Department of Environmental Conservation

Division of Environmental Remediation

Environmental Restoration
Record of Decision
Yonkers Downtown Waterfront Development Site
Phase 1, Operable Unit 2 (Parcels C, H and I)

City of Yonkers
Westchester County
Site Number B-00045-3

October 1999

New York State Department of Environmental Conservation
GEORGE E. PATAKI, *Governor* JOHN P. CAHILL, *Commissioner*

DECLARATION STATEMENT

ENVIRONMENTAL RESTORATION RECORD OF DECISION

Yonkers Downtown Waterfront Development Site
Phase 1, Operable Unit 2 (Parcels C, H and I)
City of Yonkers, Westchester County, New York
Site No. B-00045-3

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedial action for the Yonkers Downtown Waterfront Development, Phase 1, Operable Unit 2 (Parcels C, H and I), Environmental Restoration Site which was chosen in accordance with the New York State Environmental Conservation Law (ECL).

This decision is based upon the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the Yonkers Downtown Waterfront Development, Phase 1, Operable Unit 2 (Parcels C, H and I), Environmental Restoration Site and upon public input to the Proposed Remedial Action Plan (PRAP) presented by the NYSDEC. A bibliography of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous substances from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential threat to public health and the environment.

Description of Selected Remedy

Based upon the results of the Site Investigation/Remedial Alternatives Report (SI/RAR) for the Yonkers Downtown Waterfront Development, Phase 1, Operable Unit 2 (Parcels C, H and I), Environmental Restoration Site and the criteria identified for evaluation of alternatives, the NYSDEC has selected Alternative 3. The components of the remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the SI/RAR would be resolved.

2. Excavation of those soils contaminated with inorganics which meet the definition of a hazardous waste and dieldrin, a listed hazardous waste, and disposal offsite at a RCRA-permitted hazardous

waste landfill. Post excavation sampling would be carried out to ensure that all of the hazardous waste has been removed.

3. Placement of two feet of clean soil over areas of Parcels C, H and I designated as "green" areas in the Yonkers Waterfront Development Plan which are to be used in recreational or residential settings, such as lawns, gardens, parks, etc., where existing onsite soils would otherwise be exposed at the ground surface. This element of the remedy will be integrated into the site redevelopment plans and will be implemented once the major construction activities have been completed.

4. Access and use restrictions for Parcels C, H and I including, at a minimum, notification to NYSDEC if any intrusive activities are planned. In addition, if there is a change in use of Parcels H and I prior to implementing the remedy (they are currently undeveloped land), public access to these parcels will be restricted.

New York State Department of Health Acceptance

The New York State Department of Health concurs with the remedy selected for this site as being protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective.

10/12/99
Date

Michael J. O'Toole, Jr., Director
Division of Environmental Remediation

TABLE OF CONTENTS

SECTION **PAGE**

Figures

Tables

Appendices

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (NYSDEC) in consultation with the New York State Department of Health (NYSDOH) has selected the remedy to address the significant threat to human health and/or the environment created by the presence of hazardous substances at the Yonkers Downtown Waterfront Site, Parcels C (which includes Parcel D - see Sections 2 and 4.1), H and I , Operable Unit 2 (OU-2). Once selected, the remedy for OU-2 will complete the investigation of all of the Phase 1 parcels.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Brownfields are abandoned, idled or under-used properties where redevelopment is complicated by real or perceived environmental contamination. They typically are former industrial or commercial properties where operations may have resulted in environmental contamination. Brownfields often pose not only environmental, but legal and financial burdens on communities. Under the Environmental Restoration (Brownfields) Program, the State provides grants to municipalities to reimburse up to 75 percent of eligible costs for site investigation and remediation activities. Once remediated the property can then be reused.

Industrial operations and construction debris disposal activities have resulted in the disposal of a number of hazardous substances and wastes, including semivolatile organic compounds and metals at the site (see a more detailed description in Sections 3 and 4 of this document). These disposal activities have resulted in the following threats to the public health and/or the environment:

- Direct contact with (dermal absorption) and ingestion of contaminated soils through future residential use.

- Leaching of inorganic contamination from soils to groundwater and surface water.

In order to eliminate or mitigate the threats to the public health and/or the environment that the hazardous substances disposed at the Yonkers Downtown Waterfront Site, Parcels C, H and I (Operable Unit 2 - see Figure 2) have caused, the following remedy has been selected to allow for residential use of the site:

- Excavation and offsite disposal of soil containing hazardous waste from past industrial activities, at a RCRA-permitted hazardous waste landfill;

- Two feet of soil cover over portions of Parcels C, H and I where there is potential for human exposure (i.e. green space/lawns etc.) ; and

- Access and use restrictions.

The selected remedy, discussed in detail in Section 7 of this document, is intended to attain the remediation goals selected for this site in Section 6 of this Record of Decision (ROD) in conformity with applicable standards, criteria, and guidance (SCGs).

SECTION 2 SITE LOCATION AND DESCRIPTION

The property covered by this ROD consists of approximately 10 acres along the eastern shore of the Hudson River in the City of Yonkers, Westchester County, New York (Figure 1). This waterfront property has a history of industrial use going back more than 100 years. This industrial history indicated the potential for soil and groundwater contamination, as discussed in a report titled "Phase I Environmental Site Assessment Report", dated April 1997.

This ROD for the Yonkers Downtown Waterfront Development Site specifically addresses only Parcels C (southern portion), D , H and I (Figure 2). Parcel D is a small, contiguous, southwestern extension of Parcel C, consisting of 0.08 acres. In this ROD, the discussions pertaining to Parcel C address Parcel D as well.

This ROD, and the SI/RAR report it is based on, provide a technical discussion and conceptual remedial plan for the three above described parcels, defined as Operable Unit 2 (OU-2) of the Yonkers Downtown Waterfront Development Site. Operable Unit 1 (OU-1) includes Parcel F of the Yonkers Downtown Waterfront Development Site, Phase 1, Environmental Restoration Project. A Record of Decision for OU-1 was issued in November 1998.

Parcels C, H and I are being addressed as a separate operable unit, Operable Unit 2, in order to facilitate current development plans for this waterfront property which call for construction activities on these parcels (along with Parcels E and F) in the Fall/Winter 1999. An operable unit represents a portion of the site remedy which, for technical or administrative reasons, can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. The other operable unit for this site (OU-1) is described in Section 3.2 below.

The entire site (Phase I and Phase II parcels) boundaries are defined by: the Jack Frost Sugar facility to the south; the Hudson River to the west; the Habirshaw Athletic Club to the north; and train tracks and Alexander Street to the east. Parcel H is abutted by: the Scrimshaw House condominium building to the north; train tracks to the east; Parcel I to the south; and the Hudson River to the west, as shown on Figure 2. Parcel I is abutted by: Parcel H to the north; train tracks to the east; the Jack Frost Sugar facility to the south; and the Hudson River to the west. Parcel C is abutted by the "Phase II" portion of Parcel C (currently used as a paved parking lot) to the north; train tracks and Alexander Street to the east; the Saw Mill River outlet to the south and the Hudson River to the west.

Parcel J is the proposed promenade of the redevelopment plan, and will be located along the west side, adjacent to all the waterfront parcels (Parcels A through I) along the Hudson River. In this study, Parcel J was not reported as a separate parcel, but was included with the adjacent Parcels C, H and I.

The proposed future use of the parcels covered under this ROD is anticipated to be mixed residential, commercial and recreational. At this time, no specific redevelopment plans have been finalized for any of the parcels, so the presumption is that any parcel could be used in the future for residential purposes.

SECTION 3 SITE HISTORY

3.1 Operational/Disposal History

Parcels H and I - Parcels H and I, a 4.5 acre property, has been constructed of fill over time and has not historically been the location of buildings or other usages. The two undeveloped parcels are currently covered with tall grass, concrete, solid asphalt piles and demolition debris. Parcel I is located on the southern portion of the undeveloped land and Parcel H is located to the north. A large asphalt pile, shown in Figure 3, divides the two parcels.

Parcel C - Parcel C, a 2.3 acre property, was utilized as a lumber and coal yard from before 1886 until some time before 1917, when it was occupied by Otis Elevator (used primarily for coal storage) and a transportation company, used primarily for storage of freight and wagons. Plaza Sand & Stone also occupied a portion of the site and erected an asphalt mixing plant. Presently, the parcel is used as a parking lot. The northern end of Parcel C is owned and occupied by the Port Authority of New York. As such, this portion of the parcel is not included in OU-2 but is included in the Phase 2 Waterfront Redevelopment parcels. Results from the site investigation performed on the Port Authority-owned section of Parcel C will be submitted in a separate report for Phase 2.

Parcel D - Parcel D is composed entirely of coarse stone for stabilizing the shoreline (rip rap).

3.2 Environmental Restoration History

A report titled "City of Yonkers Downtown Waterfront Master Plan, Phase 1 Environmental Site Assessment Report" was issued in April 1997 by AKRF, Inc. for the City of Yonkers. The objective of this scope of work was to collect available published information and to identify potential areas where oil and hazardous substances were likely to be present at the site. The study area of the above investigation consisted of 14.71 acres over 12 parcels, Parcels A through L (Figure 2). The City of Yonkers' state assistance application for the Yonkers Downtown Waterfront Development Site, Phase 1, Environmental Restoration Project was approved by the New York State Department of Environmental Conservation (NYSDEC) on January 27, 1998.

The area of concern being addressed by this ROD includes Parcel C (southern portion), D, H and I of the Phase 1 element of the Yonkers Downtown Waterfront Project. Phase 1 includes Parcels C (southern portion), D, E (under the Voluntary Cleanup Program), F, H, I and portions of J. Parcels E and F were the subject of a previous investigation. Parcel E was the subject of a Voluntary Cleanup investigation and Parcel F was the subject of a Brownfields investigation for which a ROD was issued in November 1998. Figure 2 illustrates areas encompassing Phase 1 and Phase 2. Figure 2 also highlights areas encompassing OU-1 (Parcel F), OU-2 (Parcels C, D, H and I) and Parcel E. Parcel J is the proposed promenade of the redevelopment plan and is located along the Hudson River, adjacent to Parcels A through I.

No prior remedial actions are known to have occurred on Parcels C, H and I.

SECTION 4 CURRENT STATUS

To determine the nature and extent of any contamination by hazardous substances at this environmental restoration site, the City of Yonkers has recently completed a Site Investigation/ Remedial Alternatives Report (SI/RAR)

4.1 Summary of the Site Investigation

The purpose of the SI was to define the nature and extent of any contamination resulting from previous activities at the site.

The SI was conducted between May 1998 and January 1999. A report entitled "Investigation of Phase 1, Parcels H, I and C, Final Report, Yonkers Downtown Waterfront Project Site" has been prepared describing the field activities and findings of the SI in detail. Since Parcel D is composed entirely of coarse stone for stabilizing the shoreline (rip rap), no sampling could be conducted at this location since there is no soil which could be sampled and analyzed here.

The SI included the following activities:

- Grid survey
- Soil gas survey
- Electromagnetic survey
- Ground penetrating radar
- Test pits
- Soil borings and monitoring wells
- Monitoring well sampling
- Surface soil sampling
- Background soil sampling
- TCLP analysis of select soil samples
- Monitoring well elevation survey

To determine which media (soil, groundwater, etc.) contain contamination at levels of concern, the SI analytical data were compared to environmental Standards, Criteria, and Guidance (SCGs). Groundwater, drinking water and surface water SCGs identified for the Yonkers Downtown Waterfront Site were based on NYSDEC Ambient Water Quality Standards and Guidance Values and Part V of NYS Sanitary Code. NYSDEC TAGM 4046 soil cleanup guidelines for the protection of groundwater, background conditions and health-based remediation criteria are used as SCGs for soils.

Chemical concentrations are reported in parts per billion (ppb) and parts per million (ppm). For comparison purposes, SCGs are provided for each medium.

4.1.1 Nature and Extent of Contamination

Based upon the results of the site investigation in comparison to the SCGs and potential public health and

environmental exposure routes, portions of Parcels C, H and I require remediation. These are summarized below. More complete information can be found in the SI Report.

4.1.1.1 Soil Gas Survey

The soil gas survey was conducted to better delineate the areas where soil borings, monitoring wells, and test pits should be located. This procedure is performed by surveying the levels of volatile compounds found in pockets of gases in the soil. Sampling locations were based on information obtained during the electromagnetic (EM) and ground penetrating radar (GPR) surveys described in Sections 4.1.1.2 and 4.1.1.3.

Total VOC concentrations (ppm) in soil gas samples collected from Parcel C are plotted on Figure 4 and data from Parcels H and I is plotted on Figure 5.

4.1.1.2 Electromagnetic Survey

The electromagnetic (EM) survey was performed to determine the possible existence of underground storage tanks and other subsurface metallic features which may be a source of contamination. Signal interference from surficial and buried objects such as steel cable, wires, rebar, metallic refuse, cars and fencing are common.

Some anomalies were identified on Parcels C, H and I which had the fingerprint of pipes, metallic objects, drums or tanks, however, no underground storage tanks were identified through subsequent test pit excavations. Data for these surveys is presented on Figure 6 (Parcel C) and Figure 7 (Parcels H and I).

4.1.1.3 Ground Penetrating Radar

A ground penetrating radar (GPR) survey was conducted to better delineate the anomalies detected during the EM survey and areas where the EM survey could not be conducted. The GPR can detect the shape of buried objects and can delineate drums and tanks.

As with the EM survey, some anomalies were identified with the fingerprint of buried tanks or drums, however, no such objects were found through subsequent investigations. Data for these surveys is presented on Figure 6 (Parcel C) and Figure 7 (Parcels H and I).

4.1.1.4 Test Pits

The combined results of the EM survey, the GPR survey, and soil gas survey were used to determine the location of test pits.

Parcel C - Parcel C is currently used as a commuter parking lot, therefore, no test pits were excavated.

Parcel H - Twenty test pits were excavated during three separate field events on Parcel H (Figure 3); seven test pits on June 15 and 16, 1998 (TP-1H, TP-2H, TP-3H, TP-7H, TP-8H, TP-9H and TP-10H), eight test pits on October 28, 1998 (TP-10AH, TP-11H, TP-12H, TP-13H, TP-14H, TP-15H, TP-16H and TP-17H)

and five test pits on January 27, 1999 (TP-10BH, TP-11AH, TP-13AH, TP-18H and TP-19H).

Based on photo-ionization detector (PID) readings of volatile contaminants in soil and visual inspection, soil samples from the test pits were collected and submitted for laboratory analysis. A 55-gallon drum was excavated in test pit TP-11H in the area of the EM survey anomaly. Laboratory analysis of the liquid contained within the drum determined the contents to be No. 2 fuel oil. Test pits excavated in the northern and central regions of Parcel H, particularly TP-11H, TP-2H, TP-3H, TP-11AH and TP-12H, encountered sand and gravel fill with concrete, plastic wire casing (it appeared that the copper had been stripped out of the plastic housing), metal piping, asphalt, coal ash and steel reinforced concrete. The steel reinforced concrete and brick were likely the anomalies detected by the EM and GPR surveys. The presence of plastic wire casing is a possible indication of industrial waste disposal from the wire drawing mill which operated on Parcel F through the early 1970s.

Test pit TP-1H was excavated in the northern section of Parcel H, just south of the undeveloped road, to investigate the significant anomalies detected during the EM survey. Approximately ten twenty foot steel I-beams, eight three-inch pipes, and other miscellaneous debris including wood and concrete were encountered along the northern portion of the parcel, which would account for the anomalies detected in the EM and GPR surveys. The piping appeared to be underground storage tank lines. The pipes were excavated until the ends were located to determine whether they were connected to remaining underground storage tanks. No tanks were located; the pipes appeared to be sealed at both ends with concrete.

PID readings from samples collected from the seven test pits excavated on Parcel H on June 15 and 16, 1998 (TP-1H, TP-2H, TP-3H and TP-7 through TP-10) ranged from 2.3 parts per million (ppm) in test pit TP-8H to 13.9 ppm in test pit TP-10H. Test pit TP-10H was located on the northeastern corner of the parcel. Elevated concentrations of lead were detected in some of these test pits. In response to the initial results and to better delineate lead concentrations in the area, on January 27, 1999, five additional test pits were excavated on Parcel H and several samples collected contained elevated levels of lead. Two of these samples were submitted to a lab for Toxicity Characteristic Leaching Procedure (TCLP) analysis, a laboratory procedure used to measure the potential for metals to leach from soils. Both of the samples were collected from different depths in test pit 13-AH, located on the northern extent of the parcel. The sample results were above the NYSDEC Hazardous Waste Regulatory Levels for toxicity (Table 10). Since it is believed that the lead was a result of past industrial activities, the waste would be considered hazardous waste. Other samples yielded total lead levels comparable to those detected in test pit TP-13H, namely test pits TP-10H and TP-11H. Although samples from these test pits were not analyzed using TCLP, based on the total lead levels, soil in these areas is also considered hazardous for disposal purposes.

Parcel I - Three test pits were excavated on Parcel I during a June 15 and 16, 1998 field event; TP-4H, TP-5H and TP-6H (Figure 3).

Based on visual inspection, a soil sample from test pit TP-4H was collected and submitted for laboratory analysis. Test pit excavations encountered sand and gravel fill with black coal and ash and steel reinforced concrete, which would account for the EM anomalies. No tanks were located in the excavations on Parcel I.

4.1.1.5 Soil Borings and Monitoring Wells

Based on the results of the field screening activities, borings and monitoring wells were installed on Parcels C, H and I. The purpose of this work was to characterize subsurface conditions including groundwater quality both upgradient and downgradient of the parcels.

Parcel C - Eight soil borings (B-1C through B-8C) were advanced on Parcel C and two of these borings were retrofitted with monitoring wells (Figure 6); one upgradient (MW-2C) and one downgradient (MW-4C). Six soil samples were collected from these borings for laboratory analysis. Depths of the borings ranged from 4.5 feet to 14 feet and all borings encountered fill material. A petroleum odor was detected in three borings; B-5C, B-6C and B-7C.

Parcel H - Based on the results of the field screening activities, two soil borings were advanced on Parcel H, one along the west (downgradient) and east (upgradient) sides of the parcel (Figure 3). Both borings were retrofitted with monitoring wells; MW-1H (downgradient) and MW-2H (upgradient). These wells were both installed to a depth of 19 feet and groundwater samples were collected from each well.

Parcel I - Based on the results of the field screening activities, two soil borings were advanced on Parcel I, one along the west (downgradient) and east (upgradient) sides of the parcel (Figure 3). Both borings were retrofitted with monitoring wells; MW-1I (downgradient) and MW-2I (upgradient). These wells were installed to a depth of 16 and 19 feet, respectively, and groundwater samples were collected from each well.

Analytical Results of Subsurface Soil Samples Collected From Parcel C - Six soil samples were collected from borings on Parcel C, an asphalt-paved parking lot, and submitted to a laboratory for analysis. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs and metals. VOCs were not found to exceed NYSDEC Soil Clean-up Objectives in any of the samples. SVOCs exceeded NYSDEC Soil Clean-up Objectives in three of the samples (B-1C, B-7C and MW-4C), however, most are comparable to or slightly higher than background samples collected east of the site. No detectable levels of PCBs were found on Parcel C and no pesticides exceeded NYSDEC Soil Clean-up Objectives in any of the samples. Inorganic levels on Parcel C were generally found at or below Soil Clean-up Objectives or similar to background samples with the exception of copper, iron, lead, magnesium, mercury, nickel and zinc. None of these metals substantially contravene soil objectives and would not be inconsistent with a property with a history of industrial use. Tables 2 and 3 summarize the SVOC and metals data for soil boring samples from Parcel C.

Analytical Results of Groundwater Samples Collected From Parcel C - Three groundwater samples were collected from the two monitoring wells installed on Parcel C; MW-2C and MW-4C. Sample MW-4AC is a duplicate sample of MW-4C. The samples were field filtered and analyzed for VOCs, SVOCs, PCBs and dissolved metals. One VOC exceeded NYSDEC Water Quality Standards in groundwater samples collected from Parcel C. Methylene chloride was found in all three groundwater samples at levels ranging from 23 to 260 ppb; the groundwater standard is 5 ppb. While methylene chloride is often found to be a laboratory contaminant, laboratory control data suggests that this contaminant was present in Parcel C groundwater at the levels reported. One SVOC, phenol, was found at a concentration of 2.1 ppb in MW-2C, slightly above the water quality standard of 1 ppb. PCBs were not detected in any of the Parcel C

groundwater samples. Parcel C groundwater samples showed no exceedences of NYSDEC Water Quality Standards for metals except for sodium, magnesium, iron and manganese. The elevated levels of inorganics were most pronounced in monitoring well MW-4C, located approximately 80 feet from the Hudson River, where brackish groundwater conditions exist. Tables 4 and 5 summarize the VOC and metals data for groundwater samples from Parcel C.

Parcel H

Analytical Results of Subsurface Soil Samples Collected From Parcel H - A total of 18 soil samples were collected from test pits on Parcel H and submitted to a laboratory for analysis. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs and metals, however, not all samples were analyzed for all constituents because certain areas were targeted for specific contaminants. VOCs were not found to exceed NYSDEC Soil Clean-up Objectives in any of the three samples analyzed. Three samples were analyzed for SVOCs and exceeded NYSDEC Soil Clean-up Objectives in all of the samples (TP-1H, TP-9H and TP-10H), however, most are comparable to or slightly higher than background (two times or less) with the exception of bis(2-ethylhexyl) phthalate which was found at a concentration of 980,000 ppb in TP-10H, twenty times the soil cleanup objective. Levels of SVOCs on Parcel H are consistent with a property constructed on fill material with a history of industrial use. Eleven subsurface samples on Parcel H were analyzed for PCBs and found at levels up to 8 ppm, below the subsurface soil cleanup objective for PCBs (10 ppm). No samples exceeded the NYSDEC Soil Clean-up Objectives for pesticides. Inorganic levels in some of the 18 samples tested on Parcel H were elevated for certain constituents including arsenic (up to 5 times background), copper (up to 500 times background), iron (up to 5 times background), lead (up to 80 times background), mercury (up to 3 times background), nickel (up to 4 times background) and zinc (up to 65 times background). Background levels for inorganics are presented on Table 8. Most of the elevated readings were from samples collected in the northeast portion of the parcel. Two of the elevated lead samples from TP-13AH were analyzed using the TCLP procedure. Lead exceeded the NYSDEC regulatory level and, therefore, soils with these elevated levels of lead are considered hazardous. The high levels of inorganics in the northeast quarter of Parcel H are likely related to industrial waste disposal from the wire drawing mill which operated on Parcel F up until the early 1970s. Tables 6 and 7 summarize the SVOC and PCB contamination for Parcel H test pit samples and Tables 8 through 10 summarize the metals data, including the results of the TCLP leaching tests (Table 10).

Analytical Results of Groundwater Samples Collected From Parcel H - Nine groundwater samples were collected from test pits and monitoring wells on Parcel H and analyzed for VOCs, SVOCs, PCBs, and total and dissolved metals. The three test pit samples from the original sampling event (TP-3H, TP-8H and TP-9H) were not filtered in the field or in the laboratory, and as such, the results depict concentrations of metals in fine sediment.

Samples collected from the monitoring wells (MW-1H and MW-2H) were analyzed for both total and dissolved metals. Samples collected from the second round of test pits (TP-10AH-GW, TP-12H-GW and TP-13H-GW) were filtered in the field and analyzed for only dissolved metals.

Trichloroethene (TCE) was the only VOC detected in the groundwater samples analyzed from Parcel H. Concentrations of trichloroethene were above the NYSDEC Water Quality Standard of 5 ppb in two of the

six samples analyzed from Parcel H at concentrations of 8.6 in sample TP-8H and 17 ppb in sample MW-1H. No other VOCs were detected in groundwater samples taken from Parcel H. One unfiltered sample from Parcel H (TP-3H) had detectable levels of SVOCs, however, as previously indicated, these samples were very turbid and the concentrations are likely representative of the elevated levels that are present in the soil and not dissolved in the groundwater. PCBs were also detected in one sample (TP-3H) and are attributed to the turbidity of the sample. Parcel H groundwater samples showed exceedences of NYSDEC Water Quality Standards primarily for metals including sodium, magnesium and manganese. As on Parcel C, these elevated levels of inorganics are related to the brackish surface water conditions of the nearby Hudson River. Filtered samples also showed exceedences of two other inorganics, cobalt and zinc, at low levels (within 3 times the water quality standard). Tables 11 and 12 summarize the VOC and metals data for groundwater samples from Parcel H.

Parcel I

Analytical Results of Subsurface Soil Samples Collected From Parcel I - One subsurface sample was collected from a test pit on Parcel I and submitted to a laboratory for and analyzed for VOCs, SVOCs, PCBs and metals. No VOCs or PCBs were detected in this sample. SVOC constituents were found at or below soil background levels. Inorganic levels in the one sample tested on Parcel I were slightly elevated for certain constituents including arsenic, iron and magnesium, each at about 2 times the background concentration. Tables 13 and 14 summarize the SVOC and metals data for subsurface soil samples from Parcel I.

Analytical Results of Groundwater Samples Collected From Parcel I - Three groundwater samples were collected from Parcel I; one sample from a test pit (TP-4H) and two samples from monitoring wells MW-1I and MW-2I. The groundwater samples were analyzed for VOCs, SVOCs, PCBs, and total and dissolved metals. The groundwater sample collected from test pit TP-4H was not filtered in the field or in the laboratory, and as such, the results may depict concentrations of metals in fine sediment. No VOCs were detected in the groundwater samples from Parcel I. Only the sample collected from test pit TP-4H contained detectable concentrations of SVOCs, however, this sample was not filtered and the elevated levels would be expected when collected from an area with elevated SVOC concentrations in soil. No PCBs were detected in the groundwater samples from Parcel I. Parcel I filtered groundwater samples showed exceedences of NYSDEC Water Quality Standards for sodium, iron, magnesium and manganese (Table 15). As on Parcel C and H, these elevated levels of inorganics are related to the brackish surface water conditions of the nearby Hudson River.

4.1.1.6 Surface Soil Sampling

Surface soil samples were collected to determine conditions at the surface in areas where the waterfront development plans call for "green" areas where existing surface soils may potentially be exposed in park, lawn or garden settings.

Analytical Results of Surface Soil Samples

Parcel C - Parcel C is completely covered with asphalt pavement, therefore, no surface soil samples were

collected.

Parcel H - One surface soil sample was collected from Parcel H (SS Parcel H) and analyzed for SVOCs, PCBs, pesticides, and metals (Figure 3). SVOC levels were found at or below background levels for the site (Table 6). No PCBs or pesticides were detected above the soil cleanup objectives. All of the elevated inorganic constituents found in this surface soil sample (Table 8) were found at levels slightly above background concentrations (less than 2 times background).

Parcel I - One surface soil sample was collected from Parcel I (SS Parcel I) and analyzed for SVOCs, PCBs, pesticides, and metals (Figure 3). Three SVOC compounds were found to exceed soil cleanup objectives, however, the levels were at or below background levels for the site (Table 13). No PCBs were detected in the soil sample. Two pesticide compounds were detected above the soil cleanup objectives (4,4'-DDT - 2.1 ppm and dieldrin - 0.044 ppm) at levels of 9.8 ppm and 9.5 ppm, respectively (Table 16). Only one inorganic constituent (Table 14) was found in this surface soil sample at a level slightly above the background concentration (less than 2 times background).

4.1.1.7 Background Soil Sampling

Background soil samples were collected to establish soil quality at a location upgradient of the Yonkers Site, away from the influence of any potential site-related contamination. This data provides an indicator of potential upgradient source areas and provides a measure of typical soil chemistry for this area for comparison to data collected on site. Three samples were collected east of the site on grassy areas along municipal streets. The locations of these samples are shown on Figure 2.

Analytical Results of Background Soil Samples Background surface soil samples were analyzed for SVOCs and metals. As with the onsite soil samples, several SVOCs exceeded NYSDEC Soil Clean-up Objectives, typical for areas which have a history of past industrial use. Mercury was the only inorganic which was anomalously high in background samples. Mercury levels in the three samples ranged from 0.14 ppm to 1.4 ppm, exceeding the NYSDEC Soil Cleanup Objective of 0.1 ppm. Tables 2 and 3 include the SVOC and metals data for background soil samples.

4.1.2 General Topography and Hydrogeology

The topography of the Yonkers Site is relatively flat with site elevations ranging from 5 to 10 feet above sea level. Groundwater generally flows west toward the Hudson River, except as influenced by tidal fluctuations immediately adjacent to the River.

Accounts of the early history of this waterfront property, along with historical areal photographs, indicate that significant fill material was introduced along the River to expand the property westward. Site investigations on Parcels C, H and I confirm this to be the case. All subsurface investigations encountered fill materials down to the River elevation (6 to 8 feet below ground surface). Below this depth, native soils were encountered consisting of fine to medium sands with some silt and clay.

4.1.3 Private Water Supply Wells

The study area is connected to a municipal water supply. No private wells are known to exist on or adjacent to this property.

4.2 Interim Remedial Measures

Interim Remedial Measures (IRMs) are conducted at sites when a source of contamination or exposure pathway can be effectively addressed before completion of the SI/RAR. No IRM's are known to have been carried out at this site.

4.3 Summary of Human Exposure Pathways

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the health risks can be found in the SI Report.

An exposure pathway is how an individual may come into contact with a contaminant. The five elements of an exposure pathway are 1) the source of contamination; 2) the environmental media and transport mechanisms; 3) the point of exposure; 4) the route of exposure; and 5) the receptor population. These elements of an exposure pathway may be based on past, present, or future events.

Human exposure pathways known to presently exist, that have historically existed, or may exist in the future at the site, include:

- Direct contact with (dermal absorption) and ingestion of contaminated soils through residential use.

This potential human exposure pathway at the Yonkers Downtown Waterfront Site, Parcels C, H and I, would be addressed through the remedial actions to be implemented at the site.

4.4 Summary of Environmental Exposure Pathways

No pathways for environmental exposure have been identified for this site.

SECTION 5 ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past owners and operators, waste generators, and haulers.

Since no viable PRPs have been identified, there are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the State to recover State response costs should PRPs be identified. The City of Yonkers will assist the State in its efforts by providing all information to the State which identifies PRPs. The City of Yonkers will also not enter into any agreement regarding response costs without the approval of the NYSDEC.

SECTION 6 SUMMARY OF THE REMEDIATION GOALS AND FUTURE USE OF THE SITE

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375-1.10. The overall remedial goal is to meet all Standards, Criteria, and Guidance (SCGs) and be protective of human health and the environment. At a minimum, the remedy selected should eliminate or mitigate all significant threats to the public health and to the environment presented by the hazardous substance disposed at the site through the proper application of scientific and engineering principles.

The proposed future use for the Yonkers Downtown Waterfront Site, Parcels C, H and I, would include residential, commercial and recreational elements. The goals selected for this site are:

- Reduce, control, or eliminate to the extent practicable the contamination present within the surface soils on site.
- Eliminate to the extent practicable the hazardous contamination present within the subsurface soils on site.
- Eliminate the potential for direct human contact with contaminated surface soils on site.
- Eliminate the potential for leaching of contamination into groundwater and surface water.
- Provide for attainment of SCGs for contaminated surface soils at the limits of the area of concern (AOC), to the extent practicable.

SECTION 7 SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy should be protective of human health and the environment, be cost effective and comply with other statutory requirements. Potential remedial alternatives for the Yonkers Downtown Waterfront Site, Parcels C (including D), H and I, were identified, screened and evaluated in a Remedial Alternatives Report (RAR). This evaluation is presented in the report entitled "Site Investigation/ Remedial Alternatives Report for Phase I, Parcels C, H and I, Yonkers Downtown Waterfront Project Site" dated April 1999.

A summary of the detailed analysis follows. As presented below, the time to implement reflects only the time required to implement the remedy, and does not include the time required to design the remedy or procure contracts for design and construction.

7.1 Description of Alternatives

The potential remedies are intended to achieve the established remedial goals for the SVOC and metals contaminated soils at the site.

Alterative 1 No Action

Present Worth:	$ 0
Capital Cost:	$ 0
Total Present Worth O&M:	$ 0
Time to Implement:	0 years

The no action alternative is evaluated as a procedural requirement and as a basis for comparison. It requires continued monitoring only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health. This would be unacceptable for future development plans which call for residential occupancy for Parcels C, H and I. Under its current use, which includes parking (Parcel C) and undeveloped land (Parcels H and I), there is minimal unacceptable risk to human health associated with the undeveloped land.

Under the no action alternative, no measures would be taken to remove or contain the contaminated soil. However, this alternative presumes that access and use restrictions would be maintained and would include notification of NYSDEC if any excavation activities are proposed for this property. If there is a change in use of Parcels H and I (they are currently undeveloped land), public access to these parcels would be restricted.

Alternative 2 Excavation and Offsite Disposal of Hazardous and Non-Hazardous Wastes

Present Worth:	$13,200,000
Capital Cost:	$13,200,000
Total Present Worth O&M:	$ 0
Time to Implement	1 year

The volume of soil that is likely to exceed TAGM 4046 soil clean-up objectives is estimated to be 88,000 cubic yards (estimated as 100% of the soils above the water table on Parcels C, H and I - see Figure 2). Exact volumes may be higher or lower and could not be determined without further evaluation of the depths and areal coverage of the contaminated soils at the site.

Under Alternative 2, the soil would be removed using conventional excavation techniques and the resultant excavation would be backfilled using environmentally clean fill. To minimize the potential for post-construction settlement, the fill would be placed and mechanically compacted. During excavation and backfilling activities, proper surface water management measures would be implemented.

Excavated soil would be stockpiled in varying amounts (typically from 200 to 2,000 cubic yards). Representative samples from each stockpile would be collected and analyzed for chemical characteristics.

The soils determined to exceed soil cleanup criteria would be transported to an appropriate off-site disposal facility. Based on samples tested during the Site Investigation, it is assumed that most of the soil would not meet the definition of a characteristic hazardous waste. As such, these soils would be taken to a solid waste landfill approved to dispose of such materials. It has been determined that approximately 1,500 cubic yards

of soil would meet the definition of a characteristic hazardous waste. Metal-contaminated waste failed the TCLP leaching test for lead in the northeast portion of Parcel H and some surface soil on Parcel I is contaminated with dieldrin in excess of the soil cleanup criteria. Based upon further characterization of these wastes in a remedial design, those wastes which are determined to be hazardous would have to be taken to an appropriate (RCRA-permitted) hazardous waste landfill. It is estimated that the area of dieldrin-contaminated soil on Parcel I is of small extent and likely amounts to only a few cubic yards of material.

Because this alternative calls for removal of all contaminated soils, there would be no access and use restrictions applied to these parcels. However, if there is a change in use of Parcels H and I prior to implementing the remedy (they are currently undeveloped land), public access to these parcels would be restricted.

Alternative 3 Excavation and Offsite Disposal of Hazardous Wastes and Soil Cover of Green Areas

Present Worth:	$ 626,000
Capital Cost:	$ 626,000
Total Present Worth O&M:	$ 0
Time to Implement	6 months

Under Alternative 3, the hazardous wastes from past industrial activities on Parcels H and I (contaminated soils which are characteristic hazardous wastes due to failure of the TCLP leaching test for metals and/or for dieldrin, a listed hazardous waste) would be excavated and disposed offsite at an appropriate (RCRA-permitted) hazardous waste landfill. No hazardous waste was found on Parcel C. Post excavation sampling would be carried out to ensure that all of the hazardous waste has been removed. A marker layer (consisting of an easily identifiable, non-biodegradable layer such as highly visible plastic mesh) would be placed above the excavated area and below the clean soil cover to flag this area during any excavation activities. This alternative would also include placing a physical barrier between the contaminated soil and the area where exposure could occur. A two foot soil cover in "green" areas would provide sufficient protection to mitigate the potential for exposure to contaminated soils. Green areas would include those areas of Parcel C, H and I which, based on the proposed waterfront development plans, are not covered by buildings, parking areas, sidewalks, etc. These would include such areas as the proposed promenade along the River and garden, recreational or other areas where soil would be exposed at the ground surface. Placement of the two foot soil cover would be integrated into the site redevelopment plans and would be implemented once the major construction activities have been completed so that the cover would not be disturbed during these activities.

Under Alternative 3, access and use restrictions would be maintained and would include notification of NYSDEC if any excavation activities are proposed for this property. In addition, if there is a change in use of Parcels H and I prior to implementing the remedy (they are currently undeveloped land), public access to these parcels will be restricted.

Alternative 4 Excavation and Offsite Disposal of Hazardous Wastes, Clay Capping of the Hazardous Waste Areas and Soil Cover of of Green Areas

Present Worth:	$ 1,694,000

Capital Cost:	$ 1,694,000
Total Present Worth O&M:	$ 0
Time to Implement	9 months

Under Alternative 4, hazardous wastes on Parcels H and I (contaminated soils which are characteristic hazardous wastes due to failure of the TCLP leaching test for metals and/or for dieldrin, a listed hazardous waste - see Figure 8) would be excavated and disposed offsite at an appropriate (RCRA-permitted) hazardous waste landfill. Post excavation sampling would be carried out to ensure that all of the hazardous waste has been removed. Once it has been determined that the hazardous waste removal is complete, a two foot clay cap would be placed over this area on Parcel H (see Figure 9). This measure would ensure that any residual contamination left in the ground would not present a future risk to groundwater quality through leaching of metals by infiltrating rainwater. The clay cap would also allow piles to be driven through this area for structures in the future. In addition to the clay cap, a two foot soil cover would be placed over the green areas of the three Parcels (C, H and I) to mitigate the potential for exposure to contaminated soils. As in Alternative 3, placement of the two foot soil cover would be integrated into the site redevelopment plans and would not be constructed until the major construction activities have been completed.

Under Alternative 4, access and use restrictions would be maintained and would include notification of NYSDEC if any excavation activities are proposed for this property. As with the other alternatives, if there is a change in use of Parcels H and I prior to implementing the remedy, public access to these parcels would be restricted.

7.2 Evaluation of Remedial Alternatives

The criteria used to compare the potential remedial alternatives are defined in the regulation that directs the remediation of inactive hazardous waste sites in New York State (6NYCRR Part 375). For each of the criteria, a brief description is provided followed by an evaluation of the alternatives against that criterion. A detailed discussion of the evaluation criteria and comparative analysis is contained in the Remedial Alternatives Report.

The first two evaluation criteria are termed threshold criteria and must be satisfied in order for an alternative to be considered for selection.

1. **Compliance with New York State Standards, Criteria, and Guidance (SCGs)** Compliance with SCGs addresses whether or not a remedy will meet applicable environmental laws, regulations, standards, and guidance. The relevant SCGs for this site include soil guidance values (Technical and Administrative Guidance Memorandum No. 4046, "Determination of Soil Cleanup Objectives and Cleanup Levels") groundwater standards (NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1, "Ambient Water Quality Standards and Guidance Values") and drinking water standards (NYSDOH Part 5 of the New York State Sanitary Code, Drinking Water Supplies).

The no action alternative would be unacceptable as it does not address the remedial action objectives for this site. Specifically, since contaminated soils (both hazardous and non-hazardous) would be left unremediated in an area which is planned for residential use, the no action alternative would not comply with SCGs.

Alternatives 2, 3 and 4 would achieve compliance with SCGs through contaminant removal and/or containment.

Alternative 2 would be the most compliant with SCGs as all of the hazardous and non-hazardous wastes would be removed. Alternatives 3 and 4 would also include removal of hazardous wastes from the site, however, would be slightly less protective than Alternative 2 because non-hazardous wastes would remain onsite. While the clay cap for Alternative 4 would insure that any residual hazardous waste would not be susceptible to leaching from infiltrating rainwater, this would be of little concern on Parcel H as evidenced by the low levels of metals currently found in the groundwater. In addition, most of the area being proposed for a clay cap would be covered by buildings or asphalt parking lots based on the redevelopment plans for the Yonkers property. Alternatives 3 and 4 would also limit direct contact with onsite contaminants through the application of a soil cover in green areas.

Access and use restrictions following implementation of Alternatives 1, 3 and 4 would apply. Since Alternative 2 includes removal of all contaminated soil which exceeds soil cleanup criteria, no such restrictions would be needed. In addition, if there is a change in use of Parcels H and I prior to implementing the remedy (they are currently undeveloped land), public access to these parcels would be restricted.

2. Protection of Human Health and the Environment This criterion is an overall evaluation of the health and environmental impacts to assess whether each alternative is protective.

The no action alternative would not be protective of human health as the potential to be exposed to contamination would remain. This alternative would not provide for removal or control of contaminated soils. This potential exposure scenario would only apply to residential use, the proposed use for this property based on the current waterfront development plans. Under its current use, a parking lot (Parcel C) and vacant land (Parcels H and I), no unacceptable risk to human health would exist. However, the leaching of inorganics to groundwater and surface water would continue to present a risk to the environment.

Alternatives 2, 3 and 4 would be protective of human health through removal of hazardous soils and removal or isolation of non-hazardous contaminated soils. Alternative 2, excavation and offsite disposal of both hazardous and non-hazardous contaminated soil, would eliminate onsite contamination so that future use and access restrictions would no longer apply to these parcels.

Alternative 3 would be equally protective without a clay cap as Alternative 4 because both alternatives call for a two foot soil cover which would eliminate direct contact as a route of exposure.

Alternatives 1, 3 and 4 would leave contamination onsite and, as such, would require access and use restrictions. For all of the alternatives, if there is a change in use of Parcels H and I prior to implementing the remedy (they are currently undeveloped land), public access to these parcels would be restricted.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Since there are no actions proposed for Alternative 1, there would be no short-term effects associated with this alternative.

Alternatives 2, 3 and 4 include excavation and offsite disposal of contaminated soils. Implementation of this alternative would pose short-term effects during excavation and transportation to an offsite landfill. Based on the volume of material generated for Alternative 2, the potential short-term effects, including potential exposure to the community and the environment during transportation, would be considerable. Excavation and transportation of contaminated soils under Alternatives 3 and 4 would have less of a short-term impact due to the small volume of waste effected.

4. Long-term Effectiveness and Permanence This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the controls intended to limit the risk, and 3) the reliability of these controls.

The no action alternative would not be effective in the long term. This alternative would not provide for removal or control of contaminated soils, and therefore, would not reduce any existing or future potential risks from the onsite contamination.

Alternatives 2, 3 and 4 would be protective in the long-term through removal of all hazardous soils. Alternative 2 would have the most long-term effectiveness and permanence of the alternatives considered because both hazardous and non-hazardous contaminated soils would be removed.

Alternative 3 and Alternative 4 would be equally protective in the long-term as both alternatives would include the removal of hazardous wastes from the site. Since contravention of groundwater standards is very minor, the addition of a clay cap under Alternative 4, following removal of hazardous wastes, would provide only a slight benefit for insuring that any residual hazardous waste would not be susceptible to leaching from infiltrating rainwater. Post excavation sampling would be carried out to ensure that all of the hazardous waste has been removed. In addition, most of the area being proposed for a clay cap would be covered by buildings or asphalt parking lots based on the redevelopment plans for the Yonkers property, providing additional insurance that leaching of contaminants will not occur.

Alternatives 1, 3 and 4 would leave varying levels of contamination onsite and, as such, would require access and use restrictions for long-term effectiveness.

5. Reduction of Toxicity, Mobility or Volume Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

The no action alternative would not reduce the toxicity, mobility or volume of the waste.

Alternative 2 would include offsite disposal of contaminated soil at solid and hazardous waste landfills and would reduce the mobility and volume of this waste with respect to the site.

Alternatives 3 and 4 would include excavation and offsite disposal of only those soils contaminated with hazardous waste at a hazardous waste landfill and would reduce the mobility and volume of this hazardous waste with respect to the site. As previously discussed, the addition of a clay cap under Alternative 4 would provide only a slight benefit over Alternative 3 in minimizing the potential for leaching of contaminants to the groundwater.

6. Implementability The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction and the ability to monitor the effectiveness of the remedy. For administrative feasibility, the availability of the necessary personnel and material is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, etc..

All of the alternatives are implementable. Alternative 1 is the easiest alternative to implement since it involves no action, with Alternatives 3 and 4 being relatively easy to implement. Alternative 2 would be the most difficult to implement due to the quantities of waste and clean fill required. The material and personnel for each alternative should be readily available in this region.

7. Cost Capital and operation and maintenance costs are estimated for each alternative and compared on a present worth basis. Although cost is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the remaining criteria, cost effectiveness can be used as the basis for the final decision.

The no action alternative would be the least costly alternative, having no associated costs, however, this alternative would not satisfy the threshold criteria of Compliance with SCGs and Protection of Human Health and the Environment. In addition, without acceptable resolution of the potential impacts of the contaminated soils, the property might not be usable and delays associated with future development of the site may occur.

The costs for Alternative 2 include excavation, loading, transport and disposal of contaminated soil, purchase and placement of clean backfill and necessary health and safety activities, testing and oversight. Excavation, disposal and backfill of an estimated 88,000 cubic yards of contaminated soil would be expected to have a capital cost of approximately $13,200,000. Minimal operation and maintenance costs would be associated with this alternative.

Alternative 3 is the least costly alternative that would meet the threshold criteria (SCG Compliance and Overall Protectiveness) and includes the removal of all soils which meet the definition a hazardous waste (approximately 1,500 cubic yards) along with the placement of a 2 foot soil cover in those areas of the site which are considered "green" based on the redevelopment plans. The present worth cost for this alternative is estimated to be $626,000.

Alternative 4 is similar to Alternative 3 except that it includes capping of that portion of Parcel H where

hazardous soils have been removed with clay. With the addition of a clay cap, this alternative has an estimated cost of $1,694,000, considerably more costly than Alternative 3 ($626,000).

This final criterion is considered a modifying criterion and is taken into account after evaluating those above. It is focused upon after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance Concerns of the community regarding the SI/RAR report and the Proposed Remedial Action Plan have been evaluated. The "Responsiveness Summary" included as Appendix A presents the public comments received and the Department's response to the concerns raised. In general the public comments received were supportive of the selective remedy.

SECTION 8 SUMMARY OF THE SELECTED REMEDY

Based upon the results of the SI/RAR, and the evaluation presented in Section 7, the NYSDEC is selecting Alternative 3, Excavation and Offsite Disposal of Hazardous Wastes and Soil Cover of Green Areas, as the remedy for this site.

Alternative 3 is being selected because it will be the most cost effective remedial action which will address the remedial objectives for this site. Specifically, all soils which meet the definition of a hazardous waste (contaminated soils from past disposal activities which are characteristic hazardous wastes due to failure of the TCLP leaching test for metals and/or for dieldrin, a listed hazardous waste), will be excavated and disposed of at an offsite facility permitted to accept hazardous wastes. Post excavation sampling will be carried out to ensure that all of the hazardous waste has been removed. In addition, the remaining contaminated soils (those soils with contaminant levels exceeding Soil Cleanup Objectives or soil background levels, but not meeting the definition of a hazardous waste) will be isolated under a protective soil cover which will be designed to eliminate or significantly minimize the risks associated with direct exposure in a residential setting, one of the planned future uses for Parcels C, H and I. This soil cover will apply to "green" areas of the site where existing surface soils may potentially be exposed in park, lawn or garden settings. Placement of the two foot soil cover will be integrated into the site redevelopment plans and will be implemented once the major construction activities have been completed so that the cover would not be disturbed during these intrusive activities. The concentrations of contaminants in non-hazardous soils on Parcels C, H and I is consistent with a property composed of urban fill material with a long history of industrial use.

Alternative 2 (excavation of all contaminated soils and offsite disposal) and Alternative 4 (excavation of only hazardous soils, clay capping of the hazardous waste soil area and soil cover of all green areas) would both achieve the remedial objectives for the contaminated soils onsite, however, these alternatives are more costly and would be only slightly more effective in achieving the remedial objectives for this site.

The estimated present worth cost to implement the remedy is $626,000. The long-term monitoring cost and operation and maintenance cost for Alternative 3 are expected to be minimal.

The elements of the selected remedy are as follows:

1. A remedial design program to verify the components of the conceptual design and provide the details necessary for the construction, operation and maintenance, and monitoring of the remedial program. Any uncertainties identified during the SI/RAR will be resolved.

2. Excavation of those soils contaminated with inorganics which meet the definition of a hazardous waste and dieldrin, a listed hazardous waste, and disposal offsite at a RCRA-permitted hazardous waste landfill. Post excavation sampling will be carried out to ensure that all of the hazardous waste has been removed.

3. Placement of two feet of clean soil over areas of Parcels C, H and I designated as "green" areas in the Yonkers Waterfront Development Plan which are to be used in recreational or residential settings, such as lawns, gardens, parks, etc., where existing onsite soils would otherwise be exposed at the ground surface. This element of the remedy will be integrated into the site redevelopment plans and will be implemented once the major construction activities have been completed.

4. Access and use restrictions for Parcels C, H and I including, at a minimum, notification to NYSDEC if any intrusive activities are planned. In addition, if there is a change in use of Parcels H and I prior to implementing the remedy (they are currently undeveloped land), public access to these parcels will be restricted.

SECTION 9 HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the Yonkers Downtown Waterfront Development Site, Phase 1, Operable Unit 2 (Parcels C, H and I) environmental restoration process, a number of Citizen Participation (CP) activities were undertaken in an effort to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- A repository for documents pertaining to the site was established.

- A site mailing list was established which included nearby property owners, local political officials local media and other interested parties.

- A fact sheet was issued and a public meeting was held on August 4, 1999 to present the Proposed Remedial Action Plan for the site.

- In September 1999 a Responsiveness Summary was prepared and made available to the public to address the comments received during the public comment period for the PRAP, held between July 15, 1999 and August 28, 1999.

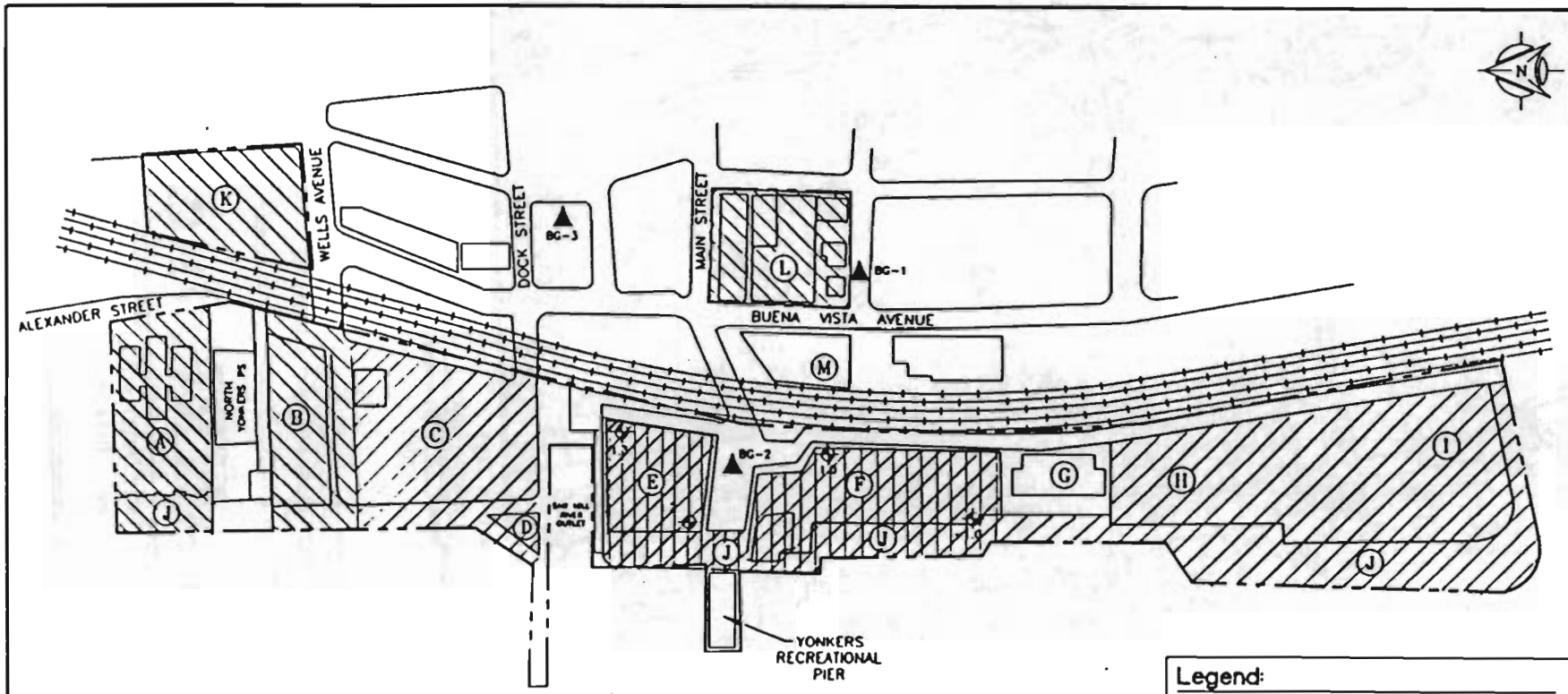
SOURCE:
USGS TOPOGRAPHIC MAP – YONKERS, N.Y.–N.J.
QUADRANGLE – DATED 1966, PHOTOREVISION 1979.

YONKERS WATERFRONT DEVELOPEMENT
YONKERS, NEW YORK

SITE LOCATION MAP

AKRF, Inc.
Environmental Consultants
34 South Broadway White Plains, N.Y. 10601

DATE 6/26/98
PROJECT No. 70004
FIGURE No. 1



PHASE 1 PARCELS
CURRENTLY OWNED BY CITY OF YONKERS

PHASE 2 PARCELS
NOT CURRENTLY OWNED BY CITY OF YONKERS

PHASE 1 PARCELS E AND F

Notes:

1. GROUND WATER ELEVATION BASED ON SURVEY PERFORMED ON 6/19/98 AND 7/27/98 BY MUNOZ ENGINEERING.
2. DEPTH TO GROUNDWATER MEASUREMENTS TAKEN ON JULY 16, 1998 DURING LOW TIDE.

Legend:

- STUDY SITE BOUNDARY
- RAILROAD STATION
- BG-1 — BACKGROUND SOIL SAMPLE COLLECTED ON JUNE 18, 1998.
- 1.3 — APPROXIMATE LOCATION OF MONITOR WELL AND GROUNDWATER ELEVATION (NGVD)
- (A) — BECZAK ENVIRONMENTAL CENTER; POLICE ATHLETIC LEAGUE; CITY OF YONKERS PARKS DEPT.
- (B) — YONKERS CONTRACTING CO. STORAGE LOT
- (C)(D) — YONKERS PARKING AUTHORITY LOT
- (E) — UNDEVELOPED LAND
- (F) — SCRIMSHAW PARKING LOT
- (G) — SCRIMSHAW HOUSE CONDOMINIUM
- (H)(I) — SOUTHERMOST VACANT LOT
- (K) — 2-2010 PROPOSED PARKING LOT
- (L) — 1-513 PROPOSED PARKING LOT

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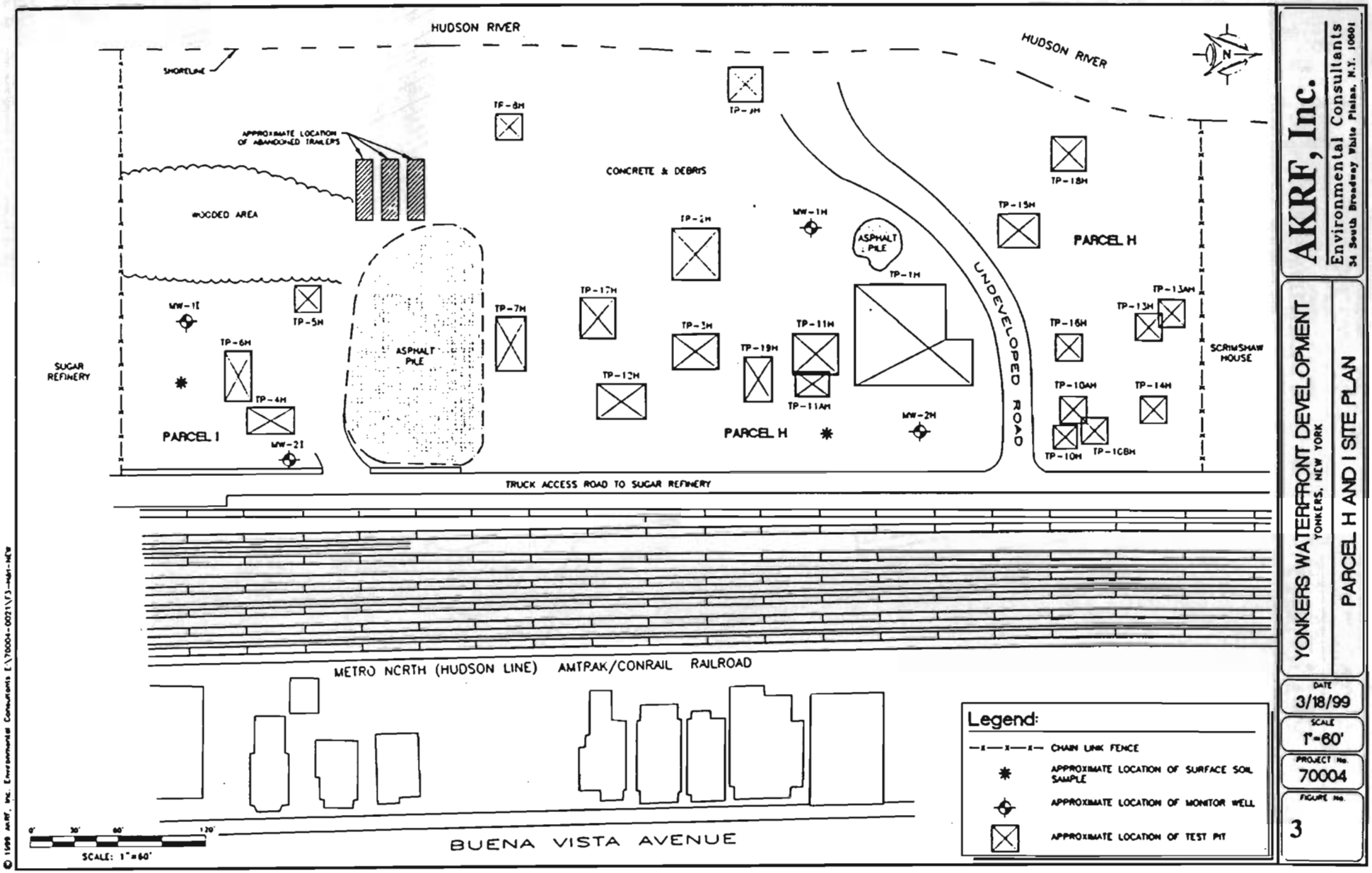
YONKERS WATERFRONT DEVELOPMENT
YONKERS, NEW YORK

SITE PLAN

DATE 6/26/98
SCALE N.T.S.
PROJECT No 70004
FIGURE No 2



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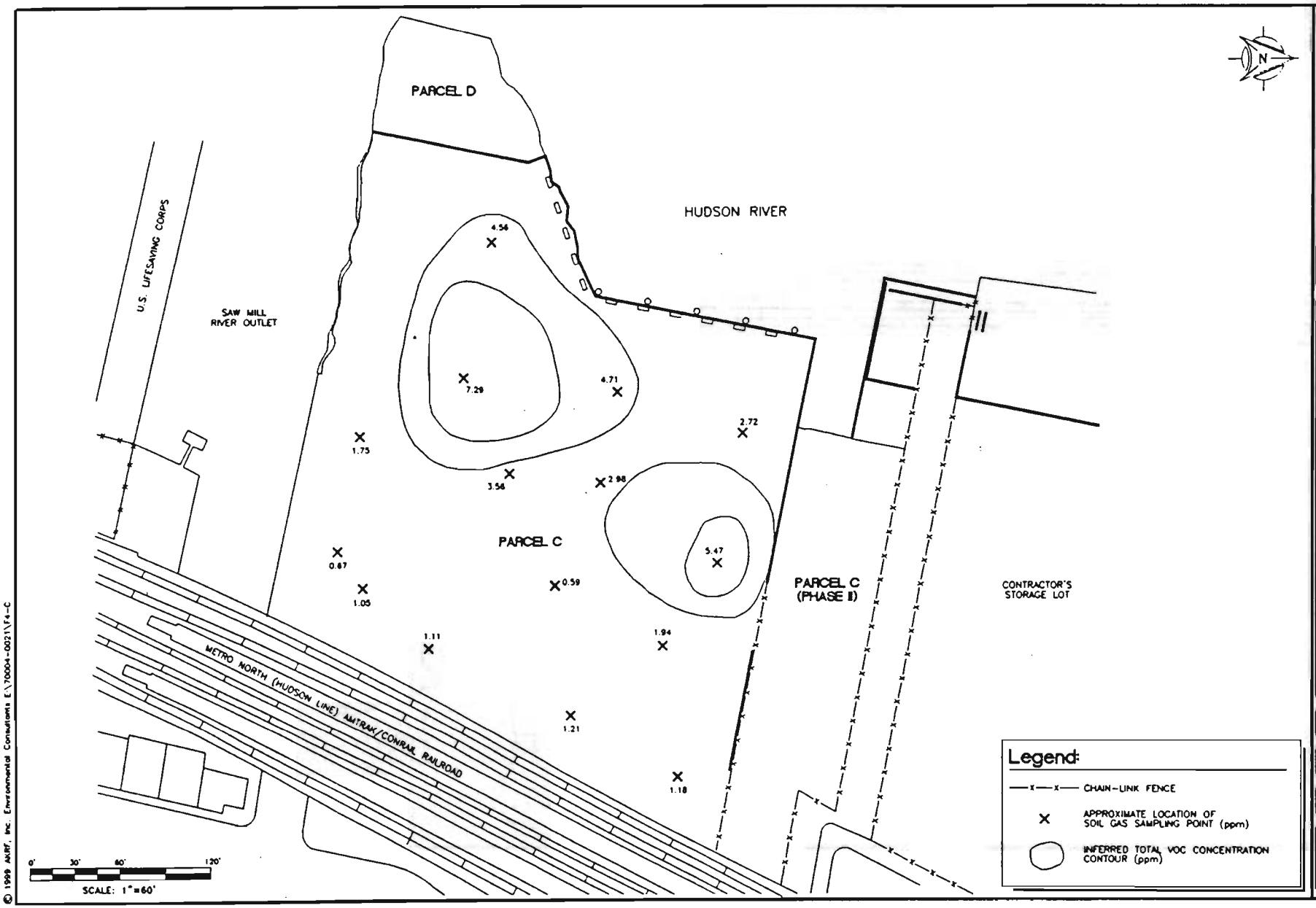
YONKERS WATERFRONT DEVELOPMENT
YONKERS, NEW YORK

PARCEL H AND I SITE PLAN

DATE 3/18/99
SCALE 1"=60'
PROJECT No. 70004
FIGURE No. 3



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YONKERS WATERFRONT DEVELOPMENT
YONKERS, NEW YORK

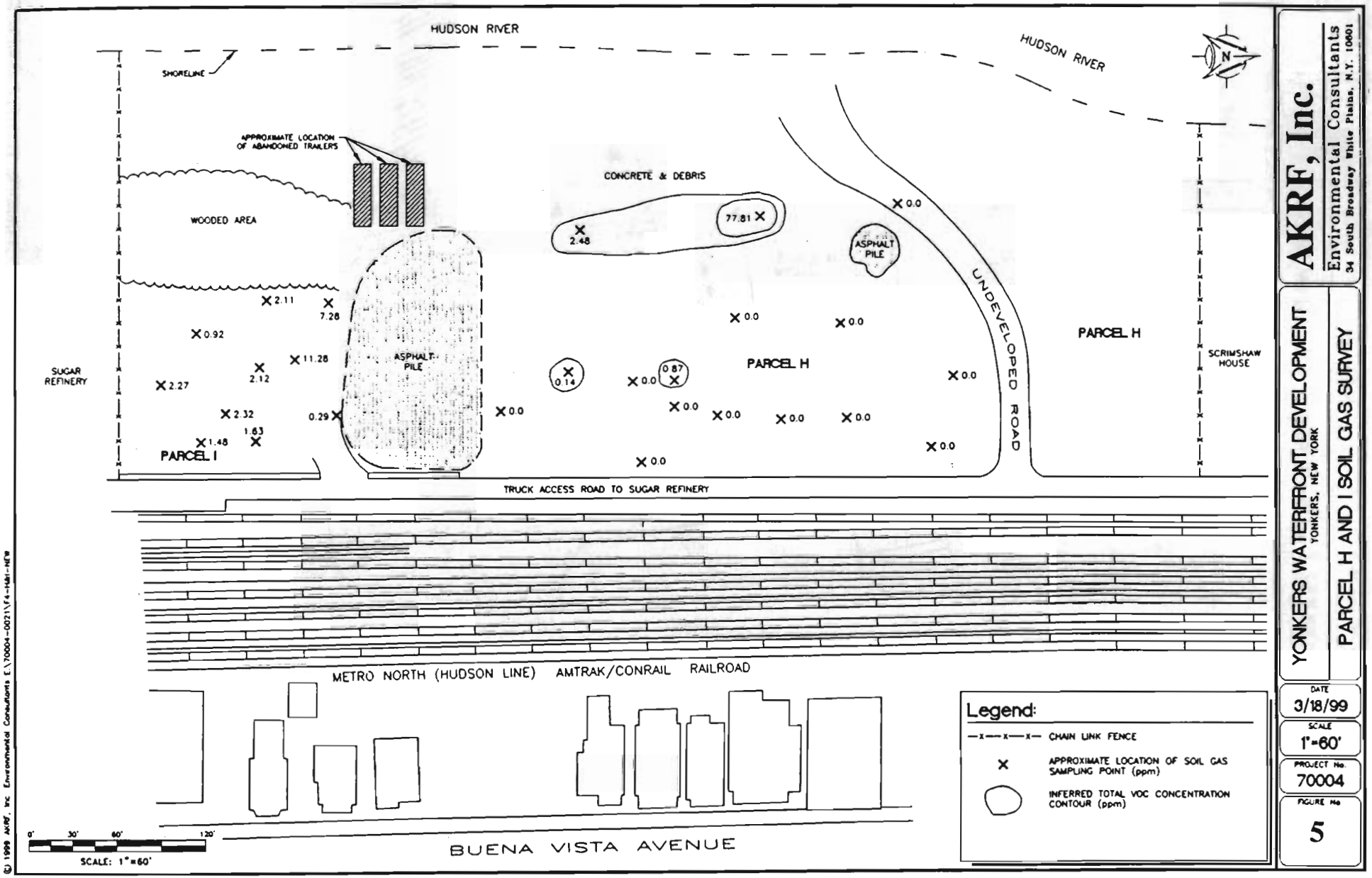
SOIL GAS SURVEY

DATE 3/18/99

SCALE 1"=60'

PROJECT No 70004

FIGURE No. 4



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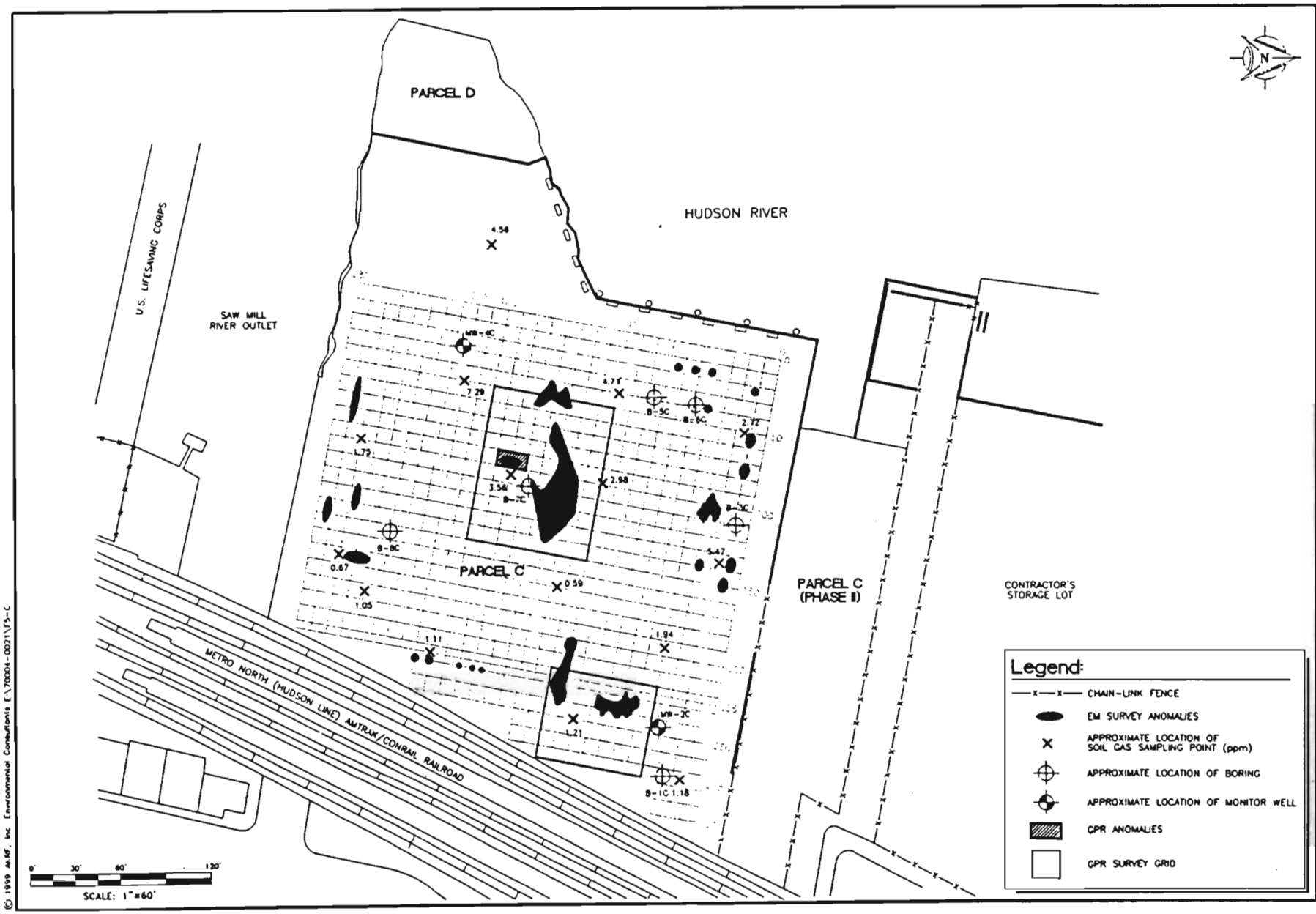
YONKERS WATERFRONT DEVELOPMENT
YONKERS, NEW YORK

PARCEL H AND I SOIL GAS SURVEY

DATE 3/18/99
SCALE 1"=60'
PROJECT No. 70004
FIGURE No. 5



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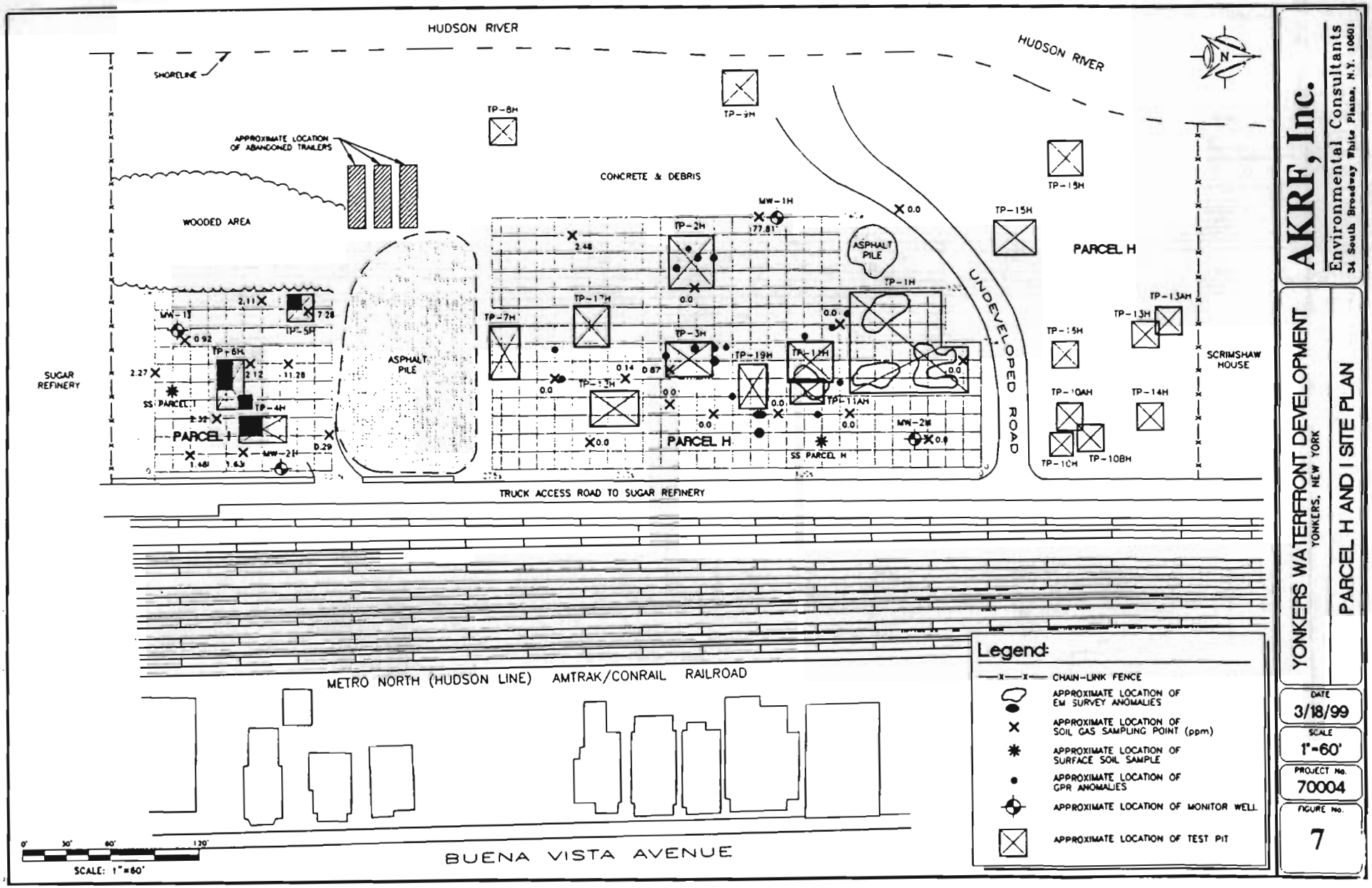
YONKERS WATERFRONT DEVELOPMENT
YONKERS, NEW YORK

SITE PLAN

DATE 3/18/99
SCALE 1"=60'
PROJECT No. 70004
FIGURE No. 6



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YONKERS WATERFRONT DEVELOPMENT
YONKERS, NEW YORK

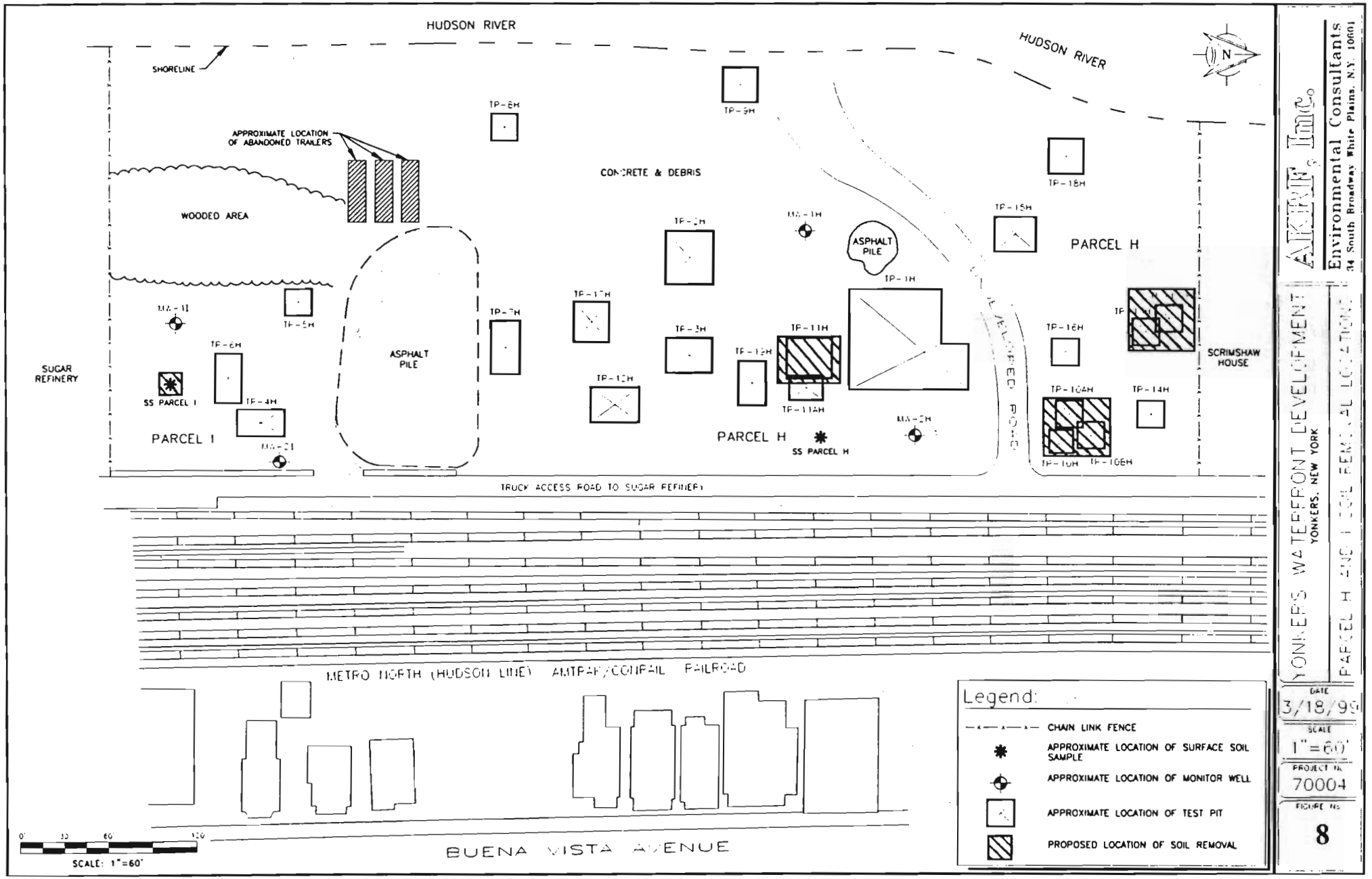
PARCEL H AND I SITE PLAN

DATE 3/18/99

SCALE 1"=60'

PROJECT No. 70004

FIGURE No. 7



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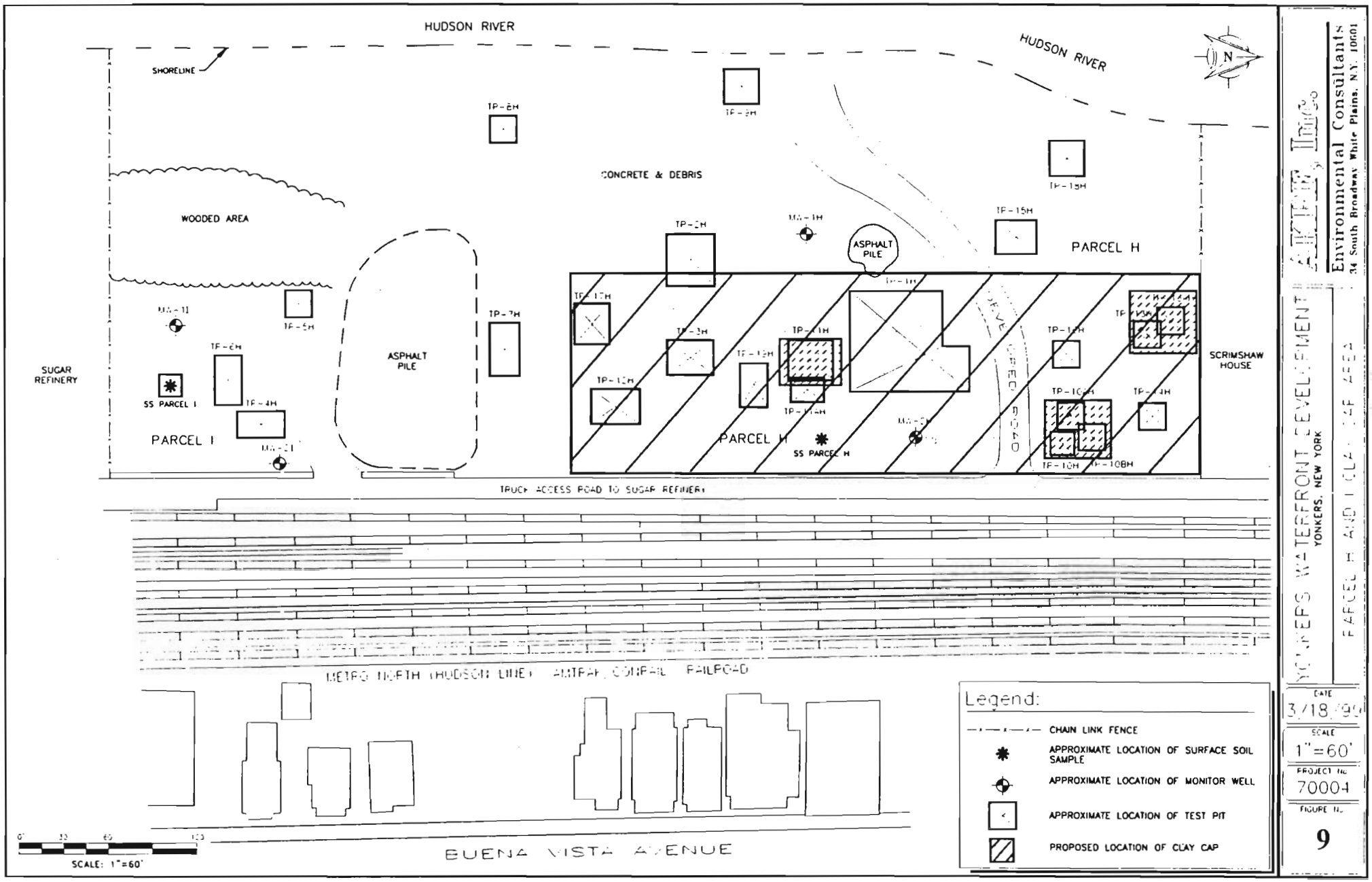
YONKERS WATERFRONT DEVELOPMENT
YONKERS, NEW YORK

PARCEL H AND I SOIL REMOVAL LOCATIONS

DATE: 3/18/99
SCALE: 1"=60'
PROJECT No.: 70004
FIGURE No.: 8



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YONKERS WATERFRONT DEVELOPMENT
YONKERS, NEW YORK

PARCEL H AND I CLAY CAP AREA

DATE 3/18/99
SCALE 1"=60'
PROJECT NO 70004
FIGURE NO. 9

TABLE 1
Parcel H Soil Gas Summary
Yonkers Downtown Waterfront - Parcel H[1]
(ppm)

Sampling Location[2]	*Benzene*	*TCE*	*Toluene*	*Xylene(s)*	*Total VOCs*
55W - 175S	0.12	0.48	0.27	ND	0.87
130W - 230S	ND	2.48	ND	ND	2.48
140W - 125S	ND	77.81	ND	ND	77.81
50W - 240S	ND	ND	ND	0.14	0.14

Notes: [1] Samples collected by AKRF, Inc. personnel on June 11, 1998 and analyzed for benzene, ethylbenzene, xylene, toluene, trichloroethylene (TCE), tetrachloroethylene (PCE), and trans, 1,2-dichloroethylene (DCE) with a portable gas chromatograph.
[2] Locations based on the surveyed grid included in Appendix D.
ND = None detected
ppm = parts per million

TABLE 2
Soil Analytical Summary - Semivolatile Organic Compounds
Yonkers Downtown Waterfront - Parcel C[1]
(μg/kg)

Compound	B-1C (S-3)	B-5C (S-1)	B-6C (S-1)	B-7C (S-4)	B-8C (S-1)	MW-4C (S-3)	Soil Clean Up Objective[2]	BG-1[3]	BG-2[3]	BG-3[3]
Phenol	14J	ND	ND	ND	ND	ND	30	NA	NA	NA
4-Methylphenol	ND	ND	ND	180J	ND	ND	900	NA	NA	NA
Napthalene	140J	ND	ND	2,200J	ND	33J	13,000	18J	9.7J	20J
2-Methylnaphthalene	280J	33J	ND	2,700J	ND	120J	100	N/A	N/A	N/A
Acenaphthylene	180J	23J	ND	400J	ND	24J	50,000	29J	ND	75J
Acenaphthene	240J	19J	310J	1,100J	ND	25J	41,000	27J	36J	78J
Dibenzofuran	140J	ND	ND	840J	ND	24J	6,200	N/A	N/A	N/A
Flourene	280J	24J	ND	1,400J	ND	30J	50,000	28J	13J	75J
Phenanthrene	2,100J	200J	100J	10,000	19J	220J	50,000	310J	95J	1,200
Anthracene	510J	56J	ND	2,700J	ND	47J	50,000	72J	35J	200J
Carbozole	170J	ND	ND	880J	ND	17J	NS	NA	NA	NA
Fluoranthene	2,800J	390J	130J	11,000	13J	250J	50,000	600J	240J	2,600
Pyrene	2,700J	430J	220J	10,000	10J	200J	50,000	520J	220J	2,200
Benzo(a)anthracene	1,200J	170	ND	6,100	11J	120	224 or MDL	290	140	1,200
Chrysene	1,400J	200J	ND	7,500J	ND	150J	400	370J	180J	1,600
bis(2-Ethylhexyl)phthalate	130J	340J	ND	ND	500	280J	50,000	NA	NA	NA
Benzo(b)fluoranthene	1,500J	280J	73J	6,800	ND	140	1,100	450	240	2,000
Benzo(k)fluoranthene	590J	90J	ND	2,400	ND	56	1,100	170	83	860
Benzo(a)pyrene	1,200J	180J	66J	5,300	ND	110	61 or MDL	300	160	1,300
Indeno(1,2,3-cd)pyrene	550J	75J	ND	3,100	ND	63	3,200	180	87	580
Dibenz(a,h)anthracene	130J	ND	ND	940	ND	24J	14 or MDL	40J	21J	140
Benzo(g,h,i)perylene	480J	84J	43J	3,200J	ND	71J	50,000	200J	89J	510J

Notes:
[1]Samples collected by AKRF, Inc. personnel on October 29 and 30, 1998 and analyzed for TCL VOCs and SVOCs, and TAL metals by Envirotech Research, Inc., a New York State Department of Health certified CLP laboratory.
[2]New York State Department of Environmental Conservation Division of Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046).
[3]BG = Background Sample
NA = Not Analyzed
ND = Not Detected
NS = No Standard
J = Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitiation limit but greater than zero. The concentration given is an approximate value.
μg/kg = micrograms per kilogram (ppb)
Shaded cells indicate that the sample exceeds the regulatory standard or the site background.

TABLE 3
Soil Analytical Summary -TAL Metals
Yonkers Downtown Waterfront - Parcel C[1] (mg/kg)

Metal	B-1C (S-3)	B-5C (S-1)	B-6C (S-1)	B-7C (S-4)	B-8C (S-1)	MW-4C (S-3)	Soil Cleanup Objective[2]	BG-1[3]	BG-2[3]	BG-3[3]
Aluminum	6,830	7,050	6,810	2,790	8,030	8,940	BG	8,450	8,970	6,020
Antimony	1.8J	ND	ND	ND	ND	ND	30 or BG	ND	ND	ND
Arsenic	6.7J	1.8	1.3	6.5J	1.3	2.6J	7.5	3.3	6.2	3.1
Barium	123	38.7B	15.4B	306	36.2B	63.7	300 or BG	85.4	74.0	62.3
Beryllium	0.34B	0.23B	0.18B	0.29B	0.34B	0.33B	0.14	0.49	0.45B	0.35B
Cadmium	0.41B	ND	ND	0.72B	ND	ND	10 or BG	0.28B	0.13B	0.20B
Calcium	25,800J	78,800	40,900	4,050	1,340	5,720	BG	2,430	3,540	3,310
Chromium	23.7	10.5	5.4	15.0J	12.8	20.8	50 or BG	16.7	20.9	14.3
Cobalt	6.5B	7.3B	6.6B	5.7B	5.5B	9.2B	30 or BG	ND	ND	ND
Copper	393	28.0	39.9	87.6	15.0	44.5	25 or BG	25.6	20.2	22.6
Iron	19,800	20,300	18,800	17,400	12,500	14,700	2,000 or BG	14,300	13,700	12,300
Lead	468	74.4	11.3	998	36.7	27.7	BG	243	87.2	95.8
Magnesium	5,930J	29,100	18,400	1,780	2,870	6,310	BG	2,800	3,440	2,630
Manganese	227	285	212	111	230	296	BG	494	292	338
Mercury	0.61	0.03B	ND	1.6	0.05	0.11	0.1 or BG	0.31	1.4	0.14
Nickel	16.9	13.5J	8.1J	15.0	13.8J	28.4J	13 or BG	13.7	15.4	11.5
Potassium	901J	712J	279B	215B	522J	1,500J	4,000 or BG	573B	1,550	795B
Selenium	1.2	ND	ND	ND	ND	ND	2 or BG	ND	ND	ND
Sodium	339J	690B	1,150	276B	425B	635B	3,000 or BG	ND	ND	ND
Vanadium	29.3	41.4	41.3	15.5	17.5	26.2	150 or BG	20.8	24.3	17.0
Zinc	253	50.3J	28.4J	751J	36.1J	48.6J	20 or BG	165	68.8	107

Notes:
[1]Samples collected by AKRF, Inc. personnel on October 29 and 30, 1998 and analyzed for TCL VOCs and SVOCs and TAL metals by Envirotech Research, Inc. a New York State Department of Health certified CLP laboratory.
[2]New York State Department of Environmental Conservation Division of Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046).
[3]BG = Background Sample
B = The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the sample.
ND = Not Detected
J = Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitiation limit but greater than zero. The concentration given is an approximate value.
mg/kg = milligrams per kilogram (ppm)
Shaded cells indicate that the sample exceeds the regulatory standard or the site background.

TABLE 4
Groundwater Analytical Summary - Volatile Organic Compounds
Yonkers Downtown Waterfront
Parcel C
(μg/l)

Groundwater Sample[1]	Methylene Chloride[2]	cis-1,2-Dichloroethene
MW-2C	220J	ND
MW-4C	23J	1.1J
MW-4AC [3]	260J	ND
Water Quality Standard[4]	5	5

Notes: [1]Samples collected by AKRF, Inc. personnel on November 9, 1998 and analyzed for TCL VOCs and SVOCs, and TAL metals by Envirotech Research, Inc., a New York State certified CLP laboratory.
[2]Methylene Chloride is a common laboratory contaminant, however it was not detected in the trip blank or the field blank samples.
[3]Sample 4-AC is a duplicate to sample 4-C.
[4]NYSDEC division of Technical and Operational Guidance Series (TOGS) 1.1.1. - Ambient Water Quality Standards and Guidance Values.
ND = None detected above the minimum detection level (MDL).
J = Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quanititation limit but greater than zero. The concentration given is an approximate value.
μg/l = micrograms per liter (ppb)

TABLE 5
Groundwater Analytical Summary -TAL Metals
Yonkers Downtown Waterfront - Parcel C[1]
(μg/l)

Metal	MW-2C (dissolved)	MW-4C (dissolved)	MW-4AC[2] (dissolved)	Water Quality Standard[3]
Aluminum	ND	305B	278B	100
Arsenic	ND	9.0	10.4	25
Barium	592	446	442	1,000
Calcium	187,000	267,000	261,000	NS
Cobalt	1.9B	ND	ND	5
Iron	333	3,650	3,590	300
Lead	ND	5.1B	5.3B	25
Magnesium	18,900	156,000	153,000	35,000
Manganese	3,180	4,870	4,740	300
Nickel	2.9B	ND	ND	NS
Potassium	18,800	65,500	59,200	NS
Sodium	89,800	1,330,000	1,290,000	20,000
Zinc	276	107	90.1	300

Notes: [1]Samples collected by AKRF, Inc. personnel on November 9, 1998 and analyzed for TCL VOCs and SVOCs and dissolved TAL metals by Envirotech Research, Inc. a New York State Department of Health certified CLP laboratory.
[2]Sample 4-AC is a duplicate sample to sample 4-C.
[3]NYSDEC division of Technical and Operational Guidance Series (TOGS) 1.1.1. - Ambient Water Quality Standards and Guidance Values.
B = The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
ND = Not Detected
NS = No Standard
μg/l = micrograms per liter (ppb)
Shaded cells indicate that the sample exceeds the regulatory standard or the site background.

TABLE 6
Soil Analytical Summary - Semivolatile Organic Compounds
Yonkers Downtown Waterfront - Parcel H[1]
(μg/kg)

Compound	TP-1H	TP-9H	TP-10H	SS Parcel H[2]	Soil Cleanup Objective[3]	BG-1[4]	BG-2[4]	BG-3[4]
4-Methylphenol	100J	ND	ND	12J	90	NA	NA	NA
1,4-Dichlorobenzene	ND	ND	ND	11J	8,500	NA	NA	NA
Naphthalene	110J	46J	ND	47J	13,000	18J	9.7J	20J
2-Methylnaphthalene	73J	26J	ND	42J	36,400	NA	NA	NA
Acenaphthylene	120J	130J	ND	65J	41,000	27J	36J	78J
Acenaphthene	76J	100J	ND	74J	50,000	29J	ND	75J
Dibenzofuran	58J	61J	ND	54J	6,200	NA	NA	NA
Fluorene	84J	120J	ND	86J	50,000	28J	13J	75J
Phenanthrene	1,000	2,400	ND	780	50,000	310J	95J	1,200
Anthracene	310J	610J	ND	210J	50,000	72J	35J	200J
Carbazole	110J	110J	ND	80J	NA	NA	NA	NA
Fluoranthene	1,700	5,100	4,100J	1,200	50,000	600J	240J	2,600
Pyrene	1,700	4,800	3800J	1,200	50,000	520J	220J	2,200
Benzo(a)anthracene	860	2,400	1,800J	680	224 or MDL	290	140	1,200
Chrysene	1,100	2,500	1,800J	780	400	370J	180J	1,600
bis(2-Ethylhexyl)phthalate	330J	ND	980,000	170J	50,000	NA	NA	NA
Benzo(b)fluoranthene	1,500	3,200	ND	920	1,100	450	240	2,000
Benzo(k)fluoranthene	620	1,300	ND	330	1,100	170	83	860
Benzo(a)pyrene	910	2,500	ND	580	61 or MDL	300	160	1,300
Indeno(1,2,3-cd)pyrene	300	1,100	ND	220	3,200	180	87	580
Dibenz(a,h)anthracene	100	290J	ND	57	14 or MDL	40J	21J	140
Benzo(g,h,i)perylene	300J	980	ND	180J	50,000	200J	89J	510J

Notes:
[1]Samples collected by AKRF, Inc. personnel on June 15 and 16, 1998 and July 30, 1998 and analyzed for TCL VOCs and SVOCs, and TAL metals by Envirotech Research, Inc., a New York State Department of Health certified CLP laboratory.
[2]SS Parcel-H is the surface soil sample collected from Parcel H.
[3]New York State Department of Environmental Conservation Division of Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046).
[4]BG = Background Sample
MDL = Minimum Detection Level
NA = Not Analyzed
ND = Not detected
J = Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitation limit but greater than zero. The concentration given is an approximate value.
μg/kg = micrograms per kilogram (ppb)
Shaded cells indicate that the sample exceeds the regulatory standard or the site background.

TABLE 7
Soil Analytical Summary - Pesticides/PCBs
Yonkers Downtown Waterfront - Parcel H
(μg/kg)

Soil Sample[1]	PCBs	4,4' - DDE	4,4' - DDT	Methoxychlor
TP-1H (subsurface)	760	NA	NA	NA
TP-9H (subsurface)	ND	NA	NA	NA
TP-10H (subsurface)	2,800	NA	NA	NA
TP-10AH (subsurface)	4,760	NA	NA	NA
TP-11H (subsurface)	1,440	NA	NA	NA
TP-12H (subsurface)	280	NA	NA	NA
TP-13H (subsurface)	7,900	NA	NA	NA
TP-14H (subsurface)	ND	NA	NA	NA
TP-15H (subsurface)	ND	NA	NA	NA
TP-16H (subsurface)	840	NA	NA	NA
TP-17H (subsurface)	ND	NA	NA	NA
SS Parcel H[2] (surface)	160	13	46	11*
Soil Cleanup Objective[2]	1,000 (Surface)/ 10,000 (Subsurface)	2,100	2,100	Total pesticides < 10

Notes: [1]Samples collected by AKRF, Inc. personnel on June 15 and 16, July 30, and October 28, 1998 and analyzed for TCL VOCs and SVOCs and PCBs and Pesticides and TAL metals by Envirotech Research, Inc. a New York State Department of Health certified CLP laboratory.
[2]New York State Department of Environmental Conservation Division of Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046).
* = Duplicate analysis is not within control limits.
ND = Not Detected
NA = Not Analyzed
μg/kg = micrograms per kilogram (ppb)

TABLE 8
Soil Analytical Summary -TAL Metals
Yonkers Downtown Waterfront - Parcel H[1] (mg/kg)

Metal	TP-1H	TP-9H	TP-10H	TP-10AH[2]	TP-11H	TP-12H	TP-13H	TP-14H	TP-15H	TP-16H	TP-17H	SS Parcel H[2]	Soil Cleanup Objective[3]	BG-1[4]	BG-2[4]	BG-3[4]
Aluminum	7,860	8,180	4,100	5,990	4,890	6,690	6,700	1,390	3,290	8,070	3,490	12,500	BG	8,450	8,970	6,020
Antimony	ND	ND	8.4	5.0J	12.8J	6.5J	35.2J	1.9J	ND	ND	ND	ND	30 or BG	ND	ND	ND
Arsenic	14.1	3.2	19.1	12.8J	5.5J	32.3J	31.8J	37.8J	ND	2.6J	1.4J	9.6	7.5	3.3	6.2	3.1
Barium	99.2	93.9	426	278	40.8B	433	575	125	12.4B	111	17.9B	80.5	300 or BG	85.4	74.0	62.3
Beryllium	0.40B	0.34B	0.33B	039B	0.28B	0.40B	0.44B	0.38B	0.39J	0.42B	0.49	0.54	0.14	0.49	0.45B	0.35B
Cadmium	0.25B	ND	4.3	2.1	0.39B	40.2	9.1	ND	ND	ND	ND	ND	10 or BG	0.28B	0.13B	0.20B
Calcium	13,300	21,500	25,600	15,900	5,080	19,600	19,000	1,940	2,460	9,760	2,400	4,440J	BG	2,430	3,540	3,310
Chromium	19.4	31.2	30.8	27.2J	17.8J	20.3J	63.3J	10.8J	3.9	20.7J	7.3J	19.4	50 or BG	16.7	20.9	14.3
Cobalt	7.8B	5.8B	11.6B	6.5B	6.8B	8.9B	12.4	6.1B	1.6B	5.8B	1.9B	5.9B	30 or BG	ND	ND	ND
Copper	187	28.8	6,890	2,980	2,660	429	12,900J	31.3	10.9	156	16.0	37.7	25 or BG	25.6	20.2	22.6
Iron	25,900	14,800	21,700	23,500	14,300	46,200	63,700	39,500	10,400	17,000	9,480	17,000	2,000 or BG	14,300	13,700	12,300
Lead	266	81.3	5,400	2,820J	15,100J	453J	19,200	49.6J	7.6J	285J	18.1J	135J	BG	243	87.2	95.8
Magnesium	5,000	6,210	8,540	5,330	5,140	6,430	4,890	132B	1,160	4,650	1,600	3,450J	BG	2,800	3,440	2,630
Manganese	314	259	299	281J	237J	435J	675J	25.9J	180J	221J	154J	435	BG	494	292	338
Mercury	1.1	0.86	0.38	0.35	0.10	2.1	0.41	0.08	0.04	1.2	1.3	1.5	0.1 or BG	0.31	1.4	0.14
Nickel	23.1	22.6	51.0	29.3	21.3	33.4	61.1	9.6B	3.2B	17.1	5.3B	14.1	13 or BG	13.7	15.4	11.5
Potassium	1,600	2,580	874B	2,180J	797J	1,370J	1,030J	738J	1,880J	3,360J	1,770J	818J	4,000 or BG	573B	1,550	795B
Selenium	ND	ND	ND	ND	ND	2.2	1.9	4.3	ND	ND	ND	ND	2 or BG	ND	ND	ND
Silver	ND	ND	31.9	7.0	3.6	2.2	41.8	ND	ND	ND	ND	ND	BG	ND	ND	ND
Sodium	173B	220B	421B	150B	529B	334B	537B	ND	ND	148B	ND	893B	3,000 or BG	ND	ND	ND
Vanadium	25.5	26.8	18.9	22.6J	16.4J	78.5J	26.9J	26.5J	7.5J	23.8J	7.7J	31.4	150 or BG	20.8	24.3	17.0
Zinc	187	102	3,930	1,530	911	3,600	10,500	21.1	79.4	213	82.1	106	20 or BG	165	68.8	107

Notes:
[1]Samples collected by AKRF, Inc. personnel on June 15 and 16, July 30, and October 28, 1998 and analyzed for TCL VOCs and SVOCs and TAL metals by Envirotech Research, Inc.
[2]SS Parcel-H is the surface soil sample collected from Parcels H.
[3]New York State Department of Environmental Conservation Division of Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046).
[4]BG = Background Sample
B = analyte result between instrument detection limit (IDL) and contract required detection limit (CRDL)
J = Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitation limit but greater than zero. The concentration given is an approximate value.
ND = Not Detected; mg/kg = milligrams per kilogram (ppm)
Shaded cells indicate that the sample exceeds the regulatory standard or the site background.

TABLE 9
Soil Analytical Summary - RCRA Metals
Yonkers Downtown Waterfront - Parcel H
(mg/kg)

Soil Sample[1]	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
TP-10B-H	32.6J	454J	3.3J	19.8J	1,430	0.53	1.8J	4.2J
TP-11A-H	10.1J	134J	0.19UJ	11.6J	1,490	0.48	0.61J	0.25J
TP-11B-H	12.1J	161J	0.20UJ	10.8J	585	0.6	1.0J	0.20U
TP-13A-H	17.9J	430J	4.8J	44.7J	8,100	0.53	0.58U	69.2
TP-13B-H	9.0J	129J	4.0J	74.2J	12,200	0.31	0.62U	11.4
TP-18H	3.1J	31.6J	0.18UJ	9.8J	19.4	0.094B	0.85J	0.18U
TP-19H	7.2J	109J	0.21UJ	16.5J	120	0.22	1.0J	0.21U
Soil Cleanup Objective[2]	7.5	300 or BG	10 or BG	50	BG	0.1 or BG	2 or BG	BG
BG-1[3]	3.3	85.4	0.28B	16.7	243	0.31	ND	ND
BG-2[3]	6.2	74.0	0.13B	20.9	87.2	1.4	ND	ND
BG-3[3]	3.1	62.3	0.20B	14.3	95.8	0.14	ND	ND

Notes: [1]Samples collected by AKRF, Inc. personnel on January 27, 1999 and analyzed for TCL VOCs and RCRA Metals by Severn Trent Laboratories, a New York State Department of Health certified CLP laboratory.
[2]New York State Department of Environmental Conservation Division of Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046).
[3]BG = Background Sample
U = Analyte was not detected at method reporting limit.
B = Analyte result between instrument detection limit (IDL) and contract required detection limit (CRDL)
J = Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitiation limit but greater than zero. The concentration given is an approximate value.
mg/kg = milligrams per kilogram (ppm)
Shaded cells indicate that the sample exceeds the regulatory standard or the site background.

TABLE 10
Soil Analytical Summary - TCLP Lead
Yonkers Downtown Waterfront - Parcel H
TP-13A-H
(mg/l)

Soil Sample[1]	Lead
TP-13A-H (4')	110
TP-13B-H (8')	332
Regulatory Level[2]	5.0

Notes: [1]Samples collected by AKRF, Inc. personnel on January 27, 1999 and analyzed for TCLP Lead by Severn Trent Laboratory, Inc. a New York State Department of Health certified CLP laboratory.
[2]NYSDEC Division of Spills Management Spill Technology and Remediation Series (STARS) - Hazardous Waste Regulatory Levels for Toxicity Characteristic.
mg/l = milligrams per liter
Shaded cells indicate that the sample exceeds the regulatory standard or the site background.

TABLE 11
Groundwater Analytical Summary - Volatile Organic Compounds
Yonkers Downtown Waterfront
Parcel H
(μg/l)

Groundwater Sample[1]	Trichloroethene
MW-2H	ND
MW-2HA[2]	ND
TP-3H	ND
TP-8H	8.6
TP-9H	1.5
MW-1H	17
Water Quality Standard[3]	5

Notes: [1]Samples collected by AKRF, Inc. personnel on June 15 and 16, and July 24, 1998 and analyzed for TCL VOCs and SVOCs, and TAL metals by Envirotech Research, Inc., a New York State certified CLP laboratory.
[2]Sample MW-2HA is a duplicate sample of MW-2H.
[3]NYSDEC division of Technical and Operational Guidance Series (TOGS) 1.1.1. - Ambient Water Quality Standards and Guidance Values.
ND = None detected above the minimum detection level (MDL)
μg/l = micrograms per liter (ppb)
Shaded cells indicate that the sample exceeds the regulatory standard or the site background.

TABLE 12
Groundwater Analytical Summary -TAL Metals
Yonkers Downtown Waterfront - Parcel H[1] (μg/l)

Metal	TP-3H (total)	TP-8H (total)	TP-9H (total)	TP-10AH-GW (dissolved)	TP-12H-GW (dissolved)	TP-13H-GW (dissolved)	MW-1H (total)	MW-1H (dissolved)	MW-2H (total)	MW-2H (dissolved)	MW-2HA[2] (total)	MW-2HA[2] (dissolved)	Water Quality Standard[3]
Aluminum	3,530	3,480	6,810	ND	ND	ND	45,200	ND	38,500	ND	36,700	ND	100
Arsenic	8.8	4.2	6.4	ND	ND	9.5	26.2	ND	24.9	ND	22.3	ND	25
Barium	357	58.2B	146B	563	260	747	339	76.1B	396	62.1B	363	62.0B	1,000
Beryllium	ND	0.34B	0.38B	ND	ND	ND	2.8	ND	1.8B	ND	1.8B	ND	3
Cadmium	1.7B	ND	ND	1.6B	1.3B	2.4B	ND	ND	ND	ND	ND	ND	10
Calcium	171,000	110,000	124,000	168,000	147,000	208,000	166,000	135,000	130,000	133,000	130,000	134,000	NS
Chromium	9.0B	4.2B	22.8	ND	ND	ND	121	ND	71.8	ND	67.8	ND	50
Cobalt	3.9B	2.4B	7.3B	1.5B	13.8B	7.5B	32.6B	ND	23.8B	1.4B	23.2B	ND	5
Copper	233	32.1	41.0	45.5	65.3	32.3	270	4.6B	334	ND	323	ND	200
Iron	7,000	7,950	11,600	97.1	73.0B	ND	116,000	ND	57,800	ND	55,700	ND	300
Lead	267	12.3	58.2	10.5	6.7	2.3B	386	ND	488	ND	491	ND	25
Magnesium	37,400	118,000	219,000	144,000	51,900	209,000	117,000	128,000	75,400	74,400	74,800	75,400	35,000
Manganese	200	164	245	11.8B	52.5	405	2,120	15.7	1,660	359	1,640	366	300
Mercury	2.0	ND	0.43	ND	ND	ND	0.64	ND	1.8	ND	1.8	ND	2
Nickel	15.4B	11.7B	27.6B	10.5B	13.6B	26.5B	63.9	3.3B	55.5	2.4B	114	ND	NS
Potassium	11,200	44,000	79,200	44,800	13,700	70,900	48,100	41,500	23,300	22,600	22,900	22,300	NS
Sodium	96,000	375,000	1,790,000	1,010,000	223,000	1,700,000	806,000	896,000	386,000	412,000	371,000	384,000	20,000
Vanadium	33.8B	9.8B	20.9B	ND	8.9B	ND	126	2.3B	75.2	3.5B	73.5	4.8B	14
Zinc	833	135	116	590	568	946	985J	ND	624J	ND	620J	ND	300

Notes:
[1]Samples collected by AKRF, Inc. personnel on June 15 and 16, July 24, and October 28, 1998 and analyzed for TCL VOCs and SVOCs and TAL metals by Envirotech Research, Inc. a New York State Department of Health certified CLP laboratory.
[2]Sample MW-2HA is a duplicate sample of Sample MW-2H.
[3] NYSDEC division of Technical and Operational Guidance Series (TOGS) 1.1.1. - Ambient Water Quality Standards and Guidance Values.
B = The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the sample.
N = The spiked recovery was not within the control limits during laboratory quality control/quality assurance practices.
ND = Not Detected
NS = No Standard
μg/l = micrograms per liter (ppb)
Shaded cells indicate that the sample exceeds the regulatory standard or the site background.

TABLE 13
Soil Analytical Summary - Semivolatile Organic Compounds
Yonkers Downtown Waterfront - Parcel I[1]
(μg/kg)

Compound	TP-4H (Parcel I)	SS Parcel I[2]	Soil Clean Up Objective[3]	BG-1[4]	BG-2[4]	BG-3[4]
4-Methylphenol	10J	ND	90	NA	NA	NA
Naphthalene	360J	50J	13,000	18J	9.7J	20J
2-Methylnaphthalene	260J	36J	36,400	NA	NA	NA
Acenaphthylene	76J	44J	41,000	27J	36J	78J
Acenaphthene	57J	61J	50,000	29J	ND	75J
Dibenzofuran	67J	37J	6,200	NA	NA	NA
Fluorene	73J	66J	50,000	28J	13J	83J
Phenanthrene	710J	580	50,000	310J	95J	1,200
Anthracene	150J	140J	50,000	72J	35J	200J
Carbazole	44J	58J	NS	NA	NA	NA
Fluoranthene	660J	720	50,000	600J	240J	2,600
Pyrene	700J	670	50,000	520J	220J	2,200
Butylbenzylphthalate	ND	180J	50,000	NA	NA	NA
Benzo(a)anthracene	350	370	224 or MDL	290	140	1,200
Chrysene	720J	390	400	370J	180J	1,600
bis(2-Ethylhexyl)phthalate	ND	380	50,000	NA	NA	NA
Benzo(b)fluoranthene	550	440	1,100	450	240	2,000
Benzo(k)fluoranthene	230	170	1,100	170	83	860
Benzo(a)pyrene	290	300	61 or MDL	300	160	1,300
Indeno(1,2,3-cd)pyrene	120	100	3,200	180	87	580
Dibenz(a,h)anthracene	40J	30J	14 or MDL	40J	21J	140
Benzo(g,h,i)perylene	120J	96J	50,000	200J	89J	510J

Notes:
[1]Samples collected by AKRF, Inc. personnel on June 15, 1998 and July 24, 1998 and analyzed for TCL VOCs and SVOCs, and TAL metals by Envirotech Research, Inc., a New York State Department of Health certified CLP laboratory.
[2]SS Parcel-I is the surface soil sample collected from Parcel I.
[3]New York State Department of Environmental Conservation Division of Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046).
[4]BG = Background Sample
NA = No Standard
NA = Not Analyzed
ND = Not Detected
J = Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitiation limit but greater than zero. The concentration given is an approximate value.
MDL = Minimum Detection Level
μg/kg = micrograms per kilogram (ppb)

TABLE 14

Soil Analytical Summary -TAL Metals

Yonkers Downtown Waterfront - Parcel I[1] (mg/kg)

Metal	TP-4H (parcel I)	SS Parcel I[2]	Soil Cleanup Objective[3]	BG-1[4]	BG-2[4]	BG-3[4]
Aluminum	2,280	4,760	BG	8,450	8,970	6,020
Arsenic	14.5	1.9	7.5	3.3	6.2	3.1
Barium	111	40.1	300 or BG	85.4	74.0	62.3
Beryllium	0.59	0.13B	0.14	0.49	0.45B	0.35B
Cadmium	ND	ND	10 or BG	0.28B	0.13B	0.20B
Calcium	4,940	6,250J	BG	2,430	3,540	3,310
Chromium	7.6	14.7	50 or BG	16.7	20.9	14.3
Cobalt	2.9B	4.7B	30 or BG	ND	ND	ND
Copper	16.4	23.1	25 or BG	25.6	20.2	22.6
Iron	22,000	11,300	2,000 or BG	14,300	13,700	12,300
Lead	27.1	70.0J	BG	243	87.2	95.8
Magnesium	1,880	4,940J	BG	2,800	3,440	2,630
Manganese	102	175	BG	494	292	338
Mercury	0.22	0.04	0.1 or BG	0.31	1.4	0.14
Nickel	7.6B	11.4	13 or BG	13.7	15.4	11.5
Potassium	850B	1,200	4,000 or BG	573B	1,550	795B
Sodium	295B	122B	3,000 or BG	ND	ND	ND
Vanadium	21.7	21.1	150 or BG	20.8	24.3	17.0
Zinc	27.6	55.6J	20 or BG	165	68.8	107

Notes:
[1]Samples collected by AKRF, Inc. personnel on June 15 and July 30, 1998 and analyzed for TCL VOCs and SVOCs and TAL metals by Envirotech Research, Inc. a New York State Department of Health certified CLP laboratory.
[2]SS Parcel- I is the surface soil sample collected from Parcel I.
[3]New York State Department of Environmental Conservation Division of Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046).
[4]BG = Background Sample.
B = The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
J = Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitiation limit but greater than zero. The concentration given is an approximate value.
ND = Not Detected.
N = The spiked recovery was not within the control limits during laboratory quality control/quality assurance practices.
mg/kg = milligrams per kilogram (ppm)

TABLE 15
Groundwater Analytical Summary -TAL Metals
Yonkers Downtown Waterfront - Parcel I[1]
(μg/l)

Metal	TP-4H[2] (total)	MW-1I (total)	MW-1I (dissolved)	MW-2I (total)	MW-2I (dissolved)	Water Quality Standard[3]
Aluminum	3,330	29,500	ND	18,900	ND	100
Arsenic	12.6	96.6	ND	28.1	ND	25
Barium	156B	612	44.8B	125B	22.1B	1,000
Beryllium	0.23B	2.5	ND	1.3B	ND	3
Calcium	135,000	116,000	109,000	93,600	97,100	NS
Chromium	7.4B	83.0	ND	40.9	ND	50
Cobalt	7.1B	25.9B	1.6B	14.7B	ND	5
Copper	21.1B	250	ND	63.7	ND	200
Iron	18,900	156,000	8,450	40,100	ND	300
Lead	49.5	377	ND	90.2	ND	25
Magnesium	24,600	45,100	39,500	37,400	36,500	35,000
Manganese	164	1,420	775	1,120	617	300
Mercury	0.23	5.2	ND	2.8	ND	2
Nickel	22.7B	67.2	8.4B	33.7B	ND	NS
Potassium	11,000	29,700	26,200	10,800	9,760	NS
Selenium	ND	5.7	ND	5.2	ND	10
Sodium	71,700	202,000	208,000	79,100	96,100	20,000
Vanadium	18.2B	102	7.5B	46.0B	2.8B	14
Zinc	52.3	1,290J	ND	160J	ND	300

Notes: [1]Samples collected by AKRF, Inc. personnel on June 15 and 16, and July 24, 1998 and analyzed for TCL VOCs and SVOCs and TAL metals by Envirotech Research, Inc. a New York State Department of Health certified CLP laboratory.
[2] Sample TP-4H is from Parcel I.
[3]NYSDEC Division of Technical and Operational Guidance Series (TOGS) 1.1.1 - Ambient Water Quality Standards and Guidance Values.
B = The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the sample.
J = Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitiation limit but greater than zero. The concentration given is an approximate value.
ND = Not Detected
NS = No Standard
μg/l = micrograms per liter
Shaded cells indicate that the sample exceeds the regulatory standard or the site background.

TABLE 16
Surface Soil Analytical Summary - Pesticides
Yonkers Downtown Waterfront - Parcel I[1]
(mg/kg)

Compound	SS-I	Soil Cleanup Objectives[2]
4,4' - DDT	9.8	2.1
Dieldrin	9.5	0.044

Notes: [1]Sample collected by AKRF, Inc. personnel on July 24, 1998 and analyzed for TCL SVOCs and Pesticides and TAL metals by Envirotech Research, Inc. a New York State Department of Health certified CLP laboratory.
[2]New York State Department of Environmental Conservation Division of Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046).
mg/kg = milligrams per kilogram (ppm)
Shaded cells indicate that the sample exceeds the regulatory standard or the site background.

Appendix A
Responsiveness Summary

Yonkers Downtown Waterfront Development Site
Phase 1, Operable Unit 2 (Parcels C, H and I)
Environmental Restoration Proposed Remedial Action Plan
Site Number B00045-3

The Proposed Remedial Action Plan (PRAP) for the Yonkers Downtown Waterfront Development Site, Phase 1, Operable Unit 2 (Parcels C, H and I) was prepared by the New York State Department of Environmental Conservation (NYSDEC) and issued to the local document repository on July 15, 1999. This Plan outlined the preferred remedial measure proposed for the remediation of the contaminated soil at the Yonkers Downtown Waterfront Development Site, Phase 1, Operable Unit 2 (Parcels C, H and I). The preferred remedy is:

1. Excavation of those soils contaminated with inorganics which meet the definition of a hazardous waste and dieldrin, a listed hazardous waste, and disposal offsite at a RCRA-permitted hazardous waste landfill. Post excavation sampling will be carried out to ensure that all of the hazardous waste has been removed.

2. Placement of two feet of clean soil over areas of Parcels C, H and I designated as "green" areas in the Yonkers Waterfront Development Plan which are to be used in recreational or residential settings, such as lawns, gardens, parks, etc., where existing onsite soils would otherwise be exposed at the ground surface.

3. Access and use restrictions for Parcels C, H and I including, at a minimum, notification to NYSDEC if any intrusive activities are planned.

The release of the PRAP was announced via a notice to the mailing list, informing the public of the PRAP's availability.

A public meeting was held on August 4, 1999 which included a presentation of the site Investigation (SI) and Remedial Alternatives Report (RAR) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site.

The public comment period for the PRAP ended on August 28, 1999.

This Responsiveness Summary responds to all questions and comments raised at the August 4, 1999 public meeting. No written comments were received.

The following are the comments received at the public meeting, with the NYSDEC's responses:

Question: Under the previous investigations (Operable Unit 1), why were Parcels E and F studied as separate parcels?

Response: Parcels E and F were studied under different programs within New York State Department of Environmental Conservation (NYSDEC). While both parcels are owned by the City of Yonkers, contamination on Parcel E is potentially attributable to former operations by the Department of Public Works (DPW) and, as such, would be the responsibility of the City of Yonkers. In this case, the City is eligible to investigate the property under the Voluntary Cleanup Program. The cost to investigate and remediate the property are the responsibility of the City. Parcel F was owned and operated by industries, not by the municipality. Under this scenario, the City is eligible to apply for investigation and remediation grants under the Brownfields program. Under this program, the municipality can be reimbursed up to 75% of its eligible costs.

Question: The Proposed Remedial Action Plan (PRAP) being presented tonight for Parcel H presumes that a certain type of development will occur on these parcels. In other words, the types of remediation technologies which would be used at this site are based on the types of development (residential, commercial, recreational, etc.) being proposed. If the type of development is modified at some future date, what type of contingencies does NYSDEC have in this plan to accommodate these changes?

Response: The proposed remedy, Alternative 3, would be protective of human health and the environment under all potential use scenarios including residential, commercial, industrial or recreational. The only potential route of exposure to site-related contamination is direct contact. This route of exposure would be addressed by the proposed remedy which includes removal of the hazardous waste followed by construction of a physical barrier on the ground surface (either buildings, paved surfaces or a two foot soil cover in green areas).

Question: How much time does the City of Yonkers have to develop these parcels? If economic conditions change, can the City take as much time as they wish to begin development?

Response: The way the Brownfields program is set up, the City cannot use this parcel until the remedy is complete. Once the City applies for the cleanup money, they have 12 months to start implementing the remedy. The City's plan is to put temporary parking on Parcel H following removal of the hazardous waste in the Fall of 1999. The City is expected to begin constructing buildings on this Parcel in a couple of years.

Question: Is Parcel H going to be paved just like Parcel C was?

Response: The difference with Parcel H is that there are hazardous wastes on this property and they will be excavated and removed before the parking lot will be constructed.

Question: How deep below the ground surface was the hazardous concentrations of lead on Parcel H and was it found in the groundwater?

Response: The lead was found at about 8 to 10 feet below the ground surface, but not below the water table. The water table in the vicinity of the lead contamination is at about 10 feet below the ground surface.

Question: Where will the buildings be constructed relative to the hazardous waste area on Parcel H and will a clay cap be constructed in this area?

Response: A clay cap would not be constructed in the hazardous waste area. While a clay cap was evaluated in the PRAP (Alternative 4), it was shown to provide little added benefit in preventing leaching of contamination from the soils to the groundwater. Leaching of contaminants to the groundwater, at levels exceeding groundwater standards, is not currently known to occur. In addition, the development plans call for impervious surfaces (buildings or pavement) to be constructed in this area of Parcel H, following excavation of the hazardous waste.

Question: Was Parcel J studied at the same time Parcels C, H and I were studied? It does not appear that the area identified on the maps as Parcel J was as thoroughly investigated as Parcels C, H and I.

Response: Parcel J represents the river front strip adjacent to each parcel and was studied thoroughly as a part of Parcels C, H and I. Test pits were excavated on Parcels H and I (including the adjoining Parcel J) and borings were drilled on Parcel C (including the adjoining Parcel J). Because Parcel C is paved and used for

parking, it was not appropriate to use test pits to investigate the underlying soils. In the area of Parcel J, the testing showed very little indication of contamination. This narrow strip of property along the river consists largely of course rock and boulders used to stabilize the banks of the river (rip rap) and, as such, contained very little soil. Where there was soil, the data showed it to be very clean. Once this was established, our investigative efforts shifted towards delineating the contaminated areas.

Question: Was the primary contaminant on these parcels petrochemical in nature?

Response: No. Metals, predominantly lead, were the primary contaminants and were found largely on Parcel H. The other contaminants, primarily semivolatiles, were also present at the site and are likely related to the types of construction and demolition debris which was used as fill material at the site. Most of the compounds are commonly found in asphalt or plastics and are unlikely to dissolve into the groundwater.

Question: If a clay cap is to be used, how far from the bulkhead would it be constructed?

Response: Although the current plans do not call for the use of a clay cap, if one was used, it would be about 100 feet from the bulkheading.

Question: A Brownfields project is supposed to be an environmental restoration project and I am concerned that the environment will be forgotten and just covered over. It would be nice if there were lots of greenery on this property when it is completed.

Response: The proposed plan calls for removal of the hazardous waste before development begins. The proposed development is for mixed residential, commercial and recreational with green areas, a boardwalk and parks.

Question: How high were the levels of lead?

Response: The highest levels of lead were found in soils on Parcel H at concentrations up to 20,000 parts per million (ppm). Soils from this area of the site with high levels of lead were submitted to the laboratory to be tested for their affinity to leach lead from soils into the groundwater. This test is called a Toxicity Characteristic Leaching Procedure (TCLP) test. The results showed that there is the potential for these soils to leach lead at levels above the regulatory criteria of 5 ppm. Because these soils leached lead as high as 332 ppm, and were contaminated as a result of

past industrial activity, they are classified as a characteristic hazardous waste.

Question: Do you feel that once the excavating begins and the ground is disturbed that some of these inorganic contaminants will impact the groundwater, particularly if the watertable should rise?

Response: The concentrations of inorganic contaminants currently in the groundwater are below groundwater quality standards except for those metals which are found naturally in the saline-rich waters of the lower Hudson River (sodium, manganese, magnesium and iron). This suggests that the elevated levels of metals in soils on Parcel H are not leaching into the groundwater and probably won't, even if the hazardous wastes were to be left in place. But because they are hazardous, they will be removed. Once the remedy is implemented and the highest concentrations of lead contamination is removed, there will be even less chance that any significant leaching of metals would occur in the future. With respect to possible changes in the elevation of the groundwater table, it is very stable at this location because it is at sea level and only shows very minor fluctuations in response to the daily tidal changes. Flood events occurring on the Hudson River could cause a change in the water table elevation, however, these changes are always short-lived and would have little potential for posing a significant impact.

Question: Why was the Yonkers Downtown Waterfront Site segmented into various parcels?

Response: The property was divided based on two criteria: 1) proposed development based on the City's master plan; and 2) property ownership.

Question: Would the cleanup requirements for a parcel of land change depending on the size of the parcel?

Response: There is no difference in how we approach a very small parcel (a fraction of an acre) vs. a very large parcel (many acres). The same standards would apply to each parcel, however, it is usually easier and quicker to manage a smaller parcel than a larger one. If a municipality wishes to utilize only a portion of a large parcel before the rest of the property, we can sometimes section it off and streamline an investigation to address this smaller area.

Question: Is there any evaluation of the infrastructure (sewers, sewer outfall, utilities, etc.) as part of the investigation and remediation of the site?

Response: No. This is not normally included in the scope of activities for an investigation and site cleanup. It is, however, evaluated as part of the State Environmental Quality Review Act (SEQRA) process for redevelopment. The Final Generic Environmental Impact Statement was completed in November 1998 by the City of Yonkers as a requirement for the Yonkers Downtown Waterfront Master Plan. This document is available for public review at City Hall.

Question: Why didn't you start the 45-day comment period on the day of the public meeting rather than over two weeks before so that there was more time to comment on the PRAP?

Response: The project documents are made available to the public before the PRAP meeting so that the public is given a chance to review the material and become informed prior to the meeting. The 45-day comment period begins the day the documents are made publically available and public meetings are usually scheduled towards the middle of the comment period, as was done for this site.

Question: What is the effect of putting large buildings on the Yonkers property? Will the proposed buildings compress the soils and release contamination into the Hudson River?

Response: No. Buildings are constructed on foundations which bear the weight of the structure. In addition, the groundwater has been shown to meet all groundwater criteria with the exception of a few isolated exceedances.

Question: Was there a study done of the fish (adjacent to the site) in the Hudson River.

Response: No. There were very few impacts to the onsite groundwater which would warrant a study of the Hudson River, it's sediments or it's biota.

Question: Is NYSDEC going to issue a findings sheet?

Response: After the public comment period ends, all comments and responses will be consolidated into a responsiveness summary which will become a part of the Record of Decision (ROD), the final decision document for OU-2. Once this document is officially released be the Department, a notification of public availability will be issued to everyone on NYSDEC's mailing list for this site.

Appendix B
Administrative Record

Yonkers Downtown Waterfront Development Site
Phase 1, Operable Unit 2 (Parcels C, H and I)
Environmental Restoration Proposed Remedial Action Plan
Site Number B00045-3

1. Phase 1 Environmental Site Assessment Report, City of Yonkers Downtown Waterfront Master Plan, Yonkers, Westchester County, New York, April 1997. Prepared for the City of Yonkers by AKRF, Inc.

2. Proposal for a Site Investigation/Remedial Alternatives Report Work Plan, Yonkers Downtown Waterfront Development Site, Yonkers, Westchester County, New York, May 1997. Prepared for the City of Yonkers and the New York State Department of Environmental Conservation by AKRF, Inc.

3. Site Investigation/Remedial Alternatives Report Work Plan, Yonkers Downtown Waterfront Development Site, Yonkers, Westchester County, New York, March 1998. Prepared for the City of Yonkers and the New York State Department of Environmental Conservation by AKRF, Inc.

4. Site Investigation Report, Yonkers Downtown Waterfront Development Site, Phase 1, Operable Unit 2 (Parcels C, H and I), Yonkers, Westchester County, New York, April 1999. Prepared for the City of Yonkers and the New York State Department of Environmental Conservation by AKRF, Inc.

5. Remedial Alternatives Report, Yonkers Downtown Waterfront Development Site, Phase 1, Operable Unit 2 (Parcels C, H and I), Yonkers, Westchester County, New York, June 1999. Prepared for the City of Yonkers and the New York State Department of Environmental Conservation by AKRF, Inc.

6. Proposed Remedial Action Plan, Yonkers Downtown Waterfront Development Site, Phase 1, Operable Unit 2 (Parcels C, H and I), Westchester County, New York, July 1999. Prepared by the New York State Department of Environmental Conservation.