may have been impacted by the discussed past practices. Only the establishment of potential site background concentrations would confirm whether the residual concentrations on site are the result of the past incinerator activity or the result of the weathering of the exposed rock on site.

The bedrock at the site is Harrison Gneiss. The elemental composition of gneiss includes the following elements: sodium, potassium, calcium, magnesium, iron, aluminum, chromium, titanium, silicon, oxygen and fluorine. Weathering of the gneiss could therefore increase concentrations of these elements.

As shown in Table 2-5, barium exceeded TAGM-4046 or background concentrations in boring ERM-31; cadmium exceeded TAGM-4046 or background concentrations in borings ERM-31, ERM-35, ERM-36, ERM-37 and in the Lower Pond Sediment; mercury exceeded TAGM-4046 or background concentrations in boring GP-35 and selenium exceeded TAGM-4046 or background concentrations in ERM-36.

Section 4

Section 4

4.0 FATE AND TRANSPORT

The fate and transport of the principle contaminants detected at the 500 Mamaroneck Avenue Site are discussed below. The discussion focuses on soil contamination because the groundwater and surface water in the ponds and the on-site supply well were not found to be contaminated.

4.1 POLYCYCLIC AROMATIC HYDROCARBONS

PAHs are formed during the incomplete combustion of coal, oil, gas, wood, garbage or other organic substances. PAHs can also occur naturally for example, in petroleum. PAHs are found throughout the environment in the air, water and soil particularly in urban industrial/commercial settings. 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.

PAHs enter the environment largely as releases to air from the aforementioned combustion processes. They can also enter surface water through discharges from industrial plants and waste water treatment plants, and they can be released to soils at hazardous waste sites. 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. They are present in air as vapors or stuck to the surfaces of small solid particles and can travel long distances before they are removed through washout in rainfall or particle settling. Some PAHs can evaporate from surface waters, into the atmosphere, but most will stick to solid particles and settle to the bottoms of rivers or lakes. In soils, the compounds are most likely to stick tightly to particles. Some PAHs can evaporate from surface soils to air. PAHs can break down to less short-lived products by reacting with sunlight and other chemicals in the air, generally over a period of days to weeks. Breakdown in soil and water generally takes weeks to months and is due mostly to the actions of microorganisms. Most of the PAHs in soil are believed to result from atmospheric deposition after local and long-range transport.

4.1.1 *PAH Transport and Partitioning*

Transport and partitioning of PAHs in the environment are determined to a large extent by physical/chemical properties such as water solubility, vapor pressure, Henry's law constant, octanol-water partition coefficient (K_{ow}), and organic carbon partition coefficient (K_{oc}). In general, PAHs have low water solubilities. The Henry's law constant is the partition coefficient that expresses the ratio of the chemical's concentrations in air and water al equilibrium and is used as an indicator of a chemical's potential to volatilize. The K_{oc} indicates the chemical's potential to bind to organic carbon in soil and sediment. The K_{ow} is used to estimate the potential for an organic chemical to move from water into lipid and has been correlated with bioconcentration in aquatic organisms. Some of the transport and partitioning characteristics (e.g., Henry's law constant, K_{oc} values, and K_{ow} values) of PAHs analyzed for during this investigation are roughly correlated to their molecular weights. These properties are discussed by grouping these PAHs as follows:

- Low molecular weight compounds (152-178 g/mol) acenaphthene, acenaphthylene, anthracene, fluorene, and phenanthrene
- Medium molecular weight compounds (202 g/mol) fluoranthene and pyrene; and

- 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-cd)pyrene.

4.1.2 *Transformation and Degradation*

Microbial metabolism is the major process for degradation of PAHs in soil environments. Photolysis, hydrolysis, and oxidation generally are not considered to be important processes for the degradation of PAHs in soils. The rate and extent of biodegradation of PAHs in soil are affected by environmental factors, characteristics of the microbial population, and the physical and chemical properties of the PAHs. Biodegradation half-lives of PAHs in soils ranged from about 2-60 days for compounds containing two and three aromatic rings to more than 300 days for compounds containing four and five aromatic rings. Environmental factors that may influence the rate of PAH degradation in soil include temperature, pH, oxygen concentration, PAH concentrations and contamination history of soil, soil type, moisture, nutrients, and other substances that may act as substrate co-metabolites. The size and composition of microbial populations in turn can be affected by these factors. For example, in low-pH soils, fungi are dominant over bacteria, and thereby control microbial degradation in these environments. Sorption of PAHs to organic matter and soil particulates also influences bioavailability, and hence, biotransformation potential. Sorption of PAHs by soil organic matter may limit biodegradation of compounds that would otherwise rapidly undergo metabolism.

4.1.3 *Sediment and Soil Background Concentrations*

PAHs are ubiquitous in soil. Background concentrations for urban soils (from the United States and other countries) are given below:

Compound	Concentration (μg/kg) Urban Soil
Acenaphtene	N/A
Acenaphthylene	N/A
Anthracene	N/A
Benzo(a)anthracene	169-59,000
Benzo(a)pyrene	165-220
Benzo(b)fluoranthene	15,000-62,000
Benzo(e)pyrene	60-14,000
Benzo(g,h,I)perylene	900-47,000
Benzo(k)fluoranthene	300-26,000
Chrysene	251-640
Fluoranthene	200-166,000
Fluorene	N/A
Indeno(1,2,3,cd)pyrene	8,000-61,000
Phenanthrene	N/A
Pyrene	145-147,000

In general, urban PAH concentrations exceed agricultural and rural. Evidence of the global distribution of PAHs is given by the over 150μg/kg concentrations of benzo(g,h,i)perylene and fluoranthene detected in arctic soils. Soil samples collected from remote wooded areas of Wyoming contained total PAH concentrations of up to 210 μg/kg. Soil samples collected from the site of a Seattle coal and oil gasification site, which ceased operation in 1956, contained pyrene levels up to 4,300 μg/kg. Soil samples collected from the Fountain Avenue Landfill in New York contained total PAH concentrations of 400-10,000 μg/kg. Total PAH concentrations of 4,000-8,000 μg/kg were detected in the soil near a complex road interchange in Switzerland, while a level of 2,300 g/kg was measured in an area removed from the road. A benzo(a)pyrene concentration of 650,000 μg/kg was measured in soil 10 meters from an industrial plant in Germany (Edwards 1983). Drainage stream sediments of a wood-preserving facility near Pensacola, Florida, contained various PAHs at individual levels up to 140,000 μg/kg (anthracene).

4.2 *POLYCHLORINATED BIPHENYLS*

PCBs bind strongly to soil and sediments and may remain there for years. PCBs will not typically travel deep into the soil with rainwater. In general, the breakdown of PCBs in the water and soil occurs over several years, or even decades. Sediments containing PCBs at the bottom of a large body of water such as a lake, river, or ocean generally act as a reservoir from which PCBs may be released in small amounts to the water. In national studies, PCBs have been detected in a very limited number of drinking water supplies. Based on the sampling data PCBs, presumably resulting from operations of the municipal incinerator, have impacted site soil. However, concentrations are below TAGM 4046 Soil Clean-up Guidelines. No PCB's have been detected in the groundwater at the subject site.

4.2.1 *PCB Soil Transport and Partitioning*

Low water solubility, high octanol-water partition coefficients of the PCBs and strong adsorption to soils and sediment indicate that leaching should not occur in soil under most conditions. The tendency to leach will be greatest among the least chlorinated congeners. Since the sorption of PCBs in soil is proportional to soil organic carbon content, leaching is expected to be greatest from soils with low organic carbon. PCBs in soil leach significantly in the presence of organic solvents, which might occur at a hazardous waste site. Storm water runoff will also transport PCBs from soil to surface water.

4.2.2 *Transformation and Degradation*

The ability of PCBs to be degraded or transformed in the environment depends on the degree of chlorination of the biphenyl molecule as well as on the isomeric substitution pattern. In general, the persistence of PCB congeners increases as the degree of chlorination increases.

4.2.3 *Sediment and Soil*

There is no chemical process known to degrade PCBs in sediment and soil. However, biodegradation via dechlorination may occur under anaerobic conditions. Biodegradation of PCBs in soil is low, especially in soils that have a high organic carbon content. In two soils containing 10% organic matter only 5% biodegradation of Aroclor 1254 was observed in 1 year. On the other hand greater than 25% biodegradation was observed in 1 year in a loamy sand soil containing 0.1% organic carbon. Furthermore, the less chlorinated biphenyls were biodegraded more rapidly than the highly chlorinated ones. It has been reported that the mono-, and di-chlorobenzoate, and possibly other higher chlorobenzoates formed from aerobic degradation of PCBs act as inhibitors towards further degradation of higher chlorinated PCBs. Therefore, the efficiency of PCB degradation is not only controlled by the enzyme substrate selectivity pattern, but also by the metabolite production pattern.

4.3 *METALS*

The most frequently detected metal at the 500 Mamaroneck Avenue site was cadmium. It was detected in borings ERM-31, ERM- 35, ERM-36, ERM-37 and the Lower Pond Sediment. Small amounts of cadmium leaching into groundwater enter the environment from the natural weathering of minerals, but most is released by industrial activities in this case most probably the municipal incinerator activities.

Cadmium in soils may tend to leach into water, especially under acidic conditions. Cadmium containing soil particles may also be entrained into the air or eroded into water, resulting in dispersion of cadmium into these media. Transformation processes for cadmium in soil are mediated by sorption and desorbtion from water and include precipitation, dissolution, complexation and ion exchange. Important factors affecting transformation in soil include the cation exchange capacity, the pH and the content of clay and carbonate minerals, oxides, organic matter and oxygen.

Finally, the boring locations with cadmium concentrations in excess of TAGM-4046 Guidelines are along the western boundary of the property, i.e., along Mamaroneck Avenue. There is no evidence of cadmium leach at this site.

Section 5

Section 5

5.0 FINDINGS AND RECOMMENDATIONS

5.1 REMEDIATION ANALYSIS

The site has been impacted by past site activities with detectable concentrations of PAHs, PCBs, pesticides and metals observed in soil and sediment. The source of these contaminants is most likely emissions from the former Town of Harrison Municipal Incinerator and/or operations at the transfer station, which were both located on site. Emission of contaminants from the incinerator stack followed by on-site deposition is suggested due to the site wide distribution of contaminants including areas of the site, which have not been developed or reworked during the construction of the existing building.

As discussed in Section 3, PAHs are the principal chemicals found on site. PAH are the only chemicals whose concentrations exceed TAGM 4046 Recommended Clean up Guidelines. Specifically, PAH concentrations exceeded guidelines in AOC1, AOC-3 and AOC-4. In addition, the berm south of AOC-3, (extending into the small parking area located to the east of the main parking lot) and a semi-circular area defined by borings ERM-44, ERM-45, ERM-46 and ERM-47 also contain PAHs in excess of Clean up Guidelines.

These areas are generally covered by asphalt pavement, grass or ornamental plantings. The condition of the asphalt is good and the vegetative cover is well maintained. These concentrations are not at the surface. Therefore there is no current exposure pathways for human contact.

Furthermore, as indicated in Section 3, the most frequently detected PAHs at the site contain three or more rings. These high molecular weights PAHs are extremely immobile due to their low solubilities and vapor pressures, high Henry Law Constants (atm * m^3/mol), high K_{ow}s and K_{oc}s. These data indicate that the residual PAHs at the site will strongly adsorb to soil. The strong soil adsorbtion reduces their bioavailability, which in turn reduces the rate of biodegradation. The three and four membered ring PAHs present at the site will therefore persist in the environment but not migrate. The same physical characteristics, which make these PAHs resistant to degradation also makes them extremely immobile. This is consistent with the data collected in the various investigation carried out at the site. These studies show that 3 and 4 membered ring PAH persist at the site even though the likely source was removed almost 20 years ago. During this time period, however, the PAHs have not migrated to the groundwater. PAH immobility is confirmed by the Toxicity Characteristic Leaching Procedure (TCLP) Testing carried out during the initial Site Assessment (Site Assessment Report, June 1998) on samples collected from soil borings ERM-11, ERM-12 and ERM-13, located in AOC-3. PAH concentrations in the TCLP extracts were all significantly below the TAGM 4046 standards for protection of groundwater.

TAGM-4046 Recommended Soil Clean up Guidelines were developed for the protection of groundwater assuming the best groundwater usage is as a drinking water source. Since there is no drinking water at or in the vicinity of the site the rationale for the application of the guidelines does not apply here. The Town of Harrison Municipal Water System supplies Drinking Water for the building and surrounding properties. Additionally, urban background PAH concentrations are not reflected in the TAGM-4046 Guidance Values. This also makes application of these clean-up values inappropriate at the site.

More importantly, TAGM-4046 Clean up Guidelines were developed using a leaching model conceptualized for environmental settings with unconsolidated deposits (soil) overlying the groundwater. At 500 Mamaroneck Avenue, in most areas of the site, there is only a thin soil verneer overlying bedrock. Transport of contaminants in a bedrock environment involves both adsorbtion/desorbing in any unconsolidated soil verneer, which may be present and surface interactions in bedrock fractures. These interactions may involve both organic carbon containing material, fracture topology and minerals within fractures through which water may move. Therefore the model used for the guidelines which relies on the bulk partitioning of contaminants between organic material in a soil column bears little relationship or applications to the geological configuration of this site.

There is one on-site groundwater well at 500 Mamaroneck Avenue, used to supply water to a decorative fountain and the Upper Pond. This well is approximately 300-feet deep. The depth of this well suggests that the water table occurs at a substantial depth below land surface and/or that there are few fractures in the bedrock under the site through which groundwater can move. A deep well was therefore installed (as an in ground cistern) to obtain sufficient water for operation of the fountain and pond. If the former assumption is true, any chemicals present in the soil above the bedrock would need to travel that substantial distance before encountering the water table. In the time and distance it would take to reach the water table, those chemicals would undergo dispersion and degradation. If the latter assumption is true, there is little groundwater under the site and a viable drinking water supply could not be be developed. In either case there is no basis for strictly applying the TAGM-4046 guidelines to the environmental and geological condition shown to exist at this site.

In either of these two cases, because of the complexity of the groundwater system, a practical assessment of potential groundwater impacts was conducted i.e., by examining leachable chemical concentrations, rather than by relying on a model and cleanup guidelines developed for an unconsolidated flow system. As discussed above, we conducted as part of these investigations representative TCLP testing of the soil. This testing demonstrated that the PAHs (and metals) contained in the soil at the site are not mobile. In fact, PAH concentrations in the TCLP extract meet 6 NYCRR Part 703 Groundwater Standards. It is therefore not possible for contaminants present in the soil at the 500 Mamaroneck Avenue site to leach into the groundwater in concentrations above the NY State standards. In addition, the TCLP extraction procedure is significantly more aggressive than either rain or snow melts in leaching contaminants from the soil. Any contaminants mobilized by infiltration would necessarily be at lower concentrations than observed in the TCLP testing (Reference).

As further proof of this condition, the PAH's at this site, came from incinerator activity commencing in 1954, over 45 years ago. Yet the groundwater tests show that chemicals have not reached groundwater in that substantial time frame. It is therefore not reasonable to assume that chemicals will not reach groundwater in the future.

It must therefore be concluded that the PAHs present in the 500 Mamaroneck Avenue soils will not impact groundwater in concentrations above groundwater/drinking water quality standards, even though PAH soil concentrations are above TAGM-4046 levels. This conclusion is supported by the groundwater analysis reported in Section 3, which found the groundwater from the on-site supply well to be uncontaminated.

5.2 *SOIL EXCAVATION COST ESTIMATE*

Setting aside the analysis set forth above on the inapplicability and inappropriateness of the TAGM-4046 to this particular site, we have undertaken to analyze the potential cost of soil excavation to determine the appropriateness of this remedy for the site from a cost effectiveness and environmental benefit analysis. A rough order of magnitude cost estimate to remove the PAH contaminated soil at 500 Mamaroneck Avenue was calculated. We assumed soil in each of the three contaminated AOCs (AOC-1, AOC-3 and AOC-4) and semi-circular area defined by borings ERM 44 through ERM-47 (interior south parking lot)would be removed to bedrock. Soil from the southern berm would also be removed to the depth of the contamination observed during the Remediation Investigation Site Assessment, approximately 11-feet bgl. In addition, sediments would be removed from the Upper and Lower Pond and the northeastern catch basin.

The volume of soil to be removed was based on the bedrock depths in each AOC determined by the geophysical investigation and the surface elevations obtained from the latest survey. Included in the cost estimate were costs for, project oversight, equipment and equipment operators, backfill, landscaping, pavement, disposal and applicable taxes. No costs were included for soil sampling to confirm that contaminants had been removed and no contingency costs were included for larger excavations. The estimated clean up costs are at least:

AOC-1	$ 278,000
AOC-3	$ 470,000
AOC-4	$ 230,000
South Berm	$ 527,000
Interior South Parking Lot	$ 121,000
Ponds & Basin	$ 9,000
GRAND TOTAL	**$1,635,000**

Although this is not a Federal Superfund site either legally or in degree of risk to human health and the environment, the guidance on the selection of appropriate remedial alternatives from the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA [or Superfund]) and the National Oil and Hazardous Substances Contingency

Plan (NCP) was reviewed for guidance on appropriate site remediation criteria. Two of the principal considerations in selecting a Remediation under Superfund are:

- Protection of Human Health and the Environment and
- Cost Effectiveness.

Based on actual testing of soil material the PAHs contained in the soil at 500 Mamaroneck Avenue do not leach and are therefore not a threat to groundwater. There are no direct exposure pathways, such as direct contact and ingestion because the paving and vegetative cover prevent contact or ingestion of the soil. In fact, excavation and removal of the PAH contaminated soil could create exposure pathways where none currently exist. Excavation will create a direct contact pathway because the pavement will have to be removed to reach the PAH contaminated soil and potentially create an air exposure pathway if PAH contaminated soil becomes airborne. Therefore protection of human health and the environment does not require excavation.

In terms of cost effectiveness, remedial alternatives that have costs that are "grossly excessive compared to [their] overall effectiveness" should be screened out of consideration (Reference). Removing PAH contaminated soil at 500 Mamaroneck Avenue to attempt to meet TAGM-4046 Recommended Clean up Goals, the excavation will simply transfer the chemicals from this site to another location where it will potentially create new and greater environmental risks. This would appear to be an unnecessary expense and risk based on the TCLP testing and the groundwater monitoring showing that the PAHs are not mobile and have not impacted groundwater, despite being present at the site for more than 45 years. The 1.6 million-dollar excavation costs therefore appears "grossly excessive" compared to the overall effectiveness and necessity of this remedy.

5.3 VOLUNTARY CLEANUP PLAN CONSIDERATIONS AND RECOMMENDATIONS

Volunter MMA and current owner have expended significant monies and effort on the investigation and evaluation of the environmental conditions at the site. Their efforts have defined the nature and extent of the contamination at the site. MMA has demonstrated the lack of exposure pathways and the limited risk presented by the site in view of the current and contemplated future uses of the site.

The remedial analysis and cost effectiveness calculations suggest that an appropriate remedy under the VCA may be institutional controls such as the filing of a deed restriction for the site. Other potential controls may includethe development of a long-term maintenance plan. If necessary, thedeed restriction could limit use of the property to the uses contemplated under the VCA and require notification to NYSDEC if the site is to be redeveloped for other uses. As long as the asphalt pavement and vegetative cover are maintained at the site, there will be no direct contact or inhalation exposure pathway.

A long term maintenance plan could address continued maintenance of the asphalt parking area and vegetative cover, especially along the southern berm. The plan could also address the precautions, which will be required if the reconstruction or reconfiguration of AOC-1, AOC-3, AOC-4, the southern berm or the interior of the southern parking lot is undertaken. Finally, the plan may include biennial collection of groundwater samples (at wet and dry seasons) to confirm that the PAHs do not impact groundwater. If PAH impacts are not detected after 1-year's sampling, sampling would be discontinued.

The contemplated uses and the above analyses indicating lack of exposure and limited risk, in conjunction with the fact that this project is being handled under the NY State Voluntary Cleanup program, provides sufficient basis for not requiring the Volunteer to undertake additional remedial measures in this matter. The Volunteer, MMA, a past owner and operator of the facility, was not responsible for the present environmental conditions at the site. In the work performed to date and the possible institutional controls suggested, the extent of obligation envisioned by the Voluntary Cleanup Program will be met.

Section 6

Section 6

6.0 REFERENCES

Environmental Resources Management. Site Assessment Report 500 Mamaroneck Avenue, Harrison, New York. June 1998.

USEPA. The Role of Cost in Superfund Remedy Selection. OSWER Publication 9200.3-23FS. September 1996.

USEPA. Rules of Thumb for Superfund Remedy Selection. OSWER Publication 9355.0-69. August 1997.

NYSDEC. Technical and Administrative Memorandum 4046. Determination of Soil Clean up Objectives and Clean up Levels. January 1994.

Shackklette, H.T. and Boerngen, J.G. Elemental Concentrations in Soil and Other Surficial Materials of the Conterminous United States. USGS Professional Paper 1270. 1984.

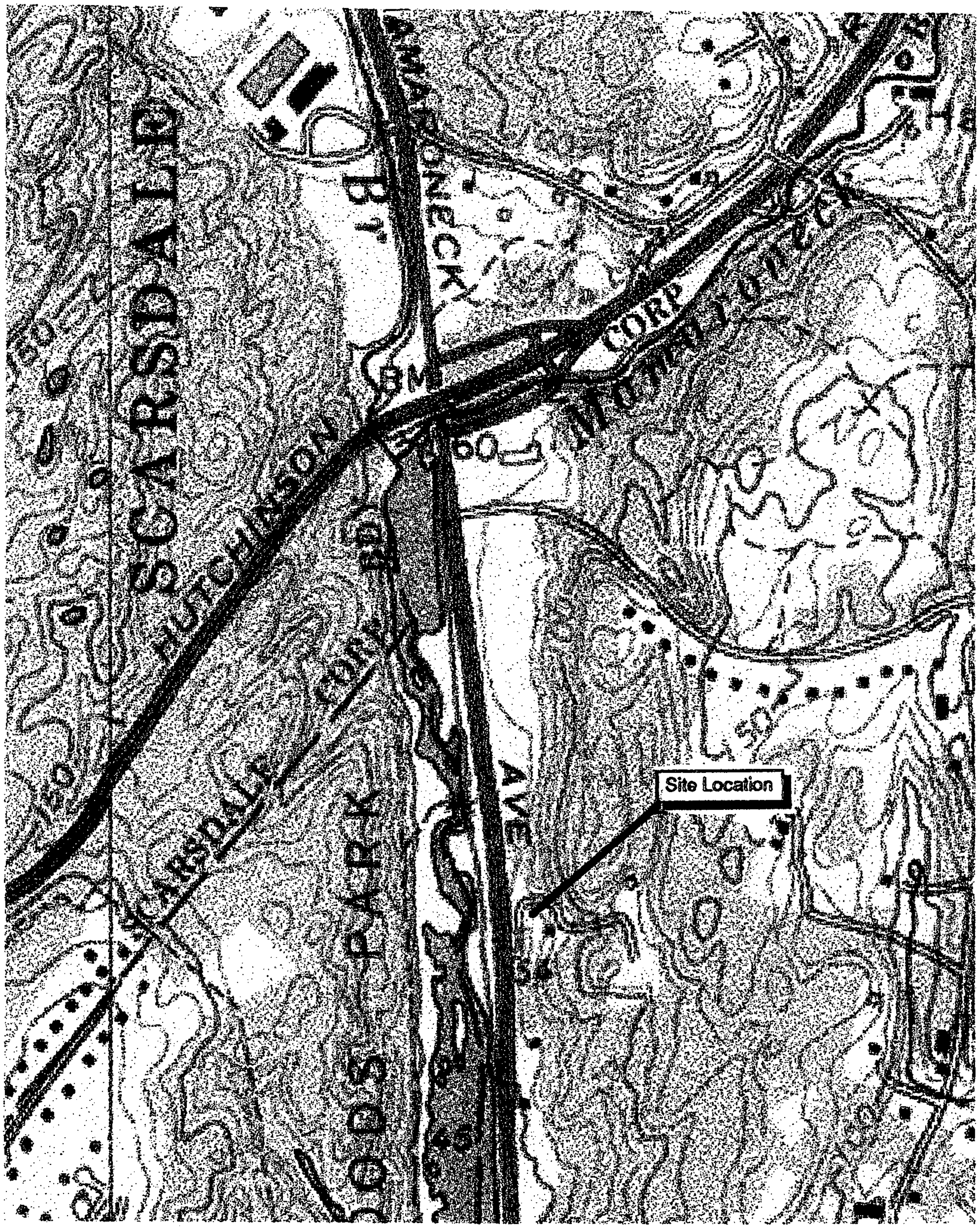
Whitten, D.G.A and Brooks, J.R.V. Penguin Dictionary of Geology. Penguin Books Ltd. 1972.

U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry. Toxicological Profile for Cadmium. 1992.

U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry. Toxicological Profile for Polychlorinated Biphenyls. 1996.

U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry. Toxicological Profile for Polycyclic Aromatic Hydrocarbons (PAHs). 1994.

Figures



TITLE

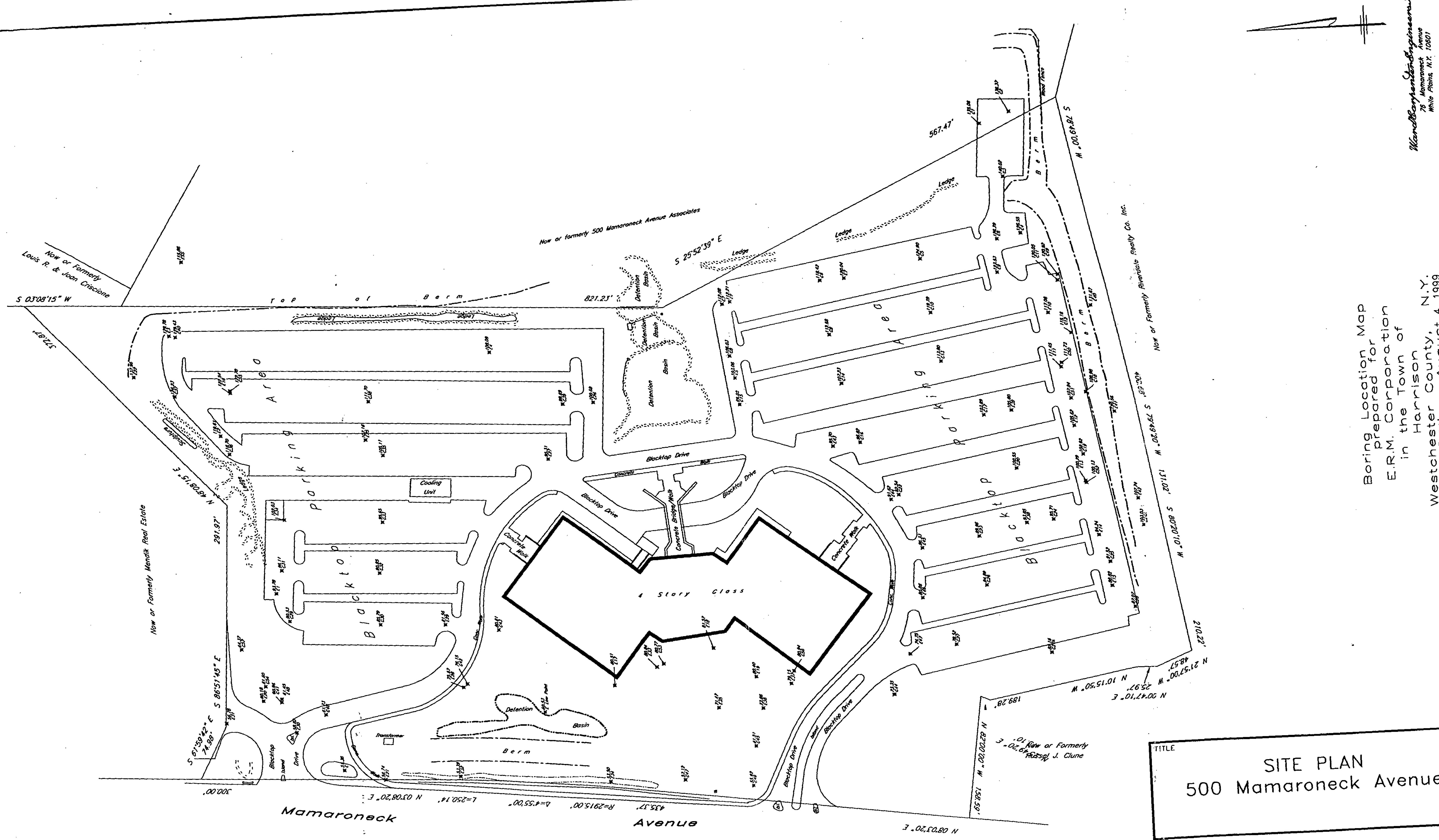
SITE LOCATION MAP

PREPARED FOR

500 MAMARONECK ASSOCIATES

ERM
Environmental Resources Management

DRAWN	JOB NO.	FILE NAME	SCALE	FIGURE
E.M.F.	1454.001		NONE	1-1
			DATE 6/18/98	



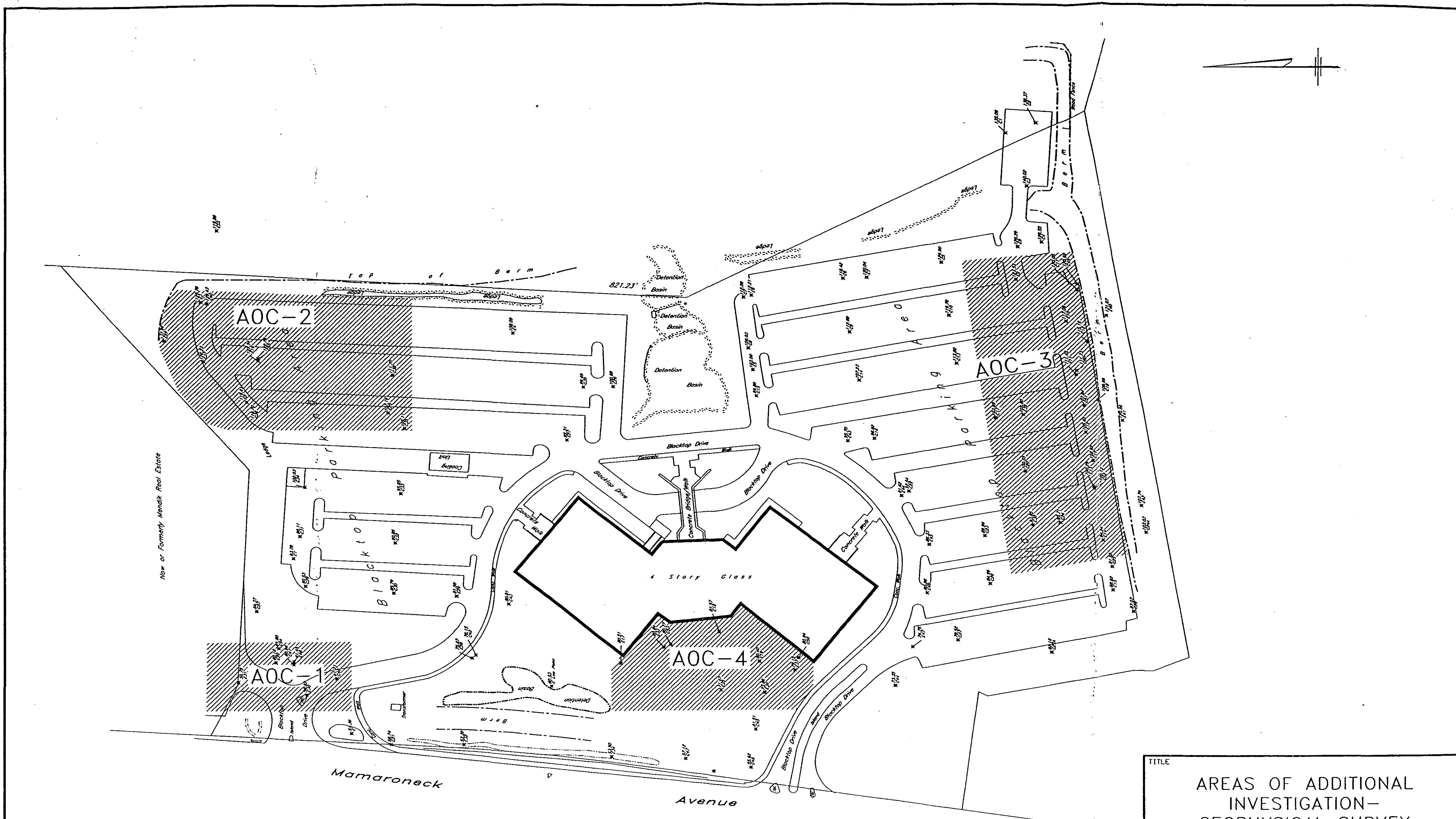
TITLE

SITE PLAN
500 Mamaroneck Avenue

PREPARED FOR

500 MAMARONECK AVENUE ASSOCIATES

ERM Environmental Resources Management		SCALE 1"=120'	FIGURE 2
		DATE 11/1/99	
DRAWN: G.G.	JOB NO.: X8101.00.01	FILE NAME: 14540003	



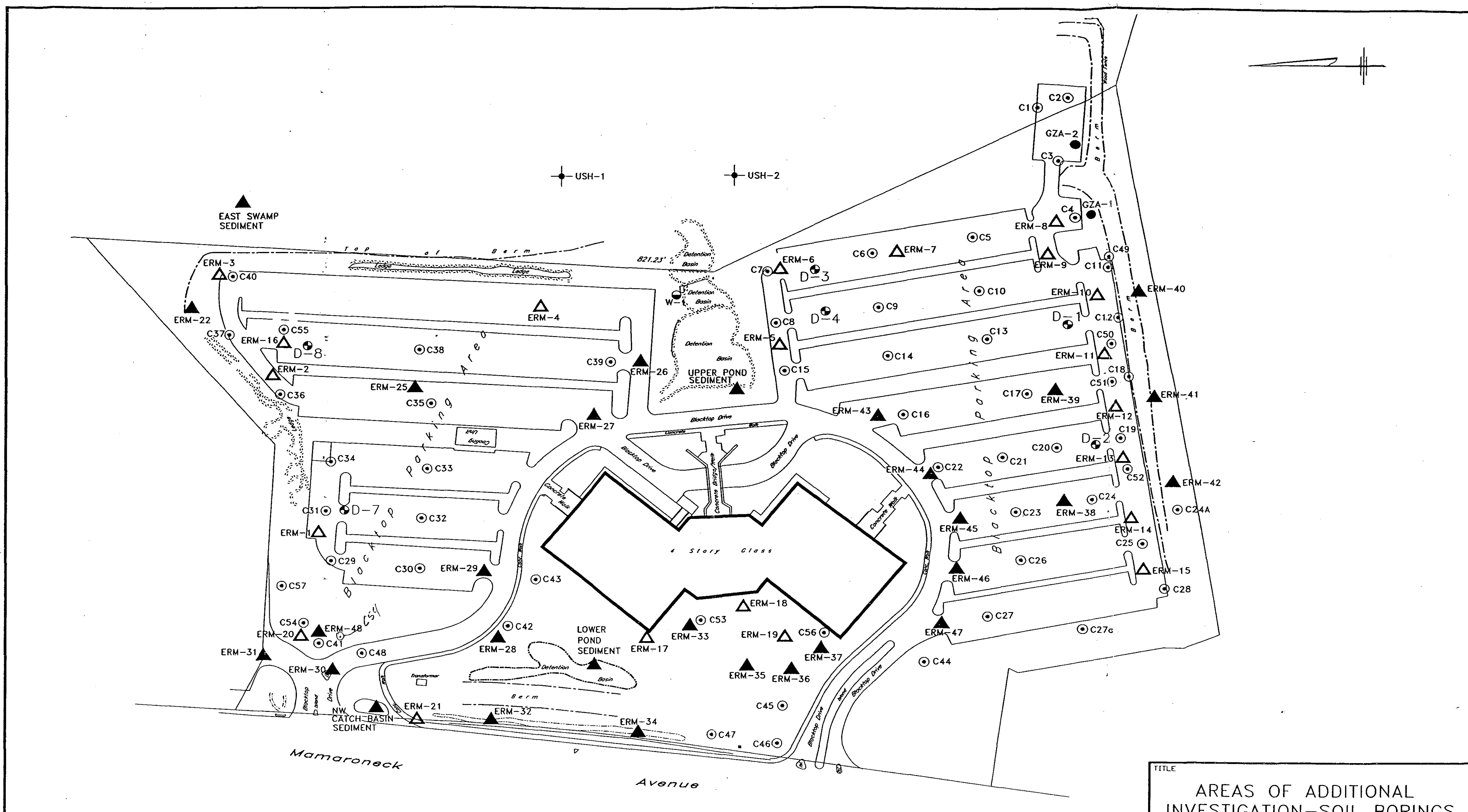
LEGEND

AOC-1 – AREAS OF ADDITIONAL INVESTIGATION

TITLE
AREAS OF ADDITIONAL INVESTIGATION– GEOPHYSICAL SURVEY

PREPARED FOR
500 MAMARONECK AVENUE ASSOCIATES

ERM Environmental Resources Management			SCALE 1"=120'	FIGURE 3
DRAWN: G.G.	JOB NO.: X8101.00.01	FILE NAME: 14540004	DATE 11/1/99	



LEGEND

- ▲ ERM-22 –ERM BORING LOCATIONS–1999
- △ ERM-1 –ERM BORING LOCATIONS–1998
- ⊙ C1 –CONECO BORING LOCATIONS
- D-7 –DAMES & MORE SAMPLING LOCATIONS–1989
- W-1 –GROUNDWATER SUPPLY WELL
- ● GZA-1 –GZA SAMPLING LOCATIONS – 1986
- USH-1 –US HYDROGEOLOGIC, INC. SAMPLING LOCATIONS

TITLE

AREAS OF ADDITIONAL INVESTIGATION–SOIL BORINGS

PREPARED FOR

500 MAMARONECK AVENUE ASSOCIATES

ERM Environmental Resources Management

SCALE	FIGURE
1"=120'	4

DRAWN:	JOB NO:	FILE NAME:	DATE
G.G.	X8101.00.01	14540005	11/1/99

Tables

[redacted]

Table 1-A. Soil Sampling Results - 500 Mamaroneck Avenue, Harrison, New York - ERM - 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
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
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
Parameter																
RCRA Metals (ug/L)	Toxicity Characteristic 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
PCBs	500 ug/Kg	ND	ND	5 J	1 J	62 J	ND	ND	105 J	ND	ND	1 J	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-A. Soil Sampling Results - 500 Mamaroneck Avenue, Harrison, New York - ERM - May, 1998

Boring		GP-10B	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
Depth (feet below land surface)		3 - 6	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
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
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 JD	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	69	55		122	132	370		332			170	332		156	57
PCBs	500 ug/Kg	ND	323 J		162 J	82 J	105 J		45 J			82 J	62 J		1 J	11 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

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

Boring		GP-15A	GP-16A	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
Depth (feet below land surface)		0 - 2	0 - 3	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 - 6
Date Sampled		12-May-98	26-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	27-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										**840**	5700 J	**740**		210 J	
Benzo(k)fluoranthene	1,100										**600**	5500 J	**700**		230 J	
Benzo(g,h,l)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	89	140	222	42	26	36	16	8	19	888	494	618	444	244	7
PCBs	500 ug/Kg	ND	ND	ND	3 J	12 J	ND	90 J	42 J	121 J	ND	121 J	ND	247 J	63 J	42

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, ı 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-B-1 Carcinogenic Polynuclear Aromatic Hydrocarbons (CPAHs), Coneco Soil Borings

500 MAMARONECK AVENUE, HARRISON, NY (March 29 & 30, 1999)

CPAHs ppm Sample Depth	B-3 2'-4'	B-4 4'-6'	B-9 0'-1'	B-10 6'-8'	B-13 12-16	B-15 0'-1'	B-19 2'-4'	B-21 0'-3'	B-41 4'-6'	B-45 4'-6'	B-41* 5'	B-41 0'-4'	B-1 2'-4'
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	180	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND	ND
Anthrecene	ND	ND	ND	ND	ND	ND	1.5	ND	1.0	ND	130	ND	ND
Benzo(a)anthrecene	0.73	ND	ND	ND	ND	ND	6.3	1.2	1.9	ND	150	ND	ND
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	10	1.3	1.2	ND	91	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	5.1	1.3	1.8	ND	95	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	3.9	ND	0.77	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	10	1.4	2.2	ND	130	ND	ND
Chrysene	0.84	ND	ND	ND	ND	ND	7.8	1.4	2.1	ND	150	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND	ND
Fluoranthene	2.0	ND	ND	ND	ND	ND	18	3.4	9.5	ND	670	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	0.79	ND	0.86	ND	180	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	2.9	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	0.76	ND	74	ND	ND
Phenanthrene	1.0	ND	ND	ND	ND	ND	6	2.0	7.6	ND	640	ND	ND
Pyrene	1.9	ND	ND	ND	ND	ND	19	3.9	6.7	ND	460	0.7	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	300	ND	ND
Total CPAHs ppm =	**6.47**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**93.89**	**15.9**	**36.39**	**0.0**	**2,784**	**0.7**	**0.0**

* = black tar-like material

As per TAGM 4046 "Soil cleanup objectives are limited to the following maximum values".

Total Carcinogenic PAHs less than or equal to 1.0 ppm
Total Semi-VOCs less than or equal to 500 ppm
Individual Semi-VOCs less than or equal to 50 ppm
Total VOCs less than or equal to 10 ppm

TABLE 1-B-1 Carcinogenic Polynuclear Aromatic Hydrocarbons (CPAHs) Coneco Soil Borings

500 MAMARONECK AVENUE, HARRISON, NY (March 29 & 30, 1999)

CPAHs ppm Sample Depth	B-49 0'-4'	B-50 0'-4'	B-50 4'-8'	B-51 0'-4'	B-51 4'-6.5'	B-52 0'-4'	B-52 4'-7'	B-53 0'-4'	B-53 4'-8'	B-54 0'-4'	B-54 4'-8'	B-54 8'-11'	B-55 0'-3'	B-56 0'-4'	B-56 4'-8'	B-56 8'-12'	B-57 0'-3'
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthrecene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthrecene	0.88	ND	ND	1.7	1.6	ND	ND	ND	ND	1.0	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	1.1	ND	ND	1.8	1.6	ND	ND	ND	ND	0.85	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	1.0	ND	ND	2.0	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	1.7	1.5	ND	ND	ND	ND	0.82	ND	ND	ND	ND	ND	ND	ND
Chrysene	1.2	ND	ND	1.8	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	3.0	ND	ND	3.6	4.0	ND	ND	ND	ND	3.0	0.9	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	0.92	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	1.8	ND	ND	2.3	3.4	ND	ND	ND	ND	2.2	0.72	ND	ND	ND	ND	ND	ND
Pyrene	2.5	ND	ND	4.0	4.0	ND	ND	ND	ND	2.4	0.77	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total CPAHs ppm =	**11.48**	**0.0**	**0.0**	**18.9**	**21.02**	**0.0**	**0.0**	**0.0**	**0.0**	**11.47**	**2.39**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

As per TAGM 4046 "Soil cleanup objectives are limited to the following maximum values".

Total Carcinogenic PAHs less than or equal to 1.0 ppm
Total Semi-VOCs less than or equal to 500 ppm
Individual Semi-VOCs less than or equal to 50 ppm
Total VOCs less than or equal to 10 ppm

TABLE 1-B-2 Polychlorinated Biphenyls (PCBs) ConecoSoil Borings

500 MAMARONECK AVENUE, HARRISON, NY (March 29 & 30, 1999)

PCBs ppm	B-18 0'-4'	B-19 2'-4'	B-24 0'-3'	B-28 4'-6'	B-24A 8'-10'	B-39 0'-4'	B-35 4'-7'	B-41 4'-6'	B-45 4'-6'	B-41* 5'	NYDEC TAGM
Aroclor 1016	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1221	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1232	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1242	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1248	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1254	BQL	BQL	BQL	BQL	BQL	1.2 ppm	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1260	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface

* = black tar-like material

TABLE 1-B-2 Polychlorinated Biphenyls (PCBs) Coneco Soil Borings

500 MAMARONECK AVENUE, HARRISON, NY (March 29 & 30, 1999)

PCBs ppm	B-49 0'-4'	B-49 4'-7'	B-50 0'-4'	B-50 4'-5.5'	B-51 0'-4'	B-51 4'-6.5'	B-52 0'-4'	B-52 4'-7'	B-53 0'-4'	NYDEC TAGM
Aroclor 1016	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1221	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1232	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1242	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1248	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1254	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1260	BQL	BQL	BQL	0.9 ppm	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface

TABLE 1-B-2 Polychlorinated Biphenyls (PCBs) Coneco Soil Borings

500 MAMARONECK AVENUE, HARRISON, NY

PCBs ppm	B-53 4'-8'	B-54 0'-4'	B-54 4'-8'	B-54 8'-11'	B-55 0'-3'	B-56 0'-4'	B-56 4'-8'	B-56 8'-12'	B-57 0'-3'	NYDEC TAGM
Aroclor 1016	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1221	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1232	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1242	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1248	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1254	BQL	BQL	0.160 ppm	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1260	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface

TABLE 1-B-3 Target Analyte List (TAL) METALS Coneco Soil Borings

500 MAMARONECK AVENUE, HARRISON, NY (March 29 & 30, 1999)

TAL Metals ppm	B-3 2'-4'	B-18 0'-4'	B-19 2'-4'	B-31 0'-2'	B-41 4'-6'	B-28 4'-6'	B-39 0'-4'	B-47 0'-3'	B-48 4'-6'	B-41* 5'	Eastern USA SB	NYDEC TAGM
Silver	0.87	2.6	0.63	BQL	BQL	BQL	BQL	BQL	BQL	0.60	N/A	SB
Aluminum	9,900	9,100	8,800	16,000	16,000	11,000	15,000	13,000	15,000	17,000	33,000	SB
Arsenic	BQL	BQL	BQL	BQL	7.8	BQL	BQL	BQL	BQL	BQL	3–12**	7.5 or SB
Barium	87	290	110	300	260	240	270	190	230	190	15-600	300 or SB
Beryllium	0.51	0.69	0.51	0.73	0.88	0.48	0.72	0.54	0.59	0.68	0-1.75	0.16 (HEAST) or SB
Calcium	13,000	11,000	7100	5,500	11,000	6700	7,000	5,500	5,500	4,700	130-35,000***	SB
Cadmium	4.8	16	6.2	8.2	17	5.4	9.8	6.7	7.4	7.3	0.1-1	1 or SB
Cobalt	7.1	4.3	7.7	13	11	7.0	13	11	12	11	2.5-60**	30 or SB
Chromium	26.0	26	18.0	72	49	27	76	65	65	56	1.5-40**	10 or SB
Copper	22.0	230	110	26	120	27	61	23	26	21	1-50	25 or SB
Iron	15,000	50,000	20,000	28,000	55,000	17,000	31,000	23,000	26,000	24,000	2,000-555,000	2000 or SB
Mercury	BQL	BQL	0.78	BQL	BQL	1.7	BQL	BQL	BQL	BQL	0.001-0.2	0.1
Potassium	2900	670	3300	12,000	5,000	3,000	12,000	10,000	10,000	7,600	8,500-43,000	SB
Magnesium	12,000	1,400	3600	15,000	7,500	6600	15,000	12,000	13,000	11,000	100-5,000	SB
Manganese	250	340	260	410	410	310	400	330	400	300	50-5,000	SB
Sodium	3700	2,200	1400	1,400	270	270	510	130	210	180	6,000-8,000	SB
Nickel	13.0	18	15.0	28	30	15	31	26	24	23	0.5-25	13 or SB
Lead	27.0	910	71	21	540	470	62	17	9	21	****	SB****
Antimony	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Selenium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.1-3.9	2 or SB
Thallium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Vanadium	25.0	11	23.0	51	38	30	52	43	48	45	1-300	150 or SB
Zinc	56.0	670	340	79	370	200	150	62	49	65	9-50	20 or SB

SB = Site Background ** = New York State Background

**** = **Average background levels in metropolitan areas or near highways are much higher and typically range from 200-500 ppm. (TAGM 4046). NYDEC is typically comparing analytical results for Lead in soil to 1,000 ppm, Cadmium to 10 ppm and Chromium to 50 ppm.**

* = black tar-like material N|A = Not Available

TABLE 1-B-3 Target Analyte List (TAL) METALS Coneco Soil Borings

500 MAMARONECK AVENUE, HARRISON, NY (April 15, 1999)

TAL Metals ppm	B-49 0'-4'	B-49 4'-7'	B-50 0'-4'	B-51 0'-4'	B-51 4'-6.5	B-52 0'-4'	B-52 4'-7'	B-53 0'-4	B-53 4'-8'	Eastern USA SB	NYDEC TAGM
Silver	BQL	1.3	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Aluminum	12,000	7,200	13,000	7,700	7,300	12,000	15,000	11,000	14,000	33,000	SB
Arsenic	12	12	BQL	BQL	BQL	BQL	BQL	BQL	BQL	3--12**	7.5 or SB
Barium	250	670	170	75	170	180	79	120	140	15-600	300 or SB
Beryllium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.55	BQL	0-1.75	0.16 (HEAST) or SB
Calcium	7,300	17,000	6,400	20,000	18,000	13,000	1,300	3,300	3,400	130-35,000***	SB
Cadmium	12	39	15	6.2	8	15	5.4	6.6	7.2	0.1-1	1 or SB
Cobalt	11	10	12	6.7	5.71	12	7.8	8.7	11	2.5-60**	30 or SB
Chromium	42	130	52	16	20	39	29	30	41	1.5-40**	10 or SB
Copper	280	380	160	24	54	120	14	45	24	1-50	25 or SB
Iron	33,000	93,000	43,000	18,000	23,000	45,000	17,000	19,000	22,000	2,000-555,000	2000 or SB
Mercury	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.001-0.2	0.1
Potassium	5,000	750	5,500	2,100	1,600	3,700	1,200	2,900	5,000	8,500-43,000	SB
Magnesium	7,400	2,100	9,900	4,600	3,000	7,000	5,500	6,000	8,000	100-5,000	SB
Manganese	420	700	480	330	320	460	140	340	360	50-5,000	SB
Sodium	980	810	2,000	710	830	560	360	55	82	6,000-8,000	SB
Nickel	23	72	27	12	14	27	12	17	20	0.5-25	13 or SB
Lead	790	1,400	170	120	1,000	200	11	43	27	****	SB****
Antimony	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Selenium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.1-3.9	2 or SB
Thallium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Vanadium	46	24	40	21	17	40	30	30	39	1-300	150 or SB
Zinc	380	2,000	270	96	460	290	43	80	62	9-50	20 or SB

SB = Site Background ** = New York State Background

**** = **Average background levels in metropolitan areas or near highways are much higher and typically range from 200-500 ppm. (TAGM 4046). NYDEC is typically comparing analytical results for Lead in soil to 1,000 ppm, Cadmium to 10 ppm and Chromium to 50 ppm.**

N|A = Not Available

TABLE 1-B-3 Target Analyte List (TAL) METALS Coneco Soil Borings

500 MAMARONECK AVENUE, HARRISON, NY (April 15, 1999)

TAL Metals ppm	B-54 0'-4'	B-54 4'-8'	B-54 8'-11'	B-55 0'-3'	B-56 0'-4'	B-56 4'-8'	B-56 8'-12'.	B-57 0'-3'	S-5 SB	Eastern USA SB	NYDEC TAGM
Silver	BQL	0.76	5.6	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Aluminum	14,000	8,000	5,500	6,800	16,000	11,000	15,000	13,000	16,000	33,000	SB
Arsenic	BQL	9.5	17	BQL	BQL	BQL	BQL	BQL	BQL	3–12**	7.5 or SB
Barium	190	250	260	66	150	160	230	220	120	15-600	300 or SB
Beryllium	BQL	0.92	BQL	0.42	0.82	0.78	0.59	0.60	0.87	0-1.75	0.16 (HEAST) or SB
Calcium	24,000	9,900	19,000	13,000	2,300	3,500	4,800	12,000	390	130-35,000***	SB
Cadmium	7.6	24	35	5.4	8.2	13	9.4	10	6.9	0.1-1	1 or SB****
Cobalt	11	10	15	5.7	11	11	14	11	6.5	2.5-60**	30 or SB
Chromium	61	34	43	13	53	38	65	56	33	1.5-40**	10 or SB
Copper	25	200	1,600	18	23	62	28	84	9.2	1-50	25 or SB
Iron	23,000	56,000	94,000	16,000	24,000	39,000	28,000	29,000	18,000	2,000-555,000	2000 or SB
Mercury	BQL	0.78	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.001-0.2	0.1
Potassium	8,400	1,700	700	1,300	2,600	3,800	11,000	8,900	430	8,500-43,000	SB
Magnesium	15,000	3,800	1,000	6,400	8,200	6,600	13,000	15,000	3,800	100-5,000	SB
Manganese	340	550	900	290	540	560	420	400	280	50-5,000	SB
Sodium	170	230	990	130	44	59	97	260	0.00	6,000-8,000	SB
Nickel	26	49	56	10	22	23	24	24	11	0.5-25	13 or SB
Lead	31	450	780	45	39	150	23	72	14	****	SB****
Antimony	BQL	BQL	BQL	BQ	BQL	BQL	BQL	BQL	BQL	N/A	SB
Selenium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.1-3.9	2 or SB
Thallium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Vanadium	43	70	11	18	41	34	53	45	31	1-300	150 or SB
Zinc	70	1,700	1,200	59	80	180	63	160	36	9-50	20 or SB

SB = Site Background ** = New York State Background

**** = **Average background levels in metropolitan areas or near highways are much higher and typically range from 200-500 ppm. (TAGM 4046). NYDEC is typically comparing analytical results for Lead in soil to 1,000 ppm, Cadmium to 10.0 ppm and Chromium to 50 ppm.**

N|A = Not Available

Table 2-2
TCL Volatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID			GP-38B (2-4 BLS)		GP-39A (0-2 BLS)		GP-40F (10-11.5 BLS)		GP-41A (0-2 BLS)		GP-42A (0-2 BLS)		GP-42B/C (2-6 BLS)	
Lab Sample ID	TAGM 4046		991556A-02		991556A-05		991556A-13		991556A-14		991556A-16		991556A-17	
Date Sampled	Recommended	Groundwater	07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99	
Dilution	Soil Clean-Up	Standards	1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank	Objective	Criteria	VBLKKX		VBLKKW		VBLKKW		VBLKKW		VBLKKX		VBLKKW	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds														
Chloromethane			11	U	11	U	11	U	11	U	10	U	11	U
Bromomethane			11	U	11	U	11	U	11	U	10	U	11	U
Vinyl Chloride	200	2	11	U	11	U	11	U	11	U	10	U	11	U
Chloroethane	1,900	50	11	UJ	11	U	11	U	11	U	10	UJ	11	U
Methylene Chloride	100	5	11	U	11	U	11	U	11	U	10	U	11	U
Acetone	200	50	110	BJ	26	UJ	83	BJ	56	UJ	13	UJ	11	UJ
Carbon Disulfide	2,700	50	1	J	.5	J	.5	J	11	U	10	U	11	U
1,1-Dichloroethene	400	5	11	U	11	U	11	U	11	U	10	U	11	U
1,1-Dichloroethane	200	5	11	U	11	U	11	U	11	U	10	U	11	U
1,2-Dichloroethene (total)	300	5	11	U	11	U	11	U	11	U	10	U	11	U
Chloroform	300	7	11	U	11	U	11	U	11	U	10	U	11	U
1,2-Dichloroethane	100	5	11	U	11	U	11	U	11	U	10	U	11	U
2-Butanone	300	50	17	UJ	11	UJ	17	U	11	U	10	UJ	11	U
1,1,1-Trichloroethane	800	5	11	U	11	U	11	U	11	U	10	U	11	U
Carbon Tetrachloride	600	5	11	UJ	11	UJ	11	UJ	11	UJ	10	UJ	11	UJ
Bromodichloromethane			11	U	11	U	11	U	11	U	10	U	11	U
1,2-Dichloropropane			11	U	11	U	11	U	11	U	10	U	11	U
cis-1,3-Dichloropropene			11	U	11	U	11	U	11	U	10	U	11	U
Trichloroethene	700	5	2	J	11	UJ	11	U	11	U	1	J	11	U
Dibromochloromethane			11	U	11	U	11	U	11	U	10	U	11	U
1,1,2-Trichloroethane			11	U	11	U	11	U	11	U	10	U	11	U
Benzene	60	1	.6	J	11	UJ	11	U	11	U	.3	J	11	U
trans-1,3-Dichloropropene			11	U	11	U	11	U	11	U	10	U	11	U
Bromoform			11	U	11	U	11	U	11	U	10	U	11	U
4-Methyl-2-Pentanone	1,000	50	11	UJ	11	U	11	U	11	U	10	UJ	11	U
2-Hexanone			11	UJ	11	U	11	U	11	U	10	UJ	11	U
Tetrachloroethene	1,400	5	11	U	11	U	11	U	11	U	10	U	11	U
1,1,2,2-Tetrachloroethane	600	5	11	U	11	U	11	U	11	U	10	U	11	U
Toluene	1,500	5	.4	J	11	UJ	11	U	11	U	10	U	11	U
Chlorobenzene	1,700	5	11	U	11	U	11	U	11	U	10	U	11	U
Ethylbenzene	5,500	5	11	U	11	U	11	U	11	U	10	U	11	U
Styrene			11	U	11	U	11	U	11	U	10	U	11	U
Xylene (total)	1,200	5	11	U	11	U	11	U	11	U	10	U	11	U

Table 2-2
TCL Volatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID	TAGM 4046 Recommended Soil Clean-Up Objective	Groundwater Standards Criteria	GP-43A (0-2.5 BLS)		GP-44A (0-2 BLS)		GP-45A (0-2 BLS)		GP-46A (0-2.5 BLS)		GP-47A (0-0.5 BLS)		FIELD BLANK-1	
Lab Sample ID			991556A-18		991556A-19		991556A-20		991556A-21		991556A-22		991556A-24	
Date Sampled			07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99	
Dilution			1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank			VBLKKW		VBLKKX		VBLKKW		VBLKKW		VBLKKW		VBLKMH	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/L	
Compounds														
Chloromethane			11	U	11	U	11	U	11	U	11	U	10	U
Bromomethane			11	U	11	U	11	U	11	U	11	U	10	U
Vinyl Chloride	200	2	11	U	11	U	11	U	11	U	11	U	10	U
Chloroethane	1,900	50	11	U	11	UJ	11	U	11	U	11	U	10	U
Methylene Chloride	100	5	11	U	11	U	11	U	11	U	11	U	.5	J
Acetone	200	50	30	UJ	37	BJ	25	UJ	17	UJ	20	UJ	2	JB
Carbon Disulfide	2,700	50	.3	J	1	J	11	U	11	U	11	U	10	U
1,1-Dichloroethene	400	5	11	U	11	U	11	U	11	U	11	U	10	U
1,1-Dichloroethane	200	5	11	U	11	U	11	U	11	U	11	U	10	U
1,2-Dichloroethene (total)	300	5	11	U	11	U	11	U	11	U	11	U	10	U
Chloroform	300	7	11	U	11	U	11	U	11	U	11	U	10	U
1,2-Dichloroethane	100	5	11	U	11	U	11	U	11	U	11	U	10	U
2-Butanone	300	50	11	U	11	UJ	11	U	11	U	11	U	2	JB
1,1,1-Trichloroethane	800	5	11	U	11	U	11	U	11	U	11	U	10	U
Carbon Tetrachloride	600	5	11	UJ	11	UJ	11	UJ	11	UJ	11	UJ	10	UJ
Bromodichloromethane			11	U	11	U	11	U	11	U	11	U	10	U
1,2-Dichloropropane			11	U	11	U	11	U	11	U	11	U	10	U
cis-1,3-Dichloropropene			11	U	11	U	11	U	11	U	11	U	10	U
Trichloroethene	700	5	11	U	3	J	11	U	11	U	11	U	10	U
Dibromochloromethane			11	U	11	U	11	U	11	U	11	U	10	U
1,1,2-Trichloroethane			11	U	11	U	11	U	11	U	11	U	10	U
Benzene	60	1	11	U	.9	J	11	U	11	U	11	U	10	U
trans-1,3-Dichloropropene			11	U	11	U	11	U	11	U	11	U	10	U
Bromoform			11	U	11	U	11	U	11	U	11	U	10	U
4-Methyl-2-Pentanone	1,000	50	11	U	11	UJ	11	U	11	U	11	U	10	U
2-Hexanone			11	U	11	UJ	11	U	11	U	11	U	10	U
Tetrachloroethene	1,400	5	11	U	11	U	11	U	11	U	11	U	.5	J
1,1,2,2-Tetrachloroethane	600	5	11	U	11	U	11	U	11	U	11	U	10	U
Toluene	1,500	5	11	U	.4	J	11	U	.4	J	.4	J	10	U
Chlorobenzene	1,700	5	11	U	11	U	11	U	11	U	11	U	10	U
Ethylbenzene	5,500	5	11	U	11	U	11	U	11	U	11	U	.2	J
Styrene			11	U	11	U	11	U	11	U	11	U	10	U
Xylene (total)	1,200	5	11	U	11	U	11	U	11	U	11	U	.5	JB

Table 2-2
TCL Volatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID	TAGM 4046 Recommended Soil Clean-Up Objective	Groundwater Standards Criteria	TRIP BLANK-1		DUPLICATE-1A		GP-22A (0-2 BLS)		GP-25A (0-2.5 BLS)		GP-26A/B (0-3 BLS)		GP-27A (0-2 BLS)	
Lab Sample ID			991556A-25		991556A-26		991556B-01		991556B-03		991556B-04		991556B-05	
Date Sampled			07/07/99		07/07/99		07/08/99		07/08/99		07/08/99		07/08/99	
Dilution			1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank			VBLKMH		VBLKKX		VBLKKX		VBLKKX		VBLKKX		VBLKKZ	
Units	ug/Kg	ug/L	ug/L		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds														
Chloromethane			10	U	11	U	11	U	11	U	11	U	10	U
Bromomethane			10	U	11	U	11	U	11	U	11	U	10	U
Vinyl Chloride	200	2	10	U	11	U	11	U	11	U	11	U	10	U
Chloroethane	1,900	50	10	U	11	UJ	11	UJ	11	UJ	11	UJ	10	U
Methylene Chloride	100	5	.5	J	11	U	11	UJ	11	U	11	U	10	U
Acetone	200	50	2	JB	130	BJ	54	BJ	38	BJ	26	UJ	36	UJ
Carbon Disulfide	2,700	50	10	U	2	J	11	U	11	U	11	U	10	U
1,1-Dichloroethene	400	5	10	U	11	U	11	U	11	U	11	U	10	U
1,1-Dichloroethane	200	5	10	U	11	U	11	U	11	U	11	U	10	U
1,2-Dichloroethene (total)	300	5	10	U	11	U	11	U	11	U	11	U	10	U
Chloroform	300	7	10	U	11	U	11	U	11	U	11	U	10	U
1,2-Dichloroethane	100	5	10	U	11	U	11	U	11	U	11	U	10	U
2-Butanone	300	50	10	U	24	BJ	11	UJ	11	UJ	11	UJ	5	J
1,1,1-Trichloroethane	800	5	10	U	11	U	11	U	11	U	11	U	10	U
Carbon Tetrachloride	600	5	10	UJ	11	UJ	11	UJ	11	UJ	11	UJ	10	UJ
Bromodichloromethane			10	U	11	U	11	U	11	U	11	U	10	U
1,2-Dichloropropane			10	U	11	U	11	U	11	U	11	U	10	U
cis-1,3-Dichloropropene			10	U	11	U	11	U	11	U	11	U	10	U
Trichloroethene	700	5	10	U	2	J	0.7	J	0.3	J	0.8	J	10	U
Dibromochloromethane			10	U	11	U	11	U	11	U	11	U	10	U
1,1,2-Trichloroethane			10	U	11	U	11	U	11	U	11	U	10	U
Benzene	60	1	10	U	1	J	11	U	11	U	11	U	10	U
trans-1,3-Dichloropropene			10	U	11	U	11	U	11	U	11	U	10	U
Bromoform			10	U	11	U	11	U	11	U	11	U	10	U
4-Methyl-2-Pentanone	1,000	50	10	U	11	U	11	UJ	11	UJ	11	UJ	10	UJ
2-Hexanone			10	U	11	U	11	UJ	11	UJ	11	UJ	10	UJ
Tetrachloroethene	1,400	5	.4	J	11	U	11	U	11	U	11	U	10	U
1,1,2,2-Tetrachloroethane	600	5	10	U	11	U	11	UJ	11	UJ	11	UJ	10	UJ
Toluene	1,500	5	10	U	.6	J	11	U	11	U	11	U	10	U
Chlorobenzene	1,700	5	10	U	11	U	11	U	.2	J	11	U	10	U
Ethylbenzene	5,500	5	10	U	11	U	11	U	11	U	11	U	10	U
Styrene			10	U	11	U	11	U	11	U	11	U	10	U
Xylene (total)	1,200	5	10	U	11	U	11	U	11	U	11	U	10	U

Table 2-2
TCL Volatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

	TAGM 4046 Recommended Soil Clean-Up Objective	Groundwater Standards Criteria												
Client ID			GP-28C (4-5 BLS)		GP-29A (0-2 BLS)		GP-30A (0-2 BLS)		GP-32B/C (2-6 BLS)		GP-34B (2-4 BLS)		DUPLICATE-2	
Lab Sample ID			991556B-09		991556B-10		991556B-11		991556B-13		991556B-15		991556B-16	
Date Sampled			07/08/99		07/08/99		07/08/99		07/08/99		07/08/99		07/08/99	
Dilution			1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank			VBLKKX		VBLKKX		VBLKKX		VBLKKZ		VBLKKZ		VBLKKZ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds														
Chloromethane			11	U	10	U	11	U	11	U	12	U	11	U
Bromomethane			11	U	10	U	11	U	11	U	12	U	11	U
Vinyl Chloride	200	2	11	U	10	U	11	U	11	U	12	U	11	U
Chloroethane	1,900	50	11	UJ	10	UJ	11	UJ	11	U	12	U	11	U
Methylene Chloride	100	5	11	U	10	U	11	U	11	U	12	U	11	UJ
Acetone	200	50	200	BJ	34	BJ	32	BJ	16	UJ	12	UJ	11	UJ
Carbon Disulfide	2,700	50	0.6	J	0.8	J	0.6	J	11	U	12	U	11	U
1,1-Dichloroethene	400	5	11	U	10	U	11	U	11	U	12	U	11	U
1,1-Dichloroethane	200	5	11	U	10	U	11	U	11	U	12	U	11	U
1,2-Dichloroethene (total)	300	5	11	U	10	U	11	U	11	U	12	U	11	U
Chloroform	300	7	11	U	10	U	11	U	11	U	12	U	11	U
1,2-Dichloroethane	100	5	11	U	10	U	11	U	11	U	12	U	11	U
2-Butanone	300	50	16	BJ	10	UJ	11	UJ	3	J	12	UJ	3	J
1,1,1-Trichloroethane	800	5	11	U	10	U	11	U	11	U	12	U	11	U
Carbon Tetrachloride	600	5	11	UJ	10	UJ	11	UJ	11	UJ	12	UJ	11	UJ
Bromodichloromethane			11	U	10	U	11	U	11	U	12	U	11	U
1,2-Dichloropropane			11	U	10	U	11	U	11	U	12	U	11	U
cis-1,3-Dichloropropene			11	U	10	U	11	U	11	U	12	U	11	U
Trichloroethene	700	5	11	U	0.8	J	0.4	J	11	U	12	U	11	UJ
Dibromochloromethane			11	U	10	U	11	U	11	U	12	U	11	U
1,1,2-Trichloroethane			11	U	10	U	11	U	11	U	12	U	11	U
Benzene	60	1	11	U	0.3	J	11	U	11	U	12	U	11	U
trans-1,3-Dichloropropene			11	U	10	U	11	U	11	U	12	U	11	U
Bromoform			11	U	10	U	11	U	11	U	12	U	11	U
4-Methyl-2-Pentanone	1,000	50	11	UJ	10	UJ	11	UJ	11	UJ	12	UJ	11	UJ
2-Hexanone			11	UJ	10	UJ	11	UJ	11	UJ	12	UJ	11	UJ
Tetrachloroethene	1,400	5	11	U	10	U	11	U	11	U	12	U	11	U
1,1,2,2-Tetrachloroethane	600	5	11	UJ	10	UJ	11	UJ	11	UJ	12	UJ	11	UJ
Toluene	1,500	5	11	U	10	U	11	U	11	U	12	U	11	U
Chlorobenzene	1,700	5	11	U	10	U	11	U	11	U	12	U	11	U
Ethylbenzene	5,500	5	11	U	10	U	11	U	11	U	12	U	11	U
Styrene			11	U	10	U	11	U	11	U	12	U	11	U
Xylene (total)	1,200	5	11	U	10	U	11	U	11	U	12	U	11	U

Table 2-2
TCL Volatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID			FIELD BLANK-2		TRIP BLANK-2		GP-31C (4-6 BLS)		GP-33A (0-2 BLS)		GP-35A (0-2 BLS)		GP-36A (0-3 BLS)	
Lab Sample ID	TAGM 4046		991556B-17		991556B-18		991556C-03		991556C-05		991556C-06		991556C-07	
Date Sampled	Recommended	Groundwater	07/08/99		07/08/99		07/09/99		07/09/99		07/09/99		07/09/99	
Dilution	Soil Clean-Up	Standards	1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank	Objective	Criteria	VBLKM5		VBLKM5		VBLKK1		VBLKKZ		VBLKK1		VBLKK1	
Units	ug/Kg	ug/L	ug/L		ug/L		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds														
Chloromethane			10	U	10	U	12	U	11	U	11	U	12	U
Bromomethane			10	U	10	U	12	U	11	U	11	U	12	U
Vinyl Chloride	200	2	10	U	10	U	12	U	11	U	11	U	12	U
Chloroethane	1,900	50	10	U	10	U	12	UJ	11	UJ	11	UJ	12	UJ
Methylene Chloride	100	5	0.9	JB	0.8	JB	12	U	11	U	11	UJ	12	U
Acetone	200	50	3	JB	2	JB	75	UJ	25	UJ	11	UJ	150	BJ
Carbon Disulfide	2,700	50	10	U	10	U	0.8	J	11	UJ	11	UJ	2	J
1,1-Dichloroethene	400	5	10	U	10	U	12	U	11	U	11	U	12	U
1,1-Dichloroethane	200	5	10	U	10	U	12	U	11	U	11	U	12	U
1,2-Dichloroethene (total)	300	5	10	U	10	U	12	U	11	U	11	U	12	U
Chloroform	300	7	10	U	10	U	12	U	11	U	11	U	12	U
1,2-Dichloroethane	100	5	10	U	10	U	2	J	11	U	11	U	12	U
2-Butanone	300	50	10	U	10	U	15	J	2	J	11	UJ	22	J
1,1,1-Trichloroethane	800	5	10	UJ	10	UJ	12	U	11	U	11	U	12	U
Carbon Tetrachloride	600	5	10	UJ	10	UJ	12	UJ	11	UJ	11	UJ	12	UJ
Bromodichloromethane			10	U	10	U	12	U	11	U	11	U	12	U
1,2-Dichloropropane			10	U	10	U	12	U	11	U	11	U	12	U
cis-1,3-Dichloropropene			10	U	10	U	12	U	11	U	11	U	12	U
Trichloroethene	700	5	10	U	10	U	12	U	11	U	0.9	J	0.6	J
Dibromochloromethane			10	U	10	U	12	U	11	U	11	U	12	U
1,1,2-Trichloroethane			10	U	10	U	12	U	11	U	11	U	12	U
Benzene	60	1	10	U	10	U	0.5	J	11	U	0.4	J	2	J
trans-1,3-Dichloropropene			10	U	10	U	12	U	11	U	11	U	12	U
Bromoform			10	U	10	U	12	U	11	U	11	U	12	U
4-Methyl-2-Pentanone	1,000	50	10	UJ	10	UJ	12	UJ	11	U	11	UJ	12	UJ
2-Hexanone			10	UJ	10	UJ	12	UJ	11	U	11	UJ	12	UJ
Tetrachloroethene	1,400	5	10	U	0.3	J	12	U	11	U	11	U	12	U
1,1,2,2-Tetrachloroethane	600	5	10	UJ	10	UJ	12	UJ	11	UJ	11	UJ	12	UJ
Toluene	1,500	5	10	U	0.2	J	12	U	11	U	11	U	1	J
Chlorobenzene	1,700	5	10	U	10	U	12	U	11	U	11	U	12	U
Ethylbenzene	5,500	5	10	U	10	U	12	U	11	U	11	U	12	U
Styrene			10	U	10	U	12	U	11	U	11	U	12	U
Xylene (total)	1,200	5	10	U	10	U	12	U	11	U	11	U	12	U

U=not detected, J=estimated value, B=detected in associated method blank, D= [illegible]

Table 2-2
TCL Volatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

	TAGM 4046 Recommended Soil Clean-Up Objective	Groundwater Standards Criteria												
Client ID			GP-37A (0-2 BLS)		GP-48B (2-4 BLS)		EAST SWAMP SEDIMENT		UPPER POND SEDIMENT		LOWER POND SEDIMENT		NW CATCH BASIN	
Lab Sample ID			991556C-08		991556C-13		991556C-15		991556C-16		991556C-17		991556C-18	
Date Sampled			07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99	
Dilution			1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank			VBLKK1		VBLKK1		VBLKK1		VBLKKZ		VBLKK1		VBLKKZ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds														
Chloromethane			11	U	11	U	38	U	15	U	25	U	11	U
Bromomethane			11	U	11	U	38	U	15	U	25	U	11	U
Vinyl Chloride	200	2	11	U	11	U	38	U	15	U	25	U	11	U
Chloroethane	1,900	50	11	UJ	11	UJ	38	UJ	15	UJ	25	UJ	11	UJ
Methylene Chloride	100	5	11	U	11	U	38	U	15	U	25	U	11	U
Acetone	200	50	28	UJ	16	UJ	38	UJ	67	BJ	62	UJ	11	UJ
Carbon Disulfide	2,700	50	11	UJ	11	U	1	J	15	U	1	J	11	UJ
1,1-Dichloroethene	400	5	11	U	11	U	38	U	15	U	25	U	11	U
1,1-Dichloroethane	200	5	11	U	11	U	38	U	15	U	25	U	11	U
1,2-Dichloroethene (total)	300	5	11	U	11	U	38	U	15	U	25	U	11	U
Chloroform	300	7	11	U	11	U	38	U	15	U	25	U	11	U
1,2-Dichloroethane	100	5	11	U	11	U	38	U	15	U	25	U	11	U
2-Butanone	300	50	5	J	6	J	50	J	8	J	16	J	11	UJ
1,1,1-Trichloroethane	800	5	11	U	11	U	38	U	15	U	25	U	11	U
Carbon Tetrachloride	600	5	11	UJ	11	UJ	38	UJ	15	UJ	25	UJ	11	UJ
Bromodichloromethane			11	U	11	U	38	U	15	U	25	U	11	U
1,2-Dichloropropane			11	U	11	U	38	U	15	U	25	U	11	U
cis-1,3-Dichloropropene			11	U	11	U	38	U	15	U	25	U	11	U
Trichloroethene	700	5	0.6	J	11	U	38	U	15	U	25	U	11	U
Dibromochloromethane			11	U	11	U	38	U	15	U	25	U	11	U
1,1,2-Trichloroethane			11	U	11	U	38	U	15	U	25	U	11	U
Benzene	60	1	11	U	11	U	1	J	15	U	25	U	11	U
trans-1,3-Dichloropropene			11	U	11	U	38	U	15	U	25	U	11	U
Bromoform			11	U	11	U	38	U	15	U	25	U	11	U
4-Methyl-2-Pentanone	1,000	50	11	UJ	11	UJ	38	UJ	15	U	25	UJ	11	U
2-Hexanone			11	UJ	11	UJ	38	UJ	15	U	25	UJ	11	U
Tetrachloroethene	1,400	5	11	U	11	U	38	U	15	U	25	U	11	U
1,1,2,2-Tetrachloroethane	600	5	11	UJ	11	UJ	38	UJ	15	UJ	25	UJ	11	UJ
Toluene	1,500	5	11	U	11	U	2	J	15	U	25	U	11	U
Chlorobenzene	1,700	5	11	U	11	U	1	J	15	U	25	U	11	U
Ethylbenzene	5,500	5	11	U	11	U	38	U	15	U	25	U	11	U
Styrene			11	U	11	U	38	U	15	U	25	U	11	U
Xylene (total)	1,200	5	11	U	11	U	38	U	15	U	25	U	11	U

U=not detected J=estimated value B=detected in associated method blank D=result from secondary analysis (dilution) E=value exceeds calibration range

Table 2-3
TCL Semivolatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID	TAGM 4046 Recommended Soil Clean-Up Objective	Groundwater Standards Criteria	GP-38B (2-4 BLS)		GP-39A (0-2 BLS)		GP-40F (10-11.5 BLS)		GP-41A (0-2 BLS)		GP-42A (0-2 BLS)		GP-43A (0-2.5 BLS)		GP-44A (0-2 BLS)		GP-45A (0-2 BLS)	
Lab Sample ID			991556A-02		991556A-05		991556A-13		991556A-14		991556A-16		991556A-18		991556A-19		991556A-20	
Date Sampled			07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99	
Dilution			1.00		1.00		1.00		1.00		2.00		1.00		1.00		1.00	
Method Blank			SBLKUQ		SBLKUQ		SBLKUQ		SBLKUQ		SBLKUQ		SBLKUQ		SBLKUQ		SBLKUQ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds																		
Phenol	30	1	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
bis(2-Chloroethyl)ether			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
2-Chlorophenol	800	50	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
1,3-Dichlorobenzene			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
1,4-Dichlorobenzene			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
1,2-Dichlorobenzene			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
2-Methylphenol	100	5	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
2,2'-oxybis(1-Chloropropane)			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
4-Methylphenol	900	50	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
N-nitroso-di-n-propylamine			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Hexachloroethane			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Nitrobenzene	200	5	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Isophorone	4,400	50	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
2-Nitrophenol	100	5	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
2,4-Dimethylphenol			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
bis(2-Chloroethoxy)methane			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
2,4-Dichlorophenol	400	1	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
1,2,4-Trichlorobenzene			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Naphthalene	13,000	10	360	U	22	J	16	J	12	J	130	J	29	J	17	J	17	J
4-Chloroaniline	220	5	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Hexachlorobutadiene			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
4-Chloro-3-methylphenol	240	5	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
2-Methylnaphthalene	36,400	50	360	U	12	J	350	U	360	U	81	J	350	U	360	U	350	U
Hexachlorocyclopentadiene			360	UJ	350	UJ	350	UJ	360	UJ	690	U	350	UJ	360	UJ	350	UJ
2,4,6-Trichlorophenol			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
2,4,5-Trichlorophenol	100	1	910	U	880	U	880	U	910	U	1700	U	870	U	910	U	870	U
2-Chloronaphthalene			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
2-Nitroaniline	430	5	910	U	880	U	880	U	910	U	1700	U	870	U	910	U	870	U
Dimethylphthalate	2,000	50	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Acenaphthylene	41,000	20	360	U	9	J	47	J	14	J	11	J	350	U	11	J	350	U
2,6-Dinitrotoluene	1,000	5	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
3-Nitroaniline	500	5	910	U	880	U	880	U	910	U	1700	U	870	U	910	U	870	U
Acenaphthene	50,000	20	19	J	350	UJ	24	J	360	UJ	750	J	350	UJ	360	UJ	350	UJ

Table 2-3
TCL Semivolatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

	TAGM 4046 Recommended Soil Clean-Up Objective	Groundwater Standards Criteria																
Client ID			GP-38B (2-4 BLS)		GP-39A (0-2 BLS)		GP-40F (10-11.5 BLS)		GP-41A (0-2 BLS)		GP-42A (0-2 BLS)		GP-43A (0-2.5 BLS)		GP-44A (0-2 BLS)		GP-45A (0-2 BLS)	
Lab Sample ID			991556A-02		991556A-05		991556A-13		991556A-14		991556A-16		991556A-18		991556A-19		991556A-20	
Date Sampled			07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99	
Dilution			1.00		1.00		1.00		1.00		2.00		1.00		1.00		1.00	
Method Blank			SBLKUQ		SBLKUQ		SBLKUQ		SBLKUQ		SBLKUQ		SBLKUQ		SBLKUQ		SBLKUQ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds																		
2,4-Dinitrophenol	400	5	910	UJ	880	UJ	880	UJ	910	UJ	1700	U	870	UJ	910	UJ	870	UJ
4-Nitrophenol	100	5	910	U	880	U	880	U	910	U	1700	U	870	U	910	U	870	U
Dibenzofuran	6,200	5	360	U	350	UJ	10	J	360	U	220	J	350	U	360	U	350	U
2,4-Dinitrotoluene			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Diethylphthalate	7,100	50	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
4-Chlorophenyl-phenylether			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Fluorene	50,000	50	360	U	11	J	40	J	10	J	540	J	350	U	360	U	9	J
4-Nitroaniline			910	U	880	U	880	U	910	U	1700	U	870	U	910	U	870	U
4,6-Dinitro-2-methylphenol			910	U	880	U	880	U	910	U	1700	U	870	U	910	U	870	U
N-Nitrosodiphenylamine (1)			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
4-Bromophenyl-phenylether			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Hexachlorobenzene	410	0.35	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Pentachlorophenol	1,000	1	910	U	880	U	880	U	910	U	1700	U	870	U	910	U	870	U
Phenanthrene	50,000	50	95	J	65	J	420		81	J	3000		16	J	48	J	60	J
Anthracene	50,000	50	12	J	17	J	130	J	21	J	870		4	J	17	J	15	J
Carbazole			360	U	350	U	18	J	360	U	640	J	350	U	360	U	7	J
Di-n-butylphthalate	8,100	50	360	U	350	U	460	U	360	U	690	U	350	U	360	U	350	U
Fluoranthene	50,000	50	38	J	83	J	690		130	J	3400		19	J	110	J	57	J
Pyrene	50,000	50	84	J	98	J	760		140	J	4000		30	J	130	J	66	J
Butylbenzylphthalate	50,000	50	360	U	350	U	350	U	55	J	690	U	350	U	360	U	350	U
3,3'-Dichlorobenzidine			360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Benzo(a)anthracene	224	0.002	360	U	59	J	530		86	J	2500		12	J	86	J	37	J
Chrysene	400	0.002	360	U	66	J	540		95	J	2400		39	J	96	J	48	J
bis(2-Ethylhexyl)phthalate	50,000	50	360	U	350	U	350	U	360	U	690	U	350	U	360	U	350	U
Di-n-octylphthalate	50,000	50	360	U	350	UJ	350	U	360	U	690	U	350	U	360	U	350	U
Benzo(b)fluoranthene	1,100	0.002	360	U	54	J	370		76	J	1700		350	U	96	J	50	J
Benzo(k)fluoranthene	1,100	0.002	360	U	60	J	420		110	J	2300		350	U	91	J	57	J
Benzo(a)pyrene	61	0.002	360	U	56	J	430		81	J	2000		350	U	95	J	60	J
Indeno(1,2,3-cd)pyrene	3,200	0.002	360	U	46	J	340	J	68	J	1700		350	U	86	J	50	J
Dibenz(a,h)anthracene	14	50	360	U	19	J	120	J	27	J	620	J	350	U	31	J	16	J
Benzo(g,h,i)perylene	50,000	5	12	J	48	J	290	J	76	J	1800		12	J	90	J	66	J

Table 2-3
TCL Semivolatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

	TAGM 4046 Recommended Soil Clean-Up Objective	Groundwater Standards Criteria	GP-46A (0-2.5 BLS)		GP-47A (0-0.5 BLS)		FIELD BLANK-1		DUPLICATE-1A		GP-22A (0-2 BLS)		GP-25A (0-2.5 BLS)		GP-26A/B (0-3 BLS)		GP-27A (0-2 BLS)	
Lab Sample ID			991556A-21		991556A-22		991556A-24		991556A-26		991556B-01		991556B-03		991556B-04		991556B-05	
Date Sampled			07/07/99		07/07/99		07/07/99		07/07/99		07/08/99		07/08/99		07/08/99		07/08/99	
Dilution			1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank			SBLKUQ		SBLKUQ		SBLKYQ		SBLKUQ		SBLKXQ		SBLKXQ		SBLKXQ		SBLKXQ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/L		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds																		
Phenol	30	1	350	U	380	U	2	J	360	U	360	U	350	U	350	U	350	U
bis(2-Chloroethyl)ether			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
2-Chlorophenol	800	50	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
1,3-Dichlorobenzene			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
1,4-Dichlorobenzene			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
1,2-Dichlorobenzene			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
2-Methylphenol	100	5	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
2,2'-oxybis(1-Chloropropane)			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
4-Methylphenol	900	50	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
N-nitroso-di-n-propylamine			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
Hexachloroethane			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
Nitrobenzene	200	5	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
Isophorone	4,400	50	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
2-Nitrophenol	100	5	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
2,4-Dimethylphenol			350	U	380	U	10	UJ	360	U	360	UJ	350	UJ	350	UJ	350	UJ
bis(2-Chloroethoxy)methane			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
2,4-Dichlorophenol	400	1	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
1,2,4-Trichlorobenzene			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
Naphthalene	13,000	10	17	J	23	J	10	U	21	J	360	UJ	350	U	350	U	350	U
4-Chloroaniline	220	5	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
Hexachlorobutadiene			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
4-Chloro-3-methylphenol	240	5	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
2-Methylnaphthalene	36,400	50	18	J	60	J	10	U	17	J	360	U	350	U	350	U	350	U
Hexachlorocyclopentadiene			350	UJ	380	U	10	UJ	360	U	360	U	350	U	350	U	350	U
2,4,6-Trichlorophenol			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
2,4,5-Trichlorophenol	100	1	870	U	950	U	25	U	900	U	900	U	880	U	880	U	880	U
2-Chloronaphthalene			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
2-Nitroaniline	430	5	870	U	950	U	25	U	900	U	900	U	880	U	880	U	880	U
Dimethylphthalate	2,000	50	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
Acenaphthylene	41,000	20	350	U	16	J	10	U	9	J	10	J	350	U	350	U	350	U
2,6-Dinitrotoluene	1,000	5	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
3-Nitroaniline	500	5	870	U	950	U	25	U	900	U	900	U	880	U	880	U	880	U
Acenaphthene	50,000	20	350	UJ	380	UJ	10	U	360	UJ	360	UJ	350	U	350	U	350	U

U=not detected J=estimated value B=detected in associated method blank D=result from secondary analysis (dilution) E=value exceeds calibration range

[redacted]

Table 2-3
TCL Semivolatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

	TAGM 4046 Recommended Soil Clean-Up Objective	Groundwater Standards Criteria																
Client ID			GP-46A (0-2.5 BLS)		GP-47A (0-0.5 BLS)		FIELD BLANK-1		DUPLICATE-1A		GP-22A (0-2 BLS)		GP-25A (0-2.5 BLS)		GP-26A/B (0-3 BLS)		GP-27A (0-2 BLS)	
Lab Sample ID			991556A-21		991556A-22		991556A-24		991556A-26		991556B-01		991556B-03		991556B-04		991556B-05	
Date Sampled			07/07/99		07/07/99		07/07/99		07/07/99		07/08/99		07/08/99		07/08/99		07/08/99	
Dilution			1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank			SBLKUQ		SBLKUQ		SBLKYQ		SBLKUQ		SBLKXQ		SBLKXQ		SBLKXQ		SBLKXQ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/L		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds																		
2,4-Dinitrophenol	400	5	870	U	950	U	25	UJ	900	U	900	U	880	U	880	U	880	U
4-Nitrophenol	100	5	870	U	950	U	25	U	900	U	900	U	880	U	880	U	880	U
Dibenzofuran	6,200	5	350	U	380	U	10	U	8	J	360	UJ	350	U	350	U	350	U
2,4-Dinitrotoluene			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
Diethylphthalate	7,100	50	350	U	380	U	.2	J	9	J	360	U	350	U	350	U	350	U
4-Chlorophenyl-phenylether			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
Fluorene	50,000	50	350	U	380	U	10	U	13	J	360	UJ	350	U	350	U	350	U
4-Nitroaniline			870	U	950	U	25	U	900	U	900	U	880	U	880	U	880	U
4,6-Dinitro-2-methylphenol			870	U	950	U	25	U	900	U	900	U	880	U	880	U	880	U
N-Nitrosodiphenylamine (1)			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
4-Bromophenyl-phenylether			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
Hexachlorobenzene	410	0.35	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
Pentachlorophenol	1,000	1	870	U	950	U	25	U	900	U	900	U	880	U	880	U	880	U
Phenanthrene	50,000	50	61	J	100	J	10	U	78	J	36	J	40	J	38	J	21	J
Anthracene	50,000	50	12	J	29	J	10	U	18	J	10	J	10	J	10	J	350	U
Carbazole			350	U	380	U	10	U	360	U	360	UJ	350	U	350	U	350	U
Di-n-butylphthalate	8,100	50	350	U	380	U	.8	JB	360	U	360	U	350	U	350	U	350	U
Fluoranthene	50,000	50	48	J	100	J	10	U	74	J	83	J	64	J	60	J	12	J
Pyrene	50,000	50	60	J	100	J	10	U	96	J	100	J	74	J	74	J	27	J
Butylbenzylphthalate	50,000	50	350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
3,3'-Dichlorobenzidine			350	U	380	U	10	U	360	U	360	U	350	U	350	U	350	U
Benzo(a)anthracene	224	0.002	34	J	83	J	10	U	50	J	52	J	38	J	40	J	350	U
Chrysene	400	0.002	53	J	200	J	10	U	59	J	59	J	47	J	46	J	38	J
bis(2-Ethylhexyl)phthalate	50,000	50	350	U	380	U	.6	JB	360	U	360	U	350	U	350	U	350	U
Di-n-octylphthalate	50,000	50	350	U	380	U	10	U	360	UJ	41	JB	350	U	350	U	350	U
Benzo(b)fluoranthene	1,100	0.002	34	J	140	J	10	U	46	J	70	J	36	J	44	J	350	U
Benzo(k)fluoranthene	1,100	0.002	33	J	110	J	10	U	52	J	63	J	41	J	45	J	350	U
Benzo(a)pyrene	61	0.002	32	J	100	J	10	U	46	J	52	J	38	J	42	J	350	U
Indeno(1,2,3-cd)pyrene	3,200	0.002	34	J	28	J	10	U	54	J	50	J	35	J	50	J	350	U
Dibenz(a,h)anthracene	14	50	15	J	380	UJ	10	U	22	J	360	UJ	350	U	350	U	350	U
Benzo(g,h,i)perylene	50,000	5	37	J	33	J	10	U	62	J	360	U	350	U	350	U	350	U

Table 2-3
TCL Semivolatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID	TAGM 4046 Recommended Soil Clean-Up Objective	Groundwater Standards Criteria	GP-28C (4-5 BLS)		GP-29A (0-2 BLS)		GP-30A (0-2 BLS)		GP-32B/C (2-6 BLS)		GP-34B (2-4 BLS)		DUPLICATE-2		FIELD BLANK-2		GP-31C (4-6 BLS)	
Lab Sample ID			991556B-09		991556B-10		991556B-11		991556B-13		991556B-15		991556B-16		991556B-17		991556C-03	
Date Sampled			07/08/99		07/08/99		07/08/99		07/08/99		07/08/99		07/08/99		07/08/99		07/09/99	
Dilution			1.00		1.00		5.00		1.00		1.00		1.00		1.00		1.00	
Method Blank			SBLKXQ		SBLKXQ		SBLKXQ		SBLKXQ		SBLKXQ		SBLKXQ		SBLKYQ		SBLKBQ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/L		ug/Kg	
Compounds																		
Phenol	30	1	360	U	340	U	360	UJ	370	U	390	U	370	U	1	J	380	U
bis(2-Chloroethyl)ether			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
2-Chlorophenol	800	50	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
1,3-Dichlorobenzene			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
1,4-Dichlorobenzene			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
1,2-Dichlorobenzene			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
2-Methylphenol	100	5	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
2,2'-oxybis(1-Chloropropane)			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
4-Methylphenol	900	50	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	77	J
N-nitroso-di-n-propylamine			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
Hexachloroethane			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
Nitrobenzene	200	5	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
Isophorone	4,400	50	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
2-Nitrophenol	100	5	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
2,4-Dimethylphenol			360	UJ	340	UJ	360	UJ	370	UJ	390	UJ	370	UJ	10	UJ	380	UJ
bis(2-Chloroethoxy)methane			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
2,4-Dichlorophenol	400	1	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
1,2,4-Trichlorobenzene			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
Naphthalene	13,000	10	360	U	340	U	360	UJ	370	U	390	U	19	J	10	U	27	J
4-Chloroaniline	220	5	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
Hexachlorobutadiene			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
4-Chloro-3-methylphenol	240	5	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
2-Methylnaphthalene	36,400	50	360	U	15	J	360	UJ	370	U	390	U	370	U	10	U	19	J
Hexachlorocyclopentadiene			360	U	340	U	360	UJ	370	UJ	390	UJ	370	UJ	10	U	380	UJ
2,4,6-Trichlorophenol			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	UJ
2,4,5-Trichlorophenol	100	1	910	U	860	U	900	UJ	920	U	990	U	920	U	25	U	960	U
2-Chloronaphthalene			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
2-Nitroaniline	430	5	910	U	860	U	900	UJ	920	U	990	U	920	U	25	U	960	U
Dimethylphthalate	2,000	50	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
Acenaphthylene	41,000	20	14	J	340	U	360	UJ	370	U	390	U	18	J	10	U	20	J
2,6-Dinitrotoluene	1,000	5	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
3-Nitroaniline	500	5	910	U	860	U	900	UJ	920	U	990	U	920	U	25	U	960	UJ
Acenaphthene	50,000	20	360	U	340	U	360	UJ	370	U	390	U	20	J	10	U	29	J

U=not detected J=estimated value B=detected in associated method blank D=result from secondary analysis (dilution) E=value exceeds calibration range

Table 2-3
TCL Semivolatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID	TAGM 4046 Recommended Soil Clean-Up Objective	Groundwater Standards Criteria	GP-28C (4-5 BLS)		GP-29A (0-2 BLS)		GP-30A (0-2 BLS)		GP-32B/C (2-6 BLS)		GP-34B (2-4 BLS)		DUPLICATE-2		FIELD BLANK-2		GP-31C (4-6 BLS)	
Lab Sample ID			991556B-09		991556B-10		991556B-11		991556B-13		991556B-15		991556B-16		991556B-17		991556C-03	
Date Sampled			07/08/99		07/08/99		07/08/99		07/08/99		07/08/99		07/08/99		07/08/99		07/09/99	
Dilution			1.00		1.00		5.00		1.00		1.00		1.00		1.00		1.00	
Method Blank			SBLKXQ		SBLKXQ		SBLKXQ		SBLKXQ		SBLKXQ		SBLKXQ		SBLKYQ		SBLKBQ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/L		ug/Kg	
Compounds																		
2,4-Dinitrophenol	400	5	910	U	860	U	900	UJ	920	UJ	990	UJ	920	UJ	25	U	960	UJ
4-Nitrophenol	100	5	910	U	860	U	900	UJ	920	U	990	U	920	U	25	U	960	U
Dibenzofuran	6,200	5	360	U	340	U	360	UJ	370	U	390	U	19	J	10	U	36	J
2,4-Dinitrotoluene			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
Diethylphthalate	7,100	50	360	U	340	U	360	UJ	370	U	390	U	370	UJ	0.4	J	380	U
4-Chlorophenyl-phenylether			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
Fluorene	50,000	50	360	U	340	U	13	J	370	U	390	U	38	J	10	U	25	J
4-Nitroaniline			910	U	860	U	900	UJ	920	U	990	U	920	U	25	U	960	UJ
4,6-Dinitro-2-methylphenol			910	U	860	U	900	UJ	920	U	990	U	920	U	25	U	960	U
N-Nitrosodiphenylamine (1)			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
4-Bromophenyl-phenylether			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
Hexachlorobenzene	410	0.35	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
Pentachlorophenol	1,000	1	910	U	860	U	900	UJ	920	U	990	U	920	U	25	U	960	UJ
Phenanthrene	50,000	50	61	J	38	J	90	J	370	U	390	U	310	J	10	U	140	J
Anthracene	50,000	50	17	J	340	U	25	J	370	U	390	U	82	J	10	U	46	J
Carbazole			360	U	340	U	360	UJ	370	U	390	U	21	J	10	U	380	U
Di-n-butylphthalate	8,100	50	360	U	340	U	360	UJ	370	U	390	U	370	UJ	0.8	JB	380	U
Fluoranthene	50,000	50	140	J	15	J	180	J	370	U	16	J	460	J	10	U	140	J
Pyrene	50,000	50	160	J	23	J	170	J	370	U	15	J	370	J	10	U	210	J
Butylbenzylphthalate	50,000	50	360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
3,3'-Dichlorobenzidine			360	U	340	U	360	UJ	370	U	390	U	370	U	10	U	380	U
Benzo(a)anthracene	224	0.002	84	J	340	U	92	J	370	U	9	J	240	J	10	U	91	J
Chrysene	400	0.002	91	J	28	J	110	J	370	U	11	J	250	J	10	U	150	J
bis(2-Ethylhexyl)phthalate	50,000	50	670	U	340	U	360	UJ	370	U	390	U	370	UJ	0.6	JB	380	U
Di-n-octylphthalate	50,000	50	360	U	340	U	360	UJ	370	U	390	U	370	UJ	10	U	380	U
Benzo(b)fluoranthene	1,100	0.002	94	J	340	U	92	J	370	U	390	U	200	J	10	U	100	J
Benzo(k)fluoranthene	1,100	0.002	81	J	340	U	100	J	370	U	390	U	240	J	10	U	80	J
Benzo(a)pyrene	61	0.002	69	J	340	U	110	J	370	U	390	U	230	J	10	U	120	J
Indeno(1,2,3-cd)pyrene	3,200	0.002	90	J	340	U	69	J	370	UJ	390	UJ	170	J	10	U	96	J
Dibenz(a,h)anthracene	14	50	360	U	340	U	24	J	370	UJ	390	UJ	61	J	10	U	51	J
Benzo(g,h,i)perylene	50,000	5	360	U	340	U	86	J	370	UJ	390	UJ	370	UJ	10	U	150	J

Table 2-3
TCL Semivolatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID			GP-33A (0-2 BLS)		GP-35A (0-2 BLS)		GP-36A (0-3 BLS)		GP-37A (0-2 BLS)		GP-48B (2-4 BLS)		EAST SWAMP SEDIMENT		UPPER POND SEDIMENT		LOWER POND SEDIMENT	
Lab Sample ID	TAGM 4046		991556C-05		991556C-06		991556C-07		991556C-08		991556C-13		991556C-15		991556C-16		991556C-17	
Date Sampled	Recommended	Groundwater	07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99	
Dilution	Soil Clean-Up	Standards	1.00		4.00		1.00		1.00		25.00		1.00		1.00		1.00	
Method Blank	Objective	Criteria	SBLKBQ		SBLKBQ		SBLKBQ		SBLKBQ		SBLKBQ		SBLKBQ		SBLKBQ		SBLKBQ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds																		
Phenol	30	1	350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
bis(2-Chloroethyl)ether			350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
2-Chlorophenol	800	50	350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
1,3-Dichlorobenzene			350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
1,4-Dichlorobenzene			350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
1,2-Dichlorobenzene			350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
2-Methylphenol	100	5	350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
2,2'-oxybis(1-Chloropropane)			350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
4-Methylphenol	900	50	350	U	1500	U	54	J	350	U	8900	U	1400	U	490	U	800	U
N-nitroso-di-n-propylamine			350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
Hexachloroethane			350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
Nitrobenzene	200	5	350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
Isophorone	4,400	50	350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
2-Nitrophenol	100	5	350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
2,4-Dimethylphenol			350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
bis(2-Chloroethoxy)methane			350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
2,4-Dichlorophenol	400	1	350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
1,2,4-Trichlorobenzene			350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
Naphthalene	13,000	10	350	UJ	120	J	95	J	9	J	1000	J	1400	UJ	490	UJ	800	UJ
4-Chloroaniline	220	5	350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
Hexachlorobutadiene			350	U	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
4-Chloro-3-methylphenol	240	5	350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
2-Methylnaphthalene	36,400	50	350	U	80	J	49	J	350	U	1300	J	1400	U	490	U	800	U
Hexachlorocyclopentadiene			350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
2,4,6-Trichlorophenol			350	UJ	1500	UJ	360	UJ	350	UJ	8900	UJ	1400	UJ	490	UJ	800	UJ
2,4,5-Trichlorophenol	100	1	890	U	3700	U	900	U	890	U	22000	U	3400	U	1200	U	2000	U
2-Chloronaphthalene			350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
2-Nitroaniline	430	5	890	U	3700	U	900	U	890	U	22000	U	3400	U	1200	U	2000	U
Dimethylphthalate	2,000	50	350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
Acenaphthylene	41,000	20	350	U	270	J	64	J	10	J	330	J	1400	U	490	U	800	U
2,6-Dinitrotoluene	1,000	5	350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
3-Nitroaniline	500	5	890	U	3700	UJ	900	U	890	UJ	22000	U	3400	UJ	1200	UJ	2000	UJ
Acenaphthene	50,000	20	350	UJ	160	J	67	J	350	UJ	8700	J	1400	UJ	490	UJ	800	UJ

Table 2-3
TCL Semivolatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID	TAGM 4046 Recommended Soil Clean-Up Objective	Groundwater Standards Criteria	GP-33A (0-2 BLS)		GP-35A (0-2 BLS)		GP-36A (0-3 BLS)		GP-37A (0-2 BLS)		GP-48B (2-4 BLS)		EAST SWAMP SEDIMENT		UPPER POND SEDIMENT		LOWER POND SEDIMENT	
Lab Sample ID			991556C-05		991556C-06		991556C-07		991556C-08		991556C-13		991556C-15		991556C-16		991556C-17	
Date Sampled			07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99	
Dilution			1.00		4.00		1.00		1.00		25.00		1.00		1.00		1.00	
Method Blank			SBLKBQ		SBLKBQ		SBLKBQ		SBLKBQ		SBLKBQ		SBLKBQ		SBLKBQ		SBLKBQ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds																		
2,4-Dinitrophenol	400	5	890	U	3700	UJ	900	U	890	UJ	22000	U	3400	UJ	1200	UJ	2000	UJ
4-Nitrophenol	100	5	890	U	3700	U	900	U	890	U	22000	U	3400	U	1200	U	2000	U
Dibenzofuran	6,200	5	350	U	200	J	59	J	350	U	6500	J	1400	U	490	U	800	U
2,4-Dinitrotoluene			350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
Diethylphthalate	7,100	50	350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
4-Chlorophenyl-phenylether			350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
Fluorene	50,000	50	350	U	560	J	100	J	350	U	15000		1400	U	490	U	800	U
4-Nitroaniline			890	U	3700	UJ	900	U	890	UJ	22000	U	3400	UJ	1200	U	2000	UJ
4,6-Dinitro-2-methylphenol			890	U	3700	U	900	U	890	U	22000	U	3400	U	1200	U	2000	U
N-Nitrosodiphenylamine (1)			350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
4-Bromophenyl-phenylether			350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
Hexachlorobenzene	410	0.35	350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
Pentachlorophenol	1,000	1	890	UJ	3700	UJ	900	UJ	890	UJ	22000	UJ	3400	UJ	1200	UJ	2000	UJ
Phenanthrene	50,000	50	41	J	4400		720		82	J	64000		91	J	210	J	250	J
Anthracene	50,000	50	14	J	1200	J	250	J	17	J	21000		1400	U	27	J	37	J
Carbazole			350	U	250	J	45	J	350	U	7900	J	1400	U	28	J	35	J
Di-n-butylphthalate	8,100	50	350	U	1500	U	350	U	350	U	8900	U	1400	U	490	U	800	U
Fluoranthene	50,000	50	96	J	5900		1000		150	J	56000		150	J	300	J	540	J
Pyrene	50,000	50	100	J	4800		1300	J	150	J	55000		140	J	310	J	620	J
Butylbenzylphthalate	50,000	50	350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
3,3'-Dichlorobenzidine			350	U	1500	U	360	U	350	U	8900	U	1400	U	490	U	800	U
Benzo(a)anthracene	224	0.002	54	J	3100		840		100	J	34000		69	J	130	J	270	J
Chrysene	400	0.002	63	J	3000		1000		130	J	39000		110	J	260	J	440	J
bis(2-Ethylhexyl)phthalate	50,000	50	350	U	1500	U	1200	B	310	JB	8900	U	1400	U	1500	B	1300	B
Di-n-octylphthalate	50,000	50	350	U	1500	U	360	U	350	U	8900	U	1400	U	130	JB	800	U
Benzo(b)fluoranthene	1,100	0.002	54	J	2500		910		140	J	25000		88	J	200	J	400	J
Benzo(k)fluoranthene	1,100	0.002	52	J	2500		840		110	J	26000		73	J	160	J	320	J
Benzo(a)pyrene	61	0.002	50	J	2600		1000		100	J	28000		1400	U	150	J	320	J
Indeno(1,2,3-cd)pyrene	3,200	0.002	35	J	1700		600		81	J	17000		1400	U	140	J	240	J
Dibenz(a,h)anthracene	14	50	350	U	520	J	220	J	29	J	6800	J	1400	U	490	U	80	J
Benzo(g,h,i)perylene	50,000	5	37	J	1500		600		80	J	18000		1400	U	240	J	290	J

Table 2-3
TCL Semivolatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID			NW CATCH BASIN		DUPLICATE-3		FIELD BLANK-3		SUPPLY WELL		UPPER POND WATER		EAST SWAMP WATER		AQUEOUS DUPLICATE	
Lab Sample ID	TAGM 4046		991556C-18		991556C-19		991556C-20		991557A-01		991557A-02		991557A-03		991557A-04	
Date Sampled	Recommended	Groundwater	07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99	
Dilution	Soil Clean-Up	Standards	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank	Objective	Criteria	SBLKBQ		SBLKBQ		SBLKYQ		SBLKYQ		SBLKYQ		SBLKYQ		SBLKYQ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/L		ug/L		ug/L		ug/L		ug/L	
Compounds																
Phenol	30	1	390	U	380	U	2	J	.4	J	10	U	10	U	.4	J
bis(2-Chloroethyl)ether			390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
2-Chlorophenol	800	50	390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene			390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene			390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene			390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
2-Methylphenol	100	5	390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
2,2'-oxybis(1-Chloropropane)			390	U	380	U	10	U	10	U	10	U	10	U	10	U
4-Methylphenol	900	50	390	U	73	J	10	U	10	U	10	U	10	U	10	U
N-nitroso-di-n-propylamine			390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
Hexachloroethane			390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
Nitrobenzene	200	5	390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
Isophorone	4,400	50	390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
2-Nitrophenol	100	5	390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol			390	UJ	380	UJ	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
bis(2-Chloroethoxy)methane			390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
2,4-Dichlorophenol	400	1	390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
1,2,4-Trichlorobenzene			390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
Naphthalene	13,000	10	390	UJ	120	J	10	U	10	U	10	U	10	U	10	U
4-Chloroaniline	220	5	390	U	380	U	10	U	10	U	10	U	10	U	10	U
Hexachlorobutadiene			390	UJ	380	UJ	10	U	10	UJ	10	UJ	10	UJ	10	UJ
4-Chloro-3-methylphenol	240	5	390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
2-Methylnaphthalene	36,400	50	390	U	62	J	10	U	10	U	10	U	10	U	10	U
Hexachlorocyclopentadiene			390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
2,4,6-Trichlorophenol			390	UJ	380	UJ	10	U	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol	100	1	980	U	950	U	25	U	25	U	25	U	25	U	25	U
2-Chloronaphthalene			390	U	380	U	10	U	10	U	10	U	10	U	10	U
2-Nitroaniline	430	5	980	U	950	U	25	U	25	U	25	U	25	U	25	U
Dimethylphthalate	2,000	50	390	U	380	U	10	U	10	U	10	U	10	U	10	U
Acenaphthylene	41,000	20	390	U	70	J	10	U	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	1,000	5	390	U	380	U	10	U	10	U	10	U	10	U	10	U
3-Nitroaniline	500	5	980	UJ	950	UJ	25	U	25	U	25	U	25	U	25	U
Acenaphthene	50,000	20	390	UJ	73	J	10	U	10	U	10	U	10	U	10	U

U=not detected J=estimated value B=detected in associated method blank D=result from secondary analysis (dilution) E=value exceeds calibration...

[redacted]

Table 2-3
TCL Semivolatile Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID			NW CATCH BASIN		DUPLICATE-3		FIELD BLANK-3		SUPPLY WELL		UPPER POND WATER		EAST SWAMP WATER		AQUEOUS DUPLICATE	
Lab Sample ID	TAGM 4046		991556C-18		991556C-19		991556C-20		991557A-01		991557A-02		991557A-03		991557A-04	
Date Sampled	Recommended	Groundwater	07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99	
Dilution	Soil Clean-Up	Standards	1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank	Objective	Criteria	SBLKBQ		SBLKBQ		SBLKYQ		SBLKYQ		SBLKYQ		SBLKYQ		SBLKYQ	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/L		ug/L		ug/L		ug/L		ug/L	
Compounds																
2,4-Dinitrophenol	400	5	980	UJ	950	UJ	25	U	25	UJ	25	UJ	25	UJ	25	UJ
4-Nitrophenol	100	5	980	U	950	U	25	U	25	U	25	U	25	U	25	U
Dibenzofuran	6,200	5	390	U	76	J	10	U	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene			390	U	380	U	10	U	10	U	10	U	10	U	10	U
Diethylphthalate	7,100	50	390	U	380	U	0.4	J	.5	J	.3	J	.2	J	.5	J
4-Chlorophenyl-phenylether			390	U	380	U	10	U	10	U	10	U	10	U	10	U
Fluorene	50,000	50	390	U	98	J	10	U	10	U	10	U	10	U	10	U
4-Nitroaniline			980	UJ	950	UJ	25	U	25	U	25	U	25	U	25	U
4,6-Dinitro-2-methylphenol			980	U	950	U	25	U	25	UJ	25	UJ	25	UJ	25	UJ
N-Nitrosodiphenylamine (1)			390	U	380	U	10	U	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether			390	U	380	U	10	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	410	0.35	390	U	380	U	10	U	10	U	10	U	10	U	10	U
Pentachlorophenol	1,000	1	980	UJ	950	UJ	25	U	25	U	25	U	25	U	25	U
Phenanthrene	50,000	50	82	J	500		10	U	10	U	10	U	10	U	10	U
Anthracene	50,000	50	23	J	180	J	10	U	10	U	10	U	10	U	10	U
Carbazole			390	U	42	J	10	U	10	U	10	U	10	U	10	U
Di-n-butylphthalate	8,100	50	390	U	380	U	0.9	JB	10	U	10	U	10	U	10	U
Fluoranthene	50,000	50	170	J	780		10	U	10	U	10	U	10	U	10	U
Pyrene	50,000	50	200	J	880		10	U	10	U	10	U	10	U	10	U
Butylbenzylphthalate	50,000	50	390	U	380	U	10	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine			390	U	380	U	10	U	10	U	10	U	10	U	10	U
Benzo(a)anthracene	224	0.002	120	J	550		10	U	10	U	10	U	10	U	10	U
Chrysene	400	0.002	150	J	630		10	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	50,000	50	390	U	1600	B	0.7	JB	10	U	10	U	10	U	10	U
Di-n-octylphthalate	50,000	50	390	U	380	U	10	U	.3	J	10	U	10	U	.2	J
Benzo(b)fluoranthene	1,100	0.002	130	J	760		10	U	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene	1,100	0.002	120	J	540		10	U	10	U	10	U	10	U	10	U
Benzo(a)pyrene	61	0.002	130	J	670		10	U	10	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	3,200	0.002	94	J	530		10	U	10	U	10	U	10	U	10	U
Dibenz(a,h)anthracene	14	50	45	J	170	J	10	U	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	50,000	5	110	J	580		10	U	10	U	10	U	10	U	10	U

[redacted]

TCL Pesticide/PCB Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID			GP-38B (2-4 BLS)		GP-39A (0-2 BLS)		GP-40F (10-11.5 BLS)		GP-41A (0-2 BLS)		GP-42A (0-2 BLS)		GP-43A (0-2.5 BLS)		GP-44A (0-2 BLS)		GP-45A (0-2 BLS)		GP-46A (0-2.5 BLS)	
Lab Sample ID	TAGM 4046		991556A-02		991556A-05		991556A-13		991556A-14		991556A-16		991556A-18		991556A-19		991556A-20		991556A-21	
Date Sampled	Recommended	Groundwater	07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99	
Dilution	Soil Clean-Up	Standards	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank	Objective	Criteria	PBLK61		PBLK61		PBLK61		PBLK61		PBLK65		PBLK61		PBLK61		PBLK61		PBLK61	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds																				
alpha-BHC	110	0.05	1.8	U	1.8	U	1.9	U	1.8	U	1.7	U	1.8	U	1.9	U	1.8	U	1.8	U
beta-BHC	200	0.05	1.8	U	1.8	U	1.9	U	1.8	U	1.7	U	1.8	U	1.9	U	1.8	U	1.8	U
delta-BHC	300	0.05	1.8	U	1.8	U	1.9	U	1.8	U	1.7	U	1.8	U	1.9	U	0.20	J	0.36	J
gamma-BHC (Lindane)	60	0.05	0.72	J	1.8	UJ	1.9	UJ	1.8	UJ	1.7	UJ	1.8	UJ	1.9	UJ	1.8	UJ	1.8	UJ
Heptachlor	100	0.01	1.8	U	1.8	U	1.9	U	1.8	U	1.7	U	1.8	U	1.9	U	1.8	U	1.8	U
Aldrin	41	0.01	1.6	J	1.8	U	1.9	U	6.0	J	1.7	U	1.8	U	1.9	U	1.8	U	1.8	U
Heptachlor Epoxide	20	0.01	1.8	U	1.8	U	1.9	U	1.8	J	1.7	U	0.30	J	1.9	U	1.8	U	1.8	U
Endosulfan I	900	0.1	0.48	J	1.8	U	1.9	U	1.8	U	1.7	U	1.8	U	1.9	U	1.8	U	1.8	U
Dieldrin	44	0.01	3.5	U	3.5	U	3.7	U	3.6	J	1.1	J	0.39	J	3.6	U	0.55	J	3.4	U
4,4'-DDE	2,100	0.01	3.7		8.8		24.		15.		3.4	U	2.4	J	11.		0.78	J	1.5	J
Endrin	100	0.01	1.4	J	1.9	J	0.75	J	1.4	J	3.4	U	3.4	U	1.3	J	3.4	U	3.4	U
Endosulfan II	900	0.1	3.5	U	3.5	U	3.7	U	3.6	U	3.4	U	3.4	U	3.6	U	3.4	U	3.4	U
4,4'-DDD	2,900	0.01	7.2	J	3.9	J	31.	J	15.	J	1.2	J	1.2	J	4.1	J	0.48	J	0.62	J
Endosulfan Sulfate	1,000	0.1	3.5	U	3.5	U	3.7	U	3.6	U	11.		3.4	U	3.6	U	3.4	U	3.4	U
4,4'-DDT	2,100	0.01	3.5	U	1.6	J	30.	J	5.4	J	5.6		3.4	U	3.6	U	0.48	J	0.84	J
Methoxychlor	***		18.	U	18.	U	19.		4.6	J	19.	J	18.	U	19.	U	18.	U	18.	U
Endrin Ketone	N/A		3.5	U	3.5	U	3.7	U	3.6	U	3.4	U	3.4	U	3.6	U	3.4	U	3.4	U
Endrin Aldehyde			3.5	U	3.5	U	3.7	U	3.6	U	3.4	U	3.4	U	3.6	U	3.4	U	3.4	U
alpha-Chlordane	540 *		2.8	J	5.5		12.	J	19.		3.7	J	1.7	J	6.2		1.3	J	1.6	J
gamma-Chlordane	540	0.1	1.3	J	2.9		10.	J	12.		0.95	J	1.5	J	4.3		0.92	J	1.0	J
Toxaphene			180	U	180	U	190	U	180	U	170	U	180	U	190	U	180	U	180	U
Aroclor-1016	1,000-surface 10,000-subsurface	1,000	35.	U	35.	U	37.	U	36.	U	34.	U	34.	U	36.	U	34.	U	34.	U
Aroclor-1221	1,000-surface 10,000-subsurface	100	71.	U	71.	U	75.	U	72.	U	69.	U	69.	U	74.	U	70.	U	70.	U
Aroclor-1232	1,000-surface 10,000-subsurface	100	35.	U	35.	U	37.	U	36.	U	34.	U	34.	U	36.	J	7.7	J	20.	J
Aroclor-1242	1,000-surface 10,000-subsurface	100	30.	J	43.		26.	J	94.		34.	U	34.	U	36.	U	34.	U	34.	U
Aroclor-1248	1,000-surface 10,000-subsurface	100	35.	U	35.	U	37.	U	36.	U	34.	U	34.	U	36.	U	34.	U	34.	U
Aroclor-1254	1,000-surface 10,000-subsurface	100	38.		97.		85.	J	56.	J	15.	J	15.	J	44.	J	7.4	J	13.	J
Aroclor-1260	1,000-surface 10,000-subsurface	100	63.		62.	J	52.	J	71.	J	34.	U	34.	U	31.	J	6.2	J	12.	J

N/A - not available
* - Value listed for Chlordane
*** - As per TAGM #4046, Total Pesticides < 10 ppm
U - Not Detected
J - Value is estimated

[redacted]
TCL Pesticide/PCB Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID			GP-47A (0-0.5 BLS)		FIELD BLANK-1		DUPLICATE-1A		GP-22A (0-2 BLS)		GP-25A (0-2.5 BLS)		GP-26A/B (0-3 BLS)		GP-27A (0-2 BLS)		GP-28C (4-5 BLS)		GP-29A (0-2 BLS)	
Lab Sample ID	TAGM 4046		991556A-22		991556A-24		991556A-26		991556B-01		991556B-03		991556B-04		991556B-05		991556B-09		991556B-10	
Date Sampled	Recommended	Groundwater	07/07/99		07/07/99		07/07/99		07/08/99		07/08/99		07/08/99		07/08/99		07/08/99		07/08/99	
Dilution	Soil Clean-Up	Standards	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank	Objective	Criteria	PBLK61		PBLK64		PBLK61		PBLK65		PBLK65		PBLK65		PBLK65		PBLK65		PBLK65	
Units	ug/Kg	ug/L	ug/Kg		ug/L		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds																				
alpha-BHC	110	0.05	0.32	J	0.050	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U
beta-BHC	200	0.05	1.8	U	0.050	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U
delta-BHC	300	0.05	1.8	U	0.050	U	1.8	U	0.35	J	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U
gamma-BHC (Lindane)	60	0.05	1.8	UJ	0.050	UJ	1.8	UJ	1.8	UJ	1.8	UJ	1.8	UJ	1.8	UJ	1.8	UJ	1.8	UJ
Heptachlor	100	0.01	1.8	U	0.050	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U
Aldrin	41	0.01	2.2		0.050	U	1.8	U	1.8	U	0.66	J	1.8	U	0.64	J	1.8	U	1.8	U
Heptachlor Epoxide	20	0.01	0.63	J	0.050	U	1.8	U	0.98	J	1.8	U	1.8	U	0.48	J	0.47	J	1.8	U
Endosulfan I	900	0.1	1.8	U	0.050	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U	1.8	U
Dieldrin	44	0.01	3.5	U	0.10	U	3.5	U	3.5	U	9.9		1.7	J	3.5	U	3.6	U	3.4	U
4,4'-DDE	2,100	0.01	3.5	U	0.10	U	5.3		12	J	1.6	J	2.4	J	3.5	U	6.7	J	0.33	J
Endrin	100	0.01	3.5	U	0.10	U	2.8	J	0.93	J	3.5	U	0.79	J	3.5	U	3.6	U	3.4	U
Endosulfan II	900	0.1	1.1		0.10	U	3.5	U	3.5	U	3.5	U	3.4	U	0.46	J	3.6	U	3.4	U
4,4'-DDD	2,900	0.01	1.0	J	0.10	U	4.0	J	4.2	J	2.6	J	3.6	J	0.31	J	9.4	J	3.4	U
Endosulfan Sulfate	1,000	0.1	3.5	U	0.10	U	3.5	U	3.5	U	3.5	U	3.4	U	3.5	U	3.6	U	3.4	U
4,4'-DDT	2,100	0.01	3.5	U	0.10	U	3.5	U	18	J	0.45	J	2.8	J	0.39	J	2.4	J	3.4	U
Methoxychlor	***		18.	U	0.50	U	18.	U	2.7	J	18.	U	18.	U	18.	U	18.	U	18.	U
Endrin Ketone	N/A		3.5	U	0.10	U	3.5	U	3.5	U	3.5	U	3.4	U	3.5	U	3.6	U	3.4	U
Endrin Aldehyde			1.4	J	0.10	U	3.5	U	3.5	U	3.5	U	3.4	U	3.5	U	3.6	U	3.4	U
alpha-Chlordane	540 *		1.6	J	0.050	U	3.0	J	6.8	J	17.	J	5.5	J	0.79	J	6.6	J	0.53	J
gamma-Chlordane	540	0.1	1.1	J	0.050	U	2.2	J	2.3	J	16.		5.2		0.76	J	5.1		0.45	J
Toxaphene			180	U	5.0	U	180	U	180	U	180	U	180	U	180	U	180	U	180	U
Aroclor-1016	1,000-surface 10,000-subsurface	1,000	35.	U	1.0	U	35.	U	35	U	35.	U	34.	U	35.	U	36.	U	34.	U
Aroclor-1221	1,000-surface 10,000-subsurface	100	71.	U	2.0	U	71.	U	72	U	70.	U	70.	U	70.	U	72.	U	69.	U
Aroclor-1232	1,000-surface 10,000-subsurface	100	38.	J	1.0	U	35.	U	35	U	35.	U	21.	J	35.	U	36.	U	34.	U
Aroclor-1242	1,000-surface 10,000-subsurface	100	35.	U	1.0	U	22.	J	35	U	35.	U	34.	U	35.	U	36.	U	34.	U
Aroclor-1248	1,000-surface 10,000-subsurface	100	35.	U	1.0	U	35.	U	35	U	35.	U	34.	U	35.	U	36.	U	34.	U
Aroclor-1254	1,000-surface 10,000-subsurface	100	18.	J	1.0	U	31.	J	15	J	20.	J	20.	J	9.5	J	18.	J	34.	U
Aroclor-1260	1,000-surface 10,000-subsurface	100	35.	U	1.0	U	35.	J	35	U	21.	J	21.	J	35.	U	19.	JP	34.	U

N/A - not available
* - Value listed for Chlordane
*** - As per TAGM #4046, Total Pesticides < 10 ppm
U - Not Detected
J - Value is estimated

[redacted]

TCL Pesticide/PCB Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID			GP-30A (0-2 BLS)		GP-32B/C (2-6 BLS)		GP-34B (2-4 BLS)		DUPLICATE-2		FIELD BLANK-2		GP-31C (4-6 BLS)		GP-33A (0-2 BLS)		GP-35A (0-2 BLS)		GP-36A (0-3 BLS)	
Lab Sample ID	TAGM 4046		991556B-11		991556B-13		991556B-15		991556B-16		991556B-17		991556C-03		991556C-05		991556C-06		991556C-07	
Date Sampled	Recommended	Groundwater	07/08/99		07/08/99		07/08/99		07/08/99		07/08/99		07/09/99		07/09/99		07/09/99		07/09/99	
Dilution	Soil Clean-Up	Standards	1.00		1.00		1.00		1.00		1.00		10.00		1.00		1.00		10.00	
Method Blank	Objective	Criteria	PBLK65		PBLK65		PBLK65		PBLK65		PBLK64		PCBLK67		PBLK67		PBLK67		PCBLK67	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/L		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Compounds																				
alpha-BHC	110	0.05	1.8	U	1.9	U	2.0	U	1.9	U	0.050	U	20.	U	1.8	U	1.9	U	18.	U
beta-BHC	200	0.05	1.8	U	1.9	U	2.0	U	1.9	U	0.050	U	20.	U	1.8	U	1.9	U	18.	U
delta-BHC	300	0.05	1.8	U	1.9	U	2.0	U	1.9	U	0.050	U	20.	U	1.8	U	1.9	U	18.	U
gamma-BHC (Lindane)	60	0.05	1.8	UJ	1.9	UJ	2.0	UJ	1.9	UJ	0.050	U	20.	U	1.8	U	1.9	U	18.	UJ
Heptachlor	100	0.01	1.8	U	1.9	U	2.0	U	1.9	U	0.050	U	20.	U	1.8	U	1.9	U	18.	U
Aldrin	41	0.01	1.8	U	1.9	U	2.0	U	1.9	U	0.050	U	20.	U	1.8	U	7.5		18.	U
Heptachlor Epoxide	20	0.01	1.8	U	1.9	U	2.0	U	1.9	U	0.050	U	20.	U	1.8	U	1.9	U	18.	U
Endosulfan I	900	0.1	1.8	U	1.9	U	2.0	U	1.9	U	0.050	U	20.	U	1.8	U	1.9	U	18.	U
Dieldrin	44	0.01	3.6	U	3.6	U	3.9	U	3.6	U	0.10	U	38.	U	3.5	U	4.2		9.7	J
4,4'-DDE	2,100	0.01	2.6	J	3.6	U	1.1	J	4.5	J	0.10	U	190	J	9.4	J	9.9	J	14.	J
Endrin	100	0.01	3.6	U	3.6	U	3.9	U	3.6	U	0.10	U	38.	U	3.5	U	4.6	J	35.	U
Endosulfan II	900	0.1	3.6	U	3.6	U	3.9	U	3.6	U	0.10	U	38.	U	3.5	U	3.6	U	35.	U
4,4'-DDD	2,900	0.01	0.60	J	3.6	U	0.77	J	1.6	J	0.10	U	46.	J	6.3	J	3.0	J	8.8	J
Endosulfan Sulfate	1,000	0.1	3.6	U	3.6	U	3.9	U	2.3	J	0.10	U	38.	U	3.5	U	1.7	J	35.	U
4,4'-DDT	2,100	0.01	2.2	J	3.6	U	0.032	J	2.3	J	0.10	U	38.	U	2.8	J	2.4	J	35.	U
Methoxychlor	***		2.6	J	19.	U	20.	U	7.0	J	0.50	U	200	U	18.	U	19.	U	180	U
Endrin Ketone	N/A		3.6	U	3.6	U	3.9	U	3.6	U	0.10	U	38.	U	3.5	U	3.6	U	35.	U
Endrin Aldehyde			3.6	U	3.6	U	3.9	U	3.6	U	0.10	U	38.	U	3.5	U	3.6	U	35.	U
alpha-Chlordane	540 *		1.5	J	0.22	J	0.35	J	2.6	J	0.050	U	6.2	J	1.9	J	8.9	J	23.	J
gamma-Chlordane	540	0.1	0.73	J	0.11	J	0.23	J	1.2	J	0.050	U	3.9	J	1.4	J	3.2	J	18.	J
Toxaphene			180	U	190	U	200	U	190	U	5.0	U	2000	U	180	U	190	U	1800	U
Aroclor-1016	1,000-surface 10,000-subsurface	1,000	36.	U	36.	U	39.	U	36.	U	1.0	U	380	U	35.	U	36.	U	350	U
Aroclor-1221	1,000-surface 10,000-subsurface	100	72.	U	74.	U	78.	U	73.	U	2.0	U	770	U	71.	U	74.	U	710	U
Aroclor-1232	1,000-surface 10,000-subsurface	100	36.	U	36.	U	39.	U	36.	U	1.0	U	380	U	35.	U	92.	J	350	U
Aroclor-1242	1,000-surface 10,000-subsurface	100	36.	U	36.	U	39.	U	36.	U	1.0	U	380	U	6.5	J	36.	U	88.	J
Aroclor-1248	1,000-surface 10,000-subsurface	100	36.	U	36.	U	39.	U	36.	U	1.0	U	380	U	35.	U	36.	U	350	U
Aroclor-1254	1,000-surface 10,000-subsurface	100	9.7	J	36.	U	39.	U	18.	J	1.0	U	380	U	16.	J	48.	J	350	J
Aroclor-1260	1,000-surface 10,000-subsurface	100	7.6	J	36.	U	3.4	J	31.	J	1.0	U	380	U	42.		41.	J	80.	J

N/A - not available
* - Value listed for Chlordane
** - As per TAGM #4046, Total Pesticides < 10 ppm
U - Not Detected
J - Value is estimated

[redacted]

TCL Pesticide/PCB Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID			GP-37A (0-2 BLS)		GP-48B (2-4 BLS)		EAST SWAMP SEDIMENT		UPPER POND SEDIMENT		LOWER POND SEDIMENT		NW CATCH BASIN		DUPLICATE-3		FIELD BLANK-3		SUPPLY WELL	
Lab Sample ID	TAGM 4046		991556C-08		991556C-13		991556C-15		991556C-16		991556C-17		991556C-18		991556C-19		991556C-20		991557A-01	
Date Sampled	Recommended	Groundwater	07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99	
Dilution	Soil Clean-Up	Standards	1.00		10.00		1.00		1.00		1.00		1.00		2.00		1.00		1.00	
Method Blank	Objective	Criteria	PBLK67		PBLK67		PBLK67		PCBLK67		PBLK67		PBLK67		PBLK67		PBLK64		PBLK64	
Units	ug/Kg	ug/L	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/L		ug/L	
Compounds																				
alpha-BHC	110	0.05	1.8	U	18.	U	7.0	U	1.1	J	4.1	U	2.0	U	3.9	U	0.050	U	0.050	U
beta-BHC	200	0.05	1.8	U	18.	U	7.0	U	0.34	J	4.1	U	2.0	U	3.9	U	0.050	U	0.050	U
delta-BHC	300	0.05	1.8	U	18.	U	7.0	U	2.5	U	4.1	U	2.5	J	3.9	U	0.050	U	0.050	U
gamma-BHC (Lindane)	60	0.05	1.8	U	18.	U	7.0	U	2.5	U	4.1	U	2.0	U	3.9	U	0.050	U	0.050	UJ
Heptachlor	100	0.01	1.8	U	18.	U	7.0	U	2.5	U	4.1	U	2.0	U	3.9	U	0.050	U	0.050	U
Aldrin	41	0.01	1.8	U	3.0	J	7.0	U	2.5	U	4.1	U	2.0	U	3.9	U	0.050	U	0.050	U
Heptachlor Epoxide	20	0.01	1.2	J	7.8	J	7.0	U	2.5	U	4.1	U	2.0	U	3.9	U	0.050	U	0.050	U
Endosulfan I	900	0.1	1.8	U	18.	U	7.0	U	2.5	U	4.1	U	2.0	U	3.9	U	0.050	U	0.050	U
Dieldrin	44	0.01	3.4	U	35.	U	14.	U	4.8	U	8.0	U	3.8	U	7.5	U	0.10	U	0.10	U
4,4'-DDE	2,100	0.01	17.		270		10.	J	7.6		12.	J	15.		15.	J	0.10	U	0.10	U
Endrin	100	0.01	1.7	J	31.	J	1.2	J	4.8	U	2.7	J	3.8	U	4.3	J	0.10	U	0.10	U
Endosulfan II	900	0.1	3.4	U	47.		14.	U	0.53	J	1.2	J	3.8	U	7.5	U	0.10	U	0.10	U
4,4'-DDD	2,900	0.01	3.4	U	62.		2.1	J	0.68	J	2.1	J	14.	J	10.	J	0.10	U	0.10	U
Endosulfan Sulfate	1,000	0.1	3.4	U	35.	U	14.	U	4.8	U	8.0	U	3.8	U	0.66	J	0.10	U	0.10	U
4,4'-DDT	2,100	0.01	21.		42.		14.	U	0.98	J	8.0	U	9.3	J	7.5	U	0.10	U	0.10	U
Methoxychlor	***		4.5	J	310		70.	U	2.8	J	7.5	J	20.	U	39.	U	0.50	U	0.50	U
Endrin Ketone	N/A		3.4	U	35.	U	14.	U	4.8	U	8.0	U	3.8	U	7.5	U	0.10	U	0.10	U
Endrin Aldehyde			3.4	U	35.	U	14.	U	4.8	U	8.0	U	3.8	U	7.5	U	0.10	U	0.10	U
alpha-Chlordane	540 *		14.	J	10.	J	2.6	J	2.7	J	11.		9.0		15.	J	0.050	U	0.050	U
gamma-Chlordane	540	0.1	10.		18.	U	0.78	J	1.2	J	5.9		5.7		11.		0.050	U	0.050	U
Toxaphene			180	U	1800	U	700	U	250	U	410	U	200	U	390	U	5.0	U	5.0	U
Aroclor-1016	1,000-surface 10,000-subsurface	1,000	34.	U	350	U	140	U	48.	U	80.	U	38.	U	75.	U	1.0	U	1.0	U
Aroclor-1221	1,000-surface 10,000-subsurface	100	70.	U	710	U	280	U	98.	U	160	U	78.	U	150	U	2.0	U	2.0	U
Aroclor-1232	1,000-surface 10,000-subsurface	100	39.		350	U	140	U	48.	U	80.	U	38.	U	75.	U	1.0	U	1.0	U
Aroclor-1242	1,000-surface 10,000-subsurface	100	34.	U	350	U	140	U	48.	U	80.	U	38.	U	130	J	1.0	U	1.0	U
Aroclor-1248	1,000-surface 10,000-subsurface	100	34.	U	350	U	140	U	48.	U	80.	U	38.	U	75.	U	1.0	U	1.0	U
Aroclor-1254	1,000-surface 10,000-subsurface	100	65.	J	350	U	14.	J	19.	J	34.	J	63.		130		1.0	U	1.0	U
Aroclor-1260	1,000-surface 10,000-subsurface	100	50.		350	U	23.	J	48.	U	45.	J	35.	J	74.	J	1.0	U	1.0	U

J/A - not available
- Value listed for Chlordane
** - As per TAGM #4046, Total Pesticides < 10 ppm
J - Not Detected
- Value is estimated

TCL Pesticide/PCB Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID			UPPER POND WATER	EAST SWAMP WATER	AQUEOUS DUPLICATE
Lab Sample ID	TAGM 4046		991557A-02	991557A-03	991557A-04
Date Sampled	Recommended	Groundwater	07/09/99	07/09/99	07/09/99
Dilution	Soil Clean-Up	Standards	1.00	1.00	1.00
Method Blank	Objective	Criteria	PBLK64	PBLK64	PBLK64
Units	ug/Kg	ug/L	ug/L	ug/L	ug/L

Compounds								
alpha-BHC	110	0.05	0.050	U	0.050	U	0.050	U
beta-BHC	200	0.05	0.050	U	0.050	U	0.050	U
delta-BHC	300	0.05	0.0077	J	0.0057	J	0.050	U
gamma-BHC (Lindane)	60	0.05	0.050	UJ	0.050	UJ	0.050	UJ
Heptachlor	100	0.01	0.050	U	0.050	U	0.050	U
Aldrin	41	0.01	0.050	U	0.050	U	0.050	U
Heptachlor Epoxide	20	0.01	0.050	U	0.050	U	0.050	U
Endosulfan I	900	0.1	0.050	U	0.050	U	0.050	U
Dieldrin	44	0.01	0.10	U	0.10	U	0.10	U
4,4'-DDE	2,100	0.01	0.10	U	0.10	U	0.10	U
Endrin	100	0.01	0.10	U	0.10	U	0.10	U
Endosulfan II	900	0.1	0.10	U	0.10	U	0.10	U
4,4'-DDD	2,900	0.01	0.10	U	0.10	U	0.10	U
Endosulfan Sulfate	1,000	0.1	0.10	U	0.10	U	0.10	U
4,4'-DDT	2,100	0.01	0.10	U	0.10	U	0.10	U
Methoxychlor	***		0.50	U	0.50	U	0.50	U
Endrin Ketone	N/A		0.10	U	0.10	U	0.10	U
Endrin Aldehyde			0.10	U	0.10	U	0.10	U
alpha-Chlordane	540 *		0.050	U	0.050	U	0.050	U
gamma-Chlordane	540	0.1	0.050	U	0.050	U	0.050	U
Toxaphene			5.0	U	5.0	U	5.0	U
Aroclor-1016	1,000-surface 10,000-subsurface	1,000	1.0	U	1.0	U	1.0	U
Aroclor-1221	1,000-surface 10,000-subsurface	100	2.0	U	2.0	U	2.0	U
Aroclor-1232	1,000-surface 10,000-subsurface	100	1.0	U	1.0	U	1.0	U
Aroclor-1242	1,000-surface 10,000-subsurface	100	1.0	U	1.0	U	1.0	U
Aroclor-1248	1,000-surface 10,000-subsurface	100	1.0	U	1.0	U	1.0	U
Aroclor-1254	1,000-surface 10,000-subsurface	100	1.0	U	1.0	U	1.0	U
Aroclor-1260	1,000-surface 10,000-subsurface	100	1.0	U	1.0	U	1.0	U

N/A - not available
* - Value listed for Chlordane
*** - As per TAGM #4046, Total Pesticides < 10 ppm
U - Not Detected
J - Value is estimated

TAL Metals Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID		GP-38B (2-4 BLS)		GP-39A (0-2 BLS)		GP-40F (10-11.5 BLS)		GP-41A (0-2 BLS)		GP-42A (0-2 BLS)		GP-43A (0-2.5 BLS)		GP-44A (0-2 BLS)		GP-45A (0-2 BLS)		GP-46A (0-2.5 BLS)
Lab Sample ID	TAGM 4046	991556A-02		991556A-05		991556A-13		991556A-14		991556A-16		991556A-18		991556A-19		991556A-20		991556A-21
Date Sampled	Recommended	07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99		07/07/99
Dilution	Soil Clean-Up	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00
Method Blank	Objective	N080399		N080399		N080399		N080399		N080399		N080399		N080399		N080399		N080399
Units	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg
Analytes																		
Aluminum	33,000	13200		18300		15700		22400		16400		18600		18800		17300		19900
Antimony		R		R		R		2.3	BJ	R		R		R		R		R
Arsenic	7.5	2.2	J	7.4	J	2.6	J	5.5	J	3.0	J	2.0	J	4.0	J	2.5	J	3.9
Barium	300	91.3		365		247.		316.		245.		406.		589.		280.		411.
Beryllium	0.16	0.42	B	0.24	B	0.34	B	0.69	B	0.42	B	0.25	B	0.33	B	0.34	B	0.56
Cadmium	1	0.16	UJ	0.16	UJ	0.15	UJ	0.16	UJ	0.11	UJ	0.19	UJ	0.18	UJ	0.15	UJ	0.18
Calcium	35,000	2550	U	9730	U	6820	U	23000	U	7060	U	8740	U	9520	UJ	8150	U	9000
Chromium	10	29.7		92.1		66.9		88.4		70.0		119.		88.6		84.9		114.
Cobalt	30	8.2		12.7		10.5		11.8		11.6		13.1		11.8		13.5		15.7
Copper	25	26.3	J	130.	J	43.3	J	116.	J	30.0	J	22.8	J	167.	J	37.9	J	66.1
Iron	550,000	22800		51600		27900		48600		28600		29500		39300		31300		35300
Lead		11.2	J	221.	J	108.	J	216.	J	49.9	J	15.2	J	161.	J	29.9	J	55.7
Magnesium	5,000	5020		14800		11500		12200		14900		19300		15700		16000		18200
Manganese	5,000	261		618.		410.		798.		479.		455.		491.		500.		533.
Mercury	0.1	0.018	U	0.11		0.082		0.36		0.028	B	0.015	U	0.16		0.017	U	0.019
Nickel	13	17.9		43.4		35.3		80.4		37.2		50.5		39.2		36.1		46.0
Potassium	43,000	2390		11700		7250		8480		8890		14700		10200		10900		13700
Selenium	2	3.3	U	2.7	U	2.7	U	0.82	U	2.8	U	0.95	U	2.2	U	2.0	U	2.5
Silver		0.16	U	0.44	B	0.23	B	1.1	B	0.11	U	0.19	U	0.40	B	0.15	U	0.57
Sodium	8,000	200	B	548.	B	284.	B	700.	B	254.	B	658.	B	569.	B	605.	B	924.
Thallium		4.6	UJ	6.0	UJ	4.3	UJ	2.5	UJ	5.6	UJ	5.0	UJ	5.2	UJ	5.8	UJ	8.6
Vanadium	150	27.0		52.6		40.6		42.1		43.2		59.7		50.0		54.5		59.4
Zinc	20	61		358		183		517		100		72.0		313.		102.		144.

U - Not Detected
J - Value is estimated
B - Value reported is between the CRDL and the IDL
R - Value has been rejected due to QC deficiency

TAL Metals Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID	TAGM 4046		GP-47A (0-0.5 BLS)		FIELD BLANK-1		DUPLICATE-1A		GP-22A (0-2 BLS)		GP-25A (0-2.5 BLS)		GP-26A/B (0-3 BLS)		GP-27A (0-2 BLS)		GP-28C (4-5 BLS)	
Lab Sample ID	Recommended		991556A-22		991556A-24		991556A-26		991556B-01		991556B-03		991556B-04		991556B-05		991556B-09	
Date Sampled	Soil Clean-Up		07/07/99		07/07/99		07/07/99		07/08/99		07/08/99		07/08/99		07/08/99		07/08/99	
Dilution	Objective		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank			N080399		D080399		N080399		D080599		D080599		D080599		D080599		D080599	
Units	mg/Kg		mg/Kg		ug/L		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Analytes																		
Aluminum	33,000		12300		31.9	B	10100		17000	J	17500	J	17400	J	15200	J	16800	J
Antimony			R		9.0	UJ	R		R		R		R		R		R	
Arsenic	7.5	J	13.2	J	8.0	U	1.8	J	5.7	U	3.7	U	4.6	UJ	4.3	U	5.6	U
Barium	300		149.		3.1	B	150.		179		318		336		310		243.	
Beryllium	0.16	B	0.19	B	1.0	U	0.19	B	0.41	B	0.40	B	0.25	B	0.22	B	0.30	B
Cadmium	1	UJ	0.28	BJ	1.0	U	0.14	UJ	R		R		R		R		R	
Calcium	35,000	UJ	7950	U	27100		5540	U	4340		10000		12400		28200		7110	
Chromium	10		48.0		1.0	U	40.5		62.0		87.3		88.2		81.0		80.9	
Cobalt	30		8.8		1.0	U	7.7		10.6		13.6		13.5		11.9		12.2	
Copper	25	J	132	J	1.0	U	62.7	J	44.5		33.5		60.3		22.2		33.2	
Iron	550,000		25500		34.5	B	22000		25800		35100		38400		29400		30100	
Lead		J	66.5	J	3.6	J	40.6	J	26.6	J	26.4	J	69.5	J	14.0	J	42.1	J
Magnesium	5,000		8450		3380	B	7640		10300		17300		16800		21800		13900	
Manganese	5,000		433.		2.2	B	319.		388.		493.		532.		451.		472.	
Mercury	0.1	B	0.029	B	0.10	U	0.097		0.096	J	0.012	BJ	0.029	BJ	0.011	U	0.060	J
Nickel	13		28.1		2.0	U	23.2		30.8		36.7		44.0		33.3		35.0	
Potassium	43,000		4280		609.	B	4000		6490	J	11000	J	12500	J	12500	J	10200	J
Selenium	2	U	0.67	U	5.0	UJ	2.2	U	0.59	UJ	2.0	UJ	1.5	UJ	0.75	UJ	2.5	UJ
Silver		B	0.13	U	8.0	U	0.14	U	0.12	U	0.15	U	0.66	B	0.15	U	0.16	U
Sodium	8,000		1210		2990	B	1030		142.	BJ	518.	B	1090		523.	B	259.	B
Thallium		UJ	4.8	UJ	10.0	UJ	4.2	UJ	6.0		6.7	J	7.2	J	8.5	J	7.1	J
Vanadium	150		45.8		1.0	U	34.8		42.3		53.8		53.8		53.4		45.2	
Zinc	20		148.		11.3	B	96.6		67.5	J	94.8	J	191.	J	70.2	J	101.	J

U - Not Detected
J - Value is estimated
B - Value reported is between the CRDL and the IDL
R - Value has been rejected due to QC deficiency

TAL Metals Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID		GP-29A (0-2 BLS)		GP-30A (0-2 BLS)		GP-32B/C (2-6 BLS)		GP-34B (2-4 BLS)		DUPLICATE-2		FIELD BLANK-2		GP-31C (4-6 BLS)		GP-33A (0-2 BLS)		GP-35A (0-2 BLS)
Lab Sample ID	TAGM 4046	991556B-10		991556B-11		991556B-13		991556B-15		991556B-16		991556B-17		991556C-03		991556C-05		991556C-06
Date Sampled	Recommended	07/08/99		07/08/99		07/08/99		07/08/99		07/08/99		07/08/99		07/09/99		07/09/99		07/09/99
Dilution	Soil Clean-Up	1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00
Method Blank	Objective	D080599		D080599		D080599		D080599		D080599		D080499						
Units	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		ug/L		mg/Kg		mg/Kg		mg/Kg
Analytes																		
Aluminum	33,000	17100	J	15200	J	13800	J	15900	J	17700	J	20.0	U	11600		19600		18200
Antimony		R		R		R		R		R		9.0	UJ	3.8	BJ	1.3	UJ	2.8
Arsenic	7.5	4.8	U	4.8	U	4.2	U	3.6	U	4.4	U	8.0	U	12.0	U	5.2	U	8.6
Barium	300	273.		288.		164.		212.		309.		1.0	U	1240		303.		293.
Beryllium	0.16	0.19	B	0.23	B	0.41	B	0.15	B	0.30	B	1.0	U	0.23	U	0.37		0.21
Cadmium	1	R		R		R		R		R		1.0	U	2.6		0.15	U	1.7
Calcium	35,000	15800		7040		3780		5590		10000		47.9	B	22300		6990		11600
Chromium	10	93.9		73.2		52.9		89.0		88.1		1.0	U	36.5		295.2		93.0
Cobalt	30	13.7		12.6		10.7		13.7		13.3		1.0	U	10.6	BJ	15.2	J	12.7
Copper	25	36.8		43.9		19.6		22.3		38.6		1.0	U	209.	J	49.4	J	382.
Iron	550,000	33100		30300		23600		29400		32600		29.0	U	50200		35100		84800
Lead		17.5	J	27.3	J	4.9	J	6.2	J	41.3	J	3.0	U	5120	J	37.6	J	500.
Magnesium	5,000	22000		13700		9560		15700		16500		22.0	U	4540		15900		9300
Manganese	5,000	482.		412.		551.		424.		460.		4.4	B	470.		549.		653.
Mercury	0.1	0.012	U	0.019	BJ	0.010	U	0.0096	BJ	0.031	BJ	0.10	U	0.11		0.037		64.5
Nickel	13	40.8		32.3		25.3		41.5		37.6		2.4	B	31.4	J	44.0	J	62.0
Potassium	43,000	13600	J	10500	J	5250	J	13200	J	12000	J	64.2	B	2660		11200		6790
Selenium	2	1.3	UJ	1.5	UJ	1.3		0.76	UJ	0.89	UJ	14.6	J	1.1	UJ	0.88	UJ	3.7
Silver		0.16	U	0.12	U	0.14	U	0.15	U	0.18	U	8.0	U	2.6		0.15	U	2.6
Sodium	8,000	805.		578.	B	392.	B	339.	B	870.	BJ	81.4	B	1620	J	229.	BJ	360.
Thallium		5.5	J	6.3	J	9.2	J	7.2	J	6.0	J	10.0	UJ	8.0	J	5.8	J	14.4
Vanadium	150	59.2		45.4		35.3		49.5		53.1		1.0	U	37.8		58.3		40.7
Zinc	20	76.8	J	79.4	J	71.6	J	64.5	J	116.	J	10.0	UJ	1370	J	114.	J	928.

U - Not Detected
J - Value is estimated
B - Value reported is between the CRDL and the IDL
R - Value has been rejected due to QC deficiency

TAL Metals Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID	TAGM 4046 Recommended Soil Clean-Up Objective		GP-36A (0-3 BLS)		GP-37A (0-2 BLS)		GP-48B (2-4 BLS)		EAST SWAMP SEDIMENT		UPPER POND SEDIMENT		LOWER POND SEDIMENT		NW CATCH BASIN		DUPLICATE-3	
Lab Sample ID			991556C-07		991556C-08		991556C-13		991556C-15		991556C-16		991556C-17		991556C-18		991556C-19	
Date Sampled			07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99		07/09/99	
Dilution			1.00		1.00		1.00		1.00		1.00		1.00		1.00		1.00	
Method Blank																		
Units	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Analytes																		
Aluminum	33,000		13700		17400		7230		16500		5910		16600		10700		15400	
Antimony		BJ	6.7	BJ	2.5	BJ	1.2	UJ	7.8	BJ	2.0	UJ	3.8	UJ	2.0	BJ	3.9	BJ
Arsenic	7.5	U	13.0	U	8.8	U	4.2	U	7.8	U	5.7	U	13.0	U	7.0	U	9.0	U
Barium	300		290.		255.		73.1		314		54.3		125.		139.		331.	
Beryllium	0.16	U	0.21	U	0.21		0.25	B	1.9		0.26		0.65	B	0.16	U	0.20	U
Cadmium	1		2.3		1.7		0.28	B	0.59	U	0.39		2.4		0.66	B	3.4	
Calcium	35,000		23400		9950		3570		5450		17700		14100		5590		13600	
Chromium	10		107.		86.7		19.2		25.3		15.7		53.8		44.8		71.3	
Cobalt	30	J	11.2	J	11.7	J	4.6	BJ	2.3	BJ	5.0	BJ	14.2	BJ	9.2	J	10.2	J
Copper	25	J	731.	J	1490	J	60.0	J	28.3	J	77.2	J	109.	J	74.6	J	725.	J
Iron	550,000		109000		55400		12900		5020		13400		28600		56200		71600	
Lead		J	997.	J	342.	J	38.5	J	99.9	J	16.9	J	109.	J	169.	J	595.	J
Magnesium	5,000		5410		8270		3410		1400	B	10600		12400		6760		6540	
Manganese	5,000		962.		593.		146.		68.2		152.		230.		461.		659.	
Mercury	0.1		0.0099	U	0.37		0.038		0.38		0.010	BJ	0.19		0.070		0.38	
Nickel	13	J	48.9	J	51.2	J	11.6	J	15.4	BJ	13.7	J	58.5	J	38.6	J	51.0	J
Potassium	43,000		4180		4550		1950		725.	B	1360		3700		1820		5060	
Selenium	2	UJ	5.3	UJ	3.6	UJ	0.68	UJ	2.9	UJ	3.1	UJ	2.1	UJ	2.6	UJ	1.0	UJ
Silver			2.6		1.4	B	0.14	U	0.59	U	0.22	U	0.42	U	0.46	B	5.0	
Sodium	8,000	BJ	718.	BJ	321.	BJ	133.	U	326.	BJ	278.	BJ	1800	BJ	253.	BJ	897.	BJ
Thallium		J	15.4	J	9.6	J	1.4	UJ	6.1	J	2.2	UJ	6.5	J	7.2	J	10.0	J
Vanadium	150		31.6		37.6		18.8		27.4	B	20.1		67.3		106.		31.5	
Zinc	20	J	957.	J	710.	J	69.1	U	65.7	U	157.	J	874.	J	341.	J	1070	J

U - Not Detected
J - Value is estimated
B - Value reported is between the CRDL and the IDL
R - Value has been rejected due to QC deficiency

TAL Metals Results
500 Mamaroneck Associates
ERM Project Number X8101.00.603.xls

Client ID		FIELD BLANK-3		SUPPLY WELL		UPPER POND WATER		EAST SWAMP WATER		AQUEOUS DUPLICATE	
Lab Sample ID	TAGM 4046	991556C-20		991557A-01		991557A-02		991557A-03		991557A-04	
Date Sampled	Recommended	07/09/99		07/09/99		07/09/99		07/09/99		07/09/99	
Dilution	Soil Clean-Up	1.00		1.00		1.00		1.00		1.00	
Method Blank	Objective			D080499		D080499		D080499		D080499	
Units	mg/Kg	ug/L		ug/L		ug/L		ug/L		mg/L	
Analytes											
Aluminum	33,000	20.0	U	20.0	U	321.		514.		22.1	B
Antimony		9.0	U	9.0	U	9.0	U	9.0	U	9.0	U
Arsenic	7.5	8.0	U	8.0	U	8.0	U	8.0	U	8.0	U
Barium	300	1.0	U	240.		197.	B	56.5	B	234.	
Beryllium	0.16	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Cadmium	1	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Calcium	35,000	76.7		102000	J	68600	J	7830	J	99100	J
Chromium	10	1.0	U	1.0	U	1.3	B	1.7	B	1.0	U
Cobalt	30	1.0	U	1.0	U	1.0	U	1.2	B	1.0	U
Copper	25	1.0	U	1.0	U	9.3	U	2.2	U	1.0	U
Iron	550,000	29.0	U	29.0	U	650.		2160		34.4	B
Lead		3.0	U	3.0	U	3.0	U	11.2		3.0	U
Magnesium	5,000	22.0	U	20000		16300		2540	B	19500	
Manganese	5,000	5.5		87.7		40.1		127.		96.9	
Mercury	0.1	0.10	U	0.14	B	0.10	U	0.17	B	0.10	U
Nickel	13	2.0	U	2.0	U	2.4	B	4.6	B	2.0	U
Potassium	43,000	39.0		6470		7460		1640	B	6400	
Selenium	2	12.5	[illegible]	17.6	U	11.5	U	22.7	U	12.5	U
Silver		8.0	U	8.0	U	8.0	U	8.0	U	8.0	U
Sodium	8,000	86.1		98300	J	79200	J	13000	J	95900	J
Thallium		10.0	U	10.0	UJ	10.0	UJ	10.0	UJ	10.0	UJ
Vanadium	150	1.0	U	1.0	U	4.2	B	3.3	B	1.0	U
Zinc	20	10.4		10.0	U	18.0	BJ	30.0	J	16.6	BJ

U - Not Detected
J - Value is estimated
B - Value reported is between the CRDL and the IDL
R - Value has been rejected due to QC deficiency

Appendices

A

APPENDIX A

Supplemental Work Plan and NYSDEC Comments

ENVIRONMENTAL RESOURCES MANAGEMENT

SUPPLEMENTARY SITE INVESTIGATION WORK PLAN

500 Mamaroneck Avenue

December 1998

Prepared for:

500 Mamaroneck Avenue
500 Mamaroneck Avenue
Harrison, New York

Prepared by:

ENVIRONMENTAL RESOURCES MANAGEMENT
175 Froehlich Farm Boulevard
Woodbury, New York 11797

ERM

SUPPLEMENTARY SITE INVESTIGATION WORK PLAN

500 Mamaroneck Avenue

December 1998

Prepared for:

500 Mamaroneck Avenue
500 Mamaroneck Avenue
Harrison, New York

Prepared by:

ENVIRONMENTAL RESOURCES MANAGEMENT
175 Froehlich Farm Boulevard
Woodbury, New York 11797

14540018.217

TABLE OF CONTENTS

LIST OF FIGURES

1.0 *INTRODUCTION*

Environmental Resources Management (ERM) is submitting this work for additional investigation at 500 Mamaroneck Avenue, Harrison, New York on behalf of 500 Mamaroneck Avenue Associates. The workplan has been prepared as part of the Voluntary Cleanup Program Application.

Previous studies conducted at the site have revealed limited impacts from past activities. In June 1998, ERM concluded that remediation was not warranted. The additional work proposed below, is offered to further support that conclusion.

1.1 *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 *STUDY AREA DESCRIPTION AND 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. Almost 340,000 cubic yards of rock and earth was removed. 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 residences further to the east.

The site rises gradually over the parking area, and then is relatively level over the eastern portion. A small wetland area is located in the north-central portion of the property, immediately east of the northern portion of the parking area. Water is provided by the local municipal system. One 350 - foot deep well supplies water to a decorative waterfall on the property. Sanitary waste is handled via the municipal sewer system.

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.

1.3 *PREVIOUS STUDIES*

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, Dames & Moore, Inc., 1998 (late February or early

March) and ERM, June, 1998. Except for the ERM sampling, the earlier investigations were generally Phase I type Environmental Assessments, however, the Dames & Moore, GZA, ERL and USHI did collect limited soil and/or groundwater samples.

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 Municipal Solid Waste (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.

Dames & Moore collected soil and groundwater samples. 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.

No VOCs exceeded regulatory guidelines in any of the six soil samples collected. Dames & Moore's data indicated 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, < 0.5 - foot in some cases, it is likely that metal concentrations in the overburden soil would be abnormally elevated due to dissolution or weathering of the bedrock

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.

The soil sampling carried out by ERM detected PAHs and PCBs above regulatory guidance criteria in 6 soil samples out of the 46 collected at the 500 Mamaroneck Avenue site. Four of the six samples exceeding the regulatory guidance criteria were re-analyzed using the TCLP leaching procedure. The concentrations of PAHs and PCBs in these latter four samples were below regulatory guidance, indicating that these compounds (PAHs and PCBs) are not mobile.

The PAH and PCBs are associated with samples where there is a greater thickness of soil, specifically along the southern parking lot boundary and in front of the building. The PAHs and PCBs were generally detected in samples collect 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 were removed from the site during construction of the building complex.

1.4 DATA GAPS

As discussed above, the 500 Mamaroneck Avenue site was the location of the former Town of Harrison Municipal Incinerator. An MSW transfer station apparently was also operated on the site. Available historic data should be reviewed to confirm where these activities occurred.

The ERM and Dames & Moore sampling efforts identified 4 areas where residual PAHs and PCBs exceed soil cleanup guidelines. As discussed above, more than 340,00 cubic yards of soil and rock were excavated from the site when the building was constructed. The excavation apparently left only a thin verneer of soil over the underlying bedrock. This was confirmed by the depth to bedrock observed during the installation of borings in the June 1998 investigation. A better understanding of the volume of soil present over the bedrock surface in areas where residual contamination was observed would provide a means of evaluating whether there is sufficient soil to represent a significant source of contamination. Determination of the volume of soil in those areas would also permit calculation of the cost to remove the residual contaminants if that became a potential remedial option.

The presence of underground utilities prompted ERM to locate sampling points away from the interior and more toward the perimeter of the site. It was determined that the collection of additional samples in the central site area, in areas where past activities may have occurred and adjacent to areas where residual contamination was observed, might provide a better definition of on-site contamination. If the results of the proposed sampling are consistent with the data for previous sampling, the data could be used to support the current no-action remedial decision.

2.0 PROPOSED SCOPE OF WORK

2.1 REVIEW OF AERIAL PHOTOGRAPHS

To the best of our knowledge, there are no data or reports available regarding operation and demolition of the former Town of Harrison Municipal Incinerator and/or Transfer Station. Therefore to better understand the location and operations of the incinerator and transfer station, ERM proposes that existing aerial photographs be reviewed. Available aerial photographs from the Westchester County Department of Public Works, Town of Harrison and commercial environmental databases (if necessary) will be reviewed and used to prepare a chronology of where/when development and usage of the property occurred. These data will be correlated with existing sampling locations to determine if areas potentially impacted by past operations have been sampled. If potentially impacted areas have not been sampled, the sampling points, proposed below will be adjusted to provide data from these areas.

2.2 GEOPHYSICAL SURVEY OF KNOWN IMPACTED AREAS

A geophysical survey will be carried out to determine the elevation of the top of the bedrock in areas where residual materials have been detected (PAHs, PCBs). The areas to be surveyed are presented on Figure 3. In addition, the survey data will aid in the placement of additional soil borings to better define the extent of any contamination and together with the analytical results from the soil boring programs, be used to estimate the volume of soil potentially impacted.

The geophysical survey will also be carried out to locate underground utilities so that additional samples can be collected from the central site area where the utilities are located. Determination of the volume of soil present in areas where residual contamination is present will permit evaluation of potential exposure risks and permit estimation of the cost of remedial activities (soil removal, if necessary). The geophysical techniques likely to be used are seismic refraction, ground penetrating radar and electromagnetic surveys.

2.3 INSTALLATION OF ADDITIONAL SOIL BORINGS

An additional round of soil boring installation will be carried out to define the limits of areas known to contain residual materials and to more fully characterize soil quality at the site. As shown of Figure 3, 26 new borings are proposed for installation (the exact number will be determined by site conditions, i.e., if a boring can be installed in the desired location). The exact locations of the borings may be adjusted as a result of the aerial photography review and consultation with the NYSDEC. Based on previous sampling activities, ERM proposes to analyze the soil collected from the borings for PAHs and PCBs. Field screening will also be carried out to confirm the absence of volatile organic compounds (VOCs). Finally, as in the earlier ERM investigation, prior to selection of samples for laboratory analysis, soil samples will be screened for PCBs and PAHs using field immunoassay testing. Borings will be installed using either a GeoProbe or Tripod rig. The exact scope of the boring program to be undertaken will be determined in consultation with the NYSDEC, after they have completed review of the ERM June 1998 Site Assessment report.

2.4 REPORT PREPARATION

The results of the soil-boring program will be complied and a report summarizing the results of the current investigation will be prepared and submitted to the NYSDEC. In addition to presenting the investigation results, the report will evaluate the extent of the residual material(s), the potential for impacts and exposure, and the need for remedial activities, based on all existing site data. If the data collected during this supplementary site investigation are not significantly different than the other data collected to date, it is our goal that no further investigation or remedial action will be required, and that a letter be issued to that effect.

New York State Department of Environmental Conservation
Region 3, Division of Hazardous Waste Remediation
21 South Putt Corners Rd., New Paltz, NY 12561-1696
Telephone: (914) 256-3000 FAX: (914) 255-3414

John P. Cahill
Commissioner

April 5, 1999

DRAFT

Mr. Thomas Julius
Schulman Management Corporation
500 Mamaroneck Avenue
Harrison, New York 10528

RE: COMMENTS FOR VOLUNTARY SITE REPORT (6/98) AND WORK PLAN (12/98) AT 500 MAMARONECK AVENUE, HARRISON, N Y

Dear Mr. Julius:

The following are the DECs comments for the above reports.

Site Assessment Report:

1-General: The DEC reviews soil and groundwater data for compliance with TAGM 4046 and New York State Groundwater (Water Quality Regulations, Title 6, Chapter X Part 703) Standards. These standards must be considered for determining the appropriate remedial action that might be required to address a site. The data presented in the report states that Metals, PAHs and PCBs are contaminating site soils above recommended cleanup levels and therefore should be addressed in accordance to these standards. The paved parking area is not an acceptable remedial engineering practice used to address contaminated soils at a site. The mobility of the above contaminants is not the deciding factor for addressing these soils with a no action remedy. Please review all of the data based on the above compliance and present the Department with your revised conclusions for this report.

2-Page 1-3, second paragraph: How large is the "wet area" and is it a designated wetland. Please provide the Department with more information concerning this area.

3-Page 1-3, first paragraph: The "shallow well" that supplies the waterfall is stated to be 350 feet deep(see pg. 1-2 of the Work Plan). If this is in fact the depth of the well please omit the term "shallow," because this is misleading.

4-Throughout the report: When terms such as,..."respective regulatory guidance criterion,".... "below relevant standards,"...and "method detection limits" are used, they must be qualified. Please qualify these terms where appropriate in the report and work plan.

5-Page 1-5, last paragraph: The statement on the RCRA metals results. Please refer to comment number 1 and revise this section based on the data and those standards. The TCLP is used for disposal and site registry listing purposes and not as a means for determining site cleanup goals (or a no action recommendation). Any additional sampling for metals will require a TAL analysis, which will provide the criteria on how the results could be addressed.

DRAFT

6-Page 1-5: What are the "typical soil metal concentrations for urban settings" for this site. Please explain.

7-Page 2-3: The 21 soil borings were analyzed using EPA , RCRA methods and later the extracted samples used the TCLP to assess mobility of PAHs and PCBs. The mobility of these compounds is not the issue in determining the remedial action level to be taken at this site. Refer to comment number 1.

Supplementary Site Investigation Work Plan:

A -Page 2-2, sec. 2.3: The TCL (Target Compound List) should be the protocol used for the 26 additional sampling locations that you have purposed. The following parameters should be run: semi-volatiles, PCBs and TAL (inorganic target analyte list) for metals. One other reason for running metals is stated in your June 98 report on page1-6.

B -Page 1-4: The consultant, Dames & Moore, sampled on-site groundwater (W-1 and borehole No.3) and analyzed for VOCs and RCRA metals. The site well (W-1) needs to have the full TCL run, which includes: volatiles, semi-volitiles, BTEX, acid extractable, pesticides/PCBs and inoganics (TAL). Please state this in the revised work plan. The Department would also like to see the two on-site ponds sampled, which would include both surface water and sediment. The same set of parameters (TCL and TAL) should be run for these samples.

C -Page 1-2: It is stated that the on-site waterfall supply well (W-1) is 350 feet deep, yet on page 1-3 of the site assessment report you refer to it as a"shallow well." If this is in fact the depth of the well please omit the word "shallow", because it is misleading to the general public.

Please provide the Department with the above information in your revised reports. If you have any questions or concerns, please contact me at 914/256-3153. Thank you.

Sincerely:

Robert Smith / DER

cc: R. Pergadia
R. Rusinko, Esq., DEE
S. Bates, NYSDOH
C. Montroy, Albany
G. K. Shkuda, ERM Northeast
R. Osar, Cuddy Feder & Worby, Esq.

New York State Department of Environmental Conservation
Region 3, Division of Hazardous Waste Remediation
21 South Putt Corners Rd., New Paltz, NY 12561-1696
Telephone: (914) 256-3000 FAX: (914) 255-3414

John P. Cahill
Commissioner

May 4,1999

Mr. Thomas Julius
Schulman Management Corporation
500 Mamaroneck Avenue
Harrison, New York 10528

RE: ADDITIONAL COMMENTS FOR VOLUNTARY SITE REPORT (6/98) AND WORK PLAN (12/98) FOR 500 MAMARONECK AVENUE, HARRISON, N Y, VOLUNTARY SITE NUMBER D-172

Dear Mr. Julius:

The following are the DECs additional comments for the above reports.

Site Assessment Report:

1-Page 1-6, second paragraph. Should specify that the groundwater was tested for BTEX compounds only.

2-Page 2-1, second paragraph. The fifth sentence states that volatile organic compounds (VOCs) were not detected except for common laboratory contaminants, such as acetone and methyl ethyl ketone (MEK). Quality Control/Quality Analysis data should be provided to determine if acetone and MEK were detected in field or laboratory blanks.

3-Page 3-2, third paragraph, last sentence. It states that TAGM 4046 cleanup criteria is based on direct contact with PAH contaminated soils. It should state that TAGM 4046 is based on the protection of groundwater. Please correct.

4-General. Site location maps for the two reports should include a north facing arrow icon.

5-On-Site Contaminated Soils:

A.) Location GP-11A soils from 0-3"have a recorded PCB level of 4.2 ppm. The cleanup level found in TAGM 4046 states that soils from 0 to 2' be cleaned up to1 ppm. This location needs to be further investigated and the soils remediated.

B.) Locations GP-12A/B, 13A, 19B/C, 19E/F, 20A and 21A soils are contaminated with PAHs above the TAGM 4046 recommended cleanup levels. Please provide a remediation plan that addresses these contaminated soil locations.

DRAFT
Quality Assurance Guidelines for Voluntary Cleanup Sites

A separate Quality Assurance Project Plan (QAPjP) is not required when the following quality assurance points are included in the Work Plan:

1. Project description and project goals. Include the site environmental history and the results of any previous sampling.

2. Project organization, including designation of the Project Manager, Quality Assurance Officer and Field Analyst, if field analysis is planned. These resumes should be included in the Work Plan Appendix.

3. Sampling procedure and equipment decon procedures. Include a sample chart that specifies the sample matrix, number of samples, analysis methods and data reporting level. EPA or NYSDEC Analytical Services Protocol (ASP) methods are acceptable. Also include a site map that shows proposed sampling sites and previous sampling results.

4. The laboratory must be named in the Work Plan and must be NYSDOH ELAP certified for the planned analyses. It most cases, the investigation and cleanup confirmation sample analysis reporting level will be NYSDEC ASP Category B deliverables*, in order to fully evaluate and document the project. When Category B deliverables are required, the laboratory must be NYSDOH ELAP CLP certified, since the CLP certification program evaluates the proficiency of the laboratory in the quality control parameters required by the analytical methods and the reporting format for the Category B deliverables package. On sites where we already have valid and usable investigative data, verified by Category B deliverables, intermediate samples (SPDES, interim remedial measures (IRM) and construction samples) usually only require a standard, one page, analysis report.

5. Include Standard Operating Procedures (SOPs) for field instruments and field screening methods.

6. Data validation is not required. The data should be evaluated according to the Division of Environmental Remediation (DER) Data Usability Summary Report (DUSR) guidelines.

* This reporting level gives the necessary documentation that will be reviewed to evaluate the usability of the data (see #6). It also gives calibration data that is needed to verify "not-detected" analytes that are possible compounds of concern, as indicated by site history or previous screening level data.

New York State Department of Environmental Conservation
Division of Environmental Remediation

Guidance for the Development of Data Usability Summary Reports

Background:

The Data Usability Summary Report (DUSR) provides a thorough evaluation of analytical data without the costly and time consuming process of third party data validation. The primary objective of a DUSR is to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and data use.

Though the substitution of a DUSR for a full third party data validation may seem to be a relaxation of the Division's quality assurance requirements, this is definitely not the case. The development of the DUSR must be carried out by an experienced environmental scientist, such as the project Quality Assurance Officer, who is fully capable of conducting a full data validation. Furthermore, the DUSR is developed from a full New York State Department of Environmental Conservation Analytical Services Protocol (NYSDEC ASP) Category B or a United States Environmental Protection Agency Contract Laboratory Protocol (USEPA CLP) deliverables package.

The DUSR and the data deliverables package will be reviewed by the Division's Quality Assurance Unit. In most cases, we expect that this review will result in agreement or with only minor differences that can be easily reconciled. If data validation is found to be necessary (e.g. pending litigation) this can be carried out at a later date on the same data package used for the development of the DUSR.

Personnel Requirements:

The Environmental Scientist preparing the DUSR must hold a Bachelors Degree in a relevant natural or physical science or field of engineering and must submit a resume to the Division's Quality Assurance Unit documenting experience in environmental sampling, analysis and data review.

B

APPENDIX B

Previous Reports
Coneco Investigation - June 1999
ERM-Northeast - June 1998
* *Dames & Moore – March 1998*
* *AKRF – April 1997*
* *US Hydrogeologic – October 1989*
* *Environmental Risk Limited – April 1988*
* *Merritt & Harris – July 1987*

---

* Contained in June 1998 ERM Northeast Report

Coneco Investigation - June 1999

SUBSURFACE INVESTIGATION
500 MAMARONECK AVENUE
HARRISON, NEW YORK

PREPARED FOR:

W & M PROPERTIES, INC.
ONE STATION PLACE
METRO CENTER
STAMFORD, CONNECTICUT 06902

PREPARED BY:

CONECO ENVIRONMENTAL CORPORATION
90 NATIONAL DRIVE
GLASTONBURY, CONNECTICUT 06033

JUNE 1999

WORK ORDER NO. C118

TABLE OF CONTENTS

Figures

TABLES

APPENDICES

1.0 Background

In May 1998, Environmental Resources Management (ERM) performed a subsurface investigation at 500 Mamaroneck Avenue in Harrison, New York, hereinafter, the "Site" in an effort to define the extent of potential impacts from past activities. Twenty-one soil borings were performed in areas of the greatest thickness of overburden soil. Approximate Soil boring locations are presented in Figure 3. Soils collected from the borings were analyzed for Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs), and RCRA eight metals (silver, arsenic, barium, cadmium, chromium, mercury, lead, and selenium).

The results of the soil sample analysis indicated the presence of PAHs and PCBs in several soil boring locations at concentrations which exceed the New York State Department of Environmental Conservation (NYDEC) Division Technical and Administrative Guidance Memorandum (TAGM) 4046 (January 1994). TAGM 4046 was developed to act as a guidance document and as such provides a basis and procedure to determine cleanup levels. Typically the NYDEC uses the TAGM 4046 document to develop cleanup objectives for individual sites prior to the commencement of any remedial activities.

The investigation performed by ERM identified concentrations of PCBs ranging from 56 ug/kg (ppb) to 4,200 ppb. The 4,200 ppb concentration for PCBs exceeds the surficial total PCB clean-up criterion established at 1,000 ppb. In addition, several individual PAH compounds were detected at levels exceeding the cleanup objectives of NYDEC TAGM 4046. Concentrations of PAHs ranging from 110 ppb to 7,800 ppb.

2.0 Site Subsurface Investigation

The proposed subsurface investigation intended to evaluate whether there is evidence that a release of hazardous substances has occurred at the Site from historic operations. Tax records maintained by the Town of Harrison (Harrison) indicate that the Site is the former location of the Harrison Incinerator and Transfer Station. The Site was reportedly used for this purpose from 1954 until it was demolished in 1984. Toward that end, a program of subsurface investigation was conducted to evaluate the extent of PAH, PCB, total metals and volatile organic compound (VOC) contamination in areas previously identified as having elevated levels of PAHs and PCBs in the soil.

The subsurface investigation would better define the limits of areas known to contain residual materials and determine if these materials are a significant source of contamination. The investigation would allow for a more comprehensive characterization of the soil and groundwater quality on-Site.

To accomplish these goals, CONECO performed the following tasks:

2.1 Site Preparation Activities:

A site-specific health and safety plan (HASP), as required by the U.S. Occupational Health and Safety Agency (OSHA) and the New York State Department of Environmental Conservation (NYDEC) was prepared. All CONECO personnel adhered to this HASP during the fieldwork.

CONECO contacted Call-Before-You-Dig of New York to locate and mark-out underground utilities at the Site prior to commencement of the subsurface investigation soil boring program.

CONECO also reviewed available Site utility drawings provided by the Office Complex engineer to gain additional information as to possible underground utility locations including sanitary sewer, storm sewer, underground storage tank, and parking lot lighting electrical lines.

2.2 Soil Boring Methodology:

CONECO proposed to utilize *Geoprobe* boring to investigate and sample the subsurface soils at the Site. The *Geoprobe* is a hydraulically powered soil probing machine, which uses static force and a percussion hammer to advance small diameter sampling tools into the subsurface to collect soil cores. CONECO subcontracted the *GeoProbe* boring operations to Brooks Laboratories, Inc. (Brooks Lab.) located in Norwalk, CT. All *Geoprobe* borings were performed under the supervision of a CONECO Engineer using the "direct push macro-core" method. Typically each boring was advanced to a depth of 10-feet or until refusal.

A total of fifty-nine (59) borings were performed across the Site. The borings are identified as B-1, B-2, B-3, ... B-24, B-24A, ... B-27, B-27A, ... B-57. Figure 1 identifies the location of each CONECO *GeoProbe* borings. *GeoProbe* boring operations commenced on March 8, 1999, at 9:00 am. Boring No.s B-1 and B-2 were completed before operations ceased at the request of the property owner.

GeoProbe boring operations recommenced on March 29 and continued through March 30, completing boring No.s B-3, B-4 ... B-48. A second set of *Geoprobe* borings were performed on April 15, 1999, which included boring No.s B-49 ... B-57. The boring locations were placed where previous subsurface investigations indicated elevated concentrations of contaminants above TAGM 4046 cleanup levels. The general areas of subsurface investigation included the following:

- Areas north and south of the ERM borings GP-11, GP-12 and GP-13 where elevated concentrations of PAHs and PCBs were detected;
- area west of the office complex, adjacent to the former incinerator and previously performed ERM boring GP-19 where elevated concentrations of PAHs were detected, and
- areas to the north of the office complex around the previously performed ERM boring GP-20 where elevated concentrations of PAHs were detected.

Addition *GeoProbe* borings were located in areas across the Site that were determined to not be sufficiently characterized during previous investigations performed by others. The approximate locations for these borings include the most eastern, northern and south-central portions of the Site.

Continuous two-foot soil samples were collected at each boring location and cataloged into the Field Logs. The Field Logs provide a description of the undisturbed subsurface soils as they are retrieved by the *GeoProbe* macro-core assembly. This method of sampling employs a disposable clear plastic liner to retrieve each discrete continuous soil sample. The clear plastic liners prevent cross contamination between the individual soil sample intervals and allows for a visually inspected of each 2-foot continuous soil sample. The macro-core sampler assembly was decontaminated between the retrieval of each soil sample retrieval using a detergent wash followed by distilled water rinsing.

A photograph of the macro-core method of sample retrieval is presented in Appendix A, Property Photographs. Field Boring Logs prepared by CONECO provide a description of soil characteristics and observations of the presence or absence of contamination. Specifically, visual, textural and olfactory observations, and volatile organic compound (VOC) screening results are indicated in these field logs. Field logs are presented in Appendix B, CONECO Field Logs.

Each soil sample was field screened for volatile organic compounds (VOCs) using the "jar head-space" method using a HNu Model HW-101 photoionization detector (PID) with a 10.2 eV lamp probe. PID readings are presented in the field logs. No VOCs were detected in any of the soil samples field screened during sample retrieval.

A total of ninety-two (92) individual soil samples were collected during the first rounds of *GeoProbe* sampling performed on March 8, 29 and 30, 1999. An additional eighteen (18) soil samples were collected on April 15, 1999. Each soil sample was placed in the appropriate analytical laboratory supplied soil jars for immunoassay testing and subsequent NY State Certified analytical laboratory testing.

3.0 Immunoassay Screening

The environmental immunoassay test kits used in this investigation are designed to be sensitive to specific compound groups such as PAH and PCB cogeners. The kits utilize biological "immunoglobulin" proteins, called antibodies, capable of reacting with specific target compounds, called antigens (i.e.. PAHs and PCBs).

Soil samples to be submitted for PAH and PCB, NY State Certified Laboratory analysis were selected based on performance of immunoassay test screening. Specifically CONECO used Strategic Diagnostics, Inc., (SDI) "rapid assay" test kits for detection of total carcinogenic PAHs (CPAHs) and PCBs. Field immunoassay testing provides a cost-effective approach to screen Site soils for suspect contaminants.

A total of ninety-one (91) immunoassay tests were performed on soil boring samples collected on March 29 and 39, 1999 for both PCBs and Carcinogenic PAHs. (CPAHs). The immunoassay tests were performed at CONECO's Glastonbury, Connecticut Office on Friday and Saturday April 2 and 3, 1999, by a CONECO Engineer trained and certified by SDI for Advanced Quantitative Rapid Assay PCB and CPAH analysis.

The PCB and CPAH immunoassay kit concentration detection ranges were established to be 0.5 mg/kg (ppm) to 10.0 ppm and 0.1 ppm to 25 ppm respectively. Immunoassay soil sample test results are presented in Appendix C, Immunoassay Results. For both the CPAH and PCB test runs, control solutions of known concentrations were run. In all instances the correlation factor for accuracy was in acceptable percentage ranging from 98.36 to 99.99 percent.

Of the ninety-one immunoassay tests performed, CPAHs were detected in forty-one soil samples and PCBs were detected in only five soil samples. The concentration of total CPAH detected in the soil samples tested by the immunoassay method ranged from 0.75 ppm to 19.9 ppm. The concentration of PCBs detected by the immunoassay kits ranged from 0.52 ppm to 1.76 ppm.

The results of the immunoassay kits analysis were used as the primary criteria for selecting soil samples for subsequent laboratory analytical testing. Initially ten soil samples from Geoprobe boring operations performed on May 29 and 30, 1999 were selected with the highest immunoassay detected concentration for CPAHs and PCBs and submitted for laboratory analysis. Only two of these soil samples were detected with both high CPAH and PCB concentrations, B-19 (2'-4') and B-41 (4'-6').

The immunoassay tested soil samples that were analyzed by the analytical laboratory for PCBs were all below quantitative limit (BQL). This correlates well with the very low concentrations of PCBs detected by the immunoassay tests. Analytical laboratory results for the immunoassay tested soil samples analyzed for CPAHs detected CPAHs. However not direct linear correlation could be made in the concentrations detected between the immunoassay tests and the laboratory analysis other than the fact that the CPAHs were detected above quantitative limits.

4.0 Subsurface Sampling and Analysis

4.1 Soil Sample Analytical Results:

Carcinogenic Polycyclic Aromatic Hydrocarbons (CPAHs):

A total of thirty soil samples were submitted for CPAH laboratory analysis from twenty of the fifty-seven *GeoProbe* borings performed across the Site. These soil samples were selected for laboratory analysis based on the immunoassay test results, previous analytical data performed by others, and field observations made during sample retrieval.

Table 1, presents the results of the CPAH analytical testing and provides a total CPAH concentration at the bottom of each column. The total CPAH concentration levels are compared to the TAGM 4046 soil cleanup objective of less than or equal to 1.0 mg/kg (ppm). Of the thirty samples tested, nine total CPAH concentrations are above the 1.0 ppm cleanup objective used by the NYDEC to determine the requirements for remediation. Concentrations of total CPAHs above the 1.0 ppm objective ranged from 2.39 ppm in boring B-53 (4'-8') to 93.89 ppm in B-19 (2'-4').

Boring locations where concentrations of total CPAHs exceeded the 1.0 ppm objective include the following sample identifications: B-3 (2'-4') 6.47 ppm, B-19 (2'-4') 3.89 ppm, B-21 (0'-3') 15.9 ppm, B-41 (4'-6') 36.39 ppm, B-49 (0'-4') 11.48 ppm, B-51 (0'-4') 18.9 ppm, B-51 (4'-6.5') 21.02 ppm, B-54 (0'-4') 11.47 ppm, and (4'-8') 2.39 ppm).

Samples collected from B-19, B-21, B-49 and B-51 are located in the direct areas were elevated levels of PAHs were identified by previous sampling performed by ERM. The specific locations of the ERM borings are identified as GP-11, GP-12 and GP-13. These borings are located along the southern edge of the Office Complex parking lot. Samples collected from B-54 and B-41 are located in the direct area of ERM boring GP-20 were elevated concentrations of CPAHs were previously detected.

Polychlorinated Biphenyls (PCBs):

A total of eighteen soil samples were submitted for PCB laboratory analysis from fifty-seven *GeoProbe* borings performed across the Site. These soil samples were selected for laboratory analysis based on the immunoassay test results, previous analytical data performed by others, and field observations made during sample retrieval.

Table 2, presents the results of the PCB analytical testing along with the TAGM 4046 soil cleanup objectives of 1.0 mg/kg (ppm) for surface soils and 10 ppm for subsurface soils. The cleanup objectives were not exceeded in any of the soil samples tested.

Target Analyte List (TAL) Inorganics:

A total of twenty-eight soil samples from nineteen of the fifty-seven *GeoProbe* borings performed across the Site were submitted for Total Analyte List (TAL) metals analysis. These soil samples were selected for laboratory analysis based on historical uses of the Site and field observations made during soil sample retrieval.

Table 3, presents the results of the TAL analytical testing results. Table 3 also provides the TAGM cleanup objectives for metals and the Eastern United States Site Background (SB) levels including NY State background levels for metals were available. With the exception of antimony, selenium, and thallium all other metals on the TAL list were detected at some concentration. Typically the metals of concern to the NYDEC are the RCRA 8 metals which include the following: lead, cadmium, chromium, arsenic, selenium, barium, mercury, and silver.

Lead concentrations detected in on-Site soils ranged from a low of 11 ppm to a high of 1,400 ppm in sample B-49 (4'-7'). Average background levels for lead in metropolitan areas or areas near highways can range from 200-500 ppm. Typically the NYDEC compares site concentrations of lead in soil to 1,000 ppm for cleanup objectives. Of the twenty-six soil samples analyzed for total lead only six concentrations exceeded 500 ppm and only one concentration in sample B-49 (4'-7') exceeded 1,000 ppm

Cadmium concentrations detected in on-Site soils ranged from a low of 9.8 ppm to a high of 39 ppm in sample B-49 (4'-7'). Average background levels for cadmium in the Eastern USA Site Background (SB) range from 0.1 to 1 ppm. However the NYDEC typically compares site concentrations of lead in soil to 10 ppm for cleanup objectives. Of the twenty-six soil samples analyzed for total cadmium nine concentrations exceeded 10 ppm and only two concentration in sample B-49 (4'-7'), 39 ppm and B-54 (8'-11'), 35 ppm exceeded 10 ppm by more than two fold.

Chromium concentrations detected in on-Site soils ranged from a low of 16 ppm to a high of 130 ppm in sample B-49 (4'-7'). Average background levels for chromium in the Eastern USA Site Background (SB), specifically New York State range from 1.5 to 40 ppm. However the NYDEC typically compares site concentrations of lead in soil to 50 ppm for cleanup objectives. Of the twenty-six soil samples analyzed for total cadmium only ten concentrations exceeded 50 ppm and only one concentration in sample B-49 (4'-7'), 130 ppm exceeded 50 ppm by more than two fold.

Arsenic concentrations were detected in five on-Site soils ranging from a low of 7.8 ppm to a high of 17 ppm in sample B-54 (8'-11'). Twenty-one of the twenty-six samples analyzed were below quantitative limit (BQL). Average background levels for arsenic in the Eastern USA Site Background (SB) specifically New York State range from 3 to 12 ppm. The TAGM cleanup objective for arsenic 7.5 ppm or site background (SB). Of the twenty-six soil samples analyzed for total arsenic only one concentrations, B-54 (8'-11) at 17 ppm exceeded New York State background of 12 ppm.

Selenium was below quantitative limit in all of the soil samples analyzed

Barium concentrations were detected in all of the on-Site soils sampled soils ranging from a low of 66 ppm to a high of 300. Average background levels for barium in the Eastern USA Site Background (SB) range from 15 to 600. The TAGM cleanup objective for barium is 300 ppm or site background (SB).

Mercury concentrations were detected three on-Site soils ranging from a low of 0.78 ppm to a high of 1.7 ppm in sample B-5B-28 (4'-6'). Twenty-five of the twenty-six samples analyzed were below quantitative limit (BQL). Average background levels for mercury in the Eastern USA Site Background (SB) range from 0.001 to 0.2 ppm. The TAGM cleanup objective for mercury is 0.1 ppm or site background (SB).

Silver concentrations were detected in six on-Site soils ranging from a low of 0.63 ppm to a high of 5.6 ppm in sample B-54 (8'-11'). Twenty of the twenty-six samples analyzed were below quantitative limit (BQL). Average background levels for silver in the Eastern USA Site Background are not available. The TAGM cleanup objective for silver is site background (SB).

CONECO performed sixteen (16) "hand-auger" borings across the approximately 12-acre "undisturbed parkland buffer" (Parkland) area. Figure 2 presents the approximate location of each hand auger. Each auger was advanced to a depth of 12 to 18-inches. CONECO collected composite soil samples from each location and submitted the samples to an analytical laboratory for analysis of RCRA 8 Total Metals. The sample results can serve as background concentrations for metals. However these soil samples were collected from only the top 12 to 18-inches of soil and may not represent Site soil metals background concentrations for soil located at deeper elevations. It is expected that background concentrations for metals in soils from deeper soil horizons will typically be higher than those found in the surficial soils located in the first 12 to 18-inches of ground. Analytical results for the RCRA 8 total metals are presented in Table 4.

Volatile Organic Compounds (VOCs):

Each soil sample collected from the *GeoProbe* borings was field screened for volatile organic compounds (VOCs). The "jar head-space" method was employed using a HNu Model HW-101 photoionization detector (PID) with a 10.2 eV lamp . The HNu-PID was calibrated before each day of borings using 100 ppm isobutylene calibration gas. PID readings are recorded in the field logs. No VOCs were detected in any of the soil samples field screened during sample retrieval. Subsequently no soil samples were submitted for laboratory analysis.

4.2 Groundwater Sample Collection and Analysis:

The 500 Mamaroneck Office Complex utilizes an on-Site groundwater supply well identified as W-1 to supply an on-Site aesthetic waterfall. It is reported that this groundwater supply well is approximately 350-feet deep. The Site Office Complex is serviced by City water. On May 29, CONECO sampled the supply well and submitted the sample to a NY State certified analytical laboratory for the following analyses; PAHs by EPA Method 8270B, PCBs by EPA Method 8082, and volatile organic compounds (VOCs) by EPA Method 8260. Results of the groundwater analysis indicated that for all the parameters tested the results were all below quantitation limit (BQL).

On April 15, 1999 the groundwater supply well was re-tested in response to a NYDEC Comments Letter regarding previous groundwater sampling and analytical methods used by the consultant Dames and Moore. In response to the NYDEC comments letter, CONECO re-sampled and analyzed the on-Site groundwater supply well for full Target Compound List (TCL) parameters including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), BTEX (benzene, toluene, ethylbenzene, and xylenes), acid extractable compounds, pesticides/PCBs and Target Analyte List (TAL) inorganics.

Results of the April 15 groundwater sample analysis for the TCL and TAL parameters indicated that all parameters were below quantitation limit (BQL) with the exception of six naturally occuring metals. The six metals detected in the groundwater supply well are sodium, manganese, potassium, iron, calcium, and barium. The concentrations that these metals were detected are typical of naturally occurring metals in the subsurface environment.

4.3 Surface Water Sample Collection and Analysis:

The Site office complex property contain two manmade ponds referred to as the "upper pond", located east of the office complex, and the "lower pond", located south of the office complex and adjacent to Mamaroneck Avenue. On May 29, CONECO collected surface water and sediment samples from the upper and lower ponds. The pond surface water samples were analyzed for PAHs by EPA Method 8270B, PCBs by EPA Method 8082, and VOCs by EPA Method 8260.

The surface water analytical results from both ponds indicated that for all the parameters tested the results were all below quantitation limit (BQL).

4.4 Pond Sediment:

CONECO collected composite sediment samples from each of the on-Site ponds. The sediment samples were collected using a stainless steel hand auger. The auger was decontaminated before and after each sediment sample was collected. The sediment samples was submitted to the laboratory for the following analysis; RCRA Total Metals, PCBs by EPA Method 8082, and PAHs by EPA Method 8270B.

Analytical results for the pond sediments indicated that PCBs were below quantitative limit (BQL) and PAHs were not detected. Of the eight RCRA Metals tested for, barium, cadmium, chromium and lead were detected at levels consistent with those detected in the sixteen background soil samples collected in the "undisturbed parkland buffer" (Parkland) area located on the eastern portion of the Site. Results of metals analysis for the soils in the Parkland area are discussed below. The individual metals detected in the sediment and their respective concentrations did not significantly deviate from the metals respective concentration levels detected in the Parkland soil samples. The Parkland soil samples represent the background concentrations for Site soils in the 0 to 18-inch soil horizon. Table 4 presents the RCRA 8 total metals concentrations detected in the pond sediments.

4.5 Parkland Buffer Area:

CONECO performed the Site reconnaissance and visual inspection of the eastern portion of the Site property referred to as the undisturbed parkland buffer (Parkland). A Site Plan dated February 28, 1983 (updated April 16, 1985), was used to identify the property lines and the abutting parcels of land. Approximately 12-acres of land was traversed. The reconnaissance began by following the southern property line for approximately 350-feet. Three abutting residences were identified to the south. The most western property line abuts a fourth very large residence. The western property line was followed heading north to an area identified as a utility easement on the 1983 Site Plan.

Adjacent to this utility easement is a private road, which leads to a fifth residence. The western property line was followed behind this residence until additional residential properties were encountered at the northeast corner of the Site. Five residential properties were identified along the north property line of the Site at which point a stone wall was encountered. A large pond is located approximately 70-feet west of the stone wall. The pond was static and appeared to be approximately 3 to 4-feet deep at the center. It appears that the pond may drain to the south. The water in the pond appeared to be clear and filled with downed tree limbs and leaves. No visible oily sheen or discoloration was observed. The pond is located approximately 100-feet behind the northern portion of the office complex paved parking area. The area in the central portion of the north end of the Parkland area was traversed where two very small ponds are located. The depth of water in each of these two ponds was less than one-foot at the time of the visit. Next the eastern property line was followed until the Site was exited at the southwest.

The entire Parkland is very heavily covered with established vegetation and woodlands. At the time of the Site reconnaissance no on-Site evidence of the use, disposal and/or storage of oil or hazardous materials was observed on the property including the use of aboveground and underground storage tanks. No evidence of distressed vegetation or stained soil was observed across the entire Parkland area.

CONECO performed sixteen (16) "hand-auger" borings across the approximately 12-acre area. Figure 2 presents the approximate location of each hand auger. Each auger was advanced to a depth of 12 to 18-inches. CONECO collected composite soil samples from each location. All of these soil samples were field screened for volatile organic compounds (VOCs) by "jar headspace" technique using an HNu photoionization detector (PID) with a 10.2 eV probe. The PID did not detect any VOC readings above background, 0.0 units, as calibrated with isobutylene calibration gas. The sixteen soil samples were submitted to the analytical laboratory for analysis of PAHs by EPA Method 8270B, PCBs by EPA Method 8082, and RCRA Total Metals.

Results of the analysis indicated that PAHs were not detected (ND) and PCBs were below quantitative limit (BQL) for all sixteen soil samples. Results of the RCRA Metals analysis are presented in Table 4. Metals detected include barium, cadmium, chromium and lead.

Also presented in Table 4 are the Eastern USA Site Background (SB) levels and the NYDEC TAGM suggested clean-up levels for these metals. Regarding lead levels, average site background levels in metropolitan areas or areas near highways, such as the Site, are much higher and typically range from 200-500 ppm. NYDEC typically compares analytical results for total metals for lead, cadmium and chromium to 1,000 ppm, 10 ppm, and 50 ppm respectively.

In general, the levels of barium, cadmium, chromium and lead detected in the soils of the Parkland area are consistent with the levels presented in TAGM 4046 regarding Eastern USA site background and NYDEC cleanup levels.

5.0 Findings and Conclusions

The subsurface investigation included the performance of fifty-nine (59) *GeoProbe* borings located across the entire office complex portion of the Site and sixteen (16) hand-auger borings on the undisturbed parkland buffer (Parkland) area located east of the office complex. In addition, groundwater, surface waters, and pond sediments were sampled and analyzed in and effort to characterize the Site soil and groundwater quality. The following observations can be made:

- Each *GeoProbe* boring was advanced on average to a depth of 10-feet or until refusal. Soil samples were collected at 2-foot intervals in each soil borings. Field logs were prepared for each of the borings. The field logs identify a layer of unnatural fill material across the majority of the Site. The identified fill material is mixed with miscellaneous debris. The debris observed typically contains amounts of small metal pieces, coal ash like material, cinders, partially combusted wood and paper/corrugated box, glass pieces, melted glass pieces, and plastics. The depth at which this layer of material was located is dependent on the depth to bedrock in the area of each boring location.

- The referenced debris was encountered in the following borings and respective depth below grade: B-3 (4'-7'), B-4 (4'), B-5 (4'), B-10 (2' and 6'-8'), B-13 (2'-4' and 8'-12'), B-17 (2' and 2'-4'), B-18 (4'), B-19 (2' and 4'-8'), B-20 (2'), B-21 (3'), B-23 (2'), B-25 (4'), B-28 (2' and 4'-6'), B-24A (4' and 11'-12'), B-39 (4'), B-29 (3' and 4'-5'), B-41 (4' and black tar-like material at 5'), B-49 (6"), B-50 (4'-5.5'), B-51 (9.5'), B-52 (4'-7'), B-53 (4'-8'), B-54 (4', 5' and 8'-11') and B-57 (3'). Locations of these borings are provided in Figure 1.

- In almost all instances the debris material contained in the soil samples exhibited no odors or characteristics of petroleum product contamination. PID screening of the debris to detect volatile organic compounds (VOCs) was consistently not detected.

- The soil samples selected for laboratory analysis were based on the immunoassay test results; previous analytical data performed by others; and field observations made during sample retrieval. Soil samples were laboratory analyzed for PAHs, PCBs, and total metals. Analytical results for the Site soil primarily detected PAH contamination. A total of thirty soil samples were submitted for CPAH laboratory analysis. Table 1, presents the results of the CPAH analytical testing. Nine soil samples are above the TAGM 4046 cleanup objective of 1.0 ppm used by the NYDEC to determine the necessity for remediation. Concentrations of total CPAHs above the 1.0 ppm objective ranged from 2.39 ppm in boring B-53 (4'-8') to 93.89 ppm in B-19 (2'-4').

- Soil Boring locations where concentrations of total CPAHs exceeded the 1.0 ppm objective are as follows: B-3 (2'-4') 6.47 ppm, B-19 (2'-4') 3.89 ppm, B-21 (0'-3') 15.9 ppm, B-41 (4'-6') 36.39 ppm, B-49 (0'-4') 11.48 ppm, B-51 (0'-4') 18.9 ppm, B-51 (4'-6.5') 21.02 ppm, B-54 (0'-4') 11.47 ppm, and (4'-8') 2.39 ppm).

- Samples collected from B-19, B-21, B-49 and B-51 are located directly in areas were elevated levels of PAHs were identified by previous sampling and analysis performed by ERM. The specific locations of the ERM borings are identified as GP-11, GP-12 and GP-13. These borings are located along the southern edge of the Office Complex parking lot. Samples collected from B-54 and B-41 are also located directly in the area of ERM boring GP-20 were elevated concentrations of CPAHs were previously detected.

- The TAGM PCB soil cleanup objectives of 1.0 mg/kg (ppm) for surface soils and 10 ppm for subsurface soils were not exceeded in any of the soil samples tested.

- Although some of the individual metals concentrations from the TAL analytical testing exceed the TAGM cleanup objectives and the Eastern United States Site Background (SB) levels or NY State background levels where available. It is not likely that metals contamination will be the driving force behind and potential future soil remediation actions.

- The soil sample results from the Parkland area of the Site do not exhibit and evidence of contamination from the historical uses of the Site. No PAHs or PCBs were detected above the laboratory quantitative limit. No VOCs were detected from field screening of the soils with a PID. In addition, metals concentrations detected are typical of background concentrations for metals naturally occurring in the environment. However these soil samples were collected from the top 12 to 18-inches of soil and may not represent Site metals background concentrations for soil located at a depths from which soil was collected on the office complex area of the Site. It is expected that background concentrations for metals in soils from deeper soil horizons will typically have higher concentrations than those found in the surficial soils located in the first 12 to 18-inches of ground.

- The on-Site groundwater supply well (W-1) was sampled and submitted to a NY State certified analytical laboratory for full Target Compound List (TCL) parameters including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), BTEX (benzene, toluene, ethylbenzene, and xylenes), acid extractable compounds, pesticides/PCBs and Target Analyte List (TAL) inorganics. Results of the groundwater sample analysis for the TCL and TAL parameters indicated that all parameters were below quantitation limit (BQL) with the exception of six metals. The metals detected included sodium, manganese, potassium, iron, calcium, and barium. The detected concentrations of these metals are typical of naturally occurring metals in the subsurface soils.

- Surface water from the upper pond, located east of the office complex, and the lower pond, located south of the office complex was collected and analyzed for PAHs by EPA Method 8270B, PCBs by EPA Method 8082, and VOCs by EPA Method 8260. The surface water analytical results from both ponds indicated that for all the parameters tested the results were below quantitation limit (BQL).

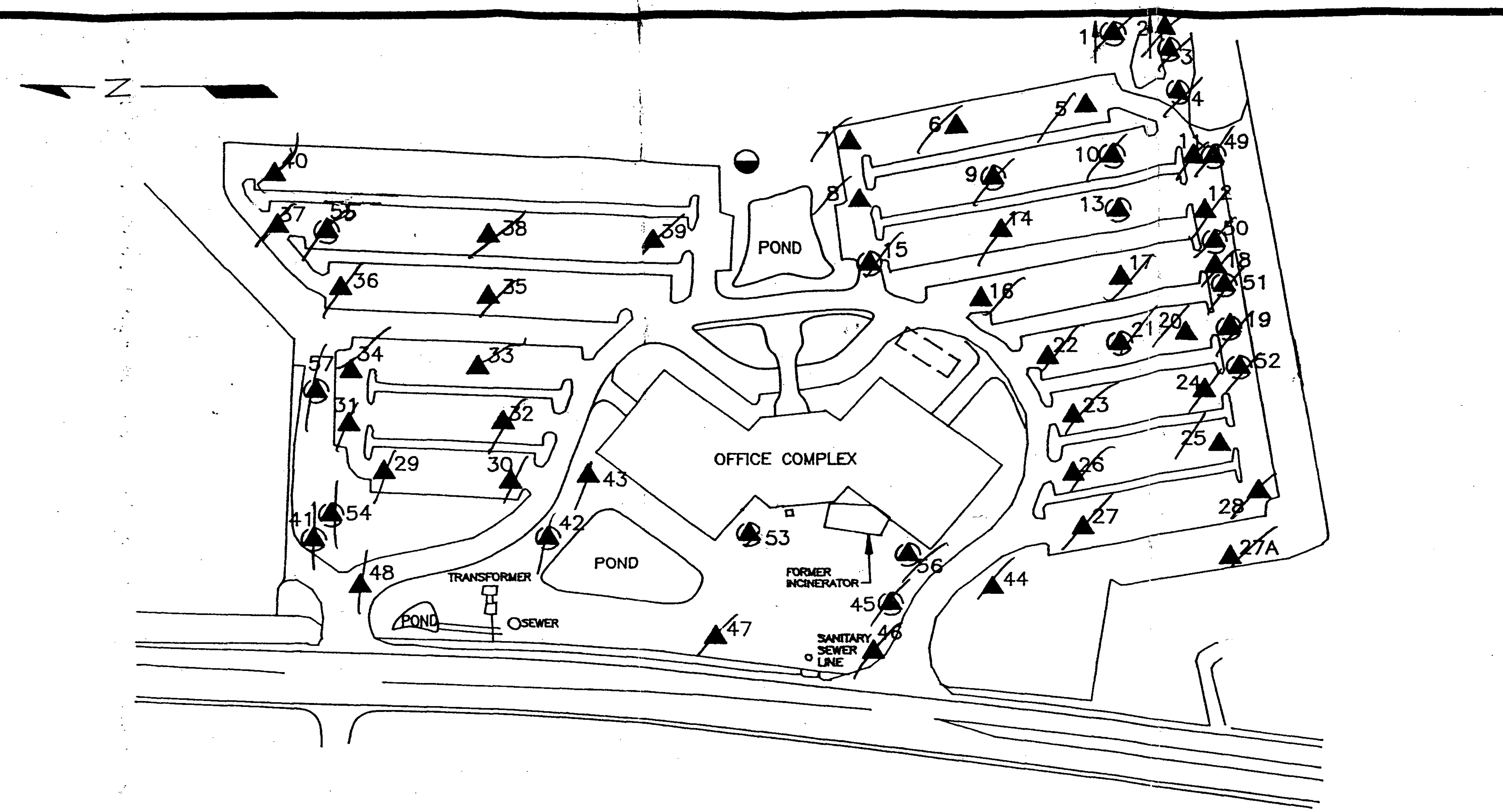
- Composite sediment samples were collected from each of the office complex ponds and submitted to the laboratory for the following analysis; RCRA Total Metals, PCBs by EPA Method 8082, and PAHs by EPA Method 8270B. Analytical results for the pond sediments indicated that PCBs were below quantitative limit (BQL) and PAHs were not detected. Of the eight RCRA Metals tested; barium, cadmium, chromium and lead were detected at levels consistent with those detected in the sixteen background soil samples collected in the Parkland area. The individual metals detected in the sediment and their respective concentrations did not significantly deviate from the individual metal concentration levels detected in the Parkland soil samples.

6.0 Limitations

The findings provided by CONECO in this report are based solely on the references cited, results of analytical testing, and observations made during the field investigation. Observations were made under the conditions stated. The purpose of this study was to establish via a limited scope of work whether there is evidence that a release of oil or hazardous materials has occurred at the Site or that a threat of release exists. This report represents the factual findings relative to such evidence. No attempt was made to investigate Site owner or operator compliance with federal, state, or local laws and regulations in connection with Site usage.

Because certain materials are considered by public health officials as presenting significant hazards in indoor environments, and where simple observations or other evidence has allowed, CONECO has indicated their potential presence on the Site in this report. However, unless specifically stated in the scope of work, CONECO has not performed specific testing or analysis to determine the presence or concentration of asbestos, lead-based paint, urea formaldehyde, or radon.

Should additional information become available concerning this Site or neighboring properties in the future, that information should be made available to CONECO for review so that the findings presented in this report may be modified as necessary.

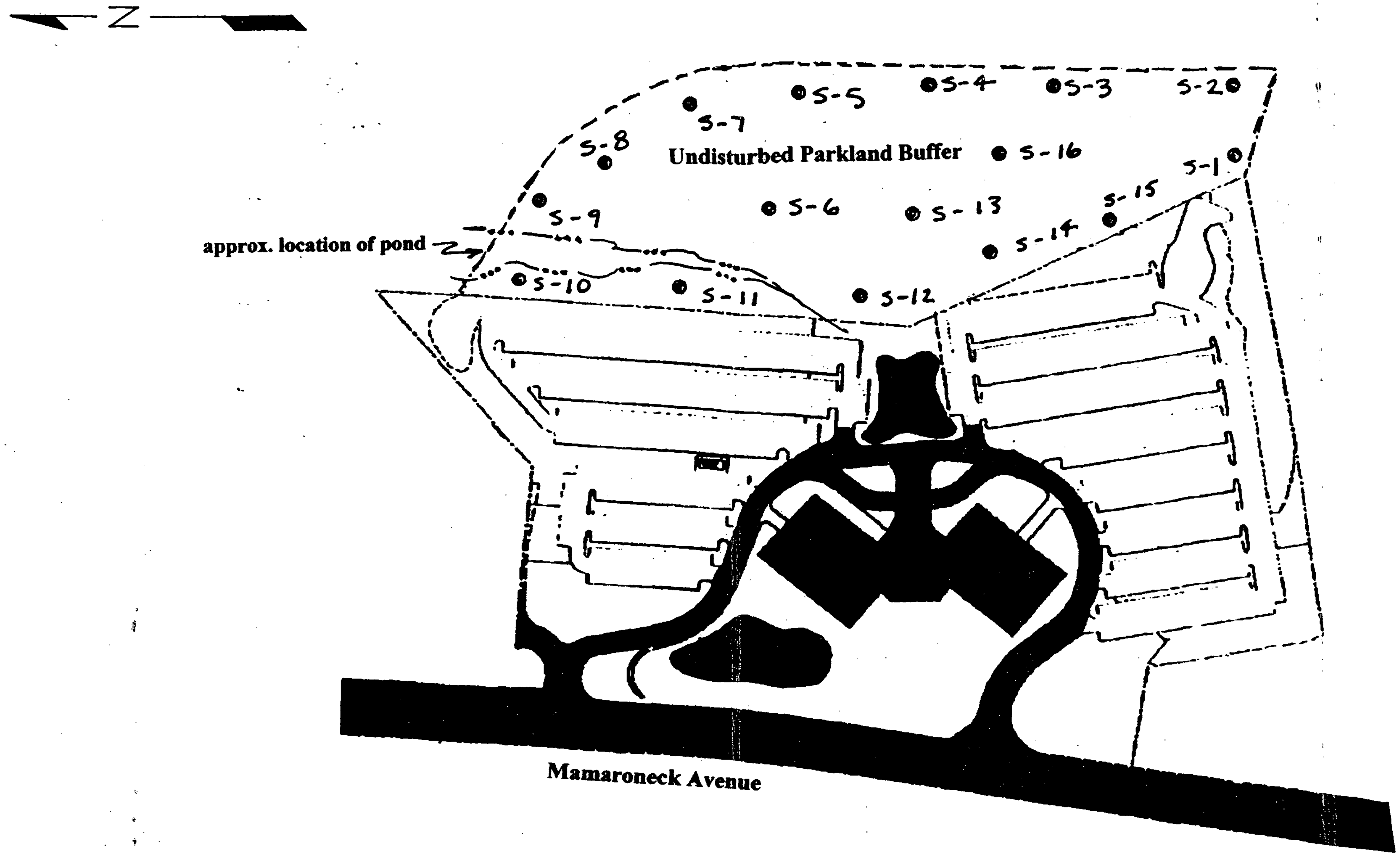


GROUNDWATER SUPPLY WELL

CONECO SAMPLING LOCATIONS – 1999 (FIELD SCREENED & LABORATORY ANALYSES)

CONECO SAMPLING LOCATIONS – 1999 (FIELD SCREENED)

TITLE	CONECO GEOPROBE BORING LOCATIONS
PREPARED FOR	W & M PROPERTIES OF CT, INC.
CONECO Engineers & Scientists	SCALE: NONE; DATE: 5/6/99; FIGURE: 1
DRAWN: T.F.M.	JOB NO.: 3551-CT; FILE NAME: 3551-CT



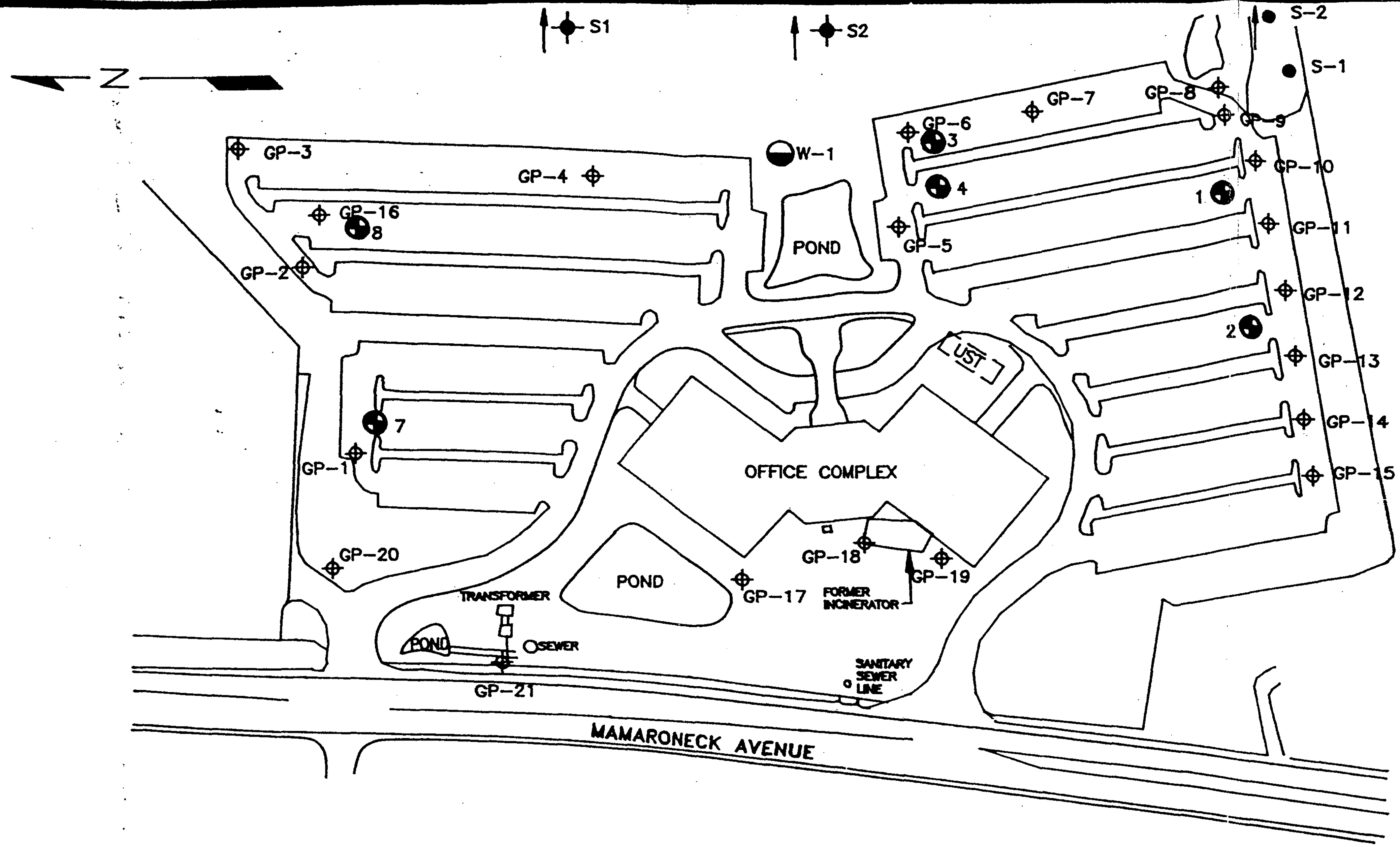
TITLE

CONECO
HAND AUGER BORING
LOCATIONS

PREPARED FOR
W & M PROPERTIES OF CT, INC.

CONECO

DRAWN:	JOB NO.:	FILE NAME:	SCALE	DATE	FIGURE
T.F.M.	3551-CT	3551-CT	NONE	5/6/99	2



ERM BORING LOCATIONS – 1998

DAMES & MORE SAMPLING LOCATIONS – 1998

U.S. HYDROGEOLOGIC, INC. SAMPLING LOCATIONS – 1989

GROUNDWATER SUPPLY WELL

GZA SAMPLING LOCATIONS – 1986

TITLE			
ERM and DAMES & MOORE GEOPROBE BORING LOCATIONS			
PREPARED FOR: W & M PROPERTIES OF CT, INC.			
CONECO Engineers & Scientists		SCALE: NONE	FIGURE: 3
DRAWN: T.F.M.	JOB NO.: 3551-CT	FILE NAME: 3551-CT	DATE: 5/6/99

TABLE 1 Carcinogenic Polynuclear Aromatic Hydrocarbons (CPAHs), Soil Borings

500 MAMARONECK AVENUE, HARRISON, NY (March 29 & 30, 1999)

CPAHs ppm Sample Depth	B-3 2'-4'	B-4 4'-6'	B-9 0'-1'	B-10 6'-8'	B-13 12-16	B-15 0'-1'	B-19 2'-4'	B-21 0'-3'	B-41 4'-6'	B-45 4'-6'	B-41* 5'	B-41 0'-4'	B-1 2'-4'
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	180	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND	ND
Anthrecene	ND	ND	ND	ND	ND	ND	1.5	ND	1.0	ND	130	ND	ND
Benzo(a)anthrecene	0.73	ND	ND	ND	ND	ND	6.3	1.2	1.9	ND	150	ND	ND
Benzo(b)fluoranthene	ND	ND	ND	ND	ND	ND	10	1.3	1.2	ND	91	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	ND	ND	5.1	1.3	1.8	ND	95	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	3.9	ND	0.77	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	ND	ND	10	1.4	2.2	ND	130	ND	ND
Chrysene	0.84	ND	ND	ND	ND	ND	7.8	1.4	2.1	ND	150	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND	ND	ND
Fluoranthene	2.0	ND	ND	ND	ND	ND	18	3.4	9.5	ND	670	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	0.79	ND	0.86	ND	180	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	2.9	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	0.76	ND	74	ND	ND
Phenanthrene	1.0	ND	ND	ND	ND	ND	6	2.0	7.6	ND	640	ND	ND
Pyrene	1.9	ND	ND	ND	ND	ND	19	3.9	6.7	ND	460	0.7	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	300	ND	ND
Total CPAHs ppm =	**6.47**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**93.89**	**15.9**	**36.39**	**0.0**	**2,784**	**0.7**	**0.0**

* = black tar-like material

As per TAGM 4046 "Soil cleanup objectives are limited to the following maximum values".

Total Carcinogenic PAHs less than or equal to 1.0 ppm

Total Semi-VOCs less than or equal to 500 ppm

Individual Semi-VOCs less than or equal to 50 ppm

Total VOCs less than or equal to 10 ppm

TABLE 1 Carcinogenic Polynuclear Aromatic Hydrocarbons (CPAHs) (continued)

500 MAMARONECK AVENUE, HARRISON, NY (March 29 & 30, 1999)

CPAHs ppm Sample Depth	B-49 0'-4'	B-50 0'-4'	B-50 4'-8'	B-51 0'-4'	B-51 4'-6.5'	B-52 0'-4'	B-52 4'-7'	B-53 0'-4'	B-53 4'-8'	B-54 0'-4'	B-54 4'-8'	B-54 8'-11'	B-55 0'-3'	B-56 0'-4'	B-56 4'-8'	B-56 8'-12'	B-57 0'-3'
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthrecene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthrecene	0.88	ND	ND	1.7	1.6	ND	ND	ND	ND	1.0	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	1.1	ND	ND	1.8	1.6	ND	ND	ND	ND	0.85	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	1.0	ND	ND	2.0	1.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	1.7	1.5	ND	ND	ND	ND	0.82	ND	ND	ND	ND	ND	ND	ND
Chrysene	1.2	ND	ND	1.8	1.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	3.0	ND	ND	3.6	4.0	ND	ND	ND	ND	3.0	0.9	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	0.92	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	1.8	ND	ND	2.3	3.4	ND	ND	ND	ND	2.2	0.72	ND	ND	ND	ND	ND	ND
Pyrene	2.5	ND	ND	4.0	4.0	ND	ND	ND	ND	2.4	0.77	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total CPAHs ppm =	**11.48**	**0.0**	**0.0**	**18.9**	**21.02**	**0.0**	**0.0**	**0.0**	**0.0**	**11.47**	**2.39**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

As per TAGM 4046 "Soil cleanup objectives are limited to the following maximum values".

Total Carcinogenic PAHs less than or equal to 1.0 ppm
Total Semi-VOCs less than or equal to 500 ppm
Individual Semi-VOCs less than or equal to 50 ppm
Total VOCs less than or equal to 10 ppm

TABLE 2 Polychlorinated Biphenyls (PCBs) Soil Borings

500 MAMARONECK AVENUE, HARRISON, NY (March 29 & 30, 1999)

PCBs ppm	B-18 0'-4'	B-19 2'-4'	B-24 0'-3'	B-28 4'-6'	B-24A 8'-10'	B-39 0'-4'	B-35 4'-7'	B-41 4'-6'	B-45 4'-6'	B-41* 5'	NYDEC TAGM
Aroclor 1016	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1221	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1232	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1242	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1248	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1254	BQL	BQL	BQL	BQL	BQL	1.2 ppm	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1260	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface

* = black tar-like material

TABLE 2 Polychlorinated Biphenyls (PCBs), (continued)

500 MAMARONECK AVENUE, HARRISON, NY (March 29 & 30, 1999)

PCBs ppm	B-49 0'-4'	B-49 4'-7'	B-50 0'-4'	B-50 4'-5.5'	B-51 0'-4'	B-51 4'-6.5'	B-52 0'-4'	B-52 4'-7'	B-53 0'-4'	NYDEC TAGM
Aroclor 1016	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1221	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1232	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1242	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1248	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1254	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1260	BQL	BQL	BQL	0.9 ppm	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface

TABLE 2 Polychlorinated Biphenyls (PCBs) (continued)

500 MAMARONECK AVENUE, HARRISON, NY

PCBs ppm	B-53 4'-8'	B-54 0'-4'	B-54 4'-8'	B-54 8'-11'	B-55 0'-3'	B-56 0'-4'	B-56 4'-8'	B-56 8'-12'	B-57 0'-3'	NYDEC TAGM
Aroclor 1016	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1221	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1232	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1242	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1248	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1254	BQL	BQL	0.160 ppm	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface
Aroclor 1260	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	1.0 ppm Surface 10 ppm Subsurface

TABLE 3 Target Analyte List (TAL) METALS Soil Borings

500 MAMARONECK AVENUE, HARRISON, NY (March 29 & 30, 1999)

TAL Metals ppm	B-3 2'-4'	B-18 0'-4'	B-19 2'-4'	B-31 0'-2'	B-41 4'-6'	B-28 4'-6'	B-39 0'-4'	B-47 0'-3'	B-48 4'-6'	B-41* 5'	Eastern USA SB	NYDEC TAGM
Silver	0.87	2.6	0.63	BQL	BQL	BQL	BQL	BQL	BQL	0.60	N/A	SB
Aluminum	9,900	9,100	8,800	16,000	16,000	11,000	15,000	13,000	15,000	17,000	33,000	SB
Arsenic	BQL	BQL	BQL	BQL	7.8	BQL	BQL	BQL	BQL	BQL	3–12**	7.5 or SB
Barium	87	290	110	300	260	240	270	190	230	190	15-600	300 or SB
Beryllium	0.51	0.69	0.51	0.73	0.88	0.48	0.72	0.54	0.59	0.68	0-1.75	0.16 (HEAST) or SB
Calcium	13,000	11,000	7100	5,500	11,000	6700	7,000	5,500	5,500	4,700	130-35,000***	SB
Cadmium	4.8	16	6.2	8.2	17	5.4	9.8	6.7	7.4	7.3	0.1-1	1 or SB
Cobalt	7.1	4.3	7.7	13	11	7.0	13	11	12	11	2.5-60**	30 or SB
Chromium	26.0	26	18.0	72	49	27	76	65	65	56	1.5-40**	10 or SB
Copper	22.0	230	110	26	120	27	61	23	26	21	1-50	25 or SB
Iron	15,000	50,000	20,000	28,000	55,000	17,000	31,000	23,000	26,000	24,000	2,000-555,000	2000 or SB
Mercury	BQL	BQL	0.78	BQL	BQL	1.7	BQL	BQL	BQL	BQL	0.001-0.2	0.1
Potassium	2900	670	3300	12,000	5,000	3,000	12,000	10,000	10,000	7,600	8,500-43,000	SB
Magnesium	12,000	1,400	3600	15,000	7,500	6600	15,000	12,000	13,000	11,000	100-5,000	SB
Manganese	250	340	260	410	410	310	400	330	400	300	50-5,000	SB
Sodium	3700	2,200	1400	1,400	270	270	510	130	210	180	6,000-8,000	SB
Nickel	13.0	18	15.0	28	30	15	31	26	24	23	0.5-25	13 or SB
Lead	27.0	910	71	21	540	470	62	17	9	21	****	SB****
Antimony	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Selenium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.1-3.9	2 or SB
Thallium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Vanadium	25.0	11	23.0	51	38	30	52	43	48	45	1-300	150 or SB
Zinc	56.0	670	340	79	370	200	150	62	49	65	9-50	20 or SB

SB = Site Background ** = New York State Background

**** = **Average background levels in metropolitan areas or near highways are much higher and typically range from 200-500 ppm. (TAGM 4046). NYDEC is typically comparing analytical results for Lead in soil to 1,000 ppm, Cadmium to 10 ppm and Chromium to 50 ppm.**

* = black tar-like material N|A = Not Available

TABLE 3 Target Analyte List (TAL) METALS (continued)

500 MAMARONECK AVENUE, HARRISON, NY (April 15, 1999)

TAL Metals ppm	B-49 0’-4’	B-49 4’-7’	B-50 0’-4’	B-51 0’-4’	B-51 4’-6.5	B-52 0’-4’	B-52 4’-7’	B-53 0’-4	B-53 4’-8’	Eastern USA SB	NYDEC TAGM
Silver	BQL	1.3	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Aluminum	12,000	7,200	13,000	7,700	7,300	12,000	15,000	11,000	14,000	33,000	SB
Arsenic	12	12	BQL	BQL	BQL	BQL	BQL	BQL	BQL	3–12**	7.5 or SB
Barium	250	670	170	75	170	180	79	120	140	15-600	300 or SB
Beryllium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.55	BQL	0-1.75	0.16 (HEAST) or SB
Calcium	7,300	17,000	6,400	20,000	18,000	13,000	1,300	3,300	3,400	130-35,000***	SB
Cadmium	12	39	15	6.2	8	15	5.4	6.6	7.2	0.1-1	1 or SB
Cobalt	11	10	12	6.7	5.71	12	7.8	8.7	11	2.5-60**	30 or SB
Chromium	42	130	52	16	20	39	29	30	41	1.5-40**	10 or SB
Copper	280	380	160	24	54	120	14	45	24	1-50	25 or SB
Iron	33,000	93,000	43,000	18,000	23,000	45,000	17,000	19,000	22,000	2,000-555,000	2000 or SB
Mercury	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.001-0.2	0.1
Potassium	5,000	750	5,500	2,100	1,600	3,700	1,200	2,900	5,000	8,500-43,000	SB
Magnesium	7,400	2,100	9,900	4,600	3,000	7,000	5,500	6,000	8,000	100-5,000	SB
Manganese	420	700	480	330	320	460	140	340	360	50-5,000	SB
Sodium	980	810	2,000	710	830	560	360	55	82	6,000-8,000	SB
Nickel	23	72	27	12	14	27	12	17	20	0.5-25	13 or SB
Lead	790	1,400	170	120	1,000	200	11	43	27	****	SB****
Antimony	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Selenium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.1-3.9	2 or SB
Thallium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Vanadium	46	24	40	21	17	40	30	30	39	1-300	150 or SB
Zinc	380	2,000	270	96	460	290	43	80	62	9-50	20 or SB

SB = Site Background ** = New York State Background

**** = **Average background levels in metropolitan areas or near highways are much higher and typically range from 200-500 ppm. (TAGM 4046). NYDEC is typically comparing analytical results for Lead in soil to 1,000 ppm, Cadmium to 10 ppm and Chromium to 50 ppm.**

N|A = Not Available

TABLE 3 Target Analyte List (TAL) METALS (continued)

500 MAMARONECK AVENUE, HARRISON, NY (April 15, 1999)

TAL Metals ppm	B-54 0'-4'	B-54 4'-8'	B-54 8'-11'	B-55 0'-3'	B-56 0'-4'	B-56 4'-8'	B-56 8'-12'	B-57 0'-3'	S-5 SB	Eastern USA SB	NYDEC TAGM
Silver	BQL	0.76	5.6	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Aluminum	14,000	8,000	5,500	6,800	16,000	11,000	15,000	13,000	16,000	33,000	SB
Arsenic	BQL	9.5	17	BQL	BQL	BQL	BQL	BQL	BQL	3–12**	7.5 or SB
Barium	190	250	260	66	150	160	230	220	120	15-600	300 or SB
Beryllium	BQL	0.92	BQL	0.42	0.82	0.78	0.59	0.60	0.87	0-1.75	0.16 (HEAST) or SB
Calcium	24,000	9,900	19,000	13,000	2,300	3,500	4,800	12,000	390	130-35,000***	SB
Cadmium	7.6	24	35	5.4	8.2	13	9.4	10	6.9	0.1-1	1 or SB****
Cobalt	11	10	15	5.7	11	11	14	11	6.5	2.5-60**	30 or SB
Chromium	61	34	43	13	53	38	65	56	33	1.5-40**	10 or SB
Copper	25	200	1,600	18	23	62	28	84	9.2	1-50	25 or SB
Iron	23,000	56,000	94,000	16,000	24,000	39,000	28,000	29,000	18,000	2,000-555,000	2000 or SB
Mercury	BQL	0.78	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.001-0.2	0.1
Potassium	8,400	1,700	700	1,300	2,600	3,800	11,000	8,900	430	8,500-43,000	SB
Magnesium	15,000	3,800	1,000	6,400	8,200	6,600	13,000	15,000	3,800	100-5,000	SB
Manganese	340	550	900	290	540	560	420	400	280	50-5,000	SB
Sodium	170	230	990	130	44	59	97	260	0.00	6,000-8,000	SB
Nickel	26	49	56	10	22	23	24	24	11	0.5-25	13 or SB
Lead	31	450	780	45	39	150	23	72	14	****	SB****
Antimony	BQL	BQL	BQL	BQ	BQL	BQL	BQL	BQL	BQL	N/A	SB
Selenium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.1-3.9	2 or SB
Thallium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Vanadium	43	70	11	18	41	34	53	45	31	1-300	150 or SB
Zinc	70	1,700	1,200	59	80	180	63	160	36	9-50	20 or SB

SB = Site Background ** = New York State Background

**** = **Average background levels in metropolitan areas or near highways are much higher and typically range from 200-500 ppm. (TAGM 4046). NYDEC is typically comparing analytical results for Lead in soil to 1,000 ppm, Cadmium to 10.0 ppm and Chromium to 50 ppm.**

N|A = Not Available

TABLE 4 RCRA: Total Metals, CPAHs, PCBs

500 MAMARONECK AVENUE, HARRISON, NY (March 29 & 30, 1999)
Soil Samples from Undisturbed Parkland Buffer, East of Office Complex. (Hand Auger).

TAL Metals Ppm	S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	Upper Pond Sediment	Eastern USA SB	DEC TAGM
Silver	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Arsenic	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	3–12**	7.5 or SB
Barium	97	76	64	100	120	120	130	95	180	15-600	300 or SB
Cadmium	7.3	8.5	8.2	8.4	6.9	9	8.4	10	11	0.1-1	1 or SB****
Chromium	30	27	34	36	33	57	42	72	52	1.5-40**	10 or SB****
Mercury	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.001-0.2	0.1
Lead	20	13	16	9	14	8.4	9.4	27	78	****	SB****
Selenium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.1-3.9	2 or SB
CPAHs	ND	ND	ND	ND	ND	ND	ND	ND	ND		
PCBs	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL		

TAL Metals ppm	S-9	S-10	S-11	S-12	S-13	S-14	S-15	S-16	Lower Pond Sediment	Eastern USA SB	DEC TAGM
Silver	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	N/A	SB
Arsenic	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	3–12**	7.5 or SB
Barium	130	81	90	91	120	230	150	59	160	15-600	300 or SB
Cadmium	12	8	9.5	8.7	8.4	10	8.3	6.4	11	0.1-1	1 or SB****
Chromium	64	22	41	28	41	49	32	25	69	1.5-40**	10 or SB****
Mercury	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.001-0.2	0.1
Lead	9.5	7.5	15	13	16	21	10	6	32	****	SB****
Selenium	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	0.1-3.9	2 or SB
CPAHs	ND	ND	ND	ND	NDN	ND	ND	ND	ND		
PCBs	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL	BQL		

SB = Site Background.   ** = New York State Background.

**** = **Average background levels in metropolitan areas or near highways are much higher and typically range from 200-500 ppm. (TAGM 4046). NYDEC is typically comparing analytical results for Lead in soil to 1,000 ppm, Cadmium to 10 ppm and Chromium to 50 ppm.**

TAL.=. Target Analyte List, (inorganic).

BQL = below quantitative limit.   ND = None Detected.   N\A = Not Available.

APPENDIX A

PROPERTY PHOTOGRAPHS

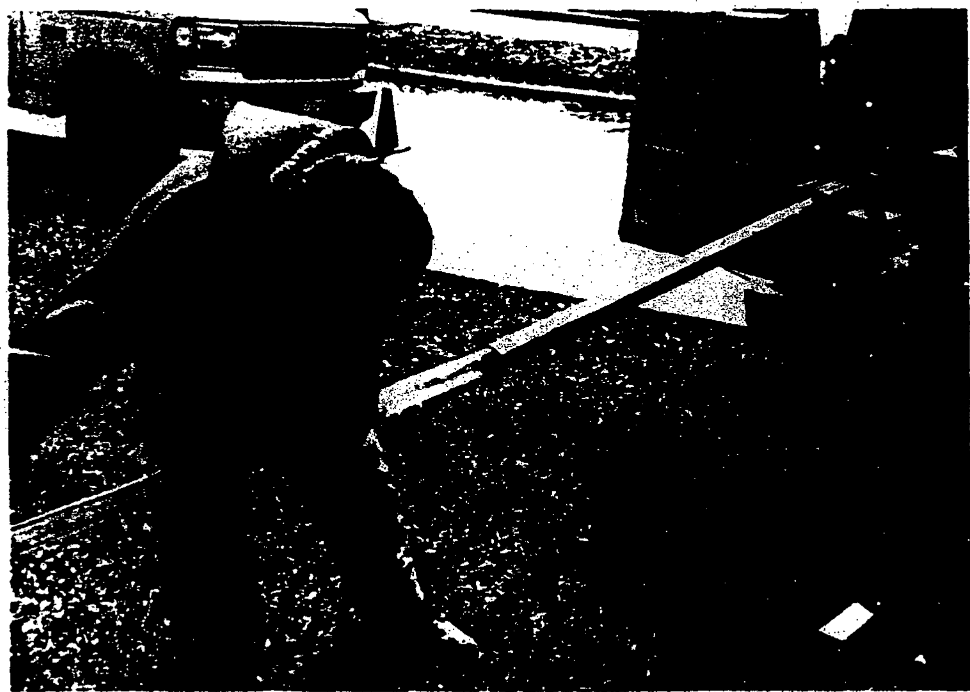


Photo #1 – Boring Location No. 43 northeast corner of Site Building (Installation of clean plastic sampling sleeve into Geoprobe MacroCore).

Photo #2 – Geoprobe sampling vehicle – Brooks Laboratories, Inc.

Photo # 3 – Geoprobe MacroCore soil sampling sleeve retrieval.

Photo #4 – Typical soil sample retrieval, 0 to 4'.

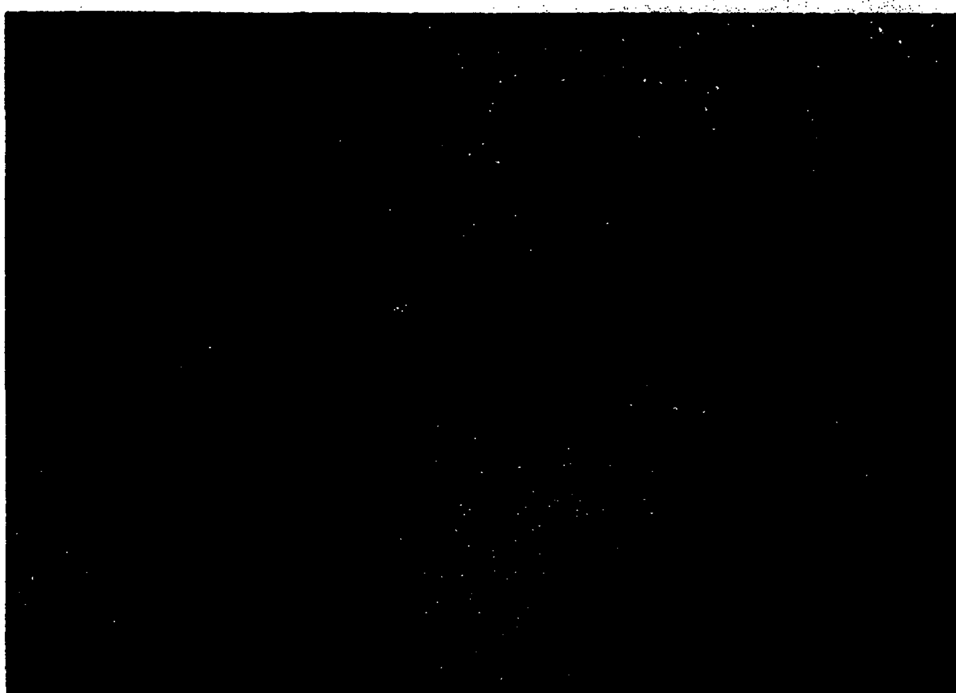


Photo #5 – Typical Geoprobe MacroCore soil sample.

Photo #6 – Field screening soil boring for volatile organic compounds with HNu photoionization detector (PID).

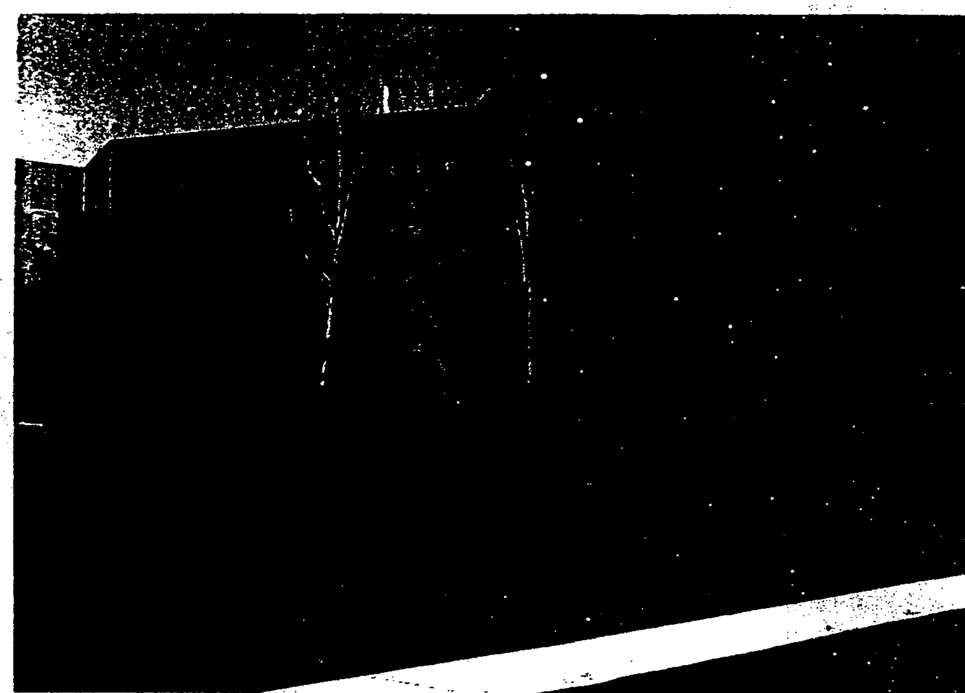


**Photo # 7 – 500 Mamaroneck Avenue, Harrison, NY Office Complex
View facing northeast (boring locations 45, 46, 53 and 56).**

Photo #8 – Boring location No.s 46 and 47.

Photo #9 – View looking Southeast, Boring location No.s 5 and 6.

Photo #10 – View looking northeast, boring location No. 40.

Photo # 11 – View looking south, Boring location No.s 38 and 39.

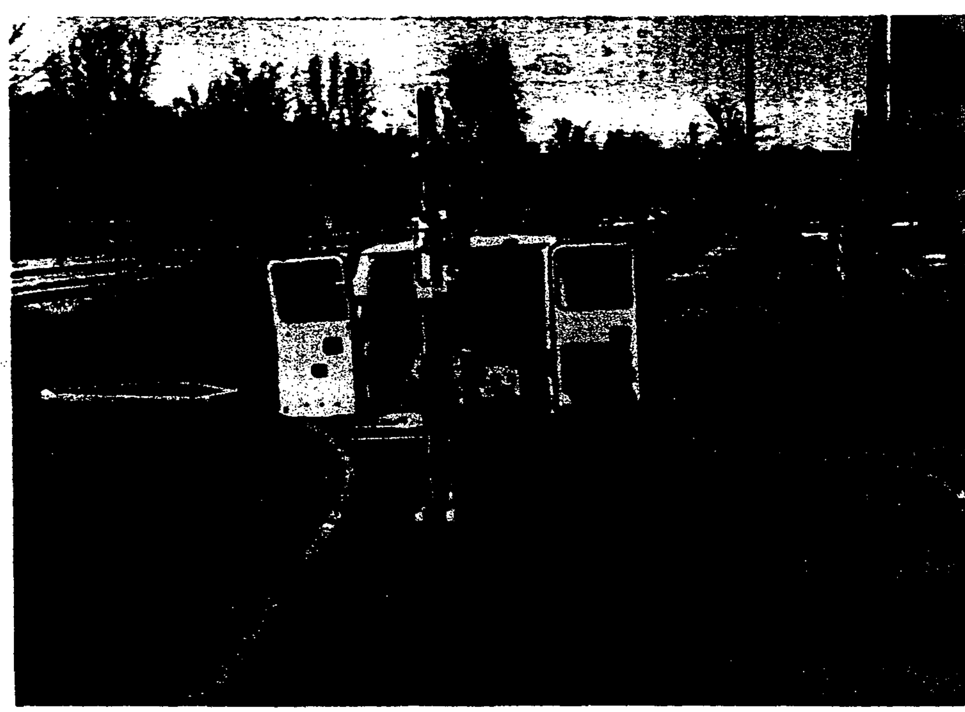


Photo #12 – Geoprobe Boring No. 48, View looking Northwest.

CONECO FIELD LOG

Project Name: W & M Properties, Inc. **Date:** March 29, 1999

Project No.: 3551-CT **Location:** 500 Mamaroneck Ave. Harrison, NY

Coneco Engineer: M. Feldman **Subcontractor:** Brooks Labs, Inc.

Description of Work: Geoprobe soil boring.

Coneco & Brooks on-site @ 8:30 am

calibrate HNu PID with 100ppm isobutylene

background 0.0 units

B-3:

0-2': fill material, some coal ash like material

60% sand & gravel moist, no odor PID: 0.0

2-4': fill material to 3', some coal ash

80% material mixed in. Native material

@ approximately 4', 15% fines PID: 0.0

trace of gravel wood, metal debris

4'-7' m-f sand/fill coal ash, wood debris

80% semi-plastic PID screening 0.0 units

B-4: 0-4'

80% Gravel, silty-sand (GSS) fill dirt

pieces of ash to ± 4' m-f sand

at 4'. 10-15% sp-fines, trace gravel

color medium brown to gray

Project No. 3551-CT
Date: 3/29/99

CONECO FIELD LOG (continued)

Description of Work (continued):

damp material @ 5'

4-6': same as 0-4' PID 0.0 units

80%

6-8': m-f sand, trace npf, 5-10%

80% sand & gravel, grey color.

ledge encountered @ 8'

PID 0.0 units

B-5:

0-4' GSS fill material, plastic, glass

70% black color ash material, very black color. PID: 0.0 unit

4-5' refusal @ 5' ledge PID 0.0 units

40%

B-6:

0-2' fill material, brown color, silty sand

medium to fine sand, 10-15% spf,

10-15% sand, gray color, moist.

refusal (ledge @ 1.5')

Project No. 3551-C7
Date: 3/29/99

CONECO FIELD LOG (continued)

Description of Work (continued):

B-7

0-1.5' fill material, medium-fine sand
60% refusal @ 1.5' ash material
color darkbrown/black. PID: 0.0 units

B-8:

0-4' 3-inches of medium-fine sand under
90% asphalt followed by fill material. 3"
brown sand 0-2' black gravel silty
sand, some ash, some white quartz
like rock. PID 0.0 units
4-8' 1-foot recovery fill materia
gravel/silty-sand PID 0.0 units

8-9.5' ledge @ 9.5' same as above
PID: 0.0 units PID battery check good

B-9

0-1' refusal @ 1' 3 attempts
fill material gravel silty sand.
black/gray material.

Project No. 3551-CT
Date: 3/29/99

CONECO FIELD LOG (continued)

Description of Work (continued):

B-10

0-2' fill material medium to fine sand

rec. 90% 5-10% spf, 15-20% sand & gravel PID:0.0

ash material red & brown color.

90% 2-4' gravel silty sand dark brown color

PID 0.0

90% 4-6' gravel silty sand dark brown color

PID 0.0

90% 6-8' wood, glass, plastic, metal

some fill material PID 0.0

B-11

0-2' refusal @ 2'

Black color fill material, ash glass

gravel & silty sand wet @ 1'

PID: 0.0

B-12 refusal @ 4" No sample collected

B-13 0-2' Dark Brown gravel silty sand

fill material

CONECO FIELD LOG (continued)

Description of Work (continued):

2-4' Dark Brown/Black fill material
80% glass, ceramic ash/coal PID: 0.0
4-8' Black fill material, wet. glass & coal
80% @ 8' PID 0.0
8-12' subangular gravel (SA)
90% ceramic, coal, metal, glass, asphalt material PID: 0.0
12-16' Dark brown/black fill material
80% PID 0.0 metal, glass, ceramic (rust color @ 13')
16'-20' Gray/Brown clay, fine-silty sand
80% 10-15% semi-plastic fines (spf).
No gravel, mottled. PID 0.0

B-14 Two (2) refusals after 1' (ledge).
No sample brown/black fill material

B-15 Two (2) refusals after 1'
0-1' fill material black coal ash

B-16 refusal @ 1'

fill material gravel, silty sand
dark brown coal ash & coal.

CONECO FIELD LOG (continued)

Description of Work (continued):

B-17 Fill material

0-2': dark brown gravel silty sand (gss)

60% glass, coal ash. PID: 0.0

2-4': more fill material, loose fill @ 3'

80% w/ metal & glass, coal ash ceramics

denser wet fill @ 4' PID: 0.0

4-7' wet GSS fill material black

60% loose gravely fill @ 7', mottling

PID: 0.0

80% 7-10' native material silty sand clay-like

mottling gray with mottles

very plastic PID 0.0 units

50% 10-13' mottled grey/brown fine to med.

sand no gravel, trace fines

PID 0.0 units

B-18 0-4 Fill material brown/black

refusal @ 4' contains glass, plastic

metal.

PID reading 0.0 units

Project No. 3551-CT
Date: 3/29/99

CONECO FIELD LOG (continued)

Description of Work (continued):

B-19

80% 0-2 fill material black/brown with glass
PID 00 units

80% 2-4' looser fill material medium to coarse sand
PID 0.0 units

4-8' fill material coal ash, metal, plastic
ashes @ 8' partially burned paper.
PID 0.0

60% 8-10' Refusal @ 10' fill material
rusty metals glass PID 0.0

B-20 0-2' fill material to 2' coal ash
weathered coal ash just below
40% asphalt surface. lt. brown silty
sand PID 0.0

B-21

60% 0-3' brown fill material to 3'
some glass, coal ash.

Project No. ____________
Date: ____________

CONECO FIELD LOG (continued)

Description of Work (continued):

B-22
0-2' Fill material with rock
50% refusal @ 2' ledge
gray fines / silt PID: 0.0

B-23
0-2' Fill material gray / black
50% refusal @ 3' bedrock / ledge
coal ash / glass PID = 0.0 units

B-24
0-3' fill material brown + pulverized ledge
refusal @ 2' + 3' (second try)
PID = 0.0 units

B-25
0-4' Fill material dark brown/black
metal + glass, wood @ 4' refusal @ 4'
no odor PID: 0.0

Project No. 3551-C1
Date: 3/29/99

CONENCO FIELD LOG (continued)

Description of Work (continued):

B-26 refusal @ 9-inches no sample collected
fill material

B-27 0-1' refusal @ 1-foot no sample collected
fill material GSS light brown

B-27A 0-2' Top soil to ≈ 1' fill material
GSS to 4' refusal at 4'
PID: 0.0 units fill material coal ash

B-28 0-2' fill material dark brown/black
coal ash PID 0.0 units
2-4' fill to ≈ 4'
PID: 00
4-6' more fill material coal ash, ceramic
nylon rope PID: 0.0
6-8' wet @ ≈ 7' more fill GSS
PID: 0.0

B-24 A
0-4' Dark brown/gray GSS to 4'
rocks @ 2' + 3'
Glass, coal ash

Project No. 3551-C1
Date: 3/29/99 - 3/

CONECO FIELD LOG (continued)

Description of Work (continued):

B-24 A

4'-8' SAA PID 0.0 units

8'-12' 8-9' light brown fill (full of glass

9-11' dark brown

11-12' red/brown glass coal?

PID: 0.0 unit no odor

3/30

S-40 0-1' refusal @ 1'

GSS dark brown/gray no odor

coarse - fine sand

quartz rock/ ledge PID: 0.0 units

S-39 0-4' GSS dark brown/black

contains glass, coal ash

PID: 0.0 units

S-38 0-3.5' refusal @ 3.5'

GSS dark brown/gray

fill material no odor

PID: 0.0 units, no odor

CONECO FIELD LOG (continued)

Description of Work (continued):

B-37 refusal @ 2"-4' no sample taken

B-36 refusal @ 6" 0-6" loamy material
very rich moist dark brown/black
like top soil trace gravel
No odor.

B-35
0-4' Dark brown fill material GSS to
± 4' small amounts of Clay
fine silty sand @ 3.5-4' PID:0.0
4-7' Same dark brown/grey fill material
and mixed clay nodules
refusal @ 7' (ledge). No odor
PID÷0.0

B-34 0-2' silty sand clay like very light
redish brown color. trace of
gravel 10-15% sp. fines
PID÷0.0 units, no odor

CONECO FIELD LOG (continued)

Description of Work (continued):

B-34 2-4': ssa to 3' from 3-4'
more sandy material less fines 5-10%
5-10% gravel small round.
darker light brown color
PID: 0.0 units no odor

4-5' same as 2-4'
5-7' m-f sand 10-15% SR gravel
5-10% fines
light/dark brown mix
bedrock @ 7'
PID: 0.0 No odor.

B-33 0-18" Dark brown fill material / gss
to 18" refusal @ 18" (ledge)
PID 0.0 units
B-32 0-3' refusal @ 3' (ledge).
Fill material + crushed rock
brown/grey/black color.
No odor PID 0.0 units

Date: 3/30/99

CONECO FIELD LOG (continued)

Description of Work (continued):

B-31 0-4' dark brown fill material GSS
clean. PID: 0.0
4'-8' Pulverized rock no sample

B-29 0-3' fill material to approx. 3'
PID: 0.0 glass coal ash etc... no sample
3-4' Brown medium to fine sand
PID: 0.0 10-15 % npf. trace of gravel
4-5' Fill material mixed with coal ash
same as 3-4' PID 0.0 units

B-41 0-4' Top soil for 6", fill dirt
~~clean~~ dark brown, less gravel
contains glass, plastic, ceramics
coal ash @ 4'
4-6' Fill material, same as above
* @ 4 & 5' black tar like material
No odor PID: 0.0 units

Project No.:
Date: 3/30/99

CONECO FIELD LOG (continued)

Description of Work (continued):

B-42 0-2': fill material dark brown
PID: 0.0 units ceramic pieces, metal, glass
2-4' dark brown fill material
No foreign matter. moist claylike.
4-6.5' similar to 2-4'
PID. 0.0 units, no odor

B-43 0-3' ledge @ 3' (grass area)
few inches of Top soil
fill material dark brown
coarse to fine sand
10-15% npf 5-10% gravel

B-44 0-3' refusal @ 3' (ledge)
Topsoil to 8-inches fill material
to 3'. PID 0.0 units no odor
no debris

B-45
0-3' Top soil to 6-inches, fill material
to 3'. dark brown.

CONECO FIELD LOG (continued)

Description of Work (continued):

B-45 3-4' medium - fine darkbrown sand
appears to be native - virgin
80% 10 - 15% npd. trace gravel
PID: 0.0 no odor. (SA) - (A)
~~6B~~ 4-6' same as above
80% 6-8' clay like material silty sand
15-20% npf, 5-10% gravel
wet @ 6.5' dark brown
80% 8.5' coarse to fine sand with clay
like properties, more sand than
previous layers. dark brown
some gravel subangular (SA) odorless

B - 46 0-2' Gravel GSS dark gray/black
PID 0.0
2-4' mottling at ≈ 3' brown/gray silty
sand chunks of wood @ ≈ 2.5'
light brown/redish at bottom 4'
claylike moist.
4 - 7.75' brown/gray silty sand to 7'
GSS to ledge refusal @ 7.75'

Project No.:
Date: 3/30/99

CONECO FIELD LOG (continued)

Description of Work (continued):

B-47 0-3' dark brown. GSS to ≥ 2'
wet @ 2' Gray GSS to 3'
refusal @ 3'
no odor, PID: 0.0 units

B-48 0-2' dark brown/gray GSS - gravel silty sand
coarse to fine sand 10-15% npf.
15-20% SA gravel
2-4' Light brown GSS c-f sand
10-15% spf 10-15% SA gravel
4-6.5 SA gravel light brown/dark brown
last foot pulverized ledge.

CONECO FIELD LOG

Project Name: W & M Properties, Inc. **Date:** April 15, 1999

Project No.: 3551-CT **Location:** 500 Mamaroneck Ave. Harrison, NY

Coneco Engineer: M. Feldman **Subcontractor:** Brooks Labs, Inc.

Description of Work: Geoprobe soil boring

HNu PID calibration with 100 ppm isobutylene standard

background 0.0 units

B-49 (near D&M boring #1)

60% recovery 0-4' silty sand & gravel
0-6" gravel, wood/plastic/burn paper
wire/wood & cinders
PID 0.0 units
4-7.5 refused @ 7.5'
soil slightly moist ~~50%~~ 50%
is not natural material.
PID 0.0 units

B-50 (near GP-11)
60% recovery 0-4' 4-inches gravel, silty sand
80% recovery 4-5.5' ledge @ 7.5'
glass/wood cinders/metal
burn odor.
PID 0.0 units

CONECO FIELD LOG (continued)

Description of Work (continued):

B-51 (Near GP-12)

70% 0-4' 70% recovery some glass throughout

silty sand PID 0.0 units

30% 4-5.5' more natural type

fill material some glass @ 4.5'

PID 0.0 units

refusal @ 5.5 ledge

B-52 0-4' sand silt brown moist

90% recovery

4-7' 1.5 of sand & silt / brown muddy

6" glass, plastic, wood

4" chared material

refusal @ 7'

HNU PID 0.0 units, no odor

B-53 0-4' silty sand SA gravel

PID 0.0 medium-dark brown gray no odor

4-8' same as above

PID 0.0 no odor. fill material

refusal @ 7.5'

CONECO FIELD LOG (continued)

Description of Work (continued):

B-56 (Near GP-19)

100% recovery 0-4' silty sand some gravel
SA gravel medium-dark brown
No odor soil moist
PID 0.0

70% 4-8' glass @ 7-7.5'
some gravel f-m sand
brown/gray color no odor
PID 0.0

90% 8-12' refusal @ 12'
brown silty sand natural looking
or clean fill. PID 0.0

B-54 (near 22' east south east Coneco B-41)
0-4 sand/silt PID 0.0 60% recovery
No ODOR. (1st 6" top soil)
@ 5' glass & metal pieces
4-8' fill material dark brown some
glass
8-11' melted glass natural

CONECO FIELD LOG (continued)

Description of Work (continued):

B-57 (east of 54 + 41)

0'-3' 4-inches top soil

50% refusal @ 3.0 ledge

small amount of glass

noticed lining @ 2.5' dark brown sand

material HNu PID 0.0 units

No odor

B-55 (near D+M #8)

0-2.5' ledge at 2.5'

APPENDIX C

IMMUNOASSAY RESULTS

********** S D I *********

PROTOCOL : CARC PAH

TECH ID : MCF
LOT # : 8H1066
EXP DATE: 6/99

Data Reduct: Lin.Regression
Xformation: Ln/Lgt8
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.859
Intercept = 0.880
Corr (r) = 0.9897**

Transformed Data :

Conc	Abs
-2.30	2.974
0.00	0.600
1.61	-0.338

Calibrator Data:

Conc	Abs Diff	%CV	Predic %Diff
0.00	0.487		
	0.737		
Mean	0.612	28.9*	
0.10	0.579		0.10
	-0.001		-0.7
	0.585		0.08
	-0.024		-31.8
Mean	0.582	0.8	0.09
	-0.013		-14.4
1.00	0.395		1.38
	0.381		27.6
	0.394		1.39
	0.391		28.1
Mean	0.395	0.2	1.39
	0.386		27.8
5.00	0.243		4.53
	-0.471		-10.4
	0.267		3.76
	-1.236		-32.9
Mean	0.255	6.6	4.13
	-0.874		-21.2

Control Data :

Ctrl#	Abs	Conc
1	0.324	2.43

ID _

Sa

Spl#	Abs	Conc	ID
1	0.491	0.55	1 S-3 (0-2')
2	0.259	3.98	2: S-3 (2-4')
3	0.350	1.98	3 S-3 (4-7')
4	0.461	0.76	4 S-4 (0-2')
5	0.628	nd	5 S-4 (2-4')
6	0.546	0.24	6: S-4 (4-6')
7	0.650	nd	7 S-4 (6-8)
8	0.489	0.56	8 S-5 (0-2')
9	0.469	0.69	9 S-5 (2-4')
10	0.446	0.88	10 S-5 (4-5')
11	0.620	nd	11 S-6 (0-2')
12	0.401	1.32	12 S-7 (0-1.5')
13	0.625	nd	13 S-8 (0-2')
14	0.694	nd	14 S-8 (2-4')
15	0.540	0.26	15 S-8 (4-8')
16	0.321	2.48	16: S-9 (0-1')
17			17 S-10 (0-2')
18	0.589	0.06nd	18 S-10 (2-4')
19	0.501	0.48	19 S-10 (4-6')
20	0.593	0.05nd	20: S-10 (6-8')
21	0.518	0.38	21 S-11 (0-2')
22	0.590	0.06nd	22 S-13 (0-2')
23	0.595	0.04nd	23 S-13 (2-4')
24	0.593	0.05nd	24 S-13 (4-8')
25	0.503	0.47	25 S-13 (8-12')
26	0.340	2.15	26: S-13 (12-16')
27	0.631	nd	27 S-13 (16-20')
28	0.337	2.19	28: S-15 (0-1)
29	0.369	1.71	29: S-16 (0-1)
30	0.583	0.08nd	30 S-17 (0-2')
31	0.521	0.37	31 S-17 (2-4')
32	0.606	0.01nd	32 S-17 (4-7)
33	0.618	nd	33 S-17 (7-10')

CPAH

1/4

I(34 S-17 (10-13')

35 0.588 0.07nd

ID: 35 S-16 (0-4')

36 0.566 0.15

ID: 36 S-18 (4-6.5')

37 0.531 0.31

ID: 37 S-19 (0-2)

38 0.174 8.12Hi

ID: 38: S-19 (2-4')

39 0.371 1.69

ID: 39: S-19 (4-6')

40: No sample 8'

40 0.615 nd

ID: 41 S-19 (6-10')

41 0.563 0.16

ID: 43 S-20 (0-2')

42 0.302 2.86

42: No sample S-20 surface

ID: 44: S-21 (0-3')

43 0.442 0.92

ID: 45 S-22 (0-2')

44 0.452 0.83

ID: 46 S-23 (0-3')

45 0.533 0.30

ID: 47: S-24 (0-3')

46 0.461 0.76

ID: 48: S-25 (0-4')

47 0.538 0.28

ID: 49: S-27A (0-2)

48 0.506 0.45

ID: 50 S-27A (2-4)

END
04-(

CPAH

2/4

*********** S D I **********

PROTOCOL : CARC PAH

TECH ID : MCF
LOT # : BH 1066
EXP DATE: 6/99

Data Reduct: Lin.Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.350
Intercept = -0.393
Corr (r) = 0.9953

Transformed Data :

Conc	Abs
-2.30	0.382
0.00	-0.316
1.61	-1.003

Calibrator Data:

Conc	Abs Diff	%CV	Predic %Diff
0.00	1.407		
	0.749		
Mean	1.078	43.1*	
0.10	0.633		0.12
	0.019		15.7
	0.648		0.10
	0.001		1.0
Mean	0.641	1.6	0.11
	0.009		8.6
1.00	0.452		0.82
	-0.179		-21.8
	0.456		0.79
	-0.215		-27.3
Mean	0.454	0.6	0.80
	-0.197		-24.5
5.00	0.295		5.27
	0.271		5.1
	0.284		6.15
	1.147		18.7
Mean	0.289	2.8	5.69
	0.689		12.1

Control Data :

Ctrl#	Abs	Conc
1	0.359	2.35

ID

Sam:

Spl#	Abs	Conc	ID
1	0.684	0.07nd	51 S-28 (6-8')
2	0.712	0.05nd	52 S-28 (2-4')
3	0.513	0.43	53: S-28 (4-6')
4	0.729	0.04nd	54: S-26 (6-8')
5	0.419	1.19	55: S-24A (0-4')
6	1.044	0.00nd	56 S-24A (4-8')
7	0.700	0.06nd	57: S-24A (8-10')
8	0.734	0.04nd	58 S-24A (10-12)
9	0.709	0.05nd	59 S-40 (0-1)
10	0.671	0.08nd	60: S-39 (0-4')
11	0.692	0.06nd	61 S-38 (0-3.5)
12	0.437	0.97	62 S-36 (0-0.5)
13	0.607	0.16	63 S-35 (0-4')
14	0.593	0.18	64: S-35 (4-7')
15	0.778	0.02nd	65 S-34 (0-2')
16	0.787		66 S-34 (2-4')
			67 S-34 (4-5')
18	0.650	0.10nd	68 S-34 (5-7')
19	0.646	0.10	69 S-33 (0-1.5)
20	0.718	0.05nd	70 S-32 (0-3)
21	0.758	0.03nd	71: S-31 (0-2')
22	0.725	0.04nd	72 S-31 (2-4')
23	0.687	0.07nd	73 S-29 (3-4')
24	0.743	0.03nd	74 S-30 (0-4')
25	0.356	2.44	75 S-41 (0-4')
26	0.323	3.68	76 S-41 (4-6')
27	0.447	0.87	77 S-42 (0-2')
28	0.715	0.05nd	78 S-42 (2-4')
29	0.780	0.02nd	79 S-42 (4-6.5')
30	0.672	0.08nd	80 S-43 (0-3)
31	1.497	nd	81 S-45 (0-3')
32	0.775	0.02nd	82 S-45 (2-4')
33	0.725	0.04nd	83: S-45 (4-6')

3/4

CPAH

*********** S D I *********

PROTOCOL : PCB

TECH ID : MCF
LOT # : 8K0029
EXP DATE: 8/99

Data Reduct: Lin.Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.734
Intercept = 0.259
Corr (r) = 0.9836**

Transformed Data :

Conc	Abs
-1.39	1.402
0.00	0.027
1.61	-0.815

Calibrator Data:

Conc	Abs Diff	%CV	Predic %Diff
0.00	1.710		
	1.673		
Mean	1.692	1.5	
0.25	1.364		0.20
	-0.046		-22.3
	1.351		0.22
	-0.033		-15.0
Mean	1.357	0.6	0.21
	-0.039		-18.6
1.00	0.976		0.93
	-0.066		-7.1
	0.738		2.02
	1.015		50.4
Mean	0.857	19.6*	1.37
	0.373		27.2
5.00	0.527		4.19
	-0.813		-19.4
	0.511		4.45
	-0.546		-12.3
Mean	0.519	2.2	4.32
	-0.682		-15.8

Control Data :

Ctrl#	Abs	Conc
1	0.575	3.51

Sa

Spl#	Abs	Conc
1	1.583	0.04nd
ID: 1:S-3 (0-2')	<0.5 ppm	
2	1.562	0.05nd
ID: 2: S-3 (2-4')		
3	1.571	0.04nd
ID: 3: S-3 (4-7')		
4	1.596	0.03nd
ID: 4: S-4 (0-2')		
5	1.627	0.02nd
ID: 5: S-4 (2-4')		
6	1.758	nd
ID: 6: S-4 (4-6')		
7	1.719	nd
ID: 7: S-4 (6-8')		
8	1.638	0.01nd
ID: 8: S-5 (0-2')		
9	1.499	0.09nd
ID: 9: S-5 (2-4')		
10	1.672	0.00nd
ID: 10: S-5 (4-5')		
11	1.568	0.04nd
ID: 11: S-6 (0-2')		
12	1.660	0.01nd
ID: 12: S-7 (0-1.5')		

END OF
04-02

PCB

1/4

PROTOCOL : PCB

TECH ID : MCF
LOT # : 8K0029
EXP DATE: 5/99

Data Reduct: Lin.Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.765
Intercept = 0.445
Corr (r) = 0.9998

Transformed Data :

Conc	Abs
-1.39	1.491
0.00	0.472
1.61	-0.799

Calibrator Data:

Conc	Abs Diff	%CV	Predic %Diff
0.00	1.483		
	1.463		
Mean	1.473	0.9	
0.25	1.218		0.23
	-0.019		-8.3
	1.186		0.28
	0.030		10.7
Mean	1.202	1.9	0.25
	0.005		1.9
1.00	0.879		1.07
	0.070		6.5
	0.935		0.87
	-0.131		-15.1
Mean	0.907	4.3	0.96
	-0.035		-3.6
5.00	0.438		5.49
	0.490		8.9
	0.475		4.71
	-0.285		-6.0
Mean	0.457	5.7	5.08
	0.083		1.6

Control Data :

Ctrl#	Abs	Conc
1	0.561	3.38

ID:

Sample

Spl#	Abs	Conc	ID
1	1.434	0.02nd	13 : S-8 (0-2')
2	1.458	0.00nd	14 : S-8 (2-4')
3	1.445	0.01nd	15 : S-8 (4-8)
4	1.346	0.08nd	16 : S-9 (0-1')
5	1.431	0.02nd	17 : S-10 (0-2')
6	1.457	0.00nd	18 : S-10 (2-4')
7	1.351	0.08nd	19 : S-10 (4-6')
8	1.449	0.01nd	20 : S-10 (6-8')
9	1.407	0.03nd	21 : S-11 (0-2')
10	1.453	0.01nd	22 : S-13 (0-2')
11	1.421	0.02nd	23 : S-13 (2-4)
12	1.397	0.04nd	24 : S-13 (4-8)
13	1.406	0.03nd	26 : S-13 (8-12)
14	1.458	0.00nd	26 : S-13 (12-16')
15	1.502	nd	27 : S-13 (16-20')
16	1.427	0.02nd	28 : S-15 (0-1')
			29 : S-16 (0-1')
18	1.474	nd	30 S-17 (0-2)
19	1.461	0.00nd	31 S-17 (2-4)
20	1.416	0.03nd	32 S-17 (4-7')
21	1.482	nd	33 S-17 (7-10')
22	1.422	0.02nd	34 S-17 (10-13')
23	1.359	0.07nd	35 : S-18 (0-4')
24	1.439	0.01nd	36 S-18 (4-6.5')

END OF RUN
04-02

PCB

********** S D I *********

PROTOCOL : PCB

TECH ID : MCF
LOT # : AL0029
EXP DATE: 8/99

Data Reduct: Lin.Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.803
Intercept = 0.579
Corr (r) = 0.9999

Transformed Data :

Conc	Abs
-1.39	1.702
0.00	0.561
1.61	-0.705

Calibrator Data:

Conc	Abs Diff	%CV	Predic %Diff
0.00	1.468		
	1.571		
Mean	1.520	4.8	
0.25	1.277		0.26
	0.010		3.8
	1.293		0.23
	-0.016		-6.6
Mean	1.285	0.9	0.25
	-0.003		-1.2
1.00	0.943		1.11
	0.115		10.3
	0.992		0.94
	-0.063		-6.7
Mean	0.967	3.6	1.02
	0.023		2.2
5.00	0.507		4.87
	-0.133		-2.7
	0.498		5.03
	0.031		0.6
Mean	0.502	1.3	4.95
	-0.052		-1.1

Control Data :

Ctrl#	Abs	Conc
1	0.584	3.69

Samp

Spl#	Abs	Conc	ID
1	1.583	nd	37 S-19 (0-2)
2	1.255	0.30	38: S-19(2-4')
3	1.416	0.08nd	39 S-19 (4-8')
4	1.503	0.01nd	41 S-19 (8-10')
5	1.485	0.02nd	43 S-20 (0-2')
6	1.434	0.06nd	44: S-21 (0-3')
7	1.478	0.02nd	45 S-22 (0-2')
8	2.038	nd	46 S-23 (0-3')
9	2.052	nd	47: S-24 (0-3')
10	1.401	0.10nd	48 S-25 (0-4')
11	1.404	0.09nd	49 S-27A (0-2)
12	1.379	0.12nd	50 S-27A (2-4')
13	1.569	nd	51 S-28 (6-8')
14	1.422	0.07nd	52 S-28 (2-4'
15	1.008	0.88	53: S-28 (4-6')
16	1.442	0.05nd	54 S-28 (6-8')
1			55 S-24A (0-4')
18	1.451	0.05nd	56 S-24A (4-8')
19	1.275	0.26	57: S-24A (8-10')
20	1.400	0.10nd	58 S-24A (10-12')
21	1.423	0.07nd	59 S-40 (0-1)
22	1.163	0.47	60: S-39 (0-4')
23	1.531	nd	61 S-38 (0-3.5')
24	1.412	0.08nd	62 S-36 (0-0.5')
25	1.447	0.05nd	63 S-35 (0-4')
26	1.200	0.40	64: S-35 (4-7')
27	1.542	nd	65 S-34 (0-2')
28	1.640	nd	66 S-34 (2-4')
29	1.474	0.03nd	67 S-34 (4-5')
30	1.434	0.06nd	68 S-34 (5-7')
31	1.430	0.06nd	69 S-33 (0-1.5')
32	1.475	0.03nd	70 S-32 (0-3)
33	1.465	0.03nd	71: S-31 (0-2')
34	1.433	0.06nd	72 S-3 (2-4')

END C
04-02

3

PROTOCOL : PCB

TECH ID : MCF
LOT # : 0Z-0029
EXP DATE: 8/99

Data Reduct: Lin.Regression
Xformation: Ln/LgtB
Read Mode : Absorbance
Wavelength : 450 nm
Units : PPB

EQUATION OF LINE :

Slope = -0.776
Intercept = 0.459
Corr (r) = 0.9993

Transformed Data :

Conc	Abs
-1.39	1.508
0.00	0.510
1.61	-0.814

Calibrator Data:

Conc	Abs Diff	%CV	Predic %Diff
0.00	1.368		
	1.333		
Mean	1.351	1.8	
0.25	1.123		0.23
	-0.019		-8.1
	1.089		0.29
	0.038		13.3
Mean	1.106	2.2	0.26
	0.009		3.5
1.00	0.835		0.97
	-0.027		-2.8
	0.853		0.90
	-0.099		-10.9
Mean	0.844	1.6	0.94
	-0.063		-6.8
5.00	0.413		5.19
	0.192		3.7
	0.416		5.12
	0.116		2.3
Mean	0.415	0.6	5.15
	0.154		3.0

Control Data :

Ctrl#	Abs	Conc
1	0.508	3.47

Spl#	Abs	Conc	ID
1	1.302	0.03nd	73: S-29 (3-4')
2	1.311	0.02nd	74: S-30 (0-4')
3	1.279	0.04nd	75: S-41 (0-4')
4	1.288	0.04nd	76: S-41 (4-6')
5	1.263	0.06nd	77: S-42 (0-2')
6	1.304	0.02nd	78: S-42 (2-4')
7	1.330	0.01nd	79: S-42 (4-6.5')
8	1.315	0.02nd	80: S-43 (0-3')
9	1.273	0.05nd	81: S-45 (0-3')
10	1.280	0.04nd	82: S-45 (2-4')
11	1.308	0.02nd	83: S-45 (4-6')
12	1.263	0.06nd	84: S-45 (6-8')
13	1.234	0.09nd	85: S-46 (0-2')
14	1.284	0.04nd	86: S-46 (2-4')
15	1.261	0.06nd	87: S-41 (4-7.25')
16	1.289	0.04nd	88: S-47 (0-3')
			89: S-48 (0-2')
18	1.234	0.09nd	90: S-48 (2-4')
19	1.249	0.07nd	91: S-48 (4-6')

END OF ...
04-0...

PCB

4

APPENDIX D

ANALYTICAL LABORATORY DATA SHEETS
CHAIN OF CUSTODYS

ALL RAW LABORATORY DATA AVAILABLE UPON REQUEST

SITE ASSESSMENT REPORT

500 Mamaroneck Avenue
Harrison, New York

June 1998

Prepared for:

500 Mamaroneck Avenue Associates
500 Mamaroneck Avenue
Harrison, New York

Prepared by:

ENVIRONMENTAL RESOURCES MANAGEMENT
175 Froehlich Farm Boulevard
Woodbury, New York 11797

14540018.084

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

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, 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.

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.

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. Base 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 like 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.

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.

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 collect 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.

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.

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.

6.0 *REFERENCES*

Dames & Moore, 1998. Draft Soil Sampling Results

AKRF, Inc, 1997. Phase I Environmental Site Assessment, 500 Mamaroneck Avenue, Harrison, New York.

U.S. Hydrogeologic, Inc., 1989. Environmental Audit Town of Harrision, Westchester County Tax Block 428, Lot 8.

Environmental Risk Limited, 1988. Letter from Fredrick Johnson to Michael Curran re: Schulman Reality Property, 500 Mamaroneck Avenue, Harrison, New York.

GZA, Inc. 1986. Letter from Kathleen A. Cyr and Robert A Heller to Mike Curran re 500 Mamaroneck Avenue Property.

U.S. Department of Health & Human Services-Agency of Toxic Substances and Disease Registry, 1995. Toxicological Profile for Polychlorinated Biphenyls.

U.S. Department of Health & Human Services-Agency of Toxic Substances and Disease Registry, 1993. Toxicological Profile for Polycyclic Aromatic Hydrocarbons (PAHs).

Erickson, Mitchell D., 1997. Analytical Chemistry of PCBs. Lews Publishers, New York, New York.

TITLE

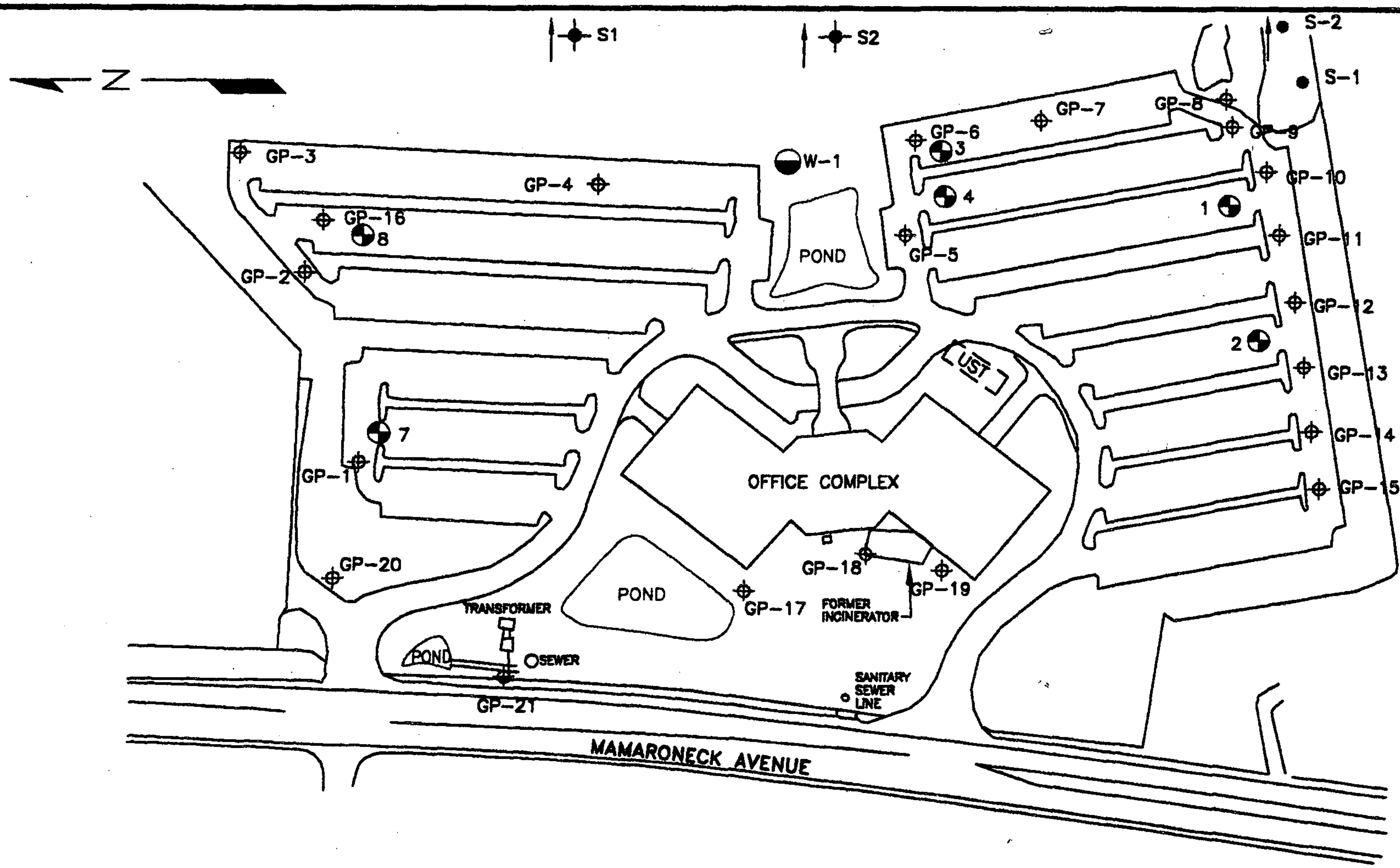
SITE LOCATION MAP

PREPARED FOR
500 MAMARONECK ASSOCIATES

ERM-Northeast
Environmental Resources Management
ERM

SCALE	FIGURE
NONE	1
DATE	
6/18/98	

DRAWN:	JOB NO.:	FILE NAME:
E.M.F.	1454.001	



- 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 NONE	FIGURE 2
DRAWN: E.M.F.	JOB NO.: 14540001	FILE NAME: 14540001	DATE 6/18/98	

FIGURES

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																	
RCRA Metals (ug/L)	Toxicity Characteristic 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		98 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	8 - 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

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

Parameter	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 - 6	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
RCRA Metals (ug/L)	Toxicity Characteristic 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								840	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

DAMES & MOORE – DATA 1998

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	290	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	ND	NA	ND	NA	ND	[illegible]	NA	[illegible]
Acenaphthylene	ND	NA	ND	NA	ND	48J	NA	41,000
Acenaphthene	ND	NA	ND	NA	ND	68J	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	86J	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	34J	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
Aroclor -1254	[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	97.5	background
Mercury	1.1*N	0.100U*N	0.120U*N	0.078U*N	0.092U*N	0.19*N	0.33*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 Adminstative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels, HWR-92-4046", November 16, 1992.

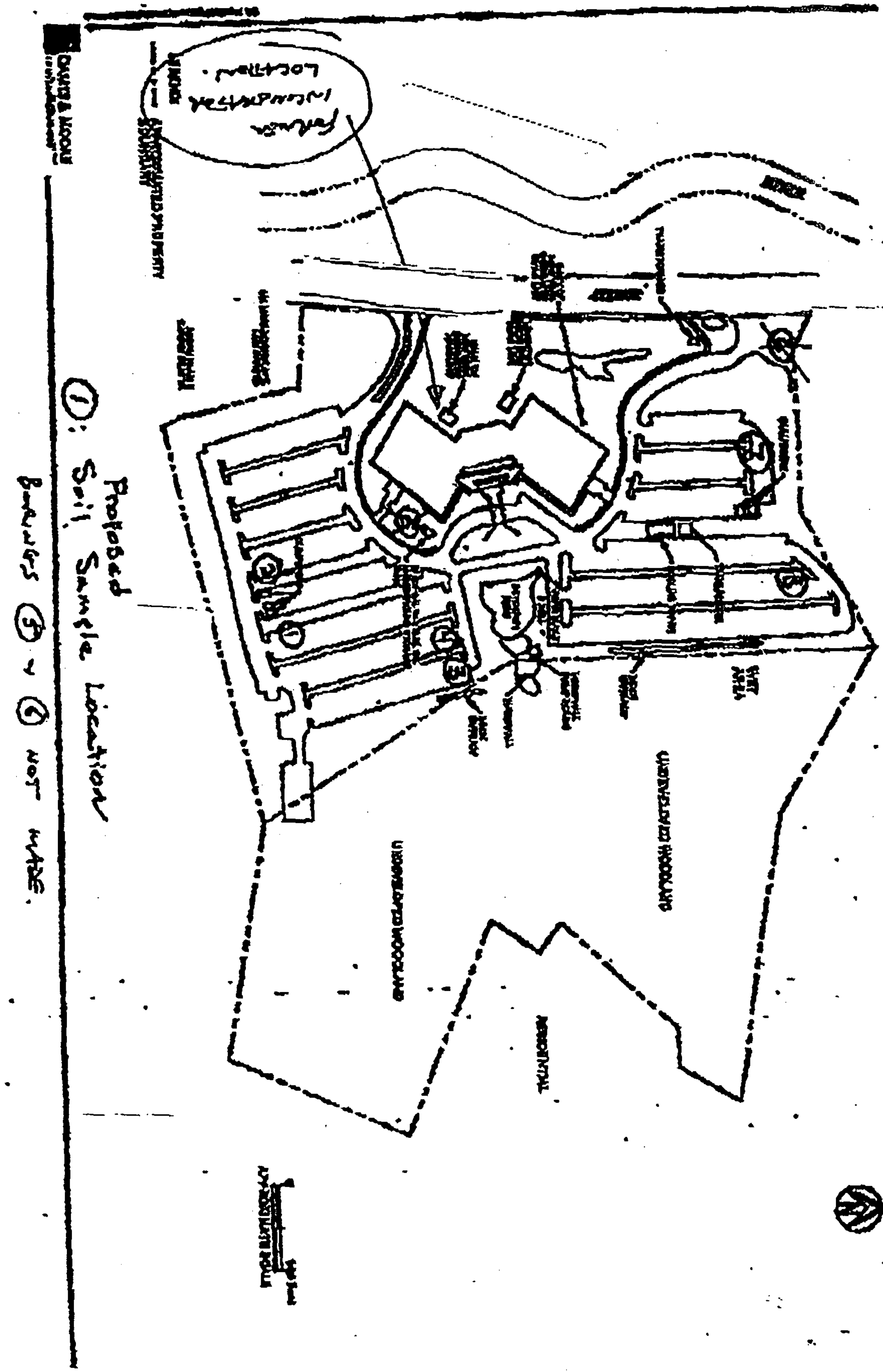
* Federal Guidance - listed if more stringent than state guidance value or if no state guidance value published
Source: Smith, Roy L., Ph.D., Office of RCRA, Technical & Program Support Branch, US EPA Region III. *Risk-Based Concentration (RBC) Table*. April 19, 1996. [Category: "soil ingestion:residential"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

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

DRAFT

Groundwater Sample ID	PW-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	1.4B	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)]


Future Intersection Location
Proposed Soil Sample Location
Borings 5 & 6 not made

AKRF, INC.

April 1997

AKRF, Inc.

ENVIRONMENTAL CONSULTANTS
149 Water Street • Norwalk, CT 06854

203/852-9322
FAX 203/838-9357

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

TABLE OF CONTENTS

FIGURES

APPENDICES

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.

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.

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.

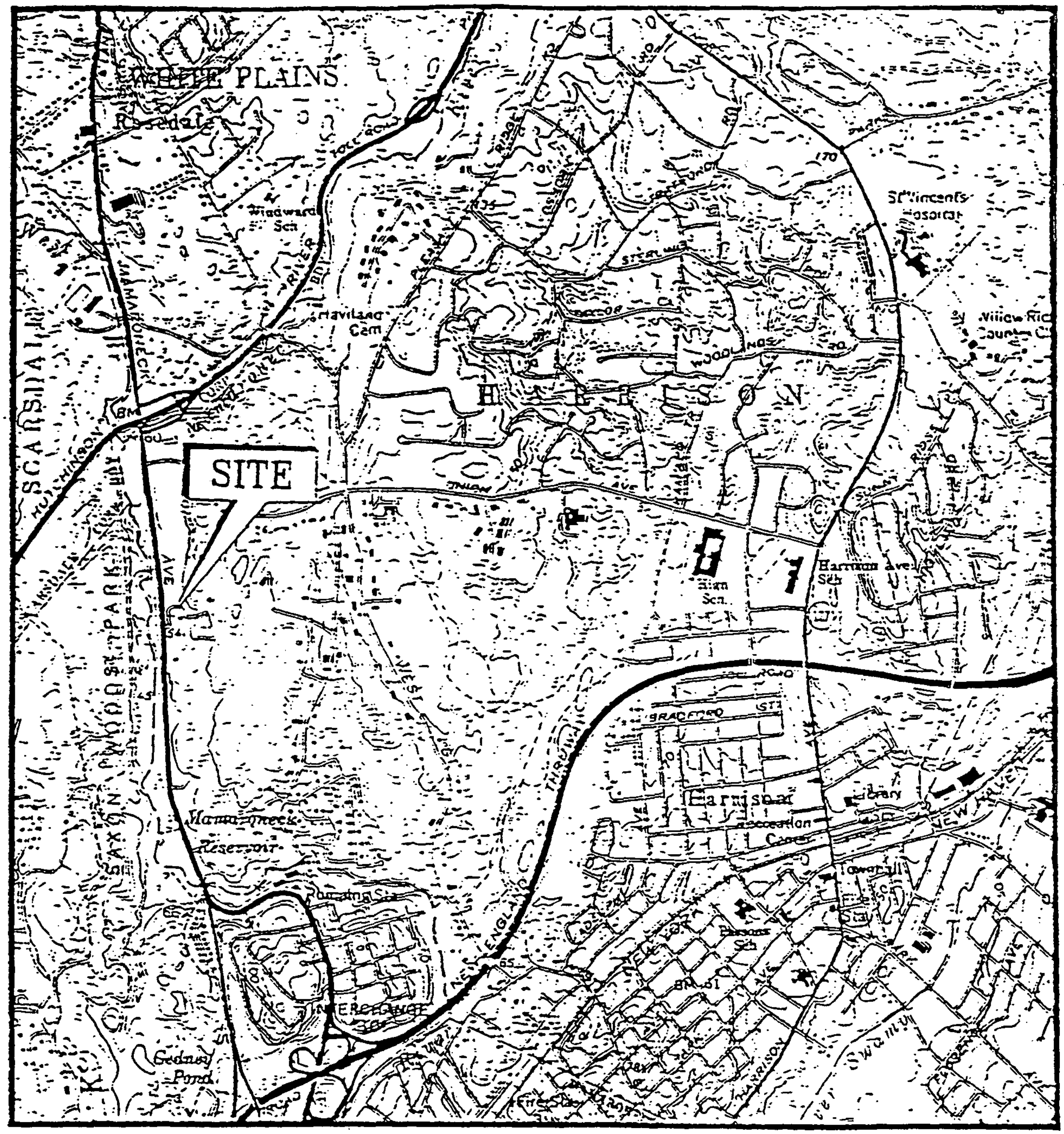
This Phase I Assessment is not, and should not be construed as, a guarantee, warranty, or certification of the presence or absence of hazardous substances.

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.

N
W E
S

500 MAMARONECK AVENUE MAMARONECK, NEW YORK	AKRF, Inc. Environmental Consultants *149 Water Street Norwalk, Connecticut 06854*	DATE 2/12/97
		PROJECT No. 5235
SITE LOCATION MAP		FIGURE No. 1

U.S. HYGROGEOLOGIC, INC.

October 1989

U.S. HYDROGEOLOGIC, INC.

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.

U.S. HYDROGEOLOGIC, INC.

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

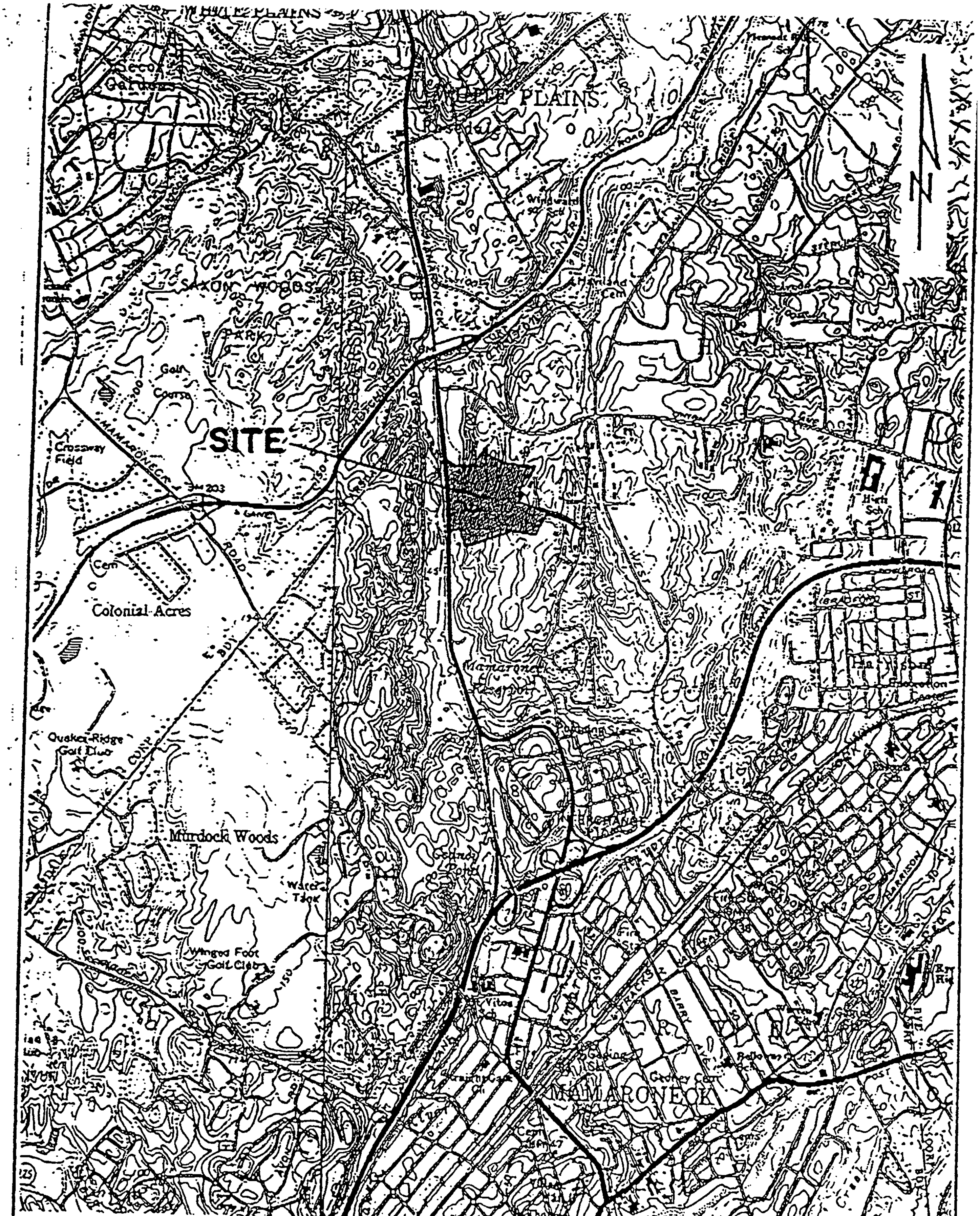
The subject property consists of 34.65 acres in the Town of Harrison, Westchester County, New York. The property is located on the east side of Mamaroneck Avenue, approximately 2000 feet south of Union Avenue (Location Map). The entire site is comprised of one tax parcel, Lot 8 (formerly Lots 8, 26,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

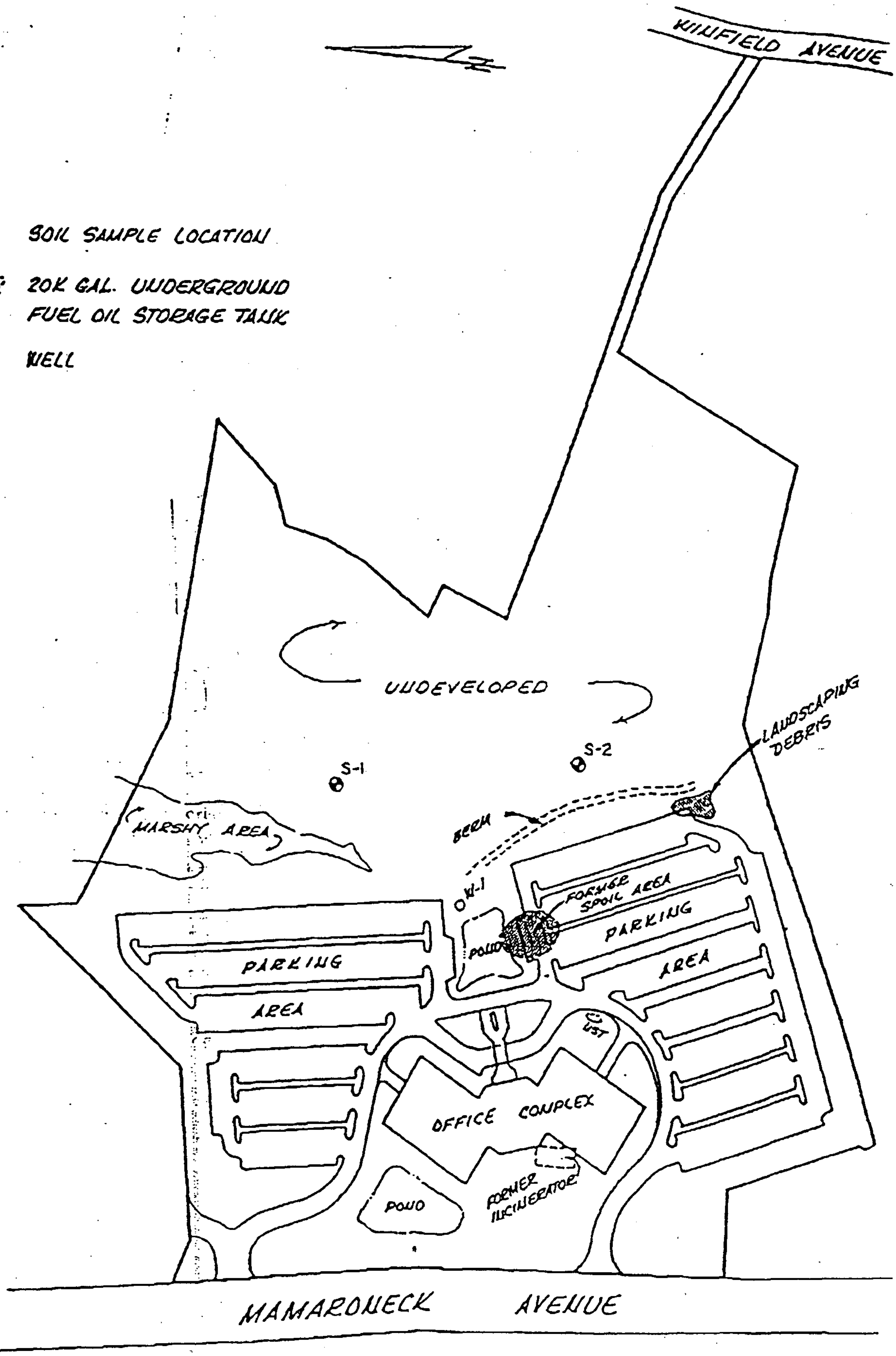
The site currently rises gradually over the parking area, and then is relatively level over the eastern portion. A small wet area is located in the north-central portion of the property, immediately east of the northern portion of the parking area.

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.

<u>Structures</u>

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

1-week turnaround for W-1

CAMO Containers K

APPENDIX B: PREVIOUS ENVIRONMENTAL REPORTS

ENVIRONMENTAL RISK LIMITED

April 1988

ENVIRONMENTAL RISK LIMITED
120 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.

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

TEPHEN J. FRANCO
Laboratory Director

T CERTIFICATION
PH-0547

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

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

Environmental Risk LTd.
Lab. No. 38-286-1
P.O. No: 7920
Inv. No. 3200
Page 3
March 31, 1988

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
STEPHEN J. FRANCO
Laboratory Director
CT CERTIFICATION
PH-0547

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

SJF:hc

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

CKL

CHAIN OF CUSTODY RECORD

Place & Address Of Collection	Sampler's Name (Signature)
White Plains, N.Y.	Gary Sadarcele
	Assistant(s) (Witness) Signature
	Job Number 7920

Sample Number	Sample Location	Type Container	Total Volume	Preservative	Date	Time	Sample Type: Water	Soil	Air	Waste	Remarks
WP-1	2	Glass	40 ml	No	3-29-88	1250 PM	✓				
WP-1	1	Plastic	1 qt	No	"	"	✓				
WP-1	1	Plastic	1 qt	Sodium Hydroxide	"	"	✓				

Relinquished By (Signature)	Received By (Signature)	Date	Time
Gary Sadarcele	S Fran	3-29-88	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	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	
Hg		Flouride	
Ni		Chloride	
Ag		8010	✓
Se		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) 255-8100

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-GEOHYDROLOGICAL CONSULTANTS

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

REPLY TO:
ROBERT A. HELLER
DISTRICT MANAGER
521 LAFAYETTE BLVD.
BRIDGEPORT, CT 0660-
203/334-6393

May 30, 1986
File No. H-6437 A

Schulman Management Corporation
925 Westchester Avenue
White Plains NY

Attn: Mr. Mike Curran

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.

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

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

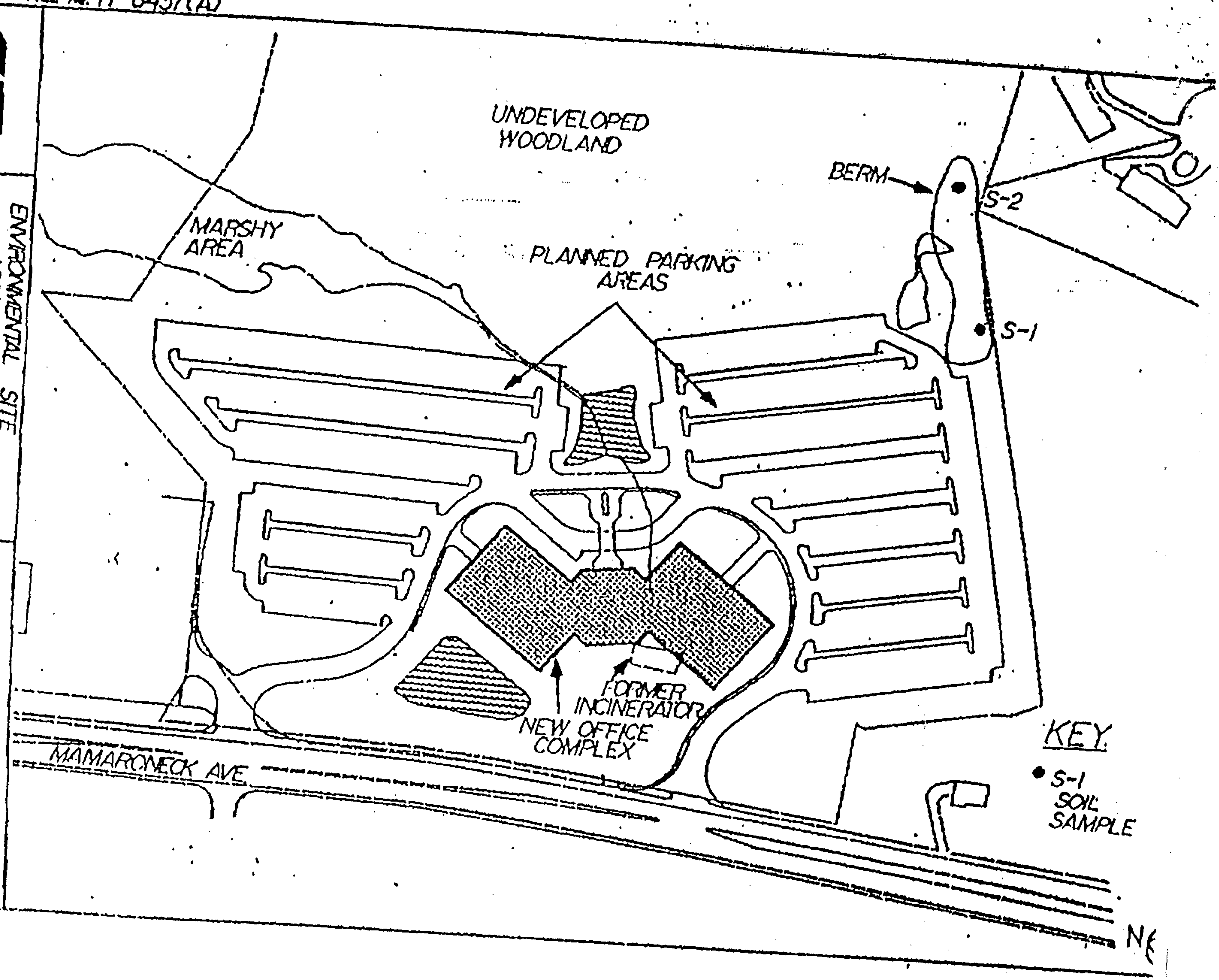
Robert A. Heller

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

KAC,RAH/gim

GZA

FILE No. 11-6437(A)



GZA

ENVIRONMENTAL SITE ASSESSMENT
500 MAMARONECK AVE
MAMARONECK, NEW YORK

SITE PLAN

MAY 1986

FIGURE 2

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 polycholorinated 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

MERRITT & HARRIS, INC.

July 1987

MERRITT & HARRIS, INC. Consultants to the Real Estate Lending and Investment Community

14-608

July 31, 1987

Ms. Robin Gallagher
Chemical Bank
Real Estate Division
325 Hamilton Avenue
White Plains, New York 10601

Re: 275,000 Sq. Ft. Office Building
500 Mamaroneck Avenue
Harrison, New York

Dear Ms. Gallagher:

Enclosed is Site Observation Report 22, based on our observation of the referenced project on July 24, 1987. The site observation was performed and the report was written by Mr. Lester R. Buchell Jr., Project Manager.

Base Building work is substantially complete with a Temporary Certificate of Occupancy obtained. Site work is complete except for minor landscaping and paving. Unless advised to the contrary, this will be our final site observation report.

If you have any questions regarding this report, please call.

Very truly yours,

MERRITT & HARRIS, INC.

Robert T. DiBlasi

Robert T. DiBlasi, AIA
Vice President

RTD:hi
Enclosure

cc: Lester R. Buchell Jr.

July 31, 1987

275,000 SQ. FT. OFFICE BUILDING
500 MAMARONECK AVENUE
HARRISON, NEW YORK

SITE OBSERVATION REPORT 22

Prepared For:	Chemical Bank Attn: Ms. Robin Gallagher Telephone: (914) 948-5492
Borrower:	Shulman Management Corporation
Project Name and Location:	275,000 Sq. Ft. Office Building 500 Mamaroneck Avenue Harrison, New York
Improvement:	The new construction of a 5-story office building on a 34.55-acre site
Job Phone:	(914) 698-0976
Present During Observation:	Mr. Hank Cellestino (914) 948-2230
Observation and Report by:	Mr. Lester R. Buchell Jr.
Date of Observation:	July 24, 1987
Date of Previous Observation:	February 9, 1986

July 31, 1987

SECTION I - PROJECT OBSERVATION

Project Scope

The project consists of the construction of a new 275,000 sq. ft. office building on a 34.55-acre site located along Mamaroneck Avenue in Harrison, New York.

The facility will be a 5-story concrete lift slab building with 2 rectangular wings, which are connected by common areas in the core.

The site will have parking for 1,000 cars and will be serviced by 2 access roads. The site also contains 2 water retention basins.

Construction Activity

Construction is proceeding in a good and workmanlike manner and in general conformance with the plans and related documents that we have received to date, with the exception of the revised mechanical systems, which will be documented by the Engineer shortly. The following items have been completed: structural steel, concrete, masonry, drywall, and fireproofing. The following progress in construction was observed:

Site Work

Site work is complete except for landscaping (95%), the final coat of black top on roads (starting), parking spot marking, and site lighting (50%) Photograph 2. Seeding is now complete.

Exterior

Work is complete, including punch list items (Photograph 1).

Stairways

Work is complete except for floor finish and the finish coat of paint. These items will be done during the tenant finish stage out of tenant allowances.

Lobbies, Corridors, and Public Spaces

On the 1-3 floors elevator lobbies have marble wall panels with ceramic floor tile complete except on the 3rd floor which is nearly complete (Photograph 3). The 3rd and 4th floors elevator lobbies are sheetrocked and taped. One the 1-3 floors corridors are complete except for floors and finish painting which will be left up to the tenant. Corridor framing has started on the 4th floor. All toilet rooms are complete (Photograph 4).

Tenant Spaces

Work completed includes perimeter insulation and sheetrock, sheetrock columns, sprinkler roughing, baseboard heaters and ducts. Ceiling hangers, VAV boxes, and duct insulation work is in progress.

Tests and Certifications

As previously stated, we have received a copy of the Temporary Certificate of Occupancy.

The following information has been requested but has not been received:

- Elevator certification (Mr. Cellestino will receive this when he accepts the elevators. He will not accept them until just before tenant occupancy).

- Roof certification for warranty

SECTION II - PROGRESS

Summary of Estimated Completion to Date

Original Construction Budget		$18,283,244
Adjustments		0
Revised Construction Budget		$18,283,244
Work Previously Completed	(96.6%)	$17,655,844
Total Work Completed This Period	(1.4%)	260,500
Total Work Completed to Date	(98.0%)	$17,916,344
Funds to Complete Construction Based on Budget of $18,283,244		$ 366,900

We feel that the preceding amount of $366,900 will be sufficient to complete construction of the project at this time.

The preceding figures do not include tenant finish items.

Please note that the preceding amounts are gross values and do not take into account retainages or other holdbacks.

Rate of Progress and Estimated Completion Date

The Base Building is substantially complete. The Temporary Certificate of Occupancy has been issued, but some Base Building items are not complete, such as hung ceilings, site lighting, and final paving at parking spaces. Those items that are indoors depend on the desired usage of prospective tenants. Until a tenant is acquired, we cannot anticipate a completion date.

SECTION III - TRADES AND MATERIALS

A draft copy of Requisition 25, for work performed from February 9, 1987, to May 15, 1987, has been attached. The percentage of completion and dollar values for each line item were mutually agreed upon with the Borrower's Representative, Mr. Hank Cellestino, at the job site.

SECTION IV - SUBCONTRACTS

As previously agreed, subcontract reviews are not part of our service.

SECTION V - PHOTOGRAPHS

Photographs taken during the time of our site observation are attached and show the following:

1. Exterior building work complete

2. Landscape work in progress at the parking lots

3. The 1st and 2nd floor elevator lobbies

4. A typical toilet room

July 31, 1987

SECTION VI - COMMENTS

Mr. Cellestino advised us that no spaces have been leased at this time. However 2 inquiring tenants are interested in a whole floor or the whole building. Mr. Cellestino is looking to lease the building to one or two tenants maximum.

SECTION VII - ATTACHMENTS

1. A draft copy of Requisition 25, dated May 15, 1987

2. Site Photographs, dated July 24, 1987

JUL [illegible] 19:25 FR BNS 212 [illegible] 3166 TO 98488300 P.41/44

#14-608

CO[illegible] [illegible]ATION SHEET — AIA DOCUMENT G703 — Page 2 of 4

[illegible] Document G702, APPLICATION AND CERTIFICATE FOR PAYMENT, containing Contractor's signed Certification is attached.
In tabulation[illegible], amounts are stated to the nearest dollar.
Use Column [illegible] contracts where variable retainage for line items may apply.

APPLICATION NUMBER: ~~24~~ 25
APPLICATION DATE: 5-15-07
PERIOD: 2-6-07
TO: 5-15-07
ARCHITECT'S PROJECT NO:

A ITEM No.	B DESCRIPTION OF WORK	C SCHEDULED VALUE	D WORK COMPLETED: Previous Applications	E WORK COMPLETED: This Application: Work in Place	F Stored Materials (not in D or E)	G TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G÷C)	H BALANCE TO FINISH (C-G)	I RETAINAGE
	Hard Costs								
	[illegible] Work:								
	[illegible]aring, Grubbing and Stripping	250,000	250,000			250,000	100		
	[illegible] Excavation Including Rock	4,200,000	4,200,000			4,200,000	100		
	Storm Sewers & Utility Trenches [illegible]	500,000	500,000			500,00	100		
	Rough Grading [illegible]	200,000	190,000	10,000		200,000	95+5		
	Detention Ponds	200,000	180,000	20,000		200,000	90+10		
	Paving and Curbs	450,000	360,000	61,500		421,500	80+15		
	Land[illegible]	200,000	130,000	50,000		180,000	65+25		
	[illegible] Costs:								
	[illegible]	750,000	750,000			750,000	100		
	[illegible]ndation	500,000	500,000			500,000	100		
	[illegible] Structure [illegible] in place	2,655,000	2,655,000			2,655,000	100		
	[illegible] stored								
	Roofing & sheet metal	260,000	[illegible],000			260,000	100		
	[illegible] wall [illegible] in place	1,900,000	1,900,000			1,900,000	100		
	[illegible] engineering masonry	120,000	120,000			120,000	100		
	Spray fireproofing & plastering	25,000	25,000			25,000	100		
	Enclosures	165,000	165,000			165,000	100		
	[illegible] (Core & Shell)	370,000	370,[illegible]			370,000	100		
		150,000	150,000			150,000	100		

-6-87
TO: 5-15-87
ARCHITECT'S PROJECT NO:

A	C	D	F	E	G		H	I
		WORK COMPLETED						
			This Application					
ITEM	SCHEDULED VALUE	Previous Application	Work in Place	Stored Materials (not in D or E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G÷C)	BALANCE TO FINISH (C-G)	RETAINAGE
Hard Costs (con't.)								
Carpentry & Millwork	122,000	122,000			122,000	100		
Hollow Metal	22,000	22,000			22,000	100		
Finish Hardware	22,000	22,000			22,000	100		
Acoustic Tile	495,000	148,500	99,000		247,500	30 20		
Ceramic Tile	138,000	131,100				95		
Toilet Partitions & Accessories	110,000	110,000			110,000	100		
Painting (Core & Shell)	35,000	21,000	14,000		35,000	60 40		
Resilient Flooring	10,000							
Venetian Blinds	40,000							
Elevators	416,000	416,000			416,000	100		
Plumbing	450,000	450,000			450,000	100		
Sprinkler (Core & Shell)	90,000	90,000			90,000	100		
HVAC	2,300,000	2,300,000			2,300,000	100		
Electric	883,000	883,000			883,000	100		
General Conditions (inc. labor & supervision)	227,244	227,244			227,244	100		
TOTAL HARD COSTS	18,203,244	17,655,844	260,500		17916344 ~~17,655,844~~	98.0%	627,400	
	18,203,244	17,655,844						

CONTINUATION SHEET [illegible] DOCUMENT [illegible]

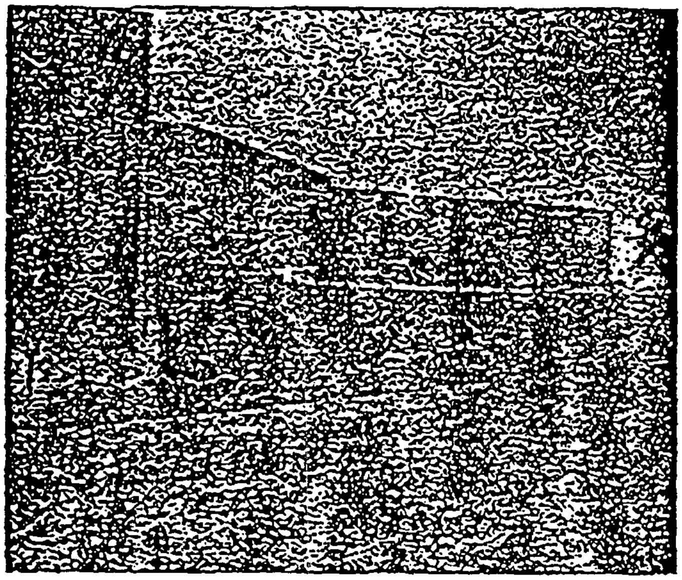
AIA Document G702, APPLICATION AND CERTIFICATE FOR PAYMENT, containing
Contractor's signed Certification is attached.
In tabulations below, amounts are stated to the nearest dollar.
Use Column [illegible] on Contracts where variable retainage for line items may apply.

6-87
[illegible] 19 87
[illegible] PROJECT NO:

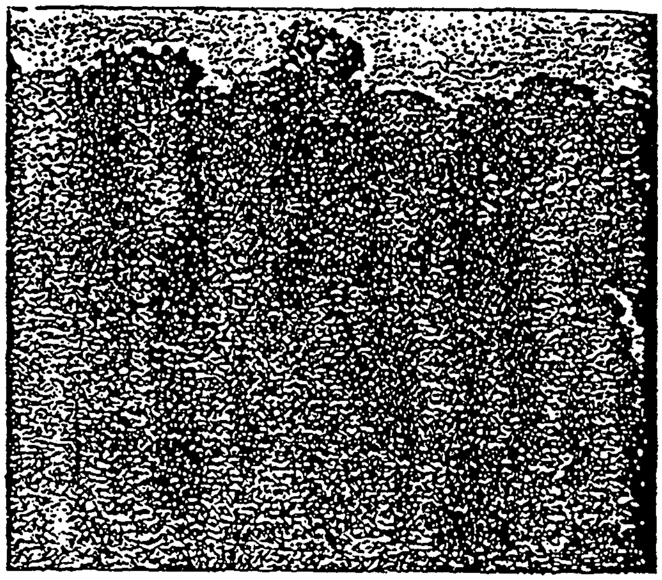
ITEM No.	DESCRIPTION OF WORK	SCHEDULED VALUE	[illegible]	[illegible]	[illegible]	TOTAL COMPLETED AND STORED TO DATE	%	[illegible]	RETAINAGE
	Soft Costs								
	A[illegible] & Engineers	1,400,000	1,400,000			1,400,000	100		
	[illegible]	275,000	206,250						
	Inspecting Architects	20,000	20,000			20,000	100		
	[illegible] & Bonds	150,000	135,000						
	Closing Costs	390,000	390,000			390,000	100		
	Test Borings	10,713	10,713			10,713	100		
	Real Estate Taxes	94,234	94,234			94,234	100		
	Pre-construction Int.	82,500	82,500			82,500	1		
	Int. during construct.	3,150,000	3,150,000			3,150,000			
	[illegible] to take Mortgate [illegible] assignment	1,590,606	1,590,606			1,590,606	1		
		7,161,133	7,079,383		-0-				
	Land	2,553,623	2,553,623		-0-				
		[illegible]20,000	[illegible]7,2[illegible],[illegible]50		-0-				

MERRITT & HARRIS, INC. 14-608

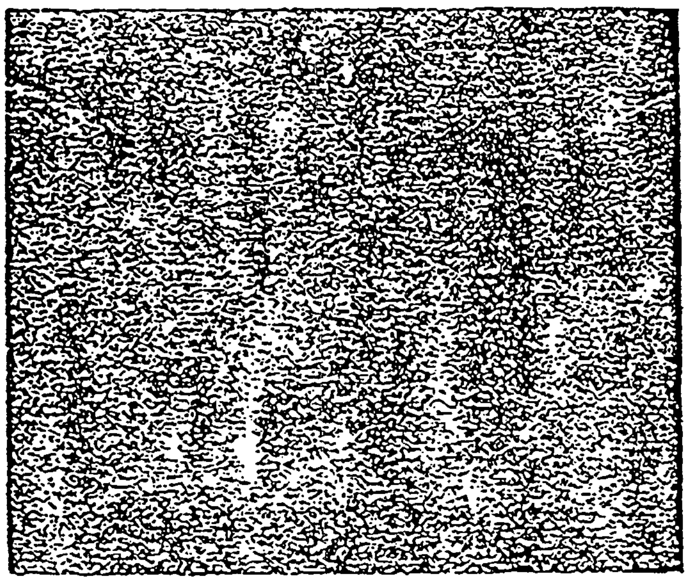
Site Photographs Taken:
July 24, 1987



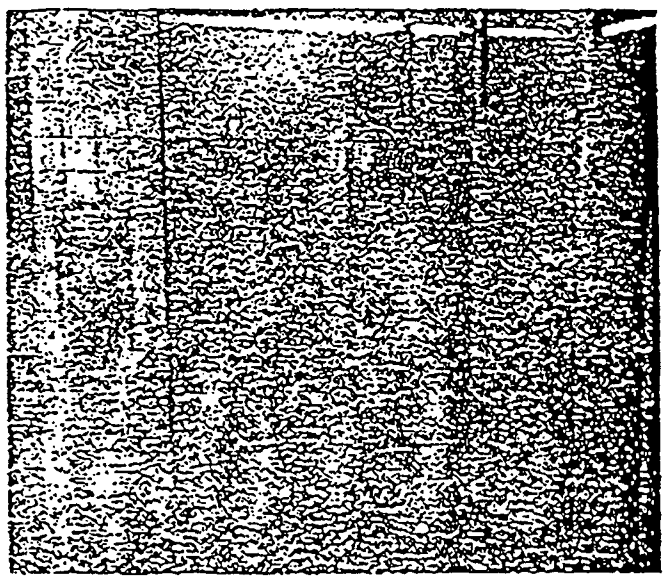
#1- MAMARONECK AVE
#14-608 - 7/24/87



#2-MAMARONECK AVE
#14-608 - 7/24/87



#3-MAMARONECK AVE
#14-608 - 7/24/87



#4-MAMARONECK AVE
#14-608 - 7/24/87

ATTACHMENT #2

THE BANK OF NOVA SCOTIA

TO: ATTENTION Andy Schultz

DATE July 7/97

PHONE NO.

ADDRESS Shearman & Sterling

FAXCOM NO. 848-8300

FROM: Rob Boese

PHONE NO.

BRANCH/DEPARTMENT

FAXCOM NO.

ADDRESS

TRANSIT NO.

PHONE NO.

NUMBER OF PAGES INCLUDING THIS ONE 2

IF ALL PAGES ARE NOT RECEIVED, PLEASE CALL

NOTICE OF CONFIDENTIALITY

This message is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential and exempt from disclosure. If you are not the intended recipient or the employee responsible for delivering the message to the intended recipient, you are notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone (collect if required), and return the original message to us by mail or alternatively, immediately destroy this message.

REMARKS:

1116216 (11/92) PREPARED BY: AUTHORIZED BY:

Field Notes – 1998

500 ~~Mamaroneck~~ Ave, Harri

ERM/ADT onsite @ 0800

* Soil Boring Scope:

Due to the presence of shallow bedrock, plan to make ~~3~~ 2 attempts for a viable ~~full~~ 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/Dark Brown

Odorless Silt = 30% of matrix

Note: Hit void in borehole from 6.5-7'

Refusal @ 7.5 bls.

TO 15/12/98 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, med brn)
Refusal @ 22" bls

GP-2

attempt ① Refusal @ 24" (2.0')
attempt ② Refusal @ 27" (2.25') Sample Taken
A 0-2.25' PID-0.3 ppm Rec 80% Time 1124
Silt w/ Gravel (10%). Med/Dark brown
Odorless.

Tu 5/12/98 Cuddy, Tesler, Worley / Harrison

GP-4

attempt ① Refusal @ 2.2' bls

attempt ② Refusal @ 2.25 bls

Ⓐ 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 12??

~~attempt ①~~ Sand w/ Gravel; color and texture

~~attempt ②~~ appear to be similar to pulverized

This sample from the "spoils" area

bedrock; color white + gray components.

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 68% PID 0.0 ppm Time 1306

TC 10/6/1998 Cuddy, Feder, Worby/Harrison

GP-6A (continued)

~~Strata~~ 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 0.0ppm Time 1419
Silty Sand w/ Gravel (30%). Med Brown. Odorless. Refusal @ 2.5' bls

GP-8 (location chosen because of red staining where GW surf acts)

A 0-3' Rec 60% PID 0.0ppm Time 1426
Moist. Silty Sand w/ Gravel, sand components are fine to V. fine grained & comprise 80% of soil matrix; med/dark brown; odorless;

B 3-6' Rec 40-50% PID - 0.0ppm 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

TU 5/12/98   Cuddy, Fedor, Worby / Harrison

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 144
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 @ 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

10/15/12/98 Cuddy, Feder, Worby / Harrison

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-11A (0-3) except 5-10% unnatural materials

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

TU 5/12/98 Cuddy, Fesler, Worby / Harrison

GP-12C (6-7' BLS) Rec 20% PID 0.0ppm Time 17
Moist, Silty Sand w/ Gravel.
Gravel comprises 40% of soil mat.
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% PID 0.0ppm Time 1723
Top 6" Wet Sandy clay, sand - med grained
High plasticity, med brown
Bot 6" Moist. Fine to coarse Sand
with gravel. Color med brown
and dk brown (black) Gravel
comprises 30% of matrix

TC/5/12/98 Cuddy, Feder, Worby/Harrison

GP-14
attempt ① Refusal @ 1' BLS
attempt ② Refusal @ 3' BLS
A(0-3') Rec 50% PID - 0.0ppm & Time 1754
Same description as GP-13 C (6-7')
Bot 6" except that soil color
is med brown & soil matrix
is relatively dry.

GP-15 A 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 coldpatch

- 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 / FedEx NY @ 2100 / Office 2225 hrs

Tu 1/5/20 98 500 Mamaroneck Ave Assoc / Harrison

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 will start @ GP-16 to allow for further drying time at other areas.

Contacted John Stillgebauer who indicated all was in order relative to Certificate of Assurance 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.

Tu 5/26/98 500 Mamaroneck Ave Assoc / Harrison
- 1454.001

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 Shkuda 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. I 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-16, 20, 21)

Tue/5/26/98 500 Mamaroneck Ave / Harrison
- 1454.001

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 0.0 ppm Time 0937
Sandy Silt with trace Gravel; Sand components are fine to med grained. Gravel is subrounded. Color - Dark brown. Matrix contain approx 5-10 ~~%~~ % wood splinters

GP-21A (0 - 3') Rec 80% PID 0.0 PPM Time 1153
Silty Sand with little Gravel. Gravel is subrounded to subangular, & ranges to 2.5cm; Dark brown. Sand components are fine (60%), ~~to~~ med (20%) ~~grained~~ & 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/drk brown. Soil matrix is dryer than previous interval.

TA 5/26/98

500 Mamaroneck Ave Assoc / Harrison

GP-21C (7-10') Rec 9% PID 0.0ppm 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 ~~little~~ some Gravel; Sand components are very fine (50%) to medium grained (20%). Gravel is subrounded to angular and ranges to 2.0 cm in size; Color - Dark brown; Soil matrix is moist.

GP-20B (3-5.5') Rec % PID 0ppm 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

Tu 5/26/98   500 Mamaroneck Ave Assoc./Harrison
-1454.001

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 samples will be forwarded to Brent Mongillo for PCB immunoassay testing

Returned to office @ 1510 hrs.

~ NY

1194
cept

1152
-2')
el;
and
own,

1159
LS) Bot 8
Ft 8"

210
we
et

220

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

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-17 B (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/ ~~Stone~~ little gravel; Same description as GP-19C (Bot 7")

GP-17 C (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 - Med/Dark brown.

GP-17D (6-8' BLS) BC 13,11,10,9 Rec 20% PID ppm Time 1324
Same description as GP-17C

GP-17E (8-9.0 BLS) BC 7,10,10/0 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

w/5/27/98 500 Mamaroneck Ave Assoc. / Harrison, NY

GP-18A (0-2'BLS) BC 3,6,6,8 Rec 60 % PID ppm Time 1144
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-18 C (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-18 D (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-18 E (8-10'BLS) BC 6,8,9,% 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

w/5/27/98 | 500 Mamaroneck Assoc. / Harrison

GP-19A (0-2') BC 2,2,2,2 Rec 60% PID 0 ppm Time 1005
Silt with little Gravel. Gravel is angular to subangular. Color - Med/Dk brown; Odorless; Soil matrix is moist

GP-19B (2-4' BLS) BC 6,7,7,7 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: Dark Brown; Odorless

GP-19C (4-6' BLS) BC 7,7,8,11 Rec 50% PID 0 ppm Time 1015
Top 5" same description as 19B
Bot 7" ~~Dry~~ Silt w/ little Gravel and Rock fragments. Gravel content is subrounded to angular, Rock fragment due to cobble pulverized by the sampler; Med/dark brown; Odorless

GP-19D (6-8' BLS) BC 30,11,7,6 Rec 10% PID — ppm Time 1026
Fine to little Coarse sand w/ little Gravel and Rock Fragments; Rock Fragments due to pulverized by sampler; Color - Grayish brown; Odorless; Matrix very dry

W 5/27/98 500 Mamaroneck Assoc. / Harrison

GP-19E (8-10' BLS) BC 10776 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: med brown;
Odorless.

Note: due to the minimal recoveries of
the 19C & 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 6889 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 soil matrix;
Color Med dark 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 + ~~sk~~ loaded equipment to vehicle. / Offsite @ 1400 hrs

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

C

APPENDIX C

Field Notes – May 1999 - July 1999

W/5/12/99 500 Mamaroneck Assoc. / Harrison

ERM started @ 0615 hrs. Onsite @ 0704
(1 way mileage from office 41 mi)

NAEVA on-site upon arrival
Crew: Tom Hogg, Rob Gimpel, John Benaggi (Rob is supervisor)
Equipment: Support Trucks (2)
Pulse Ekko - GPR (Mari Sensors & Software
Noggin - GPR (Sensors & Software)

Coordinated with facility maintenance contacts Bill Bozofsky (manager) and and John Stillgebauer (facility expert)
- Discussed work scope and assured them that no intrusive work to be implemented.
- provided them with Certificates of Insurance for ERM & NAEVA

NAEVA crew sets up equip and layed out the data grid. Discussed work scope and objectives.

W/5/12/99 500 Mamaroneck Ave Assoc.

Identified work areas as
AOC-1 near North property entrance
AOC-2 northeast corner of N parking lot
AOC-3 south area of south parking lot
AOC-4 west of building

AOC-2 (northeast parking area)

- Pulse-Ekko to be implemented in parking areas

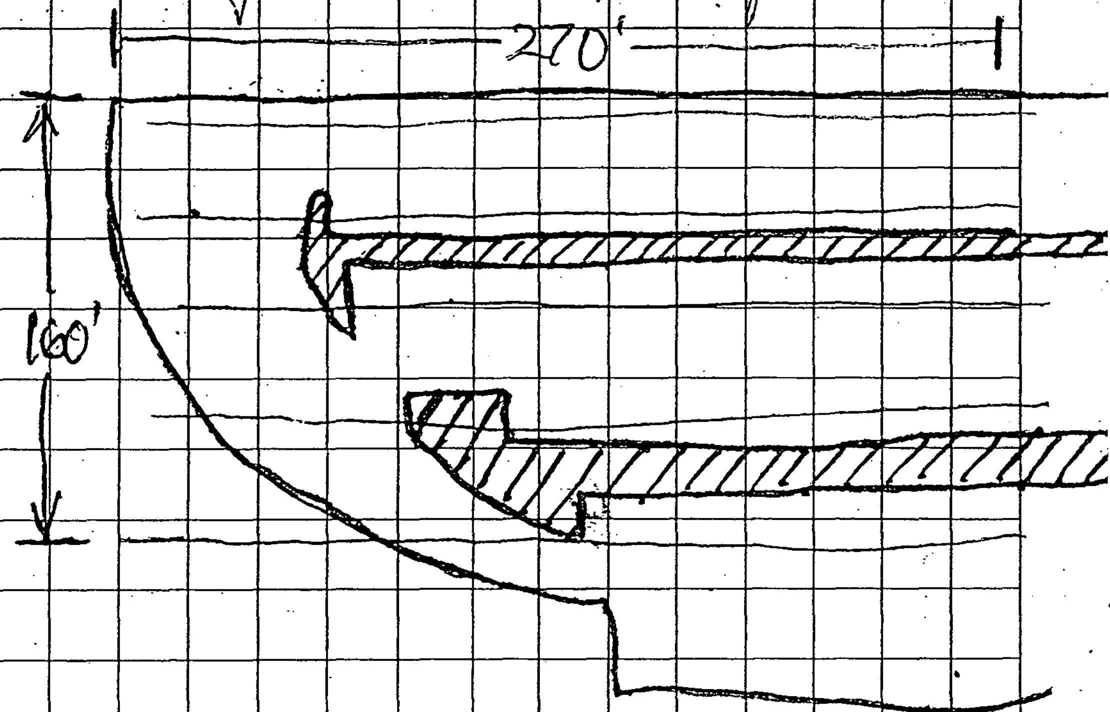
- Noggin to be implemented in landscaped areas

- Linear measurements / geometry to be used to ascertain approx. cross sectional dimensions at specific nodes along berm.
  - separate sheets to be used for maps of each AOC

Setup of equipment and layout of data grid continued until 1030 hrs.

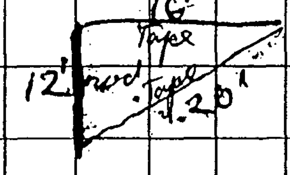
W/5/12/99 500 Mamaroneck Assoc.

Data grid set ups as follows



• 5 GPR continuous data input runs

• To get berm dimensions used measuring tape to ~~so~~ and a solid rod to create a right triangle



• Pulse Ekko equipment is malfunctioning due to possible low battery of

[illegible]

W/5/12/99 500 Mamaroneck Assoc

the battery, but no effect.
Equipment disassembled by 1330 hrs

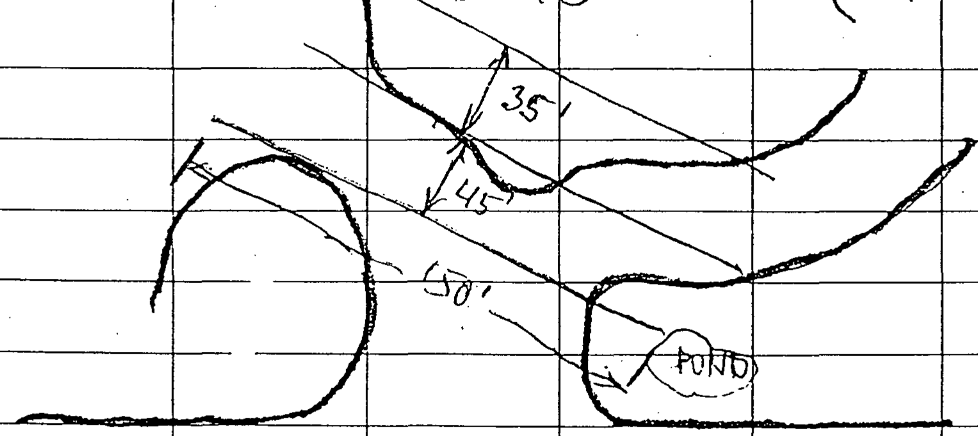
- Noggin appears to be giving good data according to R. Simpson (equip operator)

- GPR operations for AOC-2 concluded @ 1330 hrs.

- Mobed to AOC-1 work area

AOC-1

Layed out data grid as follows
- Data line length - 150'
- " " width between transects, 45' 35' are 45 and 35 (3 Transects



W 5/12/99   500 Mamaroneck Ave Assoc

Completed data grid runs using the Noggin GPR instrument

Rob Gimpel indicated that he would like to work on the Pulse Ekko GPR after returning to the office to get it functioning properly. (2ND problem w/ Pulse Ekko was that the laptop (in-line) was not getting power

- Following repairs, he would like to implement pulse Ekko at the AOC-1 data grid and 1 or 2 data lines at the AOC-2 grid for confirmatory purposes

Demobed on ERM/NAEVA offsite @ 1515 hours.

Returned to ERM warehouse to get surveying equipment for berm measurements. Time 1700 hrs.

TH 5/13/99 500 Mamaroneck Ave Assoc.

ERM started @ 0615 hrs / Onsite @ 0700 hrs

NAEVA already onsite @ AOC-1 and setting up Pulse Ekko (PE) equipment for confirmatory data runs!

Discussed data generated the previous day with Rob Gimpel. He indicated:
- a review of the data collected from AOCs-1 & 2 yielded (largely) indeterminant results using the Noggen.
- He is very interested in seeing data produced by the, now repaired, Pulse Ekko GPR equipment

Started AOC-1 confirmatory grid run @ 0725 hrs.

Note: If data produced is still inadequate to discern bedrock topography, I indicated that we may want to consider discontinuing its use

AOC-1 Rob reports PE-GPR giving good data set.

Th 5/13/99 500 Mamaroneck Ave Assoc.

Mobed to AOC-2 @ 0830 to re-run data grid for confirmatory purposes using PE-GPR.

Rob reports that significantly better data is being generated w/ PE-GPR than was collected previously using the Noggin

Data collection completed @ 1030 hrs.

2 Crew members started laying out data grid for AOC-3 @ 0845 hrs. Completed layout @ 1000 hrs.

Bill Borofsky requested meeting @ 1000 hrs.

Met him to discuss work schedule

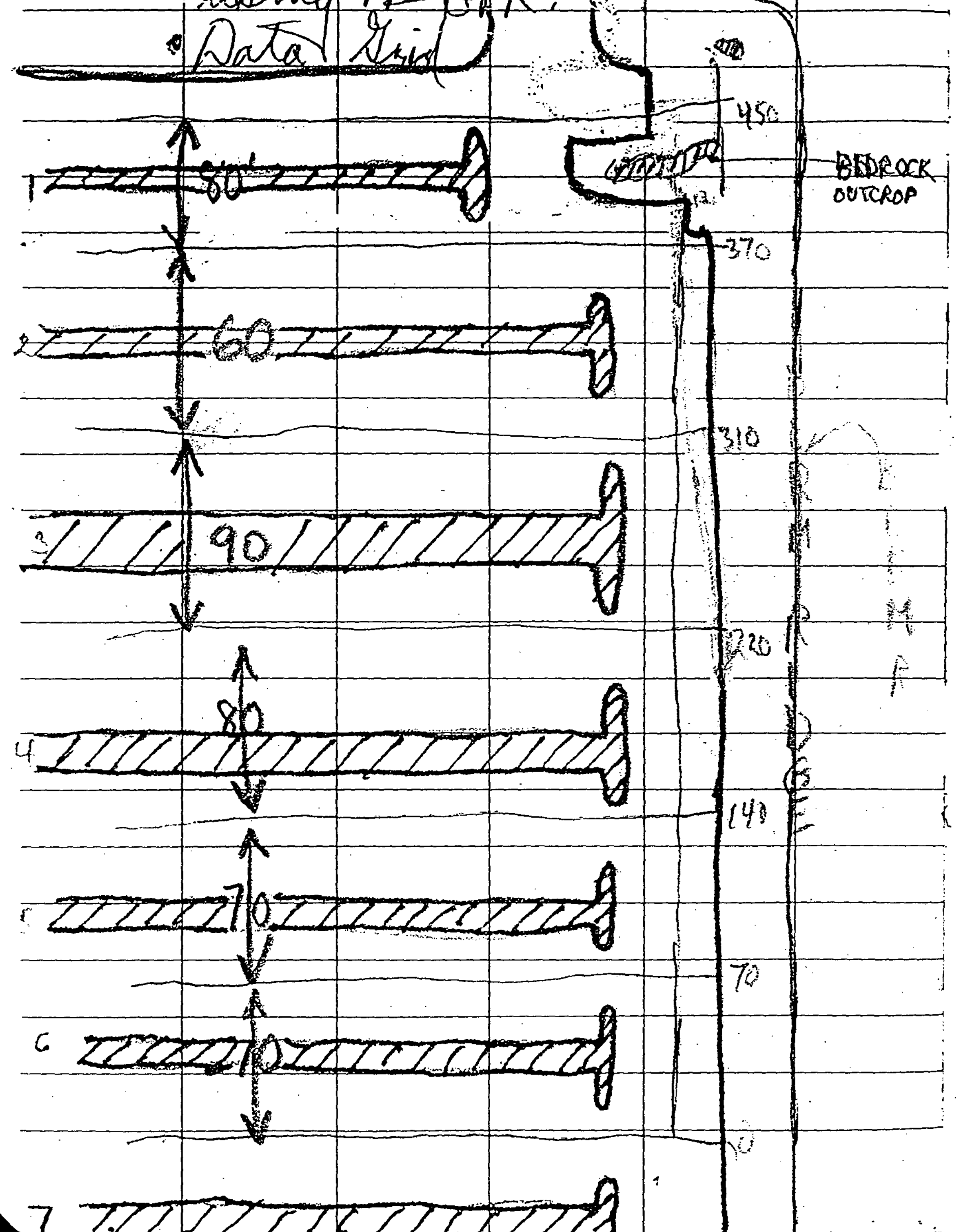
He wanted assurance that no work would take place after F 5/14/99 without new agreement being put in place. I concurred

He indicated that W&M Management had concerns about agreements w/ Schulman & fieldwork not about how work was being conducted, but what work was being conduct

TH 5/13/99 500 Mamaroneck Ave Associates

AOC-3

- began equipment setup @ ~1030 hrs
- began data grid runs @ 1105 hrs using PE GPR.
- Data Grid



TH/5/13/99 500 Mamaroneck Ave Assoc

Completed 4 of 7 runs and began to have equipment failure due to low battery levels. Batteries were charged overnight

- PE-GPR equipment down @ ~1135 hrs
- 2 crew offsite to buy new battery for unit @ 1210 hrs + returned @ 1330 hrs.

Took 10 min lunch

Berm Cross-section measurements (feet)

	HEIGHT	A	B	C		H	A	B	C
0	5.0	8	8	28	260	13.5	24.5		
20	6.2	9.5	12.5	29.0	280	13.5	23.0	26.5	16.0
40	7.5	12.0	14.0	30.0	300	13.5	23.0	25.5	15.0
60	8.5	13.0	15.0	26.5	320	13.5	22.0	25.5	14.0
80	8.5	13.0	14.5	26.0	340	13.5	22.0	24.5	10.5
100	9.0	14.0	16.5	22.0	360	13.5	23.0	26.0	11.0
120	9.0	13.0	17.0	15.7	380	13.0	23.0	26.5	9.0
140	9.5	15.5	19.0	15.5	400	12.5	25.0	26.5	10.0
160	10.5	16.0	20.0	14.0	420	12.5	23.0	25.0	11.5
180	11.0	17.5	21.5	16.0	440	11.5	23.0	25.0	11.0
200 TH ↑	11.0	18.5	24.0	17.0	460	11.5	25.0	23.0	11.0
220 ↓	13.0	22.0	25.0	18.0					
240 RF	13.5	23.5	25.5	18.0					

* Note: Berm slope + height is even (approx) on both sides.

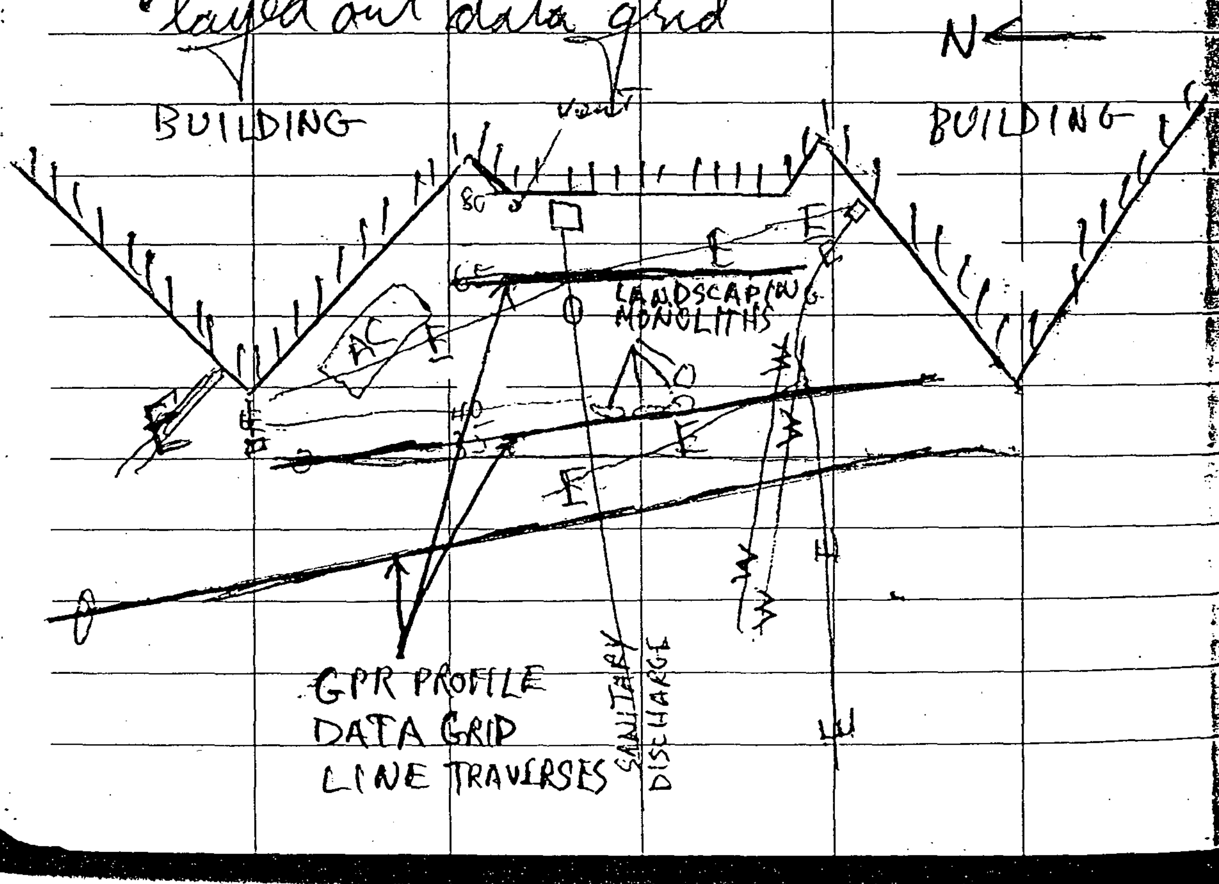
TH / 5/13/99 500 Mamaroneck Ave Assoc

AOC-3 (continued)

- Finished 3 N→S data grid line runs and 1 west to east confirmatory grid line approximately mid-way through the south-end connecting lane.
- Only use PE-GPR @ this location
- Demobed from AOC-3 @ 1445 hrs

AOC-4 = Mobed to AOC-4 @ 1450 hrs.

- layed out data grid



TH 5/13/99 500 Mamaroneck Ave Assoc.

AOC-4 is cluttered with underground utilities. NAEVA is marking them out with paint, flags and stakes to ensure some trace of the markouts is visible when subsequent work scope tasks are implemented.

Discussed deliverables w/ NAEVA personnel @ conclusion of work tasks. Additionally discussed how down-time of equipment on 5/12 & 13 would be addressed on invoice.

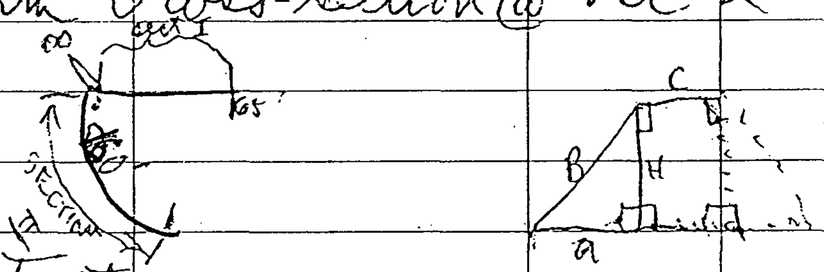
ERM/NAEVA offsite

F 5/14/99 500 Mamaroneck Ave Assoc.

ERM started 0615 hrs / Onsite @ 0700
NAEVA on-site @ ~0645 hrs. Setting up equip

Discussed data collected at AOC-4 on
TH 5/13/99 w/ Rob Gimpel. He indicated
data was inconclusive & that the PE-GPR
used was the best tool for the job.
∴ No reruns of that grid to be done

NAEVA begins utility location markouts @ 0730 hrs.
Berm Cross-Section @ AOC-2

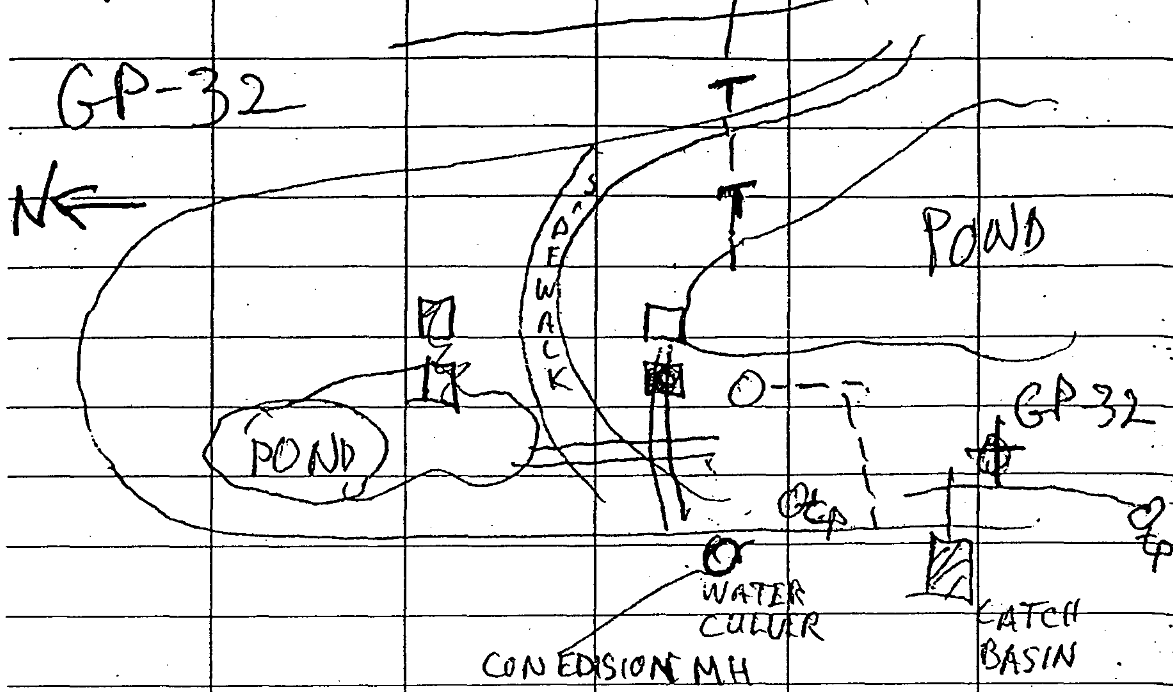


section

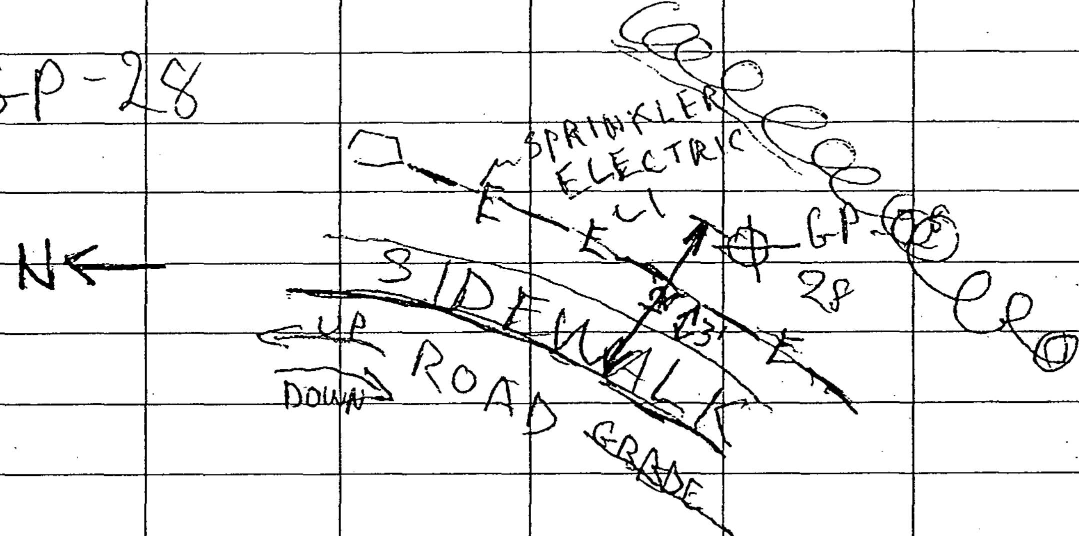
	H	A	B	C
0	12.5	23.0		~18
20	12.5	20.5		16
40	12.5	20.5		14
60	12.0	19.5		13.5
80	12.5	22.0		13
100	13.0	22.5		13
120	14.5	25.0		11
140	15.0	26.0		11
160	16.5	26.5		11 ← BEDROCK OUTCROPPING BEGINS AT 155
180	BEDROCK OUTCROP			

5/14/99 500 Mamaroneck Ave Assoc

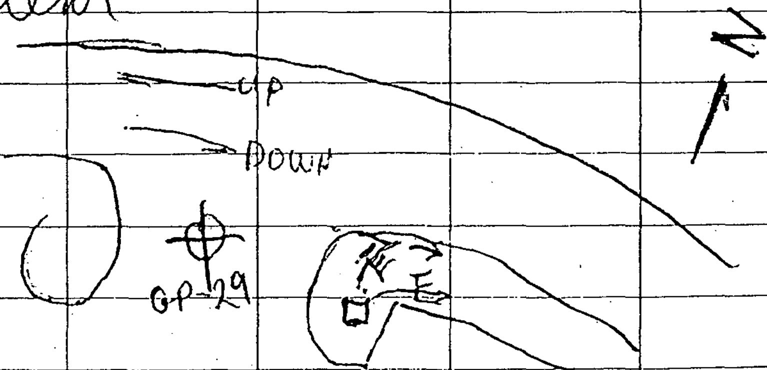
GP-32



GP-28

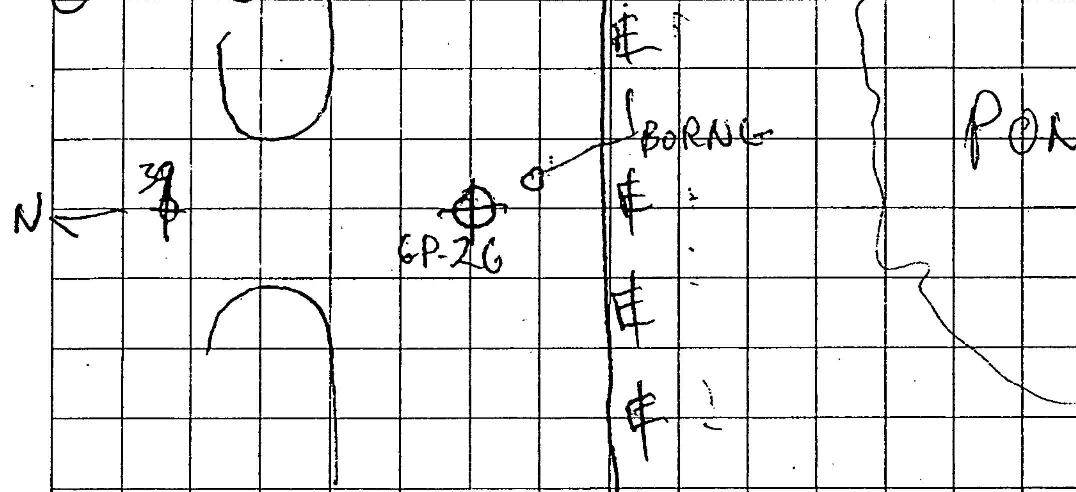


GP-29 All Clear

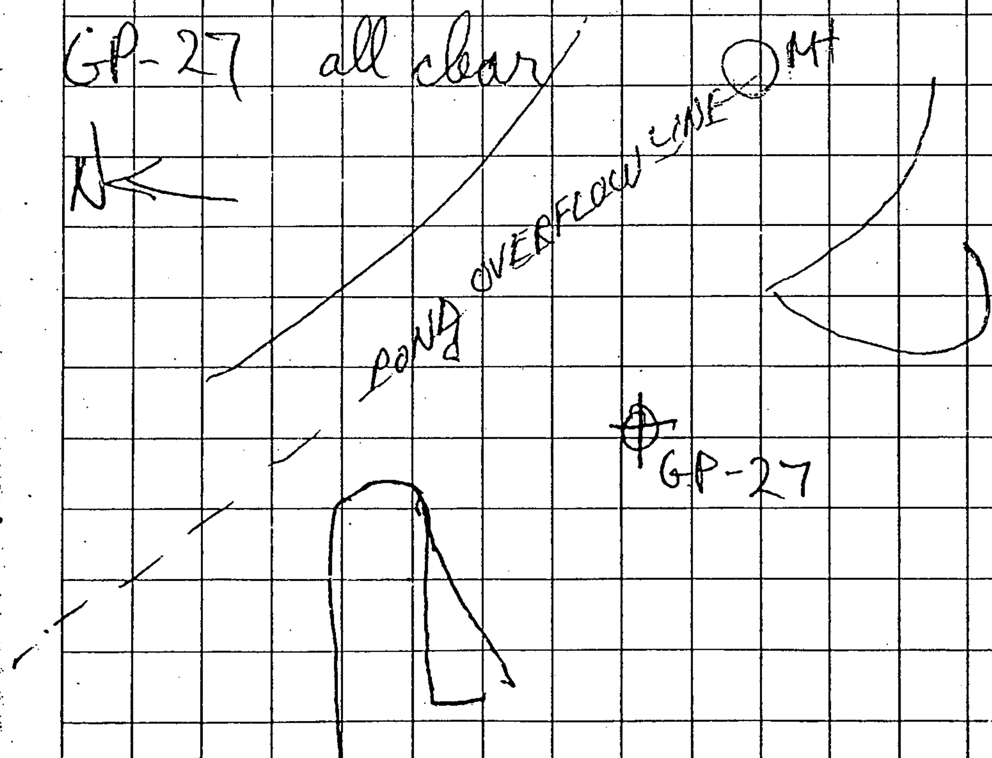


F/5/14/99 500 Mamaroneck Ave Assoc.

GP-26 - all clear



GP-27 all clear



ERM/NAEVA completed work scope and exited site @

W/7/7/99 500 Mamaroneck Assoc.
- 1454.001.3
- Supplemental Investigation

ERM started 0630 / onsite @ 0834 hrs.
Mike Feldman Conesco onsite @ 0800 hrs.
Tridslands onsite @ 0930 hrs (contacted
Jim (operations manager) @ 0700 & found
they were having mechanical
problems & would be late)

Coordinated with Bill Borofsky
& John Stillgebauer regarding
underground utilities. John S. indicated
only utilities are electrical lines
for lighting which run below
parking lot islands.

Greg Skaruda onsite @ 0935 hrs. Indicat
water analyses from pond supply
well and 3 ponds and sediment
from pond bottom
- No MS/MSD
- Do a DUPLICATE
- 652-6412 cell #

Setup until 10:30 hr

W/7/7/99 500 Mamaroneck

GP-38A (0-2') 23 1035hrs PID 0.0 Rec 100%
Silt; med brown, dry

B (2-4') 28 1038 hrs PID 0.0 Rec 100%
Silt w/ Trace Gravel; gravel <1cm, med brown, dry.

C (4-6') 24 1043 hrs PID 0.0 Rec 100%
Same as A interval

D (6-7.5') 25 1047 hrs PID 0.1 Rec 100%
Same as A interval except refusal @ 7.5' BLS

GP-45A (0-2') 18 1104 hrs PID=0.0 100% Recover
Silt w/ Rock Fragments and nickles of weathered bedrock

B) (2-2.25') - Insufficient volume for viable sample
1106 hrs PID 0.0 5% Rec

Refusal @ 2.25' BLS

w/7/7/99 500 Mamaroneck

GP-44A (0-2') (17) 1137 hrs PID 0.0 Rec 100%
silt w/ bedrock fragments, drk brown/black; dry; Refusal @ 2' BLS
(2 previous attempts 30' N & 54' N of this location w/ 6" to refusal ea.)

GP-43A (0-2.5') (27) 1145 hrs PID 0.0 Rec 100%
Same description as 45A-B
Refusal @ 2.5' BLS
DUP-1 selected because PAH detections sufficient

GP-39A (0-2')/MS/MSD 1212 hrs PID 0.0 Rec 100%
(28) (30) (29)
silt w/ same bedrock fragments color drk brown to black, contain glass frags

B (2-4') (20) 1232 hrs PID 0.0 Rec 70%
Same description as A interval

C (4-6.5') DUP-1 1152 hrs PID 0.0 Rec 50%
Deselected Time 0900
(21) (16)
Same description as A interval except moist

W/7/7/99 500 Mamaroneck

GP-42 A (0-2') ⑦ 1420hrs PID ND Rec 55%
Silt w/ Trace Med/Coarse Sand & Rock fragments, med brown, contains glass fragments

(B (2-4') ⑧ 1425hrs PID ND Rec 25%
Insufficient volume recovered for discrete sample ∴ combined with next depth interval (4-6)

C (4-6') ⑧ 1431hrs Rec 85%
Sandy Silt w/ Little Sand (med to coarse) and rock fragments.

* Hit refusal at 5 locations at varying depths to 6' BLS

GP-41 A (0-2') ⑬ 1453hrs Rec 90%
Same description as 42 C (4-6')

(41B (2-4) 1456hrs Rec 40%
Same description as 42C (4-6')

(41c (4-5.5) 1523hrs Rec 35%
Same description as 42C (4-6')
Refusal @ 5.5' BLS
Composited 41 B & C to create 1 sample because each had insufficient volume for a discrete sample

11/7/99 500 Mamaroneck

Field Blank-1 collected @ 1516 hrs using acetate liner.

GP-40 A (0-2) (01) 1534 hrs Rec 80%
Sandy Silt w Rock Fragments, some Sand med-coarse, med brown

B (2-4) (05) 1537 hrs Rec 60%
Same description as "A" interval

C (4-6) (06) 1543 hrs Rec 100%
~~Silt~~, same description as 42A, med/drk

D (6-8) (09) 1548 hrs Rec 95%
Sandy Clay, moderate plasticity, drk brown

E (8-10) (12) 1552 hr Rec 95%
Same description as interval D

F (10-11.5') 1559 hrs Rec 70%
Same description as 42C
Refusal @ 11.5 BLS

W 7/7/99 500 Mamaroneck

GP-47A (0-0.5') (01) 1621 hrs Rec 30% (x2)
Sandy Silt w/ Rock Fragments, med brown dry. Refusal @ 3 separate locations (noted on map) @ ~~4~~ 6" BLS

GP-46A (0-2.5') (03) 1655 hrs Rec 70%
Same as 47A

Greg Shkuda indicated that based on bedrock outcropping/occurrence, borings GP-23 + 24 can be eliminated from the workscope.

Prepared Chain of Custody documentation until 1930 hrs

Arranged sample shipping thru Airborne Express w/ "Bill Recepient" until 2015 hrs.

ERM offsite @ 0815 hrs. Returned to WH to resupply. Left WH @ 2215 hrs.

Th 7/8/99 500 Mamaroneck

ERM / Trade Winds on-site @ 0700 hrs

Mike Feldman onsite (Coneco) @ 0745 hrs

Contacted & left message for Paul Hobart) (STC) to accept N cooler from Airborne Express send indicating "Bill Recipient"

GP-22A (0-2') / ~~MS/MSD~~ HELD 0754 hrs PID 0.0 Rec 90%

Sandy Silt w/ Rock Fragment; Sand is fine to

B (2-4') / DUP-2 HELD 0700 0921 hrs PID 0.0 Rec 70%

(22) (11)

Same description as interval A

Collected Field Blank-2 @ 0840 hrs

GP-22 boring required approx 25 attempts to collect the 4' BLS 20 of the attempts met refusal @ <2.5' BLS

GP-25A (0-2.5') 1004 hrs PID 0.0 Rec 100%

Sandy Silt w Gravel + Rock Fragments drk brown. Sand is fine to coarse. Refusal @ 2.5' BLS

TH 7/8/99 500 Mamaroneck

GP-27 A (0-2') 1018 hrs PID 0.0 Rec 70%
Same description as 25A

B (2-4') 1023 hrs PID 0.0 Rec 90%
Silty Sand w/ Rock Fragments med. brown Sand is fine to med grained & comprises 60% of soil matrix
Refusal @ 4' (2 borehole attempts)

GP-26 A (0-2') 1049 hrs PID 0.0 Rec 90%
Same as 27B

B (2-3') 1056 hrs PID 0.0 Rec 30%
Refusal @ 3' BLS. Same as 27B
Composited A/B into one samp.
(2 Borehole Attempts)

GP-29 A (0-2') 1116 hrs PID NR
2 borehole attempts (Refusal @ 2' BLS
Same description as 25A

GP-28 A (0-2') 1141 hrs PID NR Rec 75%
Same description as 25A

B (2-4') 1151 hrs PID NR Rec 40%
Same description as 25A
C " 1157

TH/7/8/99 500 Mamaroneck Ave Assoc.

GP-34A (0-2') 1339hrs Rec. 55%

Same as 32 A

B)(2-4') 1341hrs Rec 40%

Same as 32 B

No Sample C (4-4.5') 1346hrs Rec 30%

Saturated Sand w Gravel. same as 32B

Insufficient material for sample collection as the matrix is mostly gravel

- Refusal on 2 attempts @ 4.5' BLS

GP-30A (0-2')/DUP/MS/MSD

1449hrs Rec 80%(5)

Refusal @ 2' BLS

Sandy silt w/ Granules, Gravel and rock fragments

ERM/TradeWinds/Conesco offsite @ 1515 hrs

Woodbury @ 1600 hrs

- LYMRIX Vaccination #2 1600-1645 hrs.

Completed C of C & Sample Shipment Prep 1745-1910hrs

~~#~~ 1/7/~~9~~/99 500 Mamaroneck Ave Assoc.

ERM/TradeWinds onsite @ 0700 hrs
Mike Feldman onsite @ 0720 hrs

GP-36 A(0-3') /MS/MSD/DUP - 0700 0730 hrs PID 0.0 Rec 100%
Refusal @ 3.0' BLS (x6)
Sandy Silt w/ little gravel Artificial Debris;
Sand component is fine/med grained + comprises
10% of matrix. Debris includes glass, wood plastic, metal,
ceramics; dark brown

Collected field blank-3 from acetate
sample collection barrel @ 0756 hrs

GP37A (0-2') 0814 hrs PID 0.0 Rec 50%
Silt with ~~Traces~~ little of Gravel and
Artificial Debris (debris same as
36A but to much lesser extent) - Same descr.
as 36A except above noted

B(2-4') 0820 hrs PID 0.0 Rec 90%
Silt same description as 37A except
color medium brown

C(4-6') 0825 hrs PID 0.0 Rec 80%
Same as 37B

D(6-7.5') 0831 hrs PID 0.0 Rec 50%

F 7/9/99 500 Mamaroneck ave, Associates

is moist, black and has an undefinable odor

GP-31 C (4-6') 1112 hrs PID 0.0 Rec 85%

Same as 31B except the moist black silty material is more prevalent in sample and the undefinable odor is stronger. sample also contains material that looks like "cold patch" asphalt

GP-31D (6-8') 1119 hrs PID 0.0 Rec 45%

- Moist Silty Clay w/ Trace fine sand, Little Gravel and Little Artifical Debris (Glass metal, wood)
- Insufficient recovery for a discrete sample

E (8-10') 1128 hrs PID 0.0 Rec 15%

Moist Sandy silt w/ Little Gravel and trace artificial Debris, med to med/drk brown
- Insuffient recovery for a discrete sample, No odor.

F (10-13') 1033 hrs PID 0.0 Rec 30%

- Saturated Gravel in a Silty Sand Matrix Gravel subangular to angular & comprises 70% of matrix light/med brown

No Refusal, Stopped sampling due to penetration

7/9/99 500 Mamaroneck Ave Assoc

GP-48A (0-2') 1212 hrs PID 0.0 Rec 70%
Sandy Silt w little Gravel Sand fine grained, Color - med/drk brown

B (2-4') 1223 hrs PID 0.0 Rec 80%
Top 15" Fine Sand, Med Brown
Bot 7" Silty Clay w Gravel, drk brown
Trace Artificial Debris

C (4-6) 1227 hrs PID 0.0 Rec 90%
Same as 48B (Bot 7") except 10% of matrix contains globules of rubbery substance which is ~~highly~~ moderately plastic, black & odorless. Segregated mat'l from sample and containerized in a 40 ml bottle

Aqueous Samples
- Collected Supply Well @ 1425 hrs w/ Aqueous Duplicate (1800 hrs) @ this location

- Collected Upper Pond Water Sample @ 1439