

APPENDIX D
HAZARDOUS MATERIALS

Prepared for:
Fordham University
New York

Phase II Site Investigation Report

Proposed Law School Building Site
Fordham University, Lincoln Center Campus
113 East 60th Street
Borough of Manhattan, New York City, New York County, New York



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Executive Summary

ENSR has completed a Phase II Site Investigation on the Proposed Law School Building Site at Fordham University's Lincoln Center Campus (Site). Fordham University plans on developing the Proposed Law School Site with buildings to accommodate a new law school, a student center, dormitory space, and accessory parking. The purpose of the Site Investigation was to initially characterize the environmental quality of fill material at the Site in order to develop an Excavation Management Plan including environmental specifications for building and utility excavation management. The Phase II Site Investigation field activities (geophysical survey and soil sampling) were implemented in accordance with the Proposed Law School Site Phase II Site Investigation Work Plan dated April 2008. Results of the Phase II Site Investigation confirmed the presence of fill material at the Site. It appears that the fill material extends down to the shallow bedrock located at the Site.

On March 21, 2008, ENSR installed 12 soil borings. For the purpose of generating preliminary waste characterization data representative of the Site, soil retrieved from all 12 borings was divided into four composite soil samples. Based on ENSR's experience with similar sites, discrete soil samples were collected at a frequency of four samples per acre. As the Site encompasses approximately 1.2-acres, five discrete soil samples were collected and submitted for laboratory analysis. The discrete soil samples were collected from the five soil borings exhibiting the highest observable impacts (i.e., photo-ionization detector readings above 0 parts per million). Refer to Table 1 for the soil sampling summary and Figures 2, 3, 4, and 5 for soil boring and sample locations.

Where possible, soil borings were installed to a maximum depth of 12 feet below ground surface (bgs). The majority of the borings were less than 12 feet bgs due to shallow bedrock refusal. Soil cores retrieved from each boring were visually inspected and field screened with a photo-ionization detector (PID) for the presence of volatile organic vapors. Five discrete soil samples collected from the soil borings exhibiting the highest PID readings were submitted for laboratory analysis of USEPA Target Compound List and Target Analyte List parameters as prescribed in the February 2008 Phase II Work Plan. Analytical results indicated that certain polycyclic aromatic hydrocarbons (PAHs) and metals are present in the fill material at concentrations exceeding the New York Technical and Administrative Guidance Memorandum Recommended Soil Cleanup Objectives (NY TAGM RSCO) and Residential Soil Cleanup Objectives (6NYSRRC Part 375-6.8(a,b) which are used here as appropriate guidelines. Concentrations of these metals also exceeded their ranges for Eastern USA Background Concentrations. ENSR recommends addressing these exceedances by excavation and off-site disposal during building foundation excavation activities. Any fill material that will remain on the Site should be managed pursuant to best engineering and management practices and applicable New York State Department of Environmental Conservation (NYSDEC) guidelines.

Subsequent to the discrete soil sampling, ENSR collected four composite soil samples from the 12 soil borings. Composite soil sample locations are shown on Figure 5. The composite samples were analyzed for the full suite of USEPA Toxicity Characteristic Leaching Procedure (TCLP) Waste Classification parameters. The purpose of the composite sampling was to obtain preliminary waste characterization data to aid in the preparation of the Excavation Management Plan. Based on the analytical results, ENSR anticipates that all soil and fill material designated for excavation and off-site disposal can be disposed of as non-hazardous waste at an appropriately permitted and/or licensed soil disposal and/or recycling facility.

As part of foundation construction activities associated with the Proposed Law School Site, ENSR anticipates that all fill material will be excavated horizontally to the Proposed Law School Site boundaries and vertically to bedrock to facilitate construction of the proposed buildings. The amount of fill material to be removed from the site will be determined by the final project design.

In summary, all fill material excavated at the Site should be characterized and managed pursuant to applicable NYSDEC guidance; excess fill material should be transported and disposed of off-site at a facility approved and licensed to receive the material.

1.0 Introduction

This Phase II Site Investigation Report was prepared following the guidelines set forth in the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER) Draft DER-10 Technical Guidance for Site Investigation and Remediation dated December 2002. The Report documents the implementation of the sampling activities proposed in the April 2008 Phase II Site Investigation Work Plan for the Proposed Law School Site, prepared by ENSR on behalf of Fordham University.

1.1 Phase II Site Investigation Objectives

The purpose of the Site Investigation was to initially characterize the environmental quality of fill material at the Site in order to develop an Excavation Management Plan including environmental specifications for building and utility excavation management. The goal of the Phase II Site Investigation is to generate soil quality data to be used in the preparation of an Excavation Management Plan and to evaluate potential disposal facilities for on-site soil and fill during construction of the new law school, student center, dormitory, and parking structures. The Excavation Management Plan will detail procedures to be followed during on-site excavation activities and off-site disposal of soil and fill. Potential soil disposal facilities to be evaluated for the Proposed Law School construction project are listed below:

- Bellmawr Waterfront Redevelopment, located in Camden County, New Jersey;
- Middlesex County Utilities Authority, located in East Brunswick, New Jersey;
- SoilSafe, located in Logan Township, New Jersey;

1.2 Site Location

The New Law School Building Site (site) is a ±1.2-acre tract of land located within the northeastern portion of Fordham University's Lincoln Center Campus in the Borough of Manhattan, New York City, Manhattan County, New York. The site is comprised of Lot 35 and a portion of Lot 20 in Block 1133. The location of the site is shown on Figures 1 and 2 (Regional Site Location Map and Site Map, respectively). The Site is bordered to the north by 62nd Street and to the west by Amsterdam Avenue.

1.3 Site Improvements/Operations

The western portion of the Site (Lot 35) is a vacant lot. The eastern portion of the Site (portion of Lot 20) contains a landscaped area.

1.4 Physical Setting

The following subsections describe the physical setting of the Site.

1.4.1 Topography

According to the United States Department of the Interior Geological Survey (USGS) topographical map for the Central park, New York Quadrangle revised 1979, topography of the site is relatively flat at an average elevation of approximately 80 feet above mean sea level (MSL).

1.4.2 Soils

Existing soil data for the site was obtained from an August 17, 2006 letter documenting the results of an environmental investigation conducted by Stearns & Wheler, LLC, and from a September 30, 1958 site plan titled "Test Boring Plan and Boring Logs" prepared by Voorhees Walker Smith & Smith. The Stearns & Wheler

Report is included as Appendix A followed by the Test Boring Plan and Boring Logs in Appendix B. This data was used to supplement soil data (Appendix C) generated by ENSR as part of the Phase II Site Investigation. Soil types encountered at the Site are as follows:

- **Fill** – A discontinuous layer of fill material containing silty sand, gravel, brick, concrete, and rock appears to be present at the site. The fill material extends to a maximum depth of approximately 12 feet below ground surface (bgs).
- **Silt/Sand** – A discontinuous layer of brown fine silty sand and silty clay to a maximum depth of approximately 10 feet bgs. This soil type was encountered below the fill material layer and in surficial soil.

Soil boring observations made by ENSR confirmed the presence of fill material at the Site. Soil boring logs recorded by ENSR are included in Appendix C.

1.4.3 Geology

According to the Bedrock Geologic Map of New York County and parts of Kings and Queens Counties, New York, and parts of Bergen and Hudson Counties, New Jersey, bedrock below the Site is mapped as the Hartland Formation (Middle Ordovician to Lower Cambrian). The Hartland Formation contains the following interbedded units:

- Gray and gray-weathering, fine-grained quartz feldspar granulite containing minor biotite and garnet;
- Fine to coarse-grained, gray to tan weathering, quartzofeldspathic, muscovite-biotite-garnet schist; and
- Dark-greenish-black quartz-biotite, hornblende amphibolite

Depths to bedrock range from an outcrop visible at the Site surface on Lot 35 to approximately 20 feet bgs based on existing soil boring data.

1.4.4 Hydrology/Hydrogeology

No surface water features are located on the Site. Storm water runoff follows site topography and either infiltrates the ground surface or is collected by nearby storm water catch basins. In June 2005, Stearns & Wheler, LLC installed four bedrock monitoring wells (MW-1 through MW-4) at the Lot 35 portion of the Site. Stearns & Wheler, LLC indicated that groundwater appears to be primarily within the bedrock or near the bedrock-soil interface. Stearns & Wheler, LLC also collected groundwater samples from each monitoring well for volatile organic compound (VOC) and semi-volatile organic compound (SVOC) analysis. Analytical results for MW-1, MW-3, and MW-4 indicated no concentrations of targeted compounds. MW-2 exhibited concentrations of naphthalene (14 µg/l) and 1,2,4-trimethylbenzene (11 µg/l) above the NYSDEC Groundwater standards of 10 µg/l and 5 µg/l, respectively. Stearns & Wheler, LLC concluded that the chemical signatures of these compounds are related to degraded gasoline and are not likely related to soils on Lot 35. Observations made by ENSR during the March 21, 2008 field activities revealed that these four wells have not been properly abandoned.

1.5 Existing Environmental Information

Existing environmental information reviewed by ENSR consisted of the following reports:

- Stearns & Wheler, LLC. 2006. Fordham University Environmental Investigation. NYSDEC Spill #96-11310. August 17, 2006.

- AKRF, Inc. 2007. Phase I Environmental Site Assessment. Fordham University – Lincoln Center, New York, New York. July 2007.

August 17, 2006 Fordham University Environmental Investigation - Based on ENSR's review of the Stearns & Wheler, LLC Fordham University Environmental Investigation letter report dated August 17, 2006, Fordham University was notified by the New York State Office of the Attorney General that it believed Fordham University to be liable for the cleanup and removal costs incurred by the New York Environmental Protection and Spill Compensation Fund (Spill Case No. 96-11310). Reportedly, the Attorney General's Office claimed that diesel fuel released by Fordham University on the Lot 35 portion of the Site had migrated through subsurface soils and impacted the parking garage at the Lincoln Center for Performing Arts property located to the north, across East 62nd Street. Historically, Fordham University periodically leased Lot 35 to Restaurant Associates who would erect a temporary catering facility on the property for several months during the year. Stearns & Wheler, LLC indicated that Fordham University submitted a Work Plan to the State that detailed the proposed subsurface investigation needed to determine if the Site was the source of the spill. Upon review of the work Plan, the state provided comments and requested revisions which were subsequently incorporated into an Amended Work Plan. The initial Work Plan and Amended Work Plan were not available for ENSR review. Stearns & Wheler, LLC implemented the subsurface investigation in May 2005 and the results of the investigation were forwarded to the NYSDEC Case Manager Mr. Jeffrey Vought on August 17, 2006.

The scope of the investigation included soil and groundwater sampling on Lot 35. As previously discussed in Section 1.4.4, the groundwater portion of the investigation included the installation and sampling of four bedrock groundwater monitoring wells (MW-1 through MW-4). Based on the sampling results, naphthalene and 1,2,4-trimethylbenzene were detected above NYSDEC Groundwater Standards in MW-2. No other exceedances of groundwater standards were detected. Based on these results, Stearns & Wheler, LLC concluded that the chemical signatures of these compounds are related to degraded gasoline and are not likely related to soils on Lot 35.

Stearns & Wheler, LLC installed 10 soil borings in a grid pattern across Lot 35 to determine if a spill of diesel fuel had occurred. During soil boring installation, fill material was identified at depths ranging from 2.5 to 9 feet below ground surface (bgs) and no free product was found. Bedrock was present below the fill material. From each soil boring, one soil sample was collected and analyzed for the Spill Technology and Remediation Series (STARS) list of volatile organic compound (VOC) and semi-volatile organic compound (SVOC) parameters. Stearns & Wheler, LLC compared the soil sample analytical results to TCLP Alternative Guidance Values and identified several SVOC compounds above this criteria. No VOC exceedances were detected. Based on the sample locations and analytical results, Stearns & Wheler, LLC concluded that the Site was not the source of the diesel fuel spill that was impacting the Lincoln Center Parking Garage and that SVOC exceedances detected at the Site were perhaps likely due to several small scale surface spills that occurred during former tenant operations.

On March 14, 2008, ENSR contacted the NYSDEC Case Manager (Mr. Jeffrey Vought) to determine the current status of Spill Case No. 96-11310. Mr. Vought confirmed that Fordham University was not the source of the diesel fuel spill that impacted the parking garage at Lincoln Center.

2007 Phase I Environmental Site Assessment – AKRF, Inc. conducted a Phase I Environmental Site Assessment of Fordham University's Lincoln Center Campus in 2007. Areas of environmental concern (AOCs) identified by AKRF specific to the New Law School Site include potential heating oil storage tanks associated with former residential and commercial structures, Spill Case No. 9611310 (previously discussed), and fill material.

2.0 Technical Overview

This section provides an overview of the recent site investigation activities that have been conducted and describes the procedures and methods employed. The site investigation activities that are described herein are as follows:

- Geophysical Survey
- Soil Sampling

2.1 Pre-Drilling Activities

The following activities were conducted prior to implementing the Phase II Site Investigation:

2.1.1 Health and Safety Plan (HASP)

Prior to conducting Phase II Site Investigation activities, ENSR prepared a site-specific HASP in accordance with the most recently adopted and applicable general industry (29 CFR 1910) standards of the Occupational Safety and Health Administration (OSHA). Copies of the HASP were distributed to Fordham University Personnel, ENSR field staff, and ENSR's subcontractors. Copies of the HASP were maintained on-site during the geophysical survey and soil sampling activities.

2.1.2 Utility Mark-Out and Geophysical Survey

Prior to initiating the drilling and sampling activities, ENSR's subcontractor (Environmental Field Services, Inc.) notified the New York One Call System (1-800-272-4480) of the soil boring activities so that underground utility locations (up to the street curb) can be located by One Call personnel. ENSR is not responsible for damage to underground utilities that are not marked or identified by the local utility service.

On March 18, 2008, under ENSR supervision, Advanced Geophysical Services conducted a geophysical survey at the site utilizing ground-penetrating radar (GPR) and electromagnetic (EM) survey techniques. The goals of the geophysical survey were to map underground utilities and clear proposed soil borings of underground utilities and to identify any subsurface anomalies.

Available as-built plans of underground utilities were reviewed by ENSR and Advanced Geophysical Services prior to implementing the geophysical survey. ENSR field staff marked the locations of the proposed soil borings which were subsequently scanned and "cleared" of any subsurface utilities. Advanced Geophysical Services marked the locations of identified subsurface utilities with spray paint.

Lastly, no subsurface anomalies indicating the presence of USTs were detected during the geophysical survey.

2.2 Soil Boring and Sampling Activities

On March 21, 2008, ENSR and Environmental Field Services, Inc. (EFS) mobilized to the site to complete the soil boring and soil sampling activities to initially characterize the environmental quality of on-site fill material. The soil boring and sampling activities were conducted in accordance with the proposed sampling plan contained in the April 2008 Phase II Site Investigation Work Plan.

A total of 12 soil borings (LC-1 through LC-12) were installed at the site using an all-terrain track-mounted Geoprobe® sampling system. Soil boring locations are presented on Figure 2. From each boring, continuous soil cores were retrieved and logged to assess soil lithology, identify visual or olfactory evidence of

contamination, and screen for volatile organic vapors with a photo-ionization detector (PID). Soil boring depths ranged from 4 to 12 feet bgs. For the purpose of generating preliminary waste characterization data representative of the Site, soil retrieved from all 12 borings was divided into four composite soil samples. Based on ENSR's experience with similar sites, discrete soil samples were collected at a frequency of four samples per acre. As the Site encompasses approximately 1.2-acres, five discrete soil samples were collected. Sampling activities are further discussed below. The soil sampling and exceedance summary is presented on Table 1. Soil boring observations were recorded on soil boring logs which are included in Appendix C.

Discrete Soil Sampling

Five discrete soil samples (D-1 through D-5) were collected from the soil borings (LC-2, LC-5, LC-8, LC-11, and LC-12). These sample locations correspond to five soil borings exhibiting the highest observable impacts (i.e., PID readings above 0 parts per million) pursuant to the selection criteria indicated in the Phase II Site Investigation Work Plan. Soil sample locations and depths are presented on Figures 2, 3, and 4. All discrete soil samples collected were analyzed for a combination of Target Compound List plus 30/Target Analyte List (TCL+30/TAL) parameters (i.e., TCL volatile organic compounds, TCL semi-volatile organic compounds, TCL Pesticides, polychlorinated biphenyls, TAL Metals, and Total Cyanide) and Priority Pollutant Metals (PP Metals) following the guidelines set forth in the Draft DER-10. The soil samples were delivered to Integrated Analytical laboratories, Inc. (IAL) located in Randolph, New Jersey. IAL is a NYSDOH ELAP certified laboratory (Laboratory Certification No. 11402).

Composite Soil Sampling

Subsequent to the discrete soil sampling, ENSR collected four composite soil samples from the soil retrieved from all 12 soil borings to generate preliminary waste characterization data representative of the entire Site. Sample C-1 was collected from soil borings LC-10, LC-11, and LC-12. Sample C-2 was collected from soil borings LC-7, LC-8, and LC-9. Sample C-3 was collected from soil borings LC-4, LC-5, and LC-6 and sample C-4 was collected from soil borings LC-1, LC-2, and LC-3. Refer to Table 1 and Figure 5 for the composite soil sampling summary. The composite samples were analyzed for the full suite of USEPA Toxicity Characteristic Leaching Procedure (TCLP) Waste Classification parameters (i.e., TCLP Volatiles, TCLP Semi-Volatiles, TCLP Pesticides, TCLP Herbicides, TCLP Metals, PCBs, and RCRA Characteristics). Composite sample analysis was also completed by IAL.

Quality Assurance/Quality Control (QA/QC) Samples

QA/QC samples were collected following the guidelines set forth in the NYSDEC Draft DER-10. These samples are summarized below:

- Field/Rinse Blank - One field/rinse blank collected and analyzed to detect any potential cross contamination from sampling equipment.
- Trip Blank - One trip blank sample accompanied the samples to laboratory to detect any potential cross contamination during sample shipment.
- Coded Field Duplicate – One duplicate soil sample was collected from the location of soil sample D-4. The Coded Field Duplicate sample was labeled D-6 so the laboratory wouldn't recognize this sample as a duplicate.
- Site-Specific MS/MSD - Additional soil from soil boring LC-5 was provided for the laboratory to perform a site-specific matrix spike/matrix spike duplicate (MS/MSD) analysis.

3.0 Phase II Site Investigation Results

Section 3.0 presents a discussion of the results of the Phase II Site Investigation Activities.

3.1 Geophysical Survey

The geophysical survey was completed on March 18, 2008. The geophysical survey cleared the locations of the 12 soil boring locations proposed by ENSR and screened remaining portions of the Site for the presence of subsurface anomalies.

No subsurface anomalies indicating the presence of the former elevated subway or other structures including USTs were detected during the geophysical survey.

3.2 Soil Sample Analytical Results

The soil sample analytical results are presented on Table 2 and Table 3. In lieu of site-specific soil cleanup criteria for the Site and for general screening purposes, analytical results for the discrete soil samples were compared to the New York Technical and Administrative Guidance Memorandum (NYTAGM) Recommended Soil Cleanup Objectives (RSCO), Eastern USA Background Concentrations, and Residential Soil Cleanup Objectives (6NYSCRR Part 375-6.8(a,b)). The NYTAGM RSCO and Eastern USA Background Concentrations are utilized by the NYSDEC as generic soil cleanup objectives for assessing significant threats to human health and/or the environment. The Residential Soil Cleanup Objectives (6NYSCRR Part 375-6.8(a,b)) provide contaminant-specific soil cleanup objectives based on the intended use of the Site. Analytical results of the composite soil samples were compared to USEPA Regulatory Action Levels. Site soils will be deemed hazardous only if these USEPA Regulatory Action Levels are exceeded. Soil sample locations are shown on Figures 3, 4, and 5. The following subsections provide a brief discussion of the soil sample results

Discrete Soil Sampling

Discrete soil samples D-4 and D-5 were collected at depths between 0 to 1.5 feet bgs and were analyzed for the full suite of TCL+30/TAL parameters while soil samples D-1, D-2, and D-3 were collected at depths between 4 and 8.5 feet bgs and were analyzed only for TCL SVOCs and PP Metals. Table 2 provides a summary of analytical results for the discrete soil samples.

Based on the analytical results, concentrations of certain polycyclic aromatic hydrocarbon (PAH) compounds above the NY TAGM RSCO were detected in soil samples D-2: specifically benzo(a)anthracene, chrysene, and benzo(a)pyrene. These compounds and dibenz(a,h)anthracene were detected in sample D-4 at concentrations exceeding their respective NY TAGM RSCO and Residential Soil Cleanup Objectives.

With respect to Metals, each of the discrete sample locations except for sample D-3 exhibited concentrations of one or more metals above their respective NY TAGM RSCO and Eastern USA Background Concentrations. Exceedances of the Residential Soil Cleanup Criteria were limited to lead in sample D-2 and mercury in sample D-4.

Remaining compounds were either non-detectable or were detected below their respective NY TAGM RSCO, Eastern USA Background Concentrations, and/or Residential Soil Cleanup Objectives.

Composite Soil Sampling

Composite soil samples C-1 through C-4 were analyzed for the full suite of USEPA TCLP Waste Classification Parameters. Based on the analytical results, no detectable concentrations of TCLP Waste Classification Parameters were identified except for lead in sample C-1. Lead was detected at 0.139 mg/L in sample C-1,

below the corresponding USEPA Regulatory Action Level for lead (5 mg/L). Table 3 provides a summary of analytical results for the composite soil sampling.

3.3 Quality Assurance/Quality Control

QA/QC samples were collected following the guidelines set forth in the NYSDEC Draft DER-10. Table 4 summarizes the QA/QC analytical results. These samples and their analytical results are also summarized

- Field/Rinse Blank - One field/rinse blank sample (F032108) was collected and analyzed for the full suite of TCL+30/TAL parameters. The purpose of this sample was to detect any potential cross contamination from sampling equipment. Based on the analytical results, all TCL+30/TAL parameters were non-detectable.
- Trip Blank - One trip blank sample (T032108) accompanied the samples to the laboratory and was analyzed for TCL VOCs to detect any potential cross contamination during sample shipment. Analytical results indicated non-detectable TCL VOC concentrations.
- Coded Field Duplicate – One duplicate soil sample was collected from the location of soil sample D-4. The Coded Field Duplicate sample was labeled D-6 so the laboratory wouldn't recognize this sample as a duplicate. Sample D-6 was analyzed for TCL+30/TAL parameters and total cyanide. Analytical results indicated that the only TCL+30/TAL compounds detected above their respective NY TAGM RSCO were chromium, copper, mercury, and nickel. Concentrations of mercury and nickel also exceeded their respective Eastern USA Background Concentrations. Laboratory data reviewed by ENSR indicated that relative percent differences between several metal and PAH compounds detected in sample D-4 and the corresponding duplicate sample D-6 are above the +/-30 percent guidance level specified by NYSDEC. The difference is attributed to non-homogenous fill material present at the Site.

3.4 Data Usability

Upon review of the analytical data package compiled by IAL, all samples were received by the laboratory intact. All samples were analyzed within their specific sample holding times. Method detection limits were acceptable for each analyte. Upon review of the laboratory analytical data package it was determined that the data generated is acceptable for its intended purpose. The laboratory analytical data package has been included in Appendix C.

3.5 Investigation Derived Waste (IDW)

Pursuant to NYSDEC TAGM 4032 – Disposal of Drill Cuttings, soil from the soil borings was returned to their respective boreholes and no IDW was generated for off-site disposal.

4.0 Conclusions and Recommendations

4.1 Conclusions

ENSR has completed this Phase II Site Investigation at the Proposed Law School Site on behalf of Fordham University. The scope of this investigation included soil sampling to initially assess the environmental quality of on-site fill material. Field activities were conducted on March 18, 2008 (Geophysical Survey) and on March 21, 2008 (Soil boring and sampling activities). The Phase II Site Investigation strategy and methodology followed the guidelines set forth in the NYSDEC Draft DER-10.

In conclusion, fill material was encountered in all soil borings installed by ENSR at the Proposed Law School Site. Based on soil boring observations recorded by ENSR on March 21, 2008 and soil boring observations recorded by Stearns & Wheeler and Voorhees, Walker, Smith & Smith, fill material is present on the Proposed Law School Site to a maximum depth of approximately 20 feet bgs. Discrete soil samples D-1 through D-5 were collected to initially assess the environmental quality of on-site fill material. Composite soil samples C-1 through C-4 were collected to obtain preliminary waste characterization data

Based on the discrete soil sampling analytical results, concentrations of certain PAH compounds exceeded their NY TAGM RSCO in two soil samples (D-2 and D-4). The same PAH compounds exceeded their respective Residential Soil Cleanup Objective in sample D-4 only. Each of the discrete soil samples except for sample D-3 exhibited concentrations of one or more metals above their respective NY TAGM RSCO and Eastern USA Background Concentrations. Exceedances of the Residential Soil Cleanup Criteria were limited to lead in sample D-2 and mercury in sample D-4. Due to the heterogeneous nature of the fill material, results appear to vary across the Site as shown on Figures 3 and 4. The contaminants of concern detected are commonly found in both historic and other types of fill material.

Based on the composite soil sampling analytical results, ENSR anticipates that excess soil and fill material displaced by building foundation construction activities can be disposed of as non-hazardous waste.

4.2 Recommendations

As part of foundation construction activities associated with the Proposed Law School Site, ENSR anticipates that all fill material will be excavated horizontally to the Site boundaries and vertically to bedrock to facilitate construction of the proposed buildings. The amount of fill material to be removed from the site will be determined by the final project design.

In summary, ENSR recommends that fill material excavated for off-site disposal be characterized and managed pursuant NYSDEC guidance, and transported disposed at a facility approved and licensed to receive the material.

ENSR recommends that the potential risks associated with fill material to remain on-site be managed consistent with the future use of the project site which may include Student Housing. Management options may consist of engineering or institutional controls, including, but not limited to: incorporation of potential hazard mitigation into overall project design (i.e. paved parking areas, concrete sidewalks, etc.); the placement of clean cover material at landscaped areas, and the implementation of an Operations and Maintenance (O&M) program. At a minimum, management options selected should be consistent with best engineering practices and NYSDEC guidelines.

Tables

**Table 1
Soil Sample Summary and Exceedances
Proposed Law School Site
Fordham University, Lincoln Center, New York**

Description	Soil Boring	Sample ID	Matrix	Sample Depth (ft bgs)	Analytical Parameters	TAGM 4046 Exceedances	USA Background Concentration Exceedances (metals only)	Residential Soil Cleanup Objective (6NYSRR Part 375-6.8(b)) Exceedances
Discrete Soil Sampling	LC-8	D-1	Soil	8-8.5	TCL SVOCs, PP Metals	Chromium, Selenium	None	None
	LC-11	D-2	Soil	8-8.5	TCL SVOCs, PP Metals	Benzo(a)anthracene, Chrysene, Benzo(a)pyrene, Chromium, Lead, Mercury, Nickel, Selenium, Zinc	Mercury, Selenium, Zinc	Lead
	LC-12	D-3	Soil	4-4.5	TCL SVOCs, PP Metals	None	None	None
	LC-5	D-4	Soil	0-0.5	TCL+30/TAL	Benzo(a)anthracene, Chrysene, Benzo(a)pyrene, Dibenz(a,h)anthracene, Barium, Chromium, Copper, Mercury, Nickel, Zinc	Mercury, Nickel, Zinc	Mercury
	LC-2	D-5	Soil	0-0.5	TCL+30/TAL	Chromium, Mercury, Nickel, Zinc	Mercury, Nickel, Zinc	None
Composite Soil Sampling	LC-1, LC-2, LC-3	C-4	Soil	NA	Full TCLP Waste Classification Parameters	NA	NA	None
	LC-4, LC-5, LC-6	C-3	Soil	NA		NA	NA	NA
	LC-7, LC-8, LC-9	C-2	Soil	NA		NA	NA	NA
	LC-10, LC-11, LC-12	C-1	Soil	NA		NA	NA	NA
QA/QC	LC-5	D-6/Duplicate of D-4	Soil	0-0.5	TCL+30/TAL	Chromium, Mercury, Nickel, Zinc	Mercury, Nickel, Zinc	None
	LC-5	MS/MSD	Soil	NA	TAL Metals	NA	NA	NA
	Field Blank	FB013008	Aqueous	NA	TCL+30/TAL	NA	NA	NA
	Trip Blank	TB013008	Aqueous	NA	TCL VOCs	NA	NA	NA

Notes:
 NA - Not Applicable
 TCL+30/TAL - USEPA Target Compound List/Target Analyte List
 VOCs - Volatile organic compounds
 SVOCs - Semivolatile organic compounds
 PCBs - Polychlorinated biphenyls
 TCLP - Toxic Characteristic Leaching Procedure

Table 2
Summary of Analytical Results Discrete Soil Sampling
Proposed law School Site
Fordham University, Lincoln Center, New York

Client ID:	TAGM 4046	D-4	D-5	D-6
Sample Depth:	Rec. Soil	0-0.5	0-0.5	0-0.5
Lab ID:	Cleanup	03167-004	03167-005	03167-006
Date Sampled:	Objective	03/21/2008	03/21/2008	03/21/2008
Matrix:	(ppm)	Soil	Soil	Soil
Volatiles (ppm)		Conc	Conc	Conc
Dichlorodifluoromethane	(NA)	ND	ND	ND
Chloromethane	(NA)	ND	ND	ND
Vinyl chloride	0.2	ND	ND	ND
Bromomethane	(NA)	ND	ND	ND
Chloroethane	1.9	ND	ND	ND
Trichlorofluoromethane	(NA)	ND	ND	ND
1,1-Dichloroethene	0.4	ND	ND	ND
Acetone	0.2	ND	ND	ND
Carbon disulfide	2.7	ND	ND	ND
Methylene chloride	0.1	ND	ND	ND
trans-1,2-Dichloroethene	0.3	ND	ND	ND
Methyl tert-butyl ether (MTBE)	(NA)	ND	ND	ND
1,1-Dichloroethane	0.2	ND	ND	ND
cis-1,2-Dichloroethene	(NA)	ND	ND	ND
2-Butanone (MEK)	0.3	ND	ND	ND
Bromochloromethane	(NA)	ND	ND	ND
Chloroform	0.3	ND	ND	ND
1,1,1-Trichloroethane	0.8	ND	ND	ND
Carbon tetrachloride	0.6	ND	ND	ND
1,2-Dichloroethane (EDC)	0.1	ND	ND	ND
Benzene	0.06	ND	ND	ND
Trichloroethene	0.7	ND	ND	ND
1,2-Dichloropropane	(NA)	ND	ND	ND
Bromodichloromethane	(NA)	ND	ND	ND
cis-1,3-Dichloropropene	(NA)	ND	ND	ND
4-Methyl-2-pentanone (MIBK)	1.0	ND	ND	ND
Toluene	1.5	ND	ND	ND
trans-1,3-Dichloropropene	(NA)	ND	ND	ND
1,1,2-Trichloroethane	(NA)	ND	ND	ND
Tetrachloroethene	1.4	ND	ND	ND
2-Hexanone	(NA)	ND	ND	ND
Dibromochloromethane	(NA)	ND	ND	ND
1,2-Dibromoethane (EDB)	(NA)	ND	ND	ND
Chlorobenzene	1.7	ND	ND	ND
Ethylbenzene	5.5	ND	ND	ND
Total Xylenes	1.2	ND	ND	ND
Styrene	(NA)	ND	ND	ND
Bromoform	(NA)	ND	ND	ND
Isopropylbenzene	(NA)	ND	ND	ND
1,1,2,2-Tetrachloroethane	0.6	ND	ND	ND
1,3-Dichlorobenzene	1.6	ND	ND	ND
1,4-Dichlorobenzene	8.5	ND	ND	ND
1,2-Dichlorobenzene	7.9	ND	ND	ND
1,2-Dibromo-3-chloropropane	(NA)	ND	ND	ND
1,2,4-Trichlorobenzene	3.4	ND	ND	ND
1,2,3-Trichlorobenzene	(NA)	ND	ND	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	6.0	ND	ND	ND
Methyl acetate	(NA)	ND	ND	ND
Cyclohexane	(NA)	ND	ND	ND
Methylcyclohexane	(NA)	ND	ND	ND
TOTAL VO's:	NA	ND	ND	ND
TOTAL TIC's:	NA	ND	ND	ND
TOTAL VO's & TIC's:	NA	ND	ND	ND

Table 2
Summary of Analytical Results Discrete Soil Sampling
Proposed Law School Site
Fordham University, Lincoln Center, New York

Client ID:	TAGM 4046	6NYSCR	D-1		D-2		D-3		D-4		D-5		D-6	
Sample Depth:	Rec. Soil	Part 375-6.8(b)	8-8.5		8-8.5		4-4.5		0-0.5		0-0.5		0-0.5	
Lab ID:	Cleanup	Residential Soil	03167-001		03167-002		03167-003		03167-004		03167-005		03167-006	
Date Sampled:	Objective	Cleanup Objective	03/21/2008		03/21/2008		03/21/2008		03/21/2008		03/21/2008		03/21/2008	
Matrix:	(ppm)	(ppm)	Soil		Soil		Soil		Soil		Soil		Soil	
Semivolatiles - BNA (ppm)			Result	MDL	Result	MDL	Result	MDL	result	MDL	Result	MDL	Result	MDL
Benzaldehyde	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Phenol	0.03*	100	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Bis(2-chloroethyl) ether	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2-Chlorophenol	0.8	100	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2-Methylphenol	0.100*	100	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Bis(2-chloroisopropyl) ether	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
4-Methylphenol	0.9	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
N-Nitrosodi-n-propylamine	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Acetophenone	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Hexachloroethane	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Nitrobenzene	0.200*	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Isophorone	4.40	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2-Nitrophenol	0.330*	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2,4+2,5-Dimethylphenol	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Bis(2-chloroethoxy) methane	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2,4-Dichlorophenol	0.4	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Naphthalene	13.0	100	ND	0.213	ND	0.212	ND	0.182	0.160 J	0.208	ND	0.191	ND	0.207
4-Chloroaniline	0.220*	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Hexachlorobutadiene	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Caprolactam	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
4-Chloro-3-methylphenol	0.240*	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2-Methylnaphthalene	36.4	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Hexachlorocyclopentadiene	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2,4,6-Trichlorophenol	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2,4,5-Trichlorophenol	0.1	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Biphenyl	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2-Chloronaphthalene	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2-Nitroaniline	0.430*	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Dimethyl phthalate	2.0	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2,6-Dinitrotoluene	1.0	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Acenaphthylene	41.0	100	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207

* = Cleanup Objective is the value shown or MDL whichever is higher
Bold = Concentration exceeds TAGM Cleanup Objectives but not Residential Cleanup Objectives
Bold = Concentration exceeds both TAGM and Residential Cleanup Objectives
Italic = Concentration exceeds Residential Cleanup Objectives but not TAGM Cleanup Objectives

Table 2
Summary of Analytical Results Discrete Soil Sampling
Proposed Law School Site
Fordham University, Lincoln Center, New York

Client ID:	TAGM 4046	6NYSCRR	D-1		D-2		D-3		D-4		D-5		D-6	
Sample Depth:	Rec. Soil	Part 375-6.8(b)	8-8.5		8-8.5		4-4.5		0-0.5		0-0.5		0-0.5	
Lab ID:	Cleanup	Residential Soil	03167-001		03167-002		03167-003		03167-004		03167-005		03167-006	
Date Sampled:	Objective	Cleanup Objective	03/21/2008		03/21/2008		03/21/2008		03/21/2008		03/21/2008		03/21/2008	
Matrix:	(ppm)	(ppm)	Soil		Soil		Soil		Soil		Soil		Soil	
Semivolatiles - BNA (ppm)			Result	MDL	Result	MDL	Result	MDL	result	MDL	Result	MDL	Result	MDL
3-Nitroaniline	0.500*	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Acenaphthene	50.0	100	ND	0.213	ND	0.212	ND	0.182	0.181 J	0.208	ND	0.191	ND	0.207
2,4-Dinitrophenol	0.200	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
4-Nitrophenol	0.100*	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
2,4-Dinitrotoluene	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Dibenzofuran	6.2	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Diethyl phthalate	7.1	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Fluorene	50.0	(NA)	ND	0.213	ND	0.212	ND	0.182	0.285	0.208	ND	0.191	ND	0.207
4-Chlorophenyl phenyl ether	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
4-Nitroaniline	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
1,2,4,5-Tetrachlorobenzene	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
4,6-Dinitro-2-methylphenol	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
N-Nitrosodiphenylamine	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
4-Bromophenyl phenyl ether	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Hexachlorobenzene	0.41	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Atrazine	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Pentachlorophenol	1.0*	2.4	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Phenanthrene	50.0	100	ND	0.213	0.801	0.212	ND	0.182	2.00	0.208	ND	0.191	ND	0.207
Anthracene	50.0	100	ND	0.213	0.131 J	0.212	ND	0.182	0.470	0.208	ND	0.191	ND	0.207
Carbazole	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	0.189 J	0.208	ND	0.191	ND	0.207
Di-n-butyl phthalate	8.1	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Fluoranthene	50.0	100	ND	0.213	0.956	0.212	ND	0.182	1.97	0.208	ND	0.191	0.181 J	0.207
Pyrene	50.0	100	ND	0.213	1.04	0.212	ND	0.182	1.79	0.208	ND	0.191	0.209	0.207
Butyl benzyl phthalate	50.0	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
3,3'-Dichlorobenzidine	(NA)	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Benzo[a]anthracene	0.224*	1	ND	0.213	0.536	0.212	ND	0.182	1.15	0.208	ND	0.191	0.139 J	0.207
Chrysene	0.4	1	ND	0.213	0.594	0.212	ND	0.182	1.16	0.208	ND	0.191	0.126 J	0.207
Bis(2-ethylhexyl) phthalate	50.0	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Di-n-octyl phthalate	50.0	(NA)	ND	0.213	ND	0.212	ND	0.182	ND	0.208	ND	0.191	ND	0.207
Benzo[b]fluoranthene	1.1	1	ND	0.213	0.386	0.212	ND	0.182	1.03	0.208	ND	0.191	ND	0.207
Benzo[k]fluoranthene	1.1	1	ND	0.213	0.525	0.212	ND	0.182	0.838	0.208	ND	0.191	ND	0.207
Benzo[a]pyrene	0.061*	1	ND	0.213	0.522	0.212	ND	0.182	1.15	0.208	ND	0.191	ND	0.207
Indeno[1,2,3-cd]pyrene	3.2	0.5	ND	0.213	0.370	0.212	ND	0.182	0.870	0.208	ND	0.191	ND	0.207
Dibenz[a,h]anthracene	0.014*	0.33	ND	0.213	0.171 J	0.212	ND	0.182	0.344	0.208	ND	0.191	ND	0.207
Benzo[g,h,i]perylene	50.0	100	ND	0.213	0.441	0.212	ND	0.182	0.917	0.208	ND	0.191	ND	0.207
TOTAL BNA'S:	NA	NA	ND		6.47 J		ND		14.5 J		ND		0.655 J	
TOTAL TIC's:	NA	NA	ND		ND		ND		ND		ND		ND	
TOTAL BNA'S & TIC's:	NA	NA	ND		6.47 J		ND		14.5 J		ND		0.655 J	

* = Cleanup Objective is the value shown or MDL whichever is higher
Bold = Concentration exceeds TAGM Cleanup Objectives but not Residential Cleanup Objectives
Bold = Concentration exceeds both TAGM and Residential Cleanup Objectives
Italic = Concentration exceeds Residential Cleanup Objectives but not TAGM Cleanup Objectives

Table 2
Summary of Analytical Results Discrete Soil Sampling
Proposed Law School Site
Fordham University, Lincoln Center, New York

Client ID:	TAGM 4046	6NYSCRR	D-4	D-5	D-6
Sample Depth:	Rec. Soil	Part 375-6.8(b)	0-0.5	0-0.5	0-0.5
Lab ID:	Cleanup	Residential Soil	03167-004	03167-005	03167-006
Date Sampled:	Objective	Cleanup Objective	03/21/2008	03/21/2008	03/21/2008
Matrix:	(ppm)	(ppm)	Soil	Soil	Soil
PCB's (ppm)					
Aroclor-1016	1.0	1	ND	ND	ND
Aroclor-1221	1.0	1	ND	ND	ND
Aroclor-1232	1.0	1	ND	ND	ND
Aroclor-1242	1.0	1	ND	ND	ND
Aroclor-1248	1.0	1	ND	ND	ND
Aroclor-1254	1.0	1	ND	ND	ND
Aroclor-1260	1.0	1	ND	ND	ND
Pesticides (ppm)					
alpha-BHC	0.11	0.097	ND	ND	ND
beta-BHC	0.2	0.072	ND	ND	ND
gamma-BHC	0.06	0.28	ND	ND	ND
delta-BHC	0.3	100	ND	ND	ND
Heptachlor	0.10	0.42	ND	ND	ND
Aldrin	0.041	(NA)	ND	ND	ND
Heptachlor epoxide	0.02	(NA)	ND	ND	ND
Endosulfan I	0.9	4.8	ND	ND	ND
4,4'-DDE	2.1	1.8	ND	ND	ND
Dieldrin	0.044	0.039	ND	ND	ND
Endrin	0.10	2.2	ND	ND	ND
Endosulfan II	0.9	4.8	ND	ND	ND
4,4'-DDD	2.9	2.6	ND	ND	ND
Endrin aldehyde	(NA)	(NA)	ND	ND	ND
Endosulfan sulfate	1.0	4.8	ND	ND	ND
4,4'-DDT	2.1	1.7	0.119	ND	ND
Endrin ketone	(NA)	(NA)	ND	ND	ND
Methoxychlor	(NA)	(NA)	ND	ND	ND
alpha-Chlordane	(NA)	0.91	ND	ND	ND
gamma-Chlordane	0.54	(NA)	ND	ND	ND
Toxaphene	(NA)	(NA)	ND	ND	ND

Table 2
Summary of Analytical Results Discrete Soil Sampling
Proposed Law School Site
Fordham University, Lincoln Center, New York

Client ID: Sample Depth: Lab ID: Date Sampled: Matrix:	TAGM 4046 Rec. Soil Cleanup Objective (ppm)	Eastern USA Background Concentrations (ppm)	6NYSCRR Part 375-6.8(b) Residential Soil Cleanup Objective (ppm)	D-1 8-8.5 03167-001 03/21/2008 Soil	D-2 8-8.5 03167-002 03/21/2008 Soil	D-3 4-4.5 03167-003 03/21/2008 Soil	D-4 0-0.5 03167-004 03/21/2008 Soil	D-5 0-0.5 03167-005 03/21/2008 Soil	D-6 0-0.5 03167-006 03/21/2008 Soil
Metals (ppm)									
Aluminum	SB	33,000	NA	~	~	~	7940	4960	5190
Antimony	SB	NA	NA	ND	ND	ND	ND	ND	ND
Arsenic	7.5 or SB	3-12	16	1.17	5.03	ND	5.02	1.56	2.42
Barium	300 or SB	15-600	350	~	~	~	323	168	178
Beryllium	0.16 (HEAST) or SB	0-1.75	14	ND	ND	ND	ND	ND	ND
Cadmium	1 or SB	0.1-1	2.5	ND	0.319	ND	0.524	ND	ND
Calcium	SB	130-35,000	NA	~	~	~	17200	8750	13700
Chromium	10 or SB	1.5-40	36	14.2	13.3	ND	17.0	14.5	13.2
Cobalt	30 or SB	2.5-60	NA	~	~	~	6.03	5.03	4.82
Copper	25 or SB	1-50	270	15.0	23.8	ND	42.8	16.8	16.0
Iron	2000 or SB	2,000-550,000	NA	~	~	~	13300	8240	8460
Lead	SB	200-500	400	16.7	421	3.34	337	170	210
Magnesium	SB	100-5,000	NA	~	~	~	3370	2730	2710
Manganese	SB	50-5,000	2,000	~	~	~	271	281	254
Mercury	0.1	0.001-0.2	0.81	ND	0.481	ND	0.836	0.228	0.378
Nickel	13 or SB	0.5-25	140	9.81	13.3	1.29	26.5	38.4	32.2
Potassium	SB	8,500-43,000	NA	~	~	~	1360	1220	1010
Selenium	2 or SB	0.1-3.9	36	2.76	3.96	ND	ND	ND	ND
Silver	SB	NA	36	ND	ND	ND	ND	ND	ND
Sodium	SB	6,000-8,000	NA	~	~	~	134	170	187
Thallium	SB	NA	NA	ND	0.121	ND	0.147	ND	ND
Vanadium	150 or SB	1-300	NA	~	~	~	24.4	11.4	12.6
Zinc	20 or SB	9-50	2,200	18.5	311	11.3	281	95.3	108
General Analytical									
Cyanide, Total-ppm	(NA)	(NA)	(NA)	~	~	~	ND	ND	ND

~ = Sample not analyzed for
 ND = Analyzed for but Not Detected at the MDL
Bold = Concentration exceeds TAGM Soil Cleanup Objectives
Underline = Concentration exceeds Eastern USA Background Concentrations
Italic = Concentration exceeds Residential Soil Cleanup Criteria
 SB = Site Background

Table 3
Summary of Analytical Results Composite Soil Sampling
Proposed Law School Site
Fordham University, Lincoln Center, New York

Client ID: Sample Depth: Lab ID: Date Sampled: Matrix:	USEPA Regulatory Level (mg/L)	C-1 NA 03167-010 03/21/2008 Soil	C-2 NA 03167-011 03/21/2008 Soil	C-3 NA 03167-012 03/21/2008 Soil	C-4 NA 03167-013 03/21/2008 Soil
TCLP Volatiles (ppm)					
Vinyl chloride	0.2	ND	ND	ND	ND
1,1-Dichloroethene	0.7	ND	ND	ND	ND
2-Butanone (MEK)	200	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND
Carbon tetrachloride	0.5	ND	ND	ND	ND
1,2-Dichloroethane (EDC)	0.5	ND	ND	ND	ND
Benzene	0.5	ND	ND	ND	ND
Trichloroethene	0.5	ND	ND	ND	ND
Tetrachloroethene	0.7	ND	ND	ND	ND
Chlorobenzene	100	ND	ND	ND	ND
1,4-Dichlorobenzene	7.5	ND	ND	ND	ND
TCLP Semivolatiles (ppm)					
Pyridine	5	ND	ND	ND	ND
1,4-Dichlorobenzene	7.5	ND	ND	ND	ND
2-Methylphenol	200	ND	ND	ND	ND
3+4-Methylphenol	200	ND	ND	ND	ND
Hexachloroethane	3	ND	ND	ND	ND
Nitrobenzene	2	ND	ND	ND	ND
Hexachlorobutadiene	0.5	ND	ND	ND	ND
2,4,6-Trichlorophenol	2	ND	ND	ND	ND
2,4,5-Trichlorophenol	400	ND	ND	ND	ND
2,4-Dinitrotoluene	0.13	ND	ND	ND	ND
Hexachlorobenzene	0.13	ND	ND	ND	ND
Pentachlorophenol	100	ND	ND	ND	ND
PCB's (ppm)					
Aroclor-1016	NA	ND	ND	ND	ND
Aroclor-1221	NA	ND	ND	ND	ND
Aroclor-1232	NA	ND	ND	ND	ND
Aroclor-1242	NA	ND	ND	ND	ND
Aroclor-1248	NA	ND	ND	ND	ND
Aroclor-1254	NA	ND	ND	ND	ND
Aroclor-1260	NA	ND	ND	ND	ND
Hydrocarbons (ppm)					
DRO	NA	ND	ND	ND	ND
TCLP Pesticides (ppm)					
gamma-BHC	0.4	ND	ND	ND	ND
Heptachlor	0.008	ND	ND	ND	ND
Endrin	0.02	ND	ND	ND	ND
Methoxychlor	10	ND	ND	ND	ND
alpha-Chlordane	0.03	ND	ND	ND	ND
gamma-Chlordane	0.03	ND	ND	ND	ND
Toxaphene	0.5	ND	ND	ND	ND
TCLP Herbicides (ppm)					
na	NA	ND	ND	ND	ND
na	NA	ND	ND	ND	ND
TCLP Metals (ppm)					
TCLP Arsenic	50	ND	ND	ND	ND
TCLP Barium	100	ND	ND	ND	ND
TCLP Cadmium	1	ND	ND	ND	ND
TCLP Chromium	5	ND	ND	ND	ND
TCLP Lead	5	0.139	ND	ND	ND
TCLP Mercury	0.2	ND	ND	ND	ND
TCLP Selenium	1	ND	ND	ND	ND
TCLP Silver	5	ND	ND	ND	ND
General Analytical					
pH/Corrosivity-SU	NA	9.15	8.71	8.73	8.39
Sulfide, Reactive-ppm	NA	ND	ND	ND	ND
Cyanide, Reactive-ppm	NA	ND	ND	ND	ND
Ignitability-Yes/No	NA	NO	NO	NO	NO
Percent Solids-%	NA	92.9	91.1	92.9	86.4

Data Qualifiers:
 ND = Analyzed for but Not Detected at the MDL
 NA = Not Applicable

Table 4
Summary of Analytical Results QA/QC Samples
Proposed Law School Site
Fordham University, Lincoln Center, New York

Client ID:	RB032108	TB032108
Sample Depth:	NA	NA
Lab ID:	03167-008	03167-009
Date Sampled:	03/21/2008	03/21/2008
Matrix:	Aqueous	Aqueous
Volatiles (ppm)	Conc	Conc
Dichlorodifluoromethane	ND	ND
Chloromethane	ND	ND
Vinyl chloride	ND	ND
Bromomethane	ND	ND
Chloroethane	ND	ND
Trichlorofluoromethane	ND	ND
1,1-Dichloroethene	ND	ND
Acetone	ND	ND
Carbon disulfide	ND	ND
Methylene chloride	ND	ND
trans-1,2-Dichloroethene	ND	ND
Methyl tert-butyl ether (MTBE)	ND	ND
1,1-Dichloroethane	ND	ND
cis-1,2-Dichloroethene	ND	ND
2-Butanone (MEK)	ND	ND
Bromochloromethane	ND	ND
Chloroform	ND	ND
1,1,1-Trichloroethane	ND	ND
Carbon tetrachloride	ND	ND
1,2-Dichloroethane (EDC)	ND	ND
Benzene	ND	ND
Trichloroethene	ND	ND
1,2-Dichloropropane	ND	ND
Bromodichloromethane	ND	ND
cis-1,3-Dichloropropene	ND	ND
4-Methyl-2-pentanone (MIBK)	ND	ND
Toluene	ND	ND
trans-1,3-Dichloropropene	ND	ND
1,1,2-Trichloroethane	ND	ND
Tetrachloroethene	ND	ND
2-Hexanone	ND	ND
Dibromochloromethane	ND	ND
1,2-Dibromoethane (EDB)	ND	ND
Chlorobenzene	ND	ND
Ethylbenzene	ND	ND
Total Xylenes	ND	ND
Styrene	ND	ND
Bromoform	ND	ND
Isopropylbenzene	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND
1,3-Dichlorobenzene	ND	ND
1,4-Dichlorobenzene	ND	ND
1,2-Dichlorobenzene	ND	ND
1,2-Dibromo-3-chloropropane	ND	ND
1,2,4-Trichlorobenzene	ND	ND
1,2,3-Trichlorobenzene	ND	ND
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	ND
Methyl acetate	ND	ND
Cyclohexane	ND	ND
Methylcyclohexane	ND	ND
TOTAL VO's:	ND	ND
TOTAL TIC's:	ND	ND
TOTAL VO's & TIC's:	ND	ND

Table 4
Summary of Analytical Results QA/QC Samples
Proposed Law School Site
Fordham University, Lincoln Center, New York

Client ID:	RB032108
Sample Depth:	NA
Lab ID:	03167-008
Date Sampled:	03/21/2008
Matrix:	Aqueous
Semivolatiles - BNA (ppm)	
Benzaldehyde	ND
Phenol	ND
Bis(2-chloroethyl) ether	ND
2-Chlorophenol	ND
2-Methylphenol	ND
Bis(2-chloroisopropyl) ether	ND
4-Methylphenol	ND
N-Nitrosodi-n-propylamine	ND
Acetophenone	ND
Hexachloroethane	ND
Nitrobenzene	ND
Isophorone	ND
2-Nitrophenol	ND
2,4+2,5-Dimethylphenol	ND
Bis(2-chloroethoxy) methane	ND
2,4-Dichlorophenol	ND
Naphthalene	ND
4-Chloroaniline	ND
Hexachlorobutadiene	ND
Caprolactam	ND
4-Chloro-3-methylphenol	ND
2-Methylnaphthalene	ND
Hexachlorocyclopentadiene	ND
2,4,6-Trichlorophenol	ND
2,4,5-Trichlorophenol	ND
Biphenyl	ND
2-Chloronaphthalene	ND
2-Nitroaniline	ND
Dimethyl phthalate	ND
2,6-Dinitrotoluene	ND
Acenaphthylene	ND
3-Nitroaniline	ND
Acenaphthene	ND
2,4-Dinitrophenol	ND

Table 4
Summary of Analytical Results QA/QC Samples
Proposed Law School Site
Fordham University, Lincoln Center, New York

Client ID:	RB032108
Sample Depth:	NA
Lab ID:	03167-008
Date Sampled:	03/21/2008
Matrix:	Aqueous
Semivolatiles - BNA (ppm)	
4-Nitrophenol	ND
2,4-Dinitrotoluene	ND
Dibenzofuran	ND
Diethyl phthalate	ND
Fluorene	ND
4-Chlorophenyl phenyl ether	ND
4-Nitroaniline	ND
1,2,4,5-Tetrachlorobenzene	ND
4,6-Dinitro-2-methylphenol	ND
N-Nitrosodiphenylamine	ND
4-Bromophenyl phenyl ether	ND
Hexachlorobenzene	ND
Atrazine	ND
Pentachlorophenol	ND
Phenanthrene	ND
Anthracene	ND
Carbazole	ND
Di-n-butyl phthalate	ND
Fluoranthene	ND
Pyrene	ND
Butyl benzyl phthalate	ND
3,3'-Dichlorobenzidine	ND
Benzo[a]anthracene	ND
Chrysene	ND
Bis(2-ethylhexyl) phthalate	ND
Di-n-octyl phthalate	ND
Benzo[b]fluoranthene	ND
Benzo[k]fluoranthene	ND
Benzo[a]pyrene	ND
Indeno[1,2,3-cd]pyrene	ND
Dibenz[a,h]anthracene	ND
Benzo[g,h,i]perylene	ND
TOTAL BNA'S:	ND
TOTAL TIC's:	ND
TOTAL BNA'S & TIC's:	ND

Table 4
Summary of Analytical Results QA/QC Samples
Proposed Law School Site
Fordham University, Lincoln Center, New York

Client ID:	RB032108
Sample Depth:	NA
Lab ID:	03167-008
Date Sampled:	03/21/2008
Matrix:	Aqueous
PCB's (ppm)	
Aroclor-1016	ND
Aroclor-1221	ND
Aroclor-1232	ND
Aroclor-1242	ND
Aroclor-1248	ND
Aroclor-1254	ND
Aroclor-1260	ND
Pesticides (ppm)	
alpha-BHC	ND
beta-BHC	ND
gamma-BHC	ND
delta-BHC	ND
Heptachlor	ND
Aldrin	ND
Heptachlor epoxide	ND
Endosulfan I	ND
4,4'-DDE	ND
Dieldrin	ND
Endrin	ND
Endosulfan II	ND
4,4'-DDD	ND
Endrin aldehyde	ND
Endosulfan sulfate	ND
4,4'-DDT	ND
Endrin ketone	ND
Methoxychlor	ND
alpha-Chlordane	ND
gamma-Chlordane	ND
Toxaphene	ND

Table 4
Summary of Analytical Results QA/QC Samples
Proposed Law School Site
Fordham University, Lincoln Center, New York

Client ID:	RB032108
Sample Depth:	NA
Lab ID:	03167-008
Date Sampled:	03/21/2008
Matrix:	Aqueous
Metals (ppm)	
Aluminum	ND
Antimony	ND
Arsenic	ND
Barium	ND
Beryllium	ND
Cadmium	ND
Calcium	ND
Chromium	ND
Cobalt	ND
Copper	ND
Iron	ND
Lead	ND
Magnesium	ND
Manganese	ND
Mercury	ND
Nickel	ND
Potassium	ND
Selenium	ND
Silver	ND
Sodium	ND
Thallium	ND
Vanadium	ND
Zinc	ND
General Analytical	
Cyanide, Total-ppm	ND

Data Qualifiers:

ND = Analyzed for but Not Detected at the MD

Table 4
Summary of Analytical Results MS/MSD Soil Sample
Proposed Law School Site
Fordham University, Lincoln Center, New York

Client ID:	MS	MSD
Sample Depth:		
Lab ID:	03167-007	03167-014
Date Sampled:	03/21/2008	03/21/2008
Matrix:	Soil	Soil
Metals (ppm)		
Aluminum	5990	6220
Antimony	ND	ND
Arsenic	3.83	4.02
Barium	303	298
Beryllium	ND	ND
Cadmium	0.344	0.327
Calcium	19900	19700
Chromium	14.9	16.0
Cobalt	5.50	5.82
Copper	27.1	30.6
Iron	11800	11700
Lead	336	327
Magnesium	3320	3810
Manganese	290	306
Mercury	0.694	0.705
Nickel	27.5	31.5
Potassium	1240	1250
Selenium	ND	ND
Silver	ND	ND
Sodium	152	225
Thallium	ND	ND
Vanadium	17.3	17.3
Zinc	194	200
General Analytical		
Cyanide, Total-ppm	14.6	14.9

ND - Not Detected

Figures



Scale: 1:25,000

NEW LAW SCHOOL BUILDING
 SITE, 113 WEST 60th STREET
 SOURCE: Central Park, NJ-NY
 Quadrangle 1966 (Photo revised 1979)
 CONTOUR INTERVAL: 10 Ft
 APPROX LONGITUDE & LATITUDE
 CENTER OF SITE: N40° 51' 33.3"
 W 73° 53' 11.5"

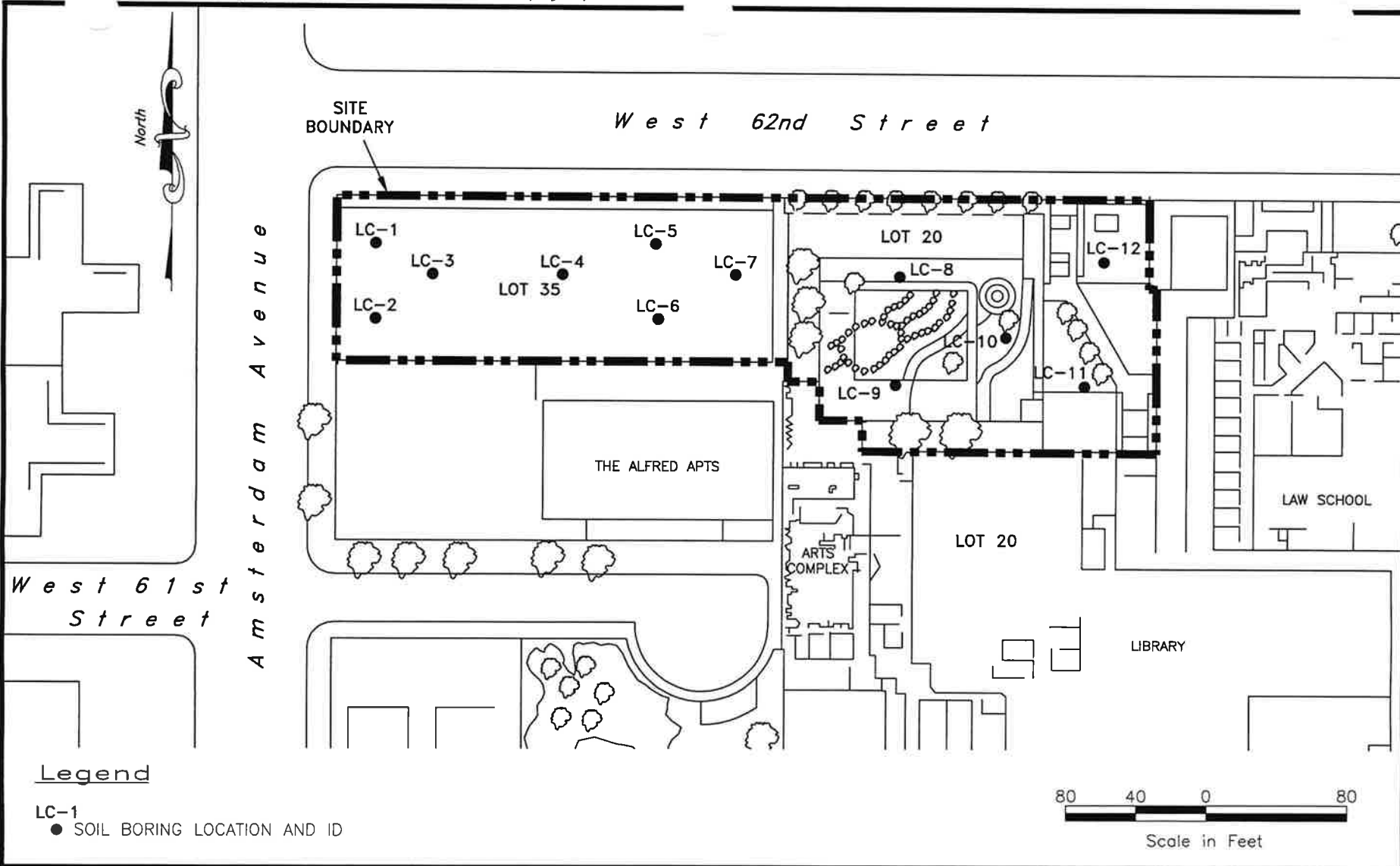
Site Location Map

FORDHAM UNIVERSITY
 LINCOLN CENTER CAMPUS
 NEW YORK, NEW YORK

02/21/08 Job No. 12760-001

Figure 1

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J:\Project\Fordham U\12760-001\Lincoln Center\Figures\SB Locs & Res.dwg

FIGURE NUMBER:
2

SHEET NUMBER:
1 of 1

SOIL BORING LOCATIONS
NEW LAW SCHOOL BUILDING SITE
FORDHAM UNIVERSITY
LINCOLN CENTER CAMPUS
LOT 35 & PORTION OF LOT 20
NEW YORK, NEW YORK

SCALE:	DATE:	PROJECT NUMBER:
AS SHOWN	04/03/08	12760-001

ENSR | AECOM

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DESIGNED BY:	REVISIONS			
	NO.:	DESCRIPTION:	DATE:	BY:
RS				
DRAWN BY:				
JK				
CHECKED BY:				
APPROVED BY:				