SITE INVESTIGATION REPORT
DOBBS FERRY WATERFRONT PARK
DOBBS FERRY, NEW YORK

Prepared for:

Village of Dobbs Ferry
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1.0 INTRODUCTION

1.1 Purpose

This Site Investigation (SI) Report has been prepared on behalf of the Village of Dobbs Ferry, New York in accordance with the proposal submitted by Potomac-Hudson Environmental, Inc. (PHE) dated September 16, 2002. The SI Report was prepared for the open field that was formerly a municipal landfill located at the Dobbs Ferry Waterfront Park in Dobbs Ferry, New York. The regional location is shown as Figure 1. A Site Location Map is presented in Figure 2. The SI was conducted in order to address environmental concerns identified during previous sampling programs conducted by the USEPA and the Village of Dobbs Ferry.

The Village of Dobbs Ferry is interested in identifying environmental issues related to the redevelopment of the site as an athletic field.

1.2 Limitations and Exceptions of Study

It should be noted that all comments, findings, and conclusions contained in this report are based upon: (i) site conditions at the time of PHE's reconnaissance and the test pit program conducted on October 1, 2002, (ii) review of written or illustrated documents as referenced herein, and (iii) information reported to PHE by others as referenced herein. While there are no indications that the information provided is suspect, PHE does not assume responsibility for errors and omissions in the information assembled to produce this report, which was intended as a limited soil investigation to investigate the potential for contaminated fill to have been placed on the site.

This report has been prepared solely for the use of the Village of Dobbs Ferry, New York.

2.0 BACKGROUND

2.1 Site Description

The Site is presently a vacant parcel of land formerly operated as a municipal landfill by the Village of Dobbs Ferry. The property is intended for reuse as a 300-foot by 170-foot recreational field. The area immediately surrounding the Site consists of railroad tracks to the east, private property to the north, parking lot to the south and the Hudson River to the west.

Based on the Waterfront Park Open Field Site Plan prepared by Vollmer Associates, LLP dated July 23, 2002, the site elevation ranges from approximately 18 to 20 feet NGVD (see Figure 2).

2.2 Previous Investigations

Based on a review of a Site Inspection Report and Hazard Ranking System Model of the Dobbs Ferry Riverfront Park prepared by NUS Corporation in 1986 for the US Environmental Protection Agency (USEPA), the site was utilized as a municipal landfill from 1950 to the early 1970's. The landfill, which is not capped or lined, was apparently utilized for construction and demolition debris. However, Stauffer Chemical Corp. Ardsley Plant reportedly backfilled the landfill with approximately 200 tons of inorganic and salt bearing wastes between 1950 and 1956. Since the Site was not secure, the potential for other illegal dumping existed. NUS collected seven surface samples from the site in 1986 for analysis of volatile organics (VO), semivolatile organics (SVO), pesticides/PCBs and metals. The analytical results indicated the presence of pesticides and semivolatile compounds. The pesticides were thought to be from the gardening plot next to the site. The semivolatile compounds were thought to be from asphalt materials that had been disposed.

The USEPA report indicated that groundwater is approximately 5 to 10 feet below ground surface, and the site was in a flood zone. The Site lies between the Hudson River to the west and a bedrock cliff to the east.

Based on information provided by the Director of Public Works Mr. Jim Dunn for the Village of Dobbs Ferry, as much as five feet of materials consisting of soil, rock, street sweepings and mulch have been placed on top of the original landfill surface since closure. The plan for construction of the recreation field calls for scraping off high spots and filling in low spots, then covering the site with one to two feet of clean fill, and six inches of topsoil. Mr. Dunn indicated that there would be no excavation for subsurface utilities or drains.

The Village of Dobbs Ferry collected five surface soil samples in May 2002 from the four corners of the field and one from the center, and analyzed them for metals, hydrocarbons and pesticides/PCBs. The results indicated that the concentrations of several metals (chromium, copper, nickel, zinc) were above the NYSDEC recommended soil cleanup objective concentrations.

3.0 SITE INVESTIGATION

3.1 Scope of Work

The scope of work was predicated on several conditions:

- SVOs were detected in the previous USEPA investigations but were not analyzed in 2002 by the Village of Dobbs Ferry
- The USEPA report indicated that the Site had not been secured. Thus, the potential exists for illegal dumping to have occurred up to the time at which the Site was secured by the Village
- Both SVOs and metals can migrate upward
- Street sweepings are potential sources of metals including lead and chromium

Based on the approximate site area of 130 feet by 300 feet, PHE installed five test pits at the property. The test pits were generally located in the vicinity of the five previous surface samples

collected by the Village of Dobbs Ferry in May 2002 (one from each of the four corners of the Site and one from the center of the Site). The test pit locations were biased toward any field indications of surface staining, stressed vegetation, etc., and were also biased toward the high spot areas that may potentially be cut back during construction and used to fill low spots.

The test pits were generally advanced to the water table (approximately 10 feet below ground surface[bgs]). Each test pit was screened for the presence of contamination based on visual evidence of staining, odors, and field screening reading for volatile organics utilizing a HNu photoionization detector (PID). At each location, one soil sample was obtained from the 0 to six inch interval and analyzed for USEPA Priority Pollutant (PP) Volatile Organics (VO) and PP Semivolatile Organics (SVO). This data will fill in gaps of the previous sampling event that only analyzed for metals, hydrocarbons and pesticides/PCBs. The second sample from each test pit was obtained from the depth interval indicating the most evidence of contamination based on field screening. If no evidence of contamination was observed, the sample was collected from the six inch interval above the water table. The subsurface samples were analyzed for the full priority pollutant parameters plus 40 unknowns (PP+40) and total petroleum hydrocarbons (TPHC).

Photographs of the Site appear in Appendix 1. The test pit locations are indicated on Figure 2. A sample summary is provided as Table 1.

3.2 Methods and Procedures

Test pits were installed under PHE's supervision by Goldstar Environmental Services, Inc. using a rubber tire backhoe. Each test pit was visually inspected and field screened for the presence of VOCs using a PID. During excavation, the soils were logged by the field geologist using the Burmeister Classification System for soil descriptions. The test pit logs are included in Appendix 2. All soil removed during the test pit excavations was placed back in the excavations upon completion of sampling activities.

All soil surface samples were analyzed for PP VOs and PP SVOs. All subsurface samples were analyzed for PP+40 and TPH. All samples were analyzed utilizing reduced laboratory deliverables.

3.3 Sampling Methods and Sample Handling

3.3.1 Sample Containers and Chain of Custody Procedures

Clean sample containers were supplied by the laboratory for all sampling events. The appropriate sample preservatives were added to the sample bottles by the laboratory prior to shipment. Chain of custody procedures were initiated by the person responsible for cleaning the sample containers. The chain of custody accompanied the bottles during transportation from the laboratory to the field, sample collection, transportation back to the laboratory, analysis and final disposal of the sample. Samples were stored on ice at 4°C in a secure area until they were relinquished to a courier for delivery to the laboratory.

3.3.2 Sample Handling

The sample containers were labeled with sample number, date, time of collection, analytical parameters and site name. A detailed log of subsurface conditions encountered, sample depths and sampling locations was recorded. The sample holding time began at the time of sample collection.

3.3.3 Field Instrumentation

A PID was utilized during investigatory and sampling activities. The PID lamp is cleaned regularly and the battery is fully recharged at the end of each day of field use. The PID is sent to the manufacturer for routine maintenance approximately once per year.

The PID was calibrated at the beginning of each day of field use by comparing the response with a test atmosphere referenced to a primary calibration standard of known concentration. The calibration gas used for the PID is 100 ppm isobutylene in air.

3.3.4 Record Keeping

Field measurements and observations were recorded daily in a bound field log book. Upon collection of samples for analysis, additional documentation was completed on the chain of custody form. All site activities were documented in the field log book, including: documentation of all sampling locations, number of samples, sample depths, sample collection time, analytical parameters and documentation of all sample location landmarks, including the location of sample points on a map.

3.4 Quality Assurance/Quality Control

Quality Assurance (QA) sampling was conducted to provide control over the collection of samples and subsequent review, interpretation and validation of analytical data. All samples were analyzed using standard USEPA SW-846 methodologies.

The following table presents a summary of the matrix type, number of samples, number of field and trip blanks, analytical parameters, and analytical methods.

Analytical Methods/QA Summary Table

# of Samples	Matrix	Parameter	EPA Method	Sample Duplicates	Field Blanks
10	Soil	PP VO	8260B	1	1
10	Soil	PP SVO	8270C	1	1
5	Soil	Pesticide/ PCB	8081A/ 8082	1	1
5	Soil	Cyanide	9012A	1	1
5	Soil	Phenols	9066	1	1
5	Soil	PP Metals	200.8	1	1
5	Soil	TPH	418.1	1	1

- **Field Blanks**

A Field blank was collected and analyzed for the same parameters as the samples analyzed that day. The field blank sample was collected by pouring demonstrated analyte-free water over the decontaminated sampling device so that the rinsate flows into the empty sample container. The demonstrated analyte-free water used for the field blank originated from one common source and physical location within the laboratory as the method blank water used by the laboratory performing the analyses.

Field blank water arrived on-Site within one day of preparation in the lab, was held on-site for no longer than two days, and was shipped back to the laboratory at the end of the second day and was received at the laboratory within one day. Blanks were maintained at 4°C while on-Site and during shipment. One field blank was collected for each day of sampling activity.

- **Duplicates**

One duplicate sample was collected and analyzed for the same parameters as the samples analyzed that day. The duplicate sample (TP-5C) was collected at the location of TP-5B.

- **Reliability of Data**

The laboratory data was reviewed for accuracy. In all cases the holding times were met and the precision and accuracy of the results are acceptable.

- **Deliverables**

Laboratory analysis of the samples was conducted in accordance with the non- USEPA/CLP methodology reduced laboratory data deliverables. The complete laboratory analytical data package is provided as an Attachment.

3.5 Findings

The results of the soil sampling and analysis program were compared to the New York State Department of Conversation (NYSDEC) Recommended Soil Cleanup Objectives. Tables 2 through 4 present the analytical results for all soil samples.

Material observed at all test pit locations to the depths investigated can be described as manmade fill. The soil matrix consisted of black and brown fine to coarse sand, silt, gravel, cobbles and boulders. Manmade material encountered included processed wood, styrofoam, tiles, newspapers, books, rope, concrete, wood chips, cloth, plastic bags, fan blades, wire, rubber, miscellaneous metal, movie film, a can of tire inflator, slate, and clay pipe. A greater quantity of these manmade materials was observed in test pits TP-1, TP-2 and TP-3. Water appeared to be approximately 10 to 11 feet bgsurface. Given the nature of materials encountered, it is uncertain whether this was true groundwater or water trapped or perched in the manmade fill.

The analytical results indicate the following:

- The concentrations of volatile organics in the five surface and five subsurface samples were all below the NYSDEC Recommended Soil Cleanup Objectives (RSCO).

- The concentrations of one or more polycyclic aromatic hydrocarbons (PAH) were found to exceed the NYSDEC Recommended Soil Cleanup Objectives in all but one surface sample (TP-3A). The PAH compounds that exceeded the NYSDEC Recommended Soil Cleanup Objectives at one or more of these locations are benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenz(a,h)anthracene.

- Metals were found in exceedance of the NYSDEC Recommended Soil Cleanup Objectives at all five subsurface locations (and the duplicate location). The metals in exceedance of the RSCO at one or more of these locations are cadmium, chromium, copper, lead, mercury, nickel and zinc. Although there is no specific standard for lead, the concentrations were compared to the USEPA Residential Lead Hazard Standards (TSCA Section 403) that are intended to be protective of children in playground situations. Since the Site is intended for redevelopment as a recreational field, the concentrations found in the Site soils were compared to the standards for lead in soil. Under the USEPA regulation, a soil is considered hazardous if the concentrations are greater than 400 ppm in bare soil in childern's play areas or 1200 ppm average for bare soil in the rest of the yard. On this basis, the lead concentrations at sample locations TP-2B and TP-3B were both above 400 ppm.

- The concentrations of all PCBs were not-detected. All pesticides concentrations were below the NYSDEC Recommended Soil Cleanup Objectives with the exception of chlordane in the duplicate sample (TP-5C) at location TP-5B in the subsurface, which was only very slightly elevated above the NYSDEC Recommended Soil Cleanup Objective of 0.54 ppm. The concentration was below the NYSDEC Recommended Soil Cleanup Objective Protective of Groundwater Quality of 2 ppm.

- The concentrations of cyanide and phenols were all not-detected in the five subsurface samples analyzed.

- Although there is no specific standard for TPH, the concentrations detected ranged from 1000 ppm to 2730 ppm.

The soil contaminants in exceedance of the SCC are generally scattered throughout the Site, with no readily apparent pattern of soil contamination.

Photoionization detector readings were not detected in all test pits except TP-1 (10 - 12 ppm at 10 feet bgs) and TP-3 (3-6 ppm from 6 to 10 feet bgs) over 1,000 (B33). Generally, detected readings were encountered in the deeper portion of the test pits at the sample locations within the center and southeastern portion of the Site.

4.0 RECOMMENDATIONS

From a soils contamination perspective, based on the analytical results for this Site Investigation, as well as the USEPA study and the sampling conducted by the Village of Dobbs Ferry, the PAHs, metals and pesticides concentrations found above the NYSDEC Recommended Soil Cleanup Objectives can most likely be dealt with through engineering controls (capping). The proposed cap of 12 to 30 inches of clean fill (i.e., fill having concentrations below the NYSDEC Recommended Soil Cleanup Objectives) will most likely be adequate to provide protection from the contaminated soil. However, there are no specific guidelines provided by the NYSDEC regarding the actual depth of clean fill required. These situations are dealt with on a case by case basis. Therefore, if a more formal regulatory opinion were required, the information collected to date should be provided to the NYSDEC, and an opinion regarding the depth of clean fill material should be requested from a NYSDEC case manager.

Visual observations during the test pit program indicated the presence of a large amount of debris (household and construction type) in all five test pits, with the largest amount of household debris found in test pits TP-1, TP-2 and TP-3, all located in the central to southern portion of the playing field area. Aside from the concentrations of soil contaminants above the NYSDEC Recommended Soil Cleanup Objectives, the presence of this type of debris should be considered in the design of the field. Geotechnical issues such as soil settling and debris shifting should be taken into consideration in the final site design.

5.0 REFERENCES

Analytical data report dated 5/30/2002, York Analytical Labs. Conducted for the Village of Dobbs Ferry, New York.

Final Draft Site Inspection Report and Hazard Ranking System Model, Dobbs Ferry Riverfront Park, Dobbs Ferry, New York. Prepared Under Technical Directive Document No. 02-8603-37A, Contract No. 68-01-6699 for the US Environmental Protection Agency. September 18, 1986. NUS Corporation.

United States Geological Survey (U.S.G.S.), Nyack, New York, 7.5 Minute Topographic Quadrangle Map.

TABLE 1
SAMPLE SUMMARY
Dobbs Ferry Waterfront Park
Dobbs Ferry, New York

Test Pit Location	Sample Number	Medium	Sample Depth (ft bgs)	Analytical Parameters	Sampling Method
TP-1	TP-1A	Soil	0-0.5	PP VO, PP SVO	Backhoe
TP-1	TP-1B	Soil	9.5-10	PP+40, TPH	Backhoe
TP-2	TP-2A	Soil	0-0.5	PP VO, PP SVO	Backhoe
TP-2	TP-2B	Soil	9.5-10	PP+40, TPH	Backhoe
TP-3	TP-3A	Soil	0-0.5	PP VO, PP SVO	Backhoe
TP-3	TP-3B	Soil	9.5-10	PP+40, TPH	Backhoe
TP-4	TP-4A	Soil	0-0.5	PP VO, PP SVO	Backhoe
TP-4	TP-4B	Soil	9.5-10	PP+40, TPH	Backhoe
TP-5	TP-5A	Soil	0-0.5	PP VO, PP SVO	Backhoe
TP-5	TP-5B	Soil	9.5-10	PP+40, TPH	Backhoe
TP-5	TP-5C (Duplicate of TP-5B)	Soil	9.5-10	PP+40, TPH	Backhoe

TPH	Total Petroleum Hydrocarbons
PP+ 40	Priority Pollutants Plus 40 Unknowns
PP VO	Priority Pollutant Volatile Organics
PP SVO	Priority Pollutant Semi-Volatiles
Ft bgs	Feet Below Ground Surface

TABLE 2
SOIL SAMPLE RESULTS - VOLATILE ORGANICS
DOBBS FERRY WATERFRONT PARK, DOBBS FERRY, NY

Client ID:	NYSDEC Recommended	NYSDEC Soil Cleanup	TP1A		TP1B		TP2A		TP2B		TP3A		TP3B		TP4A		TP4B		TP5A		TP5B		TP5C [1]	
Sample Depth (ft):	Soil	Obj. Protective	0-0.5		9.5-10		0-0.5		9.5-10		0-0.5		9.5-10		0-0.5		10-11		0-0.5		9.5-10		9.5-10	
Lab ID:	Cleanup	of GW	7622-001		7622-002		7622-003		7622-004		7622-005		7622-006		7622-007		7622-008		7622-009		7622-010		7622-011	
Date Sampled:	Objective	quality	10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002	
Matrix:	(ppm)	(ppm)	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Volatiles (ppm)			Conc Q	MDL	Conc Q	MDL	Conc Q	MDL	Conc Q	MDL	Conc Q	MDL	Conc Q	MDL	Conc Q	MDL	Conc Q	MDL	Conc Q	MDL	Conc Q	MDL	Conc Q	MDL
Chloromethane	NA	NA	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Vinyl Chloride	0.2	0.12	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Bromomethane	NA	NA	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Chloroethane	1.9	1.9	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Trichlorofluoromethane	NA	NA	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Acrolein	NA	NA	ND	0.012	ND	0.012	ND	0.014	ND	0.012	ND	0.011	ND	0.013	ND	0.011	ND	0.013	ND	0.011	ND	0.012	ND	0.012
1,1-Dichloroethene	0.4	0.4	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Methylene Chloride	0.1	0.1	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Acrylonitrile	NA	NA	ND	0.012	ND	0.012	ND	0.014	ND	0.012	ND	0.011	ND	0.013	ND	0.011	ND	0.013	ND	0.011	ND	0.012	ND	0.012
trans-1,2-Dichloroethene	0.3	0.3	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
1,1-Dichloroethane	0.2	0.2	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Chloroform	0.3	0.3	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
1,1,1-Trichloroethane	0.8	0.76	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Carbon Tetrachloride	0.6	0.6	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
1,2-Dichloroethane(EDC)	0.1	0.1	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Benzene	0.06	0.06	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	0.00264 J	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Trichloroethene	0.7	0.7	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
1,2-Dichloropropane	NA	NA	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Bromodichloromethane	NA	NA	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
2-Chloroethylvinyl Ether	NA	NA	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
cis-1,3-Dichloropropene	NA	NA	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Toluene	1.5	1.5	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
trans-1,3-Dichloropropene	NA	NA	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
1,1,2-Trichloroethane	NA	NA	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Tetrachloroethene	1.4	1.4	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Dibromochloromethane	NA	NA	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Chlorobenzene	1.7	1.7	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	0.027	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Ethylbenzene	5.5	5.5	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	0.00322 J	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Total Xylenes	1.2	1.2	ND	0.00575	0.082	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	0.018	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
Bromoform	NA	NA	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
1,1,2,2-Tetrachloroethane	0.6	0.6	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
1,3-Dichlorobenzene	1.6	1.55	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
1,4-Dichlorobenzene	8.5	8.5	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	0.00393 J	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
1,2-Dichlorobenzene	7.9	7.9	ND	0.00575	ND	0.0061	ND	0.00705	ND	0.0061	ND	0.0055	ND	0.0063	ND	0.00555	ND	0.0067	ND	0.0054	ND	0.006	ND	0.0058
TOTAL VO's:			ND		0.082		ND		ND		ND		0.055 J		ND		ND		ND		ND		ND	
TOTAL TIC's:			ND		0.00952		ND		0.00756		ND		0.183		ND		ND		ND		ND		ND	
TOTAL VO's & TIC's:	10 [2]	NA	ND		0.091		ND		0.00756		ND		0.238 J		ND		ND		ND		ND		ND	

(1) Sample TP5C is duplicate of sample TP5B

(2) Total VO's should be less than 100 ppm

~ = Sample not analyzed for

ND = Analyzed for but Not Detected at the MDL

NA = Not Available

J = The concentration was detected at a value below the MDL

All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

Concentration exceeds NYSDEC Recommended Soil Cleanup Objective

TABLE 3
SOIL SAMPLE RESULTS - SEMIVOLATILE ORGANICS
DOBBS FERRY WATERFRONT PARK, DOBBS FERRY, NY

Client ID:	NYSDEC Recommended	NYSDEC Soil Cleanup	TP1A	TP1B	TP2A	TP2B	TP3A	TP3B	TP4A	TP4B	TP5A	TP5B	TP5C [1]
Sample Depth (ft):	Soil	Obj. Protective	0-0.5	9.5-10	0-0.5	9.5-10	0-0.5	9.5-10	0-0.5	10-11	0-0.5	9.5-10	9.5-10
Lab ID:	Cleanup	of GW	7622-001	7622-002	7622-003	7622-004	7622-005	7622-006	7622-007	7622-008	7622-009	7622-010	7622-011
Date Sampled:	Objective	quality	10/01/2002	10/01/2002	10/01/2002	10/01/2002	10/01/2002	10/01/2002	10/01/2002	10/01/2002	10/01/2002	10/01/2002	10/01/2002
Matrix:	(ppm)	(ppm)	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Semivolatiles - BNA (ppm)													
N-Nitrosodimethylamine	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Phenol	0.03 or MDL	0.03	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Aniline	0.1	0.1	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
bis(2-Chloroethyl)ether	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2-Chlorophenol	0.8	0.8	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
1,3-Dichlorobenzene	1.6	1.55	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
1,4-Dichlorobenzene	8.5	8.5	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Benzyl alcohol	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
1,2-Dichlorobenzene	7.9	7.9	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2-Methylphenol	0.1 or MDL	0.1	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
bis(2-chloroisopropyl)ether	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
4-Methylphenol	0.9	0.9	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
N-Nitroso-di-n-propylamine	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Hexachloroethane	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Nitrobenzene	0.2 or MDL	0.2	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Isophorone	4.4	4.4	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2-Nitrophenol	0.33 or MDL	0.33	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2,4-Dimethylphenol	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
bis(2-Chloroethoxy)methane	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Benzoic acid	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2,4-Dichlorophenol	0.4	0.4	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
1,2,4-Trichlorobenzene	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Naphthalene	13	13	ND 0.217	0.167 J 0.214	ND 0.258	ND 0.206	ND 0.199	0.246 0.227	ND 0.199	ND 0.254	0.364 0.194	0.167 J 0.228	1.04 0.462
4-Chloroaniline	0.22 or MDL	0.22	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Hexachlorobutadiene	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
4-Chloro-3-methylphenol	0.24 or MDL	0.24	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2-Methylnaphthalene	36.4	36.4	ND 0.217	0.370 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	0.560 0.462
Hexachlorocyclopentadiene	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2,4,6-Trichlorophenol	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2,4,5-Trichlorophenol	0.1	0.1	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2-Chloronaphthalene	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2-Nitroaniline	0.43 or MDL	0.43	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Dimethylphthalate	2	2	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2,6-Dinitrotoluene	1	1	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Acenaphthylene	41	41	ND 0.217	0.538 0.214	0.280 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	0.159 J 0.254	1.72 0.194	0.326 0.228	1.23 0.462
3-Nitroaniline	0.5 or MDL	0.5	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Acenaphthene	50 [2]	90	ND 0.217	2.58 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	0.214 J 0.228	2.61 0.462
2,4-Dinitrophenol	0.2 or MDL	0.2	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
4-Nitrophenol	0.1 or MDL	0.1	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
2,4-Dinitrotoluene	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Dibenzofuran	6.2	6.2	ND 0.217	1.80 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	0.170 J 0.194	ND 0.228	2.31 0.462
Diethylphthalate	7.1	7.1	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Fluorene	50 [2]	350	ND 0.217	4.02 0.214	0.221 J 0.258	ND 0.206	ND 0.199	0.139 J 0.227	ND 0.199	ND 0.254	0.235 0.194	0.276 0.228	3.32 0.462
4-Chlorophenyl-phenylether	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
4-Nitroaniline	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
4,6-Dinitro-2-methylphenol	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
N-Nitrosodiphenylamine	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
1,2-Diphenylhydrazine/Azobenzene	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
4-Bromophenyl-phenylether	NA	NA	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Hexachlorobenzene	0.41	1.4	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462
Pentachlorophenol	1 or MDL	1	ND 0.217	ND 0.214	ND 0.258	ND 0.206	ND 0.199	ND 0.227	ND 0.199	ND 0.254	ND 0.194	ND 0.228	ND 0.462

TABLE 3
SOIL SAMPLE RESULTS - SEMIVOLATILE ORGANICS
DOBBS FERRY WATERFRONT PARK, DOBBS FERRY, NY

Client ID:	NYSDEC Recommended	NYSDEC Soil Cleanup	TP1A		TP1B		TP2A		TP2B		TP3A		TP3B		TP4A		TP4B		TP5A		TP5B		TP5C [1]	
Sample Depth (ft):	Soil	Obj. Protective	0-0.5		9.5-10		0-0.5		9.5-10		0-0.5		9.5-10		0-0.5		10-11		0-0.5		9.5-10		9.5-10	
Lab ID:	Cleanup	of GW	7622-001		7622-002		7622-003		7622-004		7622-005		7622-006		7622-007		7622-008		7622-009		7622-010		7622-011	
Date Sampled:	Objective	quality	10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002		10/01/2002	
Matrix:	(ppm)	(ppm)	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Semivolatiles - BNA (ppm) (CONT.)																								
Phenanthrene	50 [2]	220	0.398	0.217	29.3	0.214	2.32	0.258	0.181 J	0.206	ND	0.199	0.467	0.227	0.409	0.199	0.696	0.254	1.71	0.194	2.23	0.228	38.2	0.462
Anthracene	50 [2]	700	ND	0.217	13.7	0.214	0.668	0.258	ND	0.206	ND	0.199	0.163 J	0.227	ND	0.199	0.303	0.254	1.21	0.194	0.758	0.228	8.16	0.462
Carbazole	NA	NA	ND	0.217	1.71	0.214	0.155 J	0.258	ND	0.206	ND	0.199	ND	0.227	ND	0.199	ND	0.254	0.183 J	0.194	0.312	0.228	4.05	0.462
Di-n-butylphthalate	8.1	8.1	ND	0.217	ND	0.214	ND	0.258	ND	0.206	ND	0.199	ND	0.227	ND	0.199	ND	0.254	ND	0.194	ND	0.228	ND	0.462
Fluoranthene	50 [2]	1900	1.23	0.217	30.8	0.214	3.81	0.258	0.283	0.206	ND	0.199	1.01	0.227	0.799	0.199	1.38	0.254	10.6	0.194	4.25	0.228	44.6	0.462
Benzidine	NA	NA	ND	0.217	ND	0.214	ND	0.258	ND	0.206	ND	0.199	ND	0.227	ND	0.199	ND	0.254	ND	0.194	ND	0.228	ND	0.462
Pyrene	50 [2]	665	1.11	0.217	24.9	0.214	3.46	0.258	0.275	0.206	0.119 J	0.199	1.17	0.227	0.777	0.199	1.54	0.254	9.04	0.194	3.13	0.228	35.3	0.462
3,3'-Dimethylbenzidine	NA	NA	ND	0.217	ND	0.214	ND	0.258	ND	0.206	ND	0.199	ND	0.227	ND	0.199	ND	0.254	ND	0.194	ND	0.228	ND	0.462
Butylbenzylphthalate	50 [2]	122	ND	0.217	ND	0.214	ND	0.258	ND	0.206	ND	0.199	ND	0.227	ND	0.199	ND	0.254	ND	0.194	ND	0.228	ND	0.462
3,3'-Dichlorobenzidine	NA	NA	ND	0.217	ND	0.214	ND	0.258	ND	0.206	ND	0.199	ND	0.227	ND	0.199	ND	0.254	ND	0.194	ND	0.228	ND	0.462
Benzo[a]anthracene	0.224 or MDL	3	0.826	0.217	13.4	0.214	1.98	0.258	0.188 J	0.206	ND	0.199	0.822	0.227	0.482	0.199	0.933	0.254	8.25	0.194	2.55	0.228	18.6	0.462
Chrysene	0.4	0.4	1.08	0.217	15.3	0.214	2.08	0.258	0.277	0.206	ND	0.199	1.33	0.227	0.621	0.199	1.22	0.254	8.93	0.194	2.97	0.228	20.4	0.462
bis(2-Ethylhexyl)phthalate	50 [2]	435	0.587	0.217	0.255	0.214	ND	0.258	0.501	0.206	ND	0.199	2.14	0.227	ND	0.199	0.526	0.254	ND	0.194	0.148 J	0.228	ND	0.462
Di-n-octylphthalate	50 [2]	120	ND	0.217	ND	0.214	ND	0.258	ND	0.206	ND	0.199	ND	0.227	ND	0.199	ND	0.254	ND	0.194	ND	0.228	ND	0.462
Benzo[b]fluoranthene	1.1	1.1	0.864	0.217	7.76	0.214	1.09	0.258	0.136 J	0.206	ND	0.199	0.718	0.227	0.336	0.199	0.798	0.254	6.09	0.194	2.65	0.228	13.1	0.462
Benzo[k]fluoranthene	1.1	1.1	0.671	0.217	8.13	0.214	1.44	0.258	0.166 J	0.206	ND	0.199	0.639	0.227	0.484	0.199	0.749	0.254	6.90	0.194	1.65	0.228	13.5	0.462
Benzo[a]pyrene	0.061 or MDL	11	0.901	0.217	10.3	0.214	1.58	0.258	0.176 J	0.206	ND	0.199	1.06	0.227	0.480	0.199	1.10	0.254	7.64	0.194	2.65	0.228	15.6	0.462
Indeno[1,2,3-cd]pyrene	3.2	3.2	0.690	0.217	6.03	0.214	1.08	0.258	0.137 J	0.206	ND	0.199	0.514	0.227	0.335	0.199	0.745	0.254	4.36	0.194	1.72	0.228	11.4	0.462
Dibenz[a,h]anthracene	0.014 or MDL	165,000	0.439	0.217	3.04	0.214	0.490	0.258	ND	0.206	ND	0.199	0.308	0.227	0.182 J	0.199	0.403	0.254	2.30	0.194	0.846	0.228	5.40	0.462
Benzo[g,h,i]perylene	50 [2]	800	0.791	0.217	6.03	0.214	1.13	0.258	0.190 J	0.206	ND	0.199	0.887	0.227	0.366	0.199	0.777	0.254	4.07	0.194	1.68	0.228	11.6	0.462
TOTAL BNA'S:			9.59		180 J		21.8 J		2.51 J		0.119 J		11.6 J		5.27 J		11.3 J		73.8 J		28.5 J		251	
TOTAL TIC's:			ND		21.9		1.63		ND		ND		9.53		ND		ND		23.3		2.41		40.7	
TOTAL BNA'S & TIC's:	500 [3]	NA	9.59		202 J		23.4 J		2.51 J		0.119 J		21.1 J		5.27 J		11.3 J		97.0 J		30.9 J		292	

(1) Sample TP5C is duplicate of sample TP5B

(2) Individual SVOs should be less 50 ppm

(3) Total SVOs should be less than 500 ppm

~ = Sample not analyzed for

ND = Analyzed for but Not Detected at the MDL

NA = Not Available

J = The concentration was detected at a value below the MDL

All qualifiers on individual Volatiles & Semivolatiles are carried down through summation.

Concentration exceeds NYSDEC Recommended Soil Cleanup Objective

TABLE 4
SOIL SAMPLE RESULTS - PESTICIDES/PCBs/METALS/GENERAL CHEMISTRY
DOBBS FERRY WATERFRONT PARK, DOBBS FERRY, NY

Client ID:	NYSDEC Recommended Soil Cleanup Objective (ppm)	NYSDEC Soil Cleanup Obj. Protective of GW quality (ppm)	TP1A 0-0.5 7622-001 10/01/2002 Soil		TP1B 9.5-10 7622-002 10/01/2002 Soil		TP2A 0-0.5 7622-003 10/01/2002 Soil		TP2B 9.5-10 7622-004 10/01/2002 Soil		TP3A 0-0.5 7622-005 10/01/2002 Soil		TP3B 9.5-10 7622-006 10/01/2002 Soil		TP4A 0-0.5 7622-007 10/01/2002 Soil		TP4B 10-11 7622-008 10/01/2002 Soil		TP5A 0-0.5 7622-009 10/01/2002 Soil		TP5B 9.5-10 7622-010 10/01/2002 Soil		TP5C [1] 9.5-10 7622-011 10/01/2002 Soil	
PCB's (ppm)																								
Aroclor-1016	1 surf; 10 subsurf [2]	10	~	~	ND	0.019	~	~	ND	0.016	~	~	ND	0.019	~	~	ND	0.020	~	~	ND	0.018	ND	0.017
Aroclor-1221	1 surf; 10 subsurf [2]	10	~	~	ND	0.019	~	~	ND	0.016	~	~	ND	0.019	~	~	ND	0.020	~	~	ND	0.018	ND	0.017
Aroclor-1232	1 surf; 10 subsurf [2]	10	~	~	ND	0.019	~	~	ND	0.016	~	~	ND	0.019	~	~	ND	0.020	~	~	ND	0.018	ND	0.017
Aroclor-1242	1 surf; 10 subsurf [2]	10	~	~	ND	0.019	~	~	ND	0.016	~	~	ND	0.019	~	~	ND	0.020	~	~	ND	0.018	ND	0.017
Aroclor-1248	1 surf; 10 subsurf [2]	10	~	~	ND	0.019	~	~	ND	0.016	~	~	ND	0.019	~	~	ND	0.020	~	~	ND	0.018	ND	0.017
Aroclor-1254	1 surf; 10 subsurf [2]	10	~	~	ND	0.019	~	~	ND	0.016	~	~	ND	0.019	~	~	ND	0.020	~	~	ND	0.018	ND	0.017
Aroclor-1260	1 surf; 10 subsurf [2]	10	~	~	ND	0.019	~	~	ND	0.016	~	~	ND	0.019	~	~	ND	0.020	~	~	ND	0.018	ND	0.017
Pesticides (ppm)																								
alpha-BHC	0.11	0.2	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
beta-BHC	0.2	0.2	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
gamma-BHC (Lindane)	0.06	0.06	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
delta-BHC	0.3	0.3	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
Heptachlor	0.1	0.1	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
Aldrin	0.041	0.5	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
Heptachlor epoxide	0.02	0.02	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
Endosulfan I	0.9	0.9	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
4,4'-DDE	2.1	4.4	~	~	ND	0.00464	~	~	0.00815	0.00409	~	~	0.00986	0.00472	~	~	0.033	0.00491	~	~	0.018	0.00461	0.00602	0.00421
Dieldrin	0.044	0.1	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	0.011	0.00491	~	~	ND	0.00461	0.00867	0.00421
Endrin	0.1	0.1	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
Endosulfan II	0.9	0.9	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
4,4'-DDD	2.9	7.7	~	~	ND	0.00464	~	~	0.036	0.00409	~	~	0.021	0.00472	~	~	0.056	0.00491	~	~	0.011	0.00461	ND	0.00421
Endrin aldehyde	NA	NA	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
Endosulfan sulfate	1	1	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	ND	0.00461	ND	0.00421
4,4'-DDT	2.1	2.5	~	~	ND	0.00464	~	~	ND	0.00409	~	~	ND	0.00472	~	~	ND	0.00491	~	~	0.00881	0.00461	ND	0.00421
Chlordane	0.54	2	~	~	ND	0.023	~	~	0.245	0.021	~	~	0.160	0.024	~	~	0.150	0.024	~	~	0.171	0.023	0.556	0.021
Toxaphene	NA	NA	~	~	ND	0.023	~	~	ND	0.021	~	~	ND	0.024	~	~	ND	0.024	~	~	ND	0.023	ND	0.021
Metals (ppm)																								
Antimony	SB	NA	~	~	ND	1.22	~	~	ND	1.22	~	~	ND	1.25	~	~	ND	1.32	~	~	ND	1.20	ND	1.15
Arsenic	7.5 or SB	NA	~	~	3.75	1.22	~	~	3.47	1.22	~	~	4.80	1.25	~	~	4.45	1.32	~	~	4.39	1.20	3.51	1.15
Beryllium	0.16 or SB	NA	~	~	ND	0.608	~	~	ND	0.608	~	~	ND	0.625	~	~	ND	0.662	~	~	ND	0.598	ND	0.573
Cadmium	1 or SB	NA	~	~	0.674	0.304	~	~	0.579	0.304	~	~	2.71	0.313	~	~	1.09	0.331	~	~	0.367	0.299	0.479	0.287
Chromium	10 or SB	NA	~	~	29.8	2.43	~	~	55.2	2.43	~	~	40.1	2.50	~	~	25.1	2.65	~	~	22.0	2.39	23.4	2.29
Copper	25 or SB	NA	~	~	33.8	2.43	~	~	47.4	2.43	~	~	640	2.50	~	~	48.7	2.65	~	~	39.3	2.39	36.6	2.29
Lead	SB [3]	NA	~	~	228	0.608	~	~	573	0.608	~	~	1000	0.625	~	~	341	0.662	~	~	146	0.598	139	0.573
Mercury	0.1	NA	~	~	0.379	0.015	~	~	0.242	0.015	~	~	0.960	0.062	~	~	0.343	0.017	~	~	0.761	0.060	0.438	0.014
Nickel	13 or SB	NA	~	~	20.2	1.22	~	~	18.7	1.22	~	~	25.2	1.25	~	~	20.4	1.32	~	~	19.0	1.20	14.9	1.15
Selenium	2 or SB	NA	~	~	ND	2.43	~	~	ND	2.43	~	~	ND	2.50	~	~	ND	2.65	~	~	ND	2.39	ND	2.29
Silver	SB	NA	~	~	ND	0.608	~	~	ND	0.608	~	~	ND	0.625	~	~	ND	0.662	~	~	ND	0.598	ND	0.573
Thallium	SB	NA	~	~	ND	0.122	~	~	ND	0.122	~	~	ND	0.125	~	~	ND	0.132	~	~	ND	0.120	ND	0.115
Zinc	20 or SB	NA	~	~	195	2.43	~	~	210	2.43	~	~	535	2.50	~	~	330	2.65	~	~	145	2.39	131	2.29
General Analytical																								
Cyanide, Total (ppm)	NA	NA	~	~	ND	1.22	~	~	ND	1.22	~	~	ND	1.26	~	~	ND	1.34	~	~	ND	1.20	ND	1.16
Total Recoverable Phenols (ppm)	NA	NA	~	~	ND	3.06	~	~	ND	3.05	~	~	ND	3.15	~	~	ND	3.36	~	~	ND	3.00	ND	2.90
Total Petroleum Hydrocarbons (ppm)	NA	NA	~	~	2450	97.8	~	~	1500	48.7	~	~	2000	50.4	~	~	1000	26.9	~	~	1160	48.0	2730	92.8

(1) Sample TP5C is duplicate of sample TP5B

(2) USEPA Residential Lead Standard for soil = 400 ppm in bare soil in childrens play area or 1200 ppm for bare soil in rest of yard

(3) Total PCB Cleanup Objective

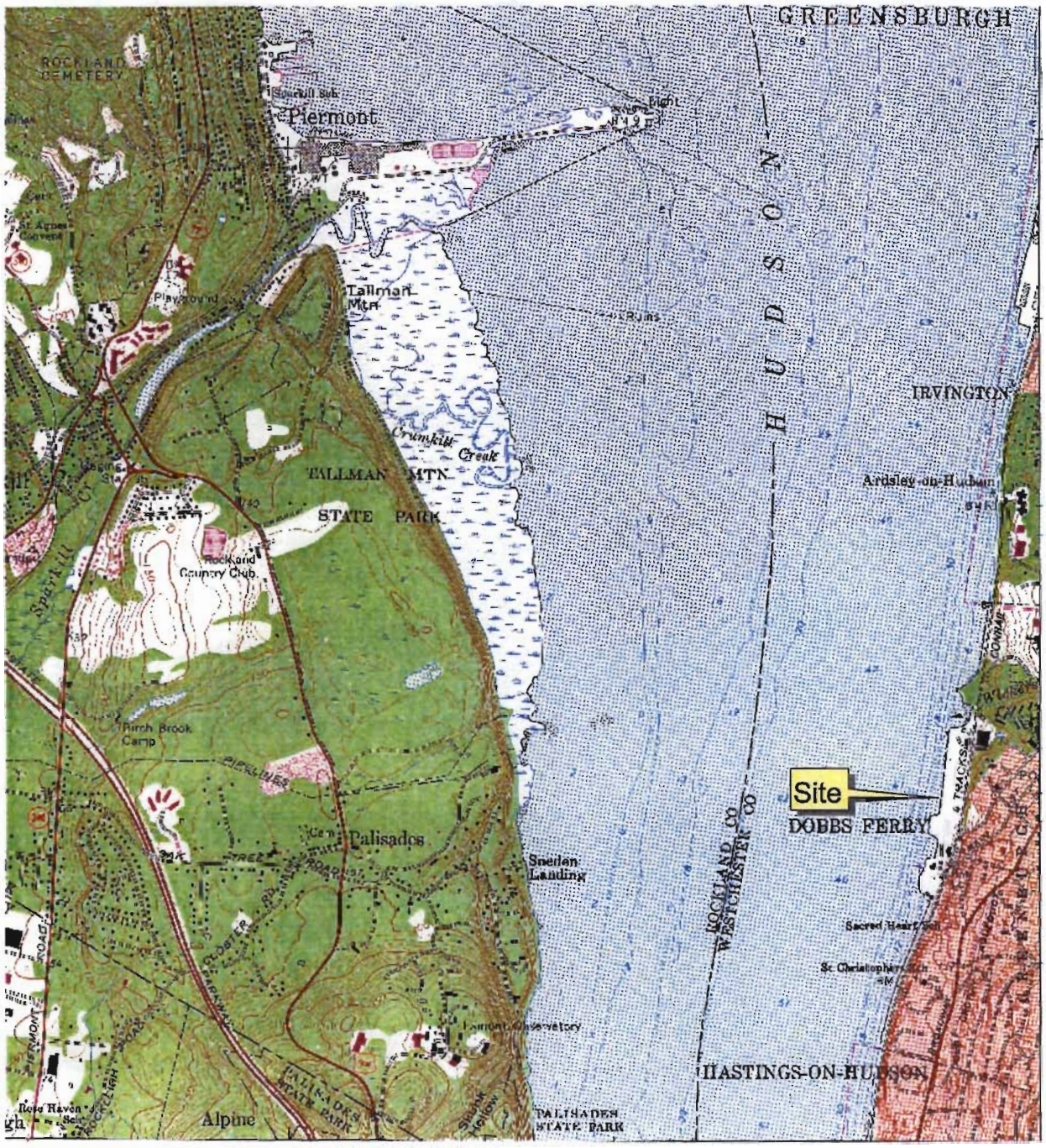
~ = Sample not analyzed for

ND = Analyzed for but Not Detected at the MDL

NA = Not Available

J = The concentration was detected at a value below the MDL

Concentration exceeds NYSDEC Recommended Soil Cleanup Objective



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DATE:	DRAWN BY:	REVIEWED BY:	SCALE:	PROJECT #	SHEET #
Sept. 2002	MDS	KEP	AS SHOWN	405	1 OF 1

Project Location
Dobbs Ferry Waterfront Park
Dobbs Ferry, New York

POTOMAC-HUDSON ENVIRONMENTAL, INC.

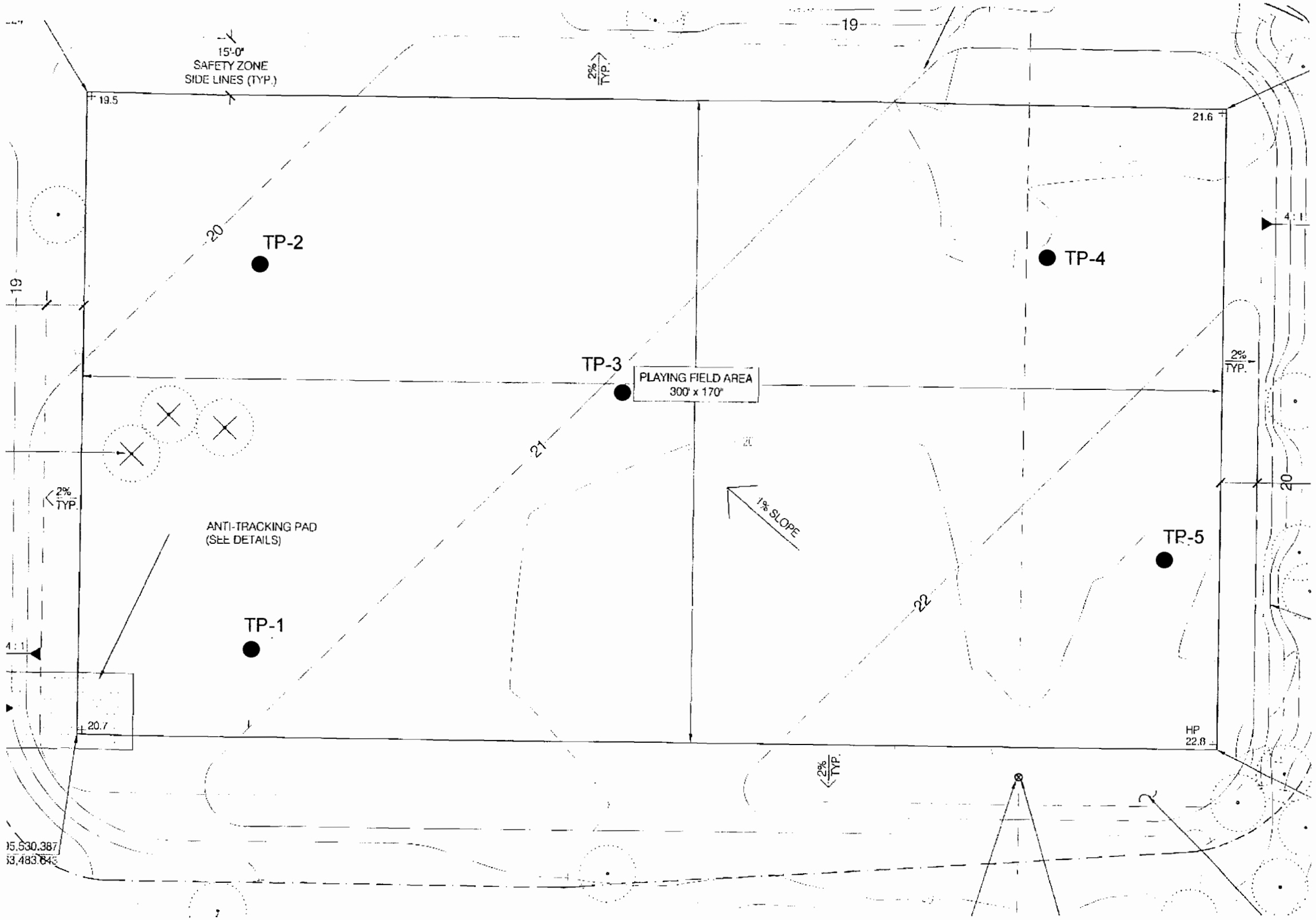
166 John Street
PO Box 7
South Amboy, NJ 08879

23 Chapel Avenue
Jersey City, NJ 07305

136 W. 16th Street
Suite 3E, POB 1206
New York, NY 10011

SOURCE: Nyack, NY USGS Quadrangle

FIGURE # 1



Note: Plan scanned from the Waterfront Park Open Field Site Plan prepared by Vollmer Associates, LLP dated July 23, 2002.
Playing field area shown as 300' by 170'.

DATE:	DRAWN BY:	REVIEWED BY:	SCALE:	PROJECT #	SHEET #
Nov. 2002	EP	KEP	See Note	409	1 of 1

POTOMAC-HUDSON ENVIRONMENTAL, INC.

166 John Street
PO Box 7
South Amboy, NJ 08879

23 Chapel Avenue
Jersey City, NJ 07305

136 W. 16th Street
Suite 3E, POB 1206
New York, NY 10011

Test Pit Sample Locations

Waterfront Park Open Field
Dobbs Ferry, NY

Base Map Source: Vollmer Associates LLP
July 23, 2002 Site Plan

FIGURE # 2

APPENDIX 1

Site Photographs

SITE ENTRANCE

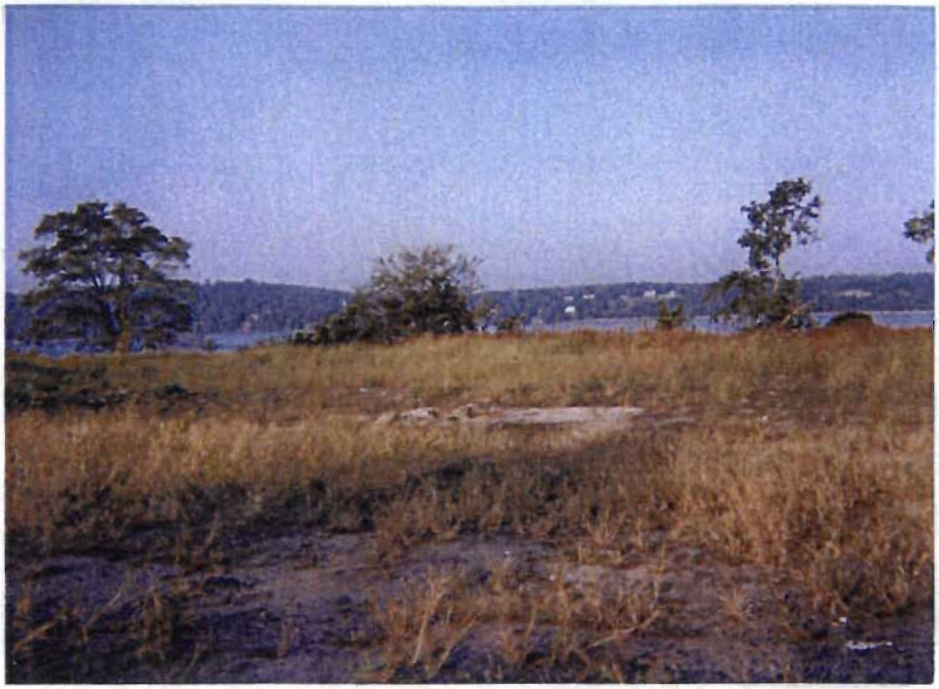
VIEW NE

SITE ENTRANCE AREA

VIEW North

South END OF SITE

VIEW West



Middle Portion of Site

View West

Debris Piles

North End of Site

View East

Debris Piles

North End of Site

View NW

Debris AT North END OF site

VIEW EAST

TEST PIT 1

TEST PIT 2

TEST PIT 3

TEST PIT 3

TEST PIT 4

TEST PIT 4

DEBRIS PILE NEXT TO TEST PITS

TEST PIT 5

APPENDIX 2

Test Pit Logs

Potomac-Hudson	Test Pit Log	Test Pit No.: TP-1
		Page 1 of 1
Client: Village of Dobbs Ferry		Date Start: 10/1/02
Project Name: Dobbs Ferry Waterfront Park		Date Finish: 10/1/02
Project No.: 405	Location: Dobbs Ferry Waterfront Park	
Contractor: Goldstar Environmental, Inc.	Dobbs Ferry, New York	Elevation:
Equipment: Backhoe		Datum:
Sampling Method: Test Pit	Sample Interval:	Depth to Water: ~ 10 ft
Logged By: Ed Phillips	Test Pit Dimensions - Length: 6 ft Width: 3 ft	Depth: 10 ft

Depth (ft)	Sample No.	PID/FID (ppm)	Lithologic Description	Remarks
	TP-1A (0-0.5 ft)	0	Brown/black f-c Sand, silt and gravel, cobbles and wood	
1		0	Brown/black f-c Sand, silt and gravel, cobbles and wood; styrofoam, tiles	
2				
3			Large wood, newspapers, books, fabric sample book, rope, boulders in brown/black f-c Sand, silt and gravel	
4				
5				
6				
7				
8				
9	TP-1B (9.5-10 ft)	10 to 12		
10			End of Test Pit	
11				
12				
13				
14				
15				

Potomac-Hudson	Test Pit Log	Test Pit No.: TP-2
		Page 1 of 1
Client: Village of Dobbs Ferry		Date Start: 10/1/02
Project Name: Dobbs Ferry Waterfront Park		Date Finish: 10/1/02
Project No.: 405	Location: Dobbs Ferry Waterfront Park	
Contractor: Goldstar Environmental, Inc.	Dobbs Ferry, New York	Elevation:
Equipment: Backhoe		Datum:
Sampling Method: Test Pit	Sample Interval:	Depth to Water: ~ 10 ft
Logged By: Ed Phillips	Test Pit Dimensions - Length: 6 ft Width: 3 ft	Depth: 10 ft

Depth (ft)	Sample No.	PID/FID (ppm)	Lithologic Description	Remarks
	TP-2A (0-0.5 ft)	0	Surface - grass, wood chips Gray/brown f-c Sand, gravel, wood, cloth, plastic bags, boulders, fan blades, wire, rubber, metal	
1				
2				
3				
4				
5				
6				
7				
8				
9	TP-2B (9.5-10 ft)		Material wet at bottom of test pit.	
10			End of Test Pit	
11				
12				
13				
14				
15				

Potomac-Hudson	Test Pit Log	Test Pit No.: TP-3
		Page 1 of 1
Client: Village of Dobbs Ferry		Date Start: 10/1/02
Project Name: Dobbs Ferry Waterfront Park		Date Finish: 10/1/02
Project No.: 405	Location: Dobbs Ferry Waterfront Park	
Contractor: Goldstar Environmental, Inc.	Dobbs Ferry, New York	Elevation:
Equipment: Backhoe		Datum:
Sampling Method: Test Pit	Sample Interval:	Depth to Water: ~ 10 ft
Logged By: Ed Phillips	Test Pit Dimensions - Length: 6 ft Width: 3 ft	Depth: 10 ft

Depth (ft)	Sample No.	PID/FID (ppm)	Lithologic Description	Remarks
1	TP-3A (0-0.5 ft)	0	Black/brown f-c Sand, silt, gravel. Wood, large volume of roots, cobbles, boulders, plastic.	
2			Black/brown f-c Sand, silt, gravel. Wood, cobbles, boulders, plastic, concrete, movie film, can of tire inflator.	
3				
4				
5				
6		3 to 6 from 6 ft to 10 ft		
7				
8				
9	TP-3B (9.5-10 ft)		Bottom of test pit damp.	
10			End of Test Pit	
11				
12				
13				
14				
15				

Potomac-Hudson	Test Pit Log	Test Pit No.: TP-4
		Page 1 of 1
Client: Village of Dobbs Ferry		Date Start: 10/1/02
Project Name: Dobbs Ferry Waterfront Park		Date Finish: 10/1/02
Project No.: 405	Location: Dobbs Ferry Waterfront Park	
Contractor: Goldstar Environmental, Inc.	Dobbs Ferry, New York	Elevation:
Equipment: Backhoe		Datum:
Sampling Method: Test Pit	Sample Interval:	Depth to Water: ~ 11 ft
Logged By: Ed Phillips	Test Pit Dimensions - Length: 6 ft Width: 3 ft	Depth: 11 ft

Depth (ft)	Sample No.	PID/FID (ppm)	Lithologic Description	Remarks
	TP-4A (0-0.5 ft)	0	Gravel, concrete, brick, clay pipe in black/brown f-c Sand and silt, slate	directly adjacent to pile. Pile appears at surface.
1				
2		0	Wood pieces in black/brown f-c Sand and silt, gravel	
3				
4				
5				
6		0	Same as above with metal pipe fencing posts in concrete.	
7				
8				
9				
10	TP-4B (10-11 ft)	0	Black f-c Sand, silt, plastic, wood, rubber, concrete, boulders	Hole caving in.
11			End of Test pit	
12				
13				
14				
15				

Potomac-Hudson	Test Pit Log	Test Pit No.: TP-5
		Page 1 of 1
Client: Village of Dobbs Ferry		Date Start: 10/1/02
Project Name: Dobbs Ferry Waterfront Park		Date Finish: 10/1/02
Project No.: 405	Location: Dobbs Ferry Waterfront Park	
Contractor: Goldstar Environmental, Inc. Dobbs Ferry, New York		Elevation:
Equipment: Backhoe		Datum:
Sampling Method: Test Pit	Sample Interval:	Depth to Water: ~ 10 ft
Logged By: Ed Phillips	Test Pit Dimensions - Length: 6 ft Width: 3 ft	Depth: 10 ft

Depth (ft)	Sample No.	PID/FID (ppm)	Lithologic Description	Remarks
	TP-5A (0-0.5 ft)	0	Black f-c Sand, silt, gravel	Adjacent to pile of large boulders, slate, f-c Sand, silt, gravel, plastic, concrete, wood, cinder block
1		0	Black/brown f-c Sand, silt, gravel, cobbles, concrete	
2				
3				
4				
5				
6				
7				
8				
9	TP-5B (and Dup. TP-5C) (9.5-10 ft)			
10			End of Test Pit	
11				
12				
13				
14				
15				