Hunts Point Food Distribution Center
Redevelopment Plan

Investigative Report for the Operating Unit Portion of Parcel C, Bronx, NY

Prepared by: Lawler, Matusky & Skelly Engineers LLP **November 1999**

EXECUTIVE SUMMARY

This report documents the completed activities and presents the results of the subsurface investigation for Parcel C, located in the southeastern portion of the Hunts Point Cooperative Market (see Figure 1). Lawler, Matusky & Skelly Engineers LLP (LMS), under contract to New York City Economic Development Corporation (NYCEDC), performed the subsurface investigation following a New York State Department of Environmental Conservation (NYSDEC) approved Work Scope (dated September 1999) entitled, Investigative Scope of Work for Parcel C, Bronx, New York (SOW). The purpose of this investigation was to assess areas of the Site that are suitable for redevelopment under the proposed plan, and to identify specific areas that may require further attention. The proposed redevelopment of the Site includes general grading for the future facility construction and asphalt placement for use as a parking area.

A review of the site history and conditions, as well as a physical site inspection was performed before preparation of the SOW. Information reviewed to assess the site history and conditions included historic Sanborn fire insurance maps, aerial photographs, historic topographic maps, and Consolidated Edison Company of New York (Con Ed) site maps.

Overall, this parcel was part of a Con Ed coal gasification plant that was initially constructed between 1924 and 1932 and operated until the early 1960s. The plant was constructed to manufacture both oven gas and carburetted water gas as major product with coke, ammonium sulphate, coal tar, water gas tar, and light oil as by-products. Approximately 46 buildings or structures existed on site that were actively involved in gas production.

Site C is located in the southeastern portion of the former coal gasification facility. Historic Con Ed maps prepared at the time the facility was operated showed that the Site C area was used for coal pile storage. Structures at the site included conveyor machines at the center of the Site and a coal tower at the eastern edge of the Site. Railroad tracks abutted the eastern and western limits of Site C. The former Dock Road bisects the center portion of the Site. The remainder of the Site appeared to be free of identified surface structures. With the exception of a water main along the eastern Site limit, no utilities were identified before the field activities occurred.

The investigation included the excavation and inspection of on-site material and the collection of soil and groundwater samples for chemical analyses. Four trenches and five test pits were advanced across the site in a general north-south direction. These trenches were relatively spaced so that adequate coverage of the Site was achieved.

Each trench/test pit was advanced to the water table. Following completion for each trench, material was collected for chemical analyses including both grab and composite samples. Generally, the material that formed the composite was considered to have been impacted by petroleum, coal tar or other fill materials that appeared to have an industrial origin and is believed to be related to the gasification plant. The samples were submitted to the contract analytical laboratory for target compound list (TCL) volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/PCBs, and target analyte list (TAL) metals and cyanide. Two groundwater samples were also collected from trenches in the areas that showed the greatest potential for petroleum impact. These samples were analyzed for the same parameters as the soil samples. However, the metals sample was filtered before analysis.

Upon completion of the trenching activities, a boring was to be advanced at the area of the Site that showed the greatest potential impact from site activities. However, this boring has not been advanced to date. This boring will be advanced in conjunction with other drilling activities at the Hunts Point Cooperative Market.

During the trenching activities, several buried utilities were encountered that are not believed to be associated with known or marked underground utilities. These appear to be steel or iron pipes buried at relatively shallow depths that resemble typical buried utilities. No as builts provided by Con Ed indicated these pipes or their use.

The site inspection results showed that an upper layer of fill is present and consists of residual coal from the historic site operations. The residual coal layer is present over most of the Site but varies between 1 and 4 ft in thickness with the greatest amount towards the center of the Site. Beneath the coal layer is sand mixed with ceramics and glass. The appearance of the sand layer indicates that it may be dredged material. Occasional concrete or brick footers or foundations were encountered, especially at the southern portion of the Site. Coal tar and creosote impacted areas were also encountered, but these areas were limited in both horizontal and vertical extent.

The analytical data were compared to NYSDEC Technical Administrative Guidance Memorandum 4046 – Determination of Soil Cleanup Objectives and Cleanup Levels (TAGM). This comparison is used merely to indicate where major differences exist between the data and the TAGM. Analyses of shallow fill material across the Site showed that VOCs, PCBs, and pesticides were either not detected or detected at trace concentrations. At one location methylene chloride was detected at a concentration just above the TAGM. However, methylene chloride is a common laboratory artifact and its presence may be related to those artifacts. Low to trace level SVOCs were detected in each sample. Total SVOC concentrations ranged between 3.683 mg/kg and 95.66 mg/kg. Several metals were detected in the samples with concentrations above the recommended soil cleanup objectives identified in the TAGM. This comparison does not take into account any background

concentration which may be higher than those listed in the recommended cleanup. The predominant metals detected above the TAGM included arsenic, beryllium, cadmium, chromium, copper, iron, mercury, nickel, selenium, and zinc.

Groundwater conditions at the Site did not exhibit evidence of dense, non-aqueous phase liquid (DNAPL) or other obvious impacts from site operations. Comparison of the shallow groundwater sample results to the most stringent standards, Class GA Drinking Water Standards (DWS), revealed no VOCs or pesticides/PCBs at concentrations above these criteria. Seven SVOCs exceeded their individual standards or guidance values. Thallium, manganese, and sodium were the only metals that exceeded standards or guidance values. The sodium concentrations suggest that the groundwater may be affected by the coastal saline conditions. Samples collected from the two locations that were indicative of the worst case groundwater conditions did not illustrate significant exceedances of the Class GA standards for the other inorganics.

The results of this investigation show that the entire content of material that was inspected was composed of fill that was placed before and during the construction of the gas plant. Because residual coal was found in some fill material, it appears to be impacted in part by the former manufactured gas facility. Only small isolated areas of the Site were found to contain noticeable petroleum odors and no locations were found to be saturated with petroleum. The semi-volatiles detected at the Site are relatively low and appear to be ubiquitous.

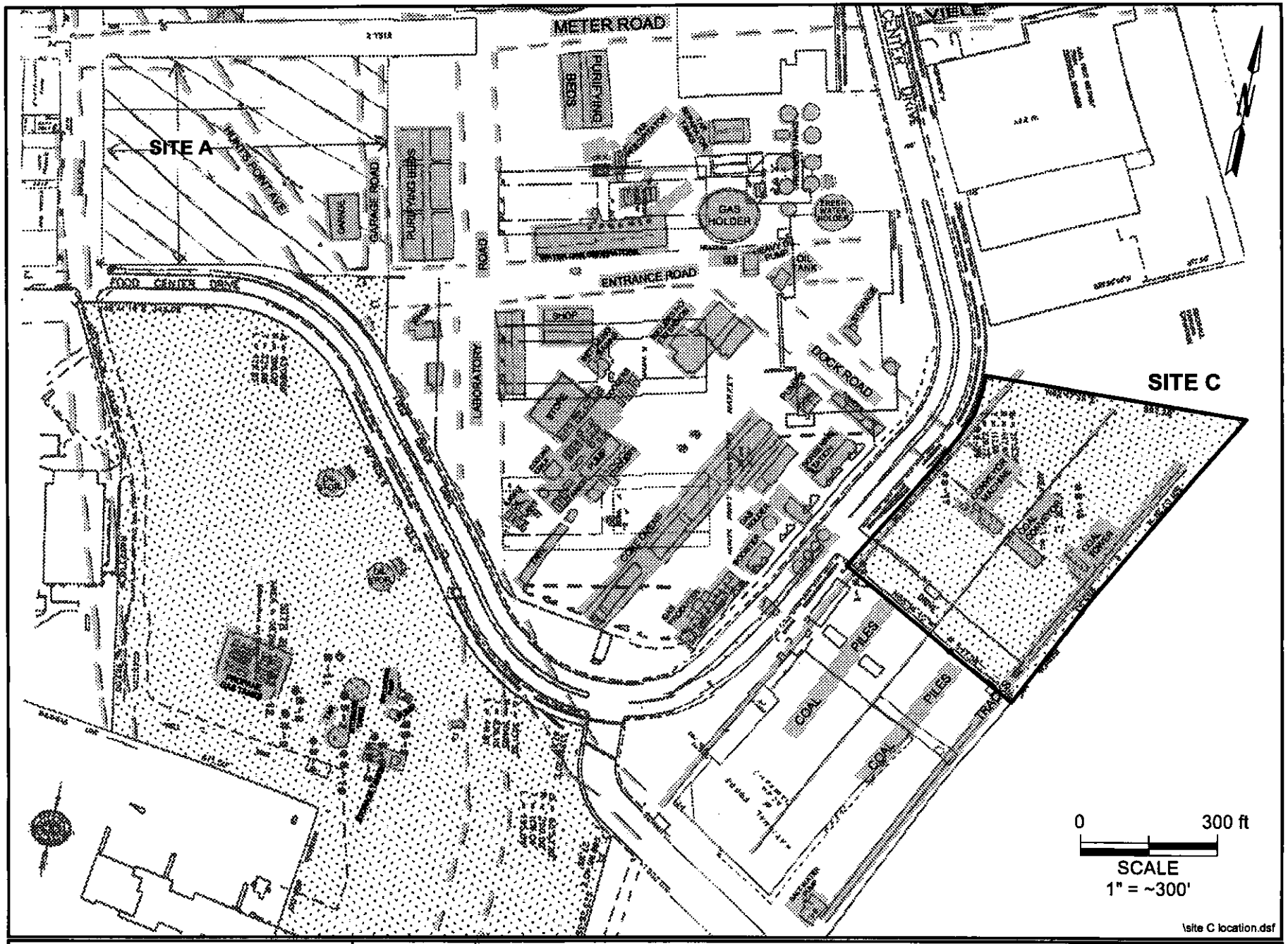
INTRODUCTION:

This report presents the findings of the subsurface investigation for Parcel C (Site C), located in the southeast portion of the Market (Figure 1). Site C is trapezoidal in shape and covers approximately 10.26 acres. The Site is bounded on the north by a parking lot for a shopping center, on the south by National Foods, on the west by Food Center Drive, and the east by East River (Figure 2).

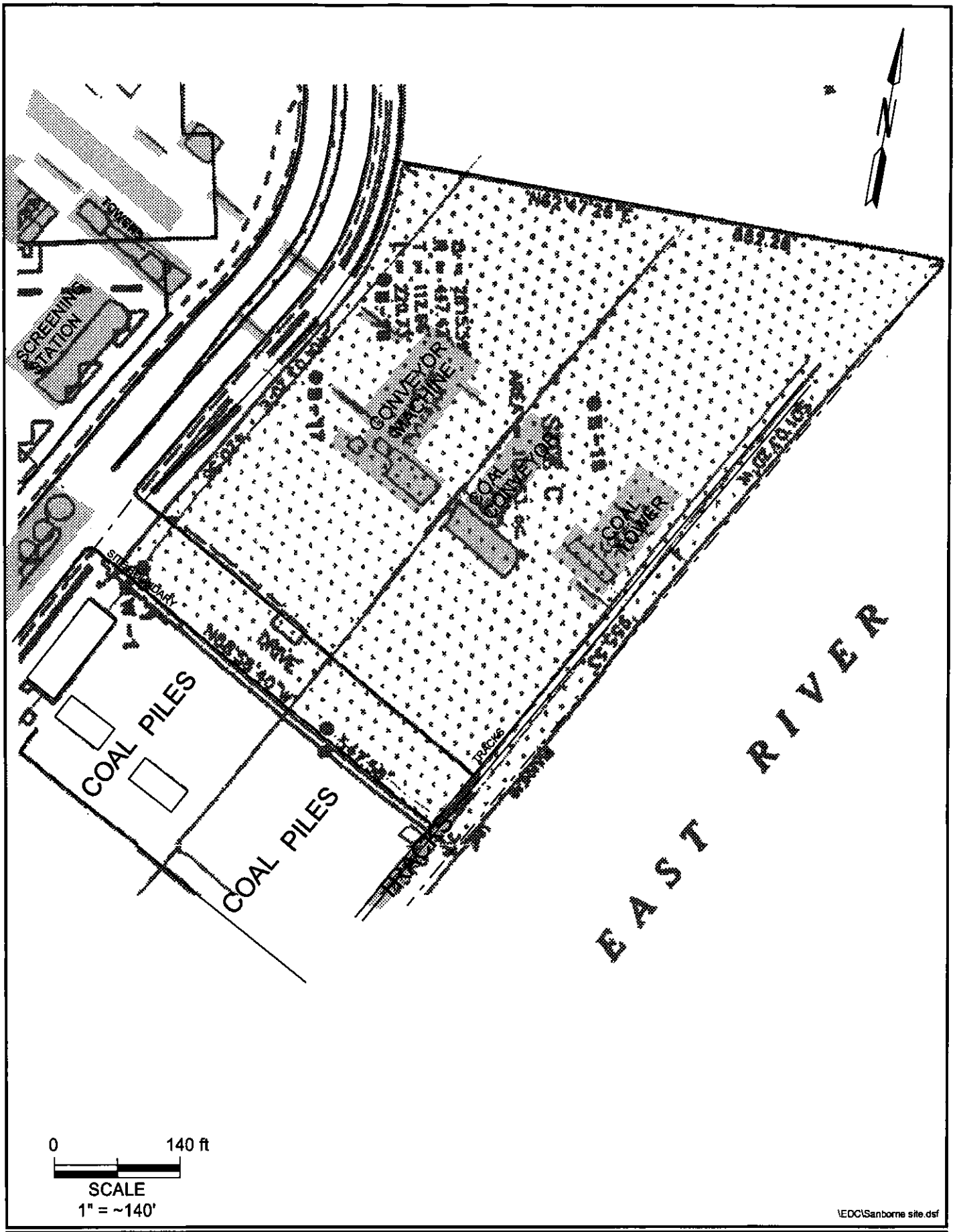
Historic Site and topographic maps have been reviewed and a composite showing conditions which were identified on those maps is included as Figure 2. Historic aerial photograhs (Aerial Photos 1 through 5) were also reviewed prior to the start of field work and any conditions not shown on the Sanborns were taken into consideration for the actual sampling activities. The major feature noted on the aerial photos and Sanborn maps was the former coal piles for the Con Ed manufactured gas plant.

There were few deviations from the approved scope of work. Any changes made in the field were discussed and approved by the NYSDEC site representative prior to being implemented. Changes made to the work scope included the following:

1) The community air monitoring program was not performed as no visible dust emissions were noted during the site sampling activities.



LMS Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Site C Location** **Hunts Point**	**Figure 1**



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0 750 ft

SCALE IN FEET

\781\781Aerial.dsf

LMS Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Hunts Point Site C - 1954 Aerial Photograph**	**Aerial Photo 1**

0 750 ft

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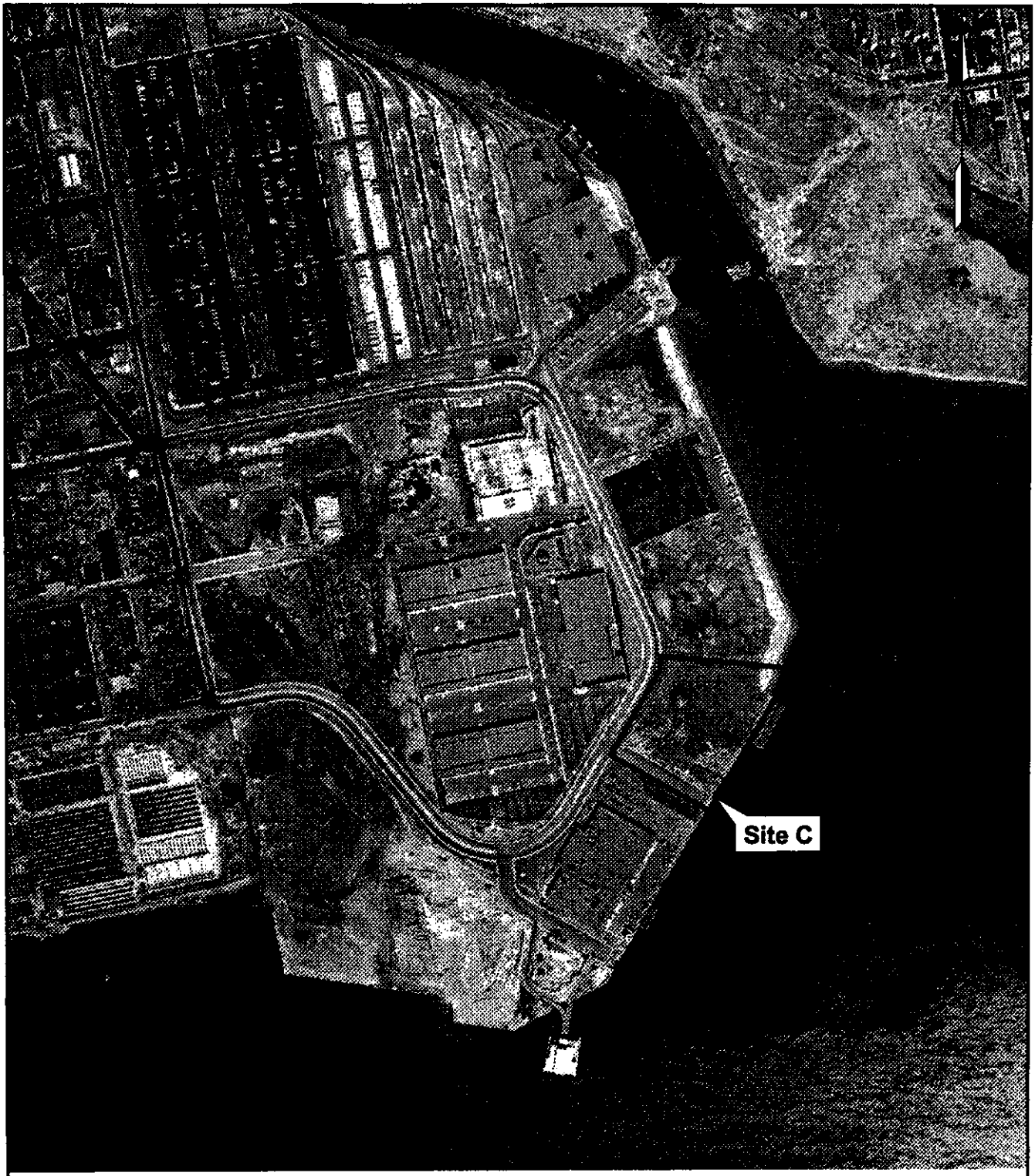
LMS Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Hunts Point Site C - 1966 Aerial Photograph**	**Aerial Photo 2**



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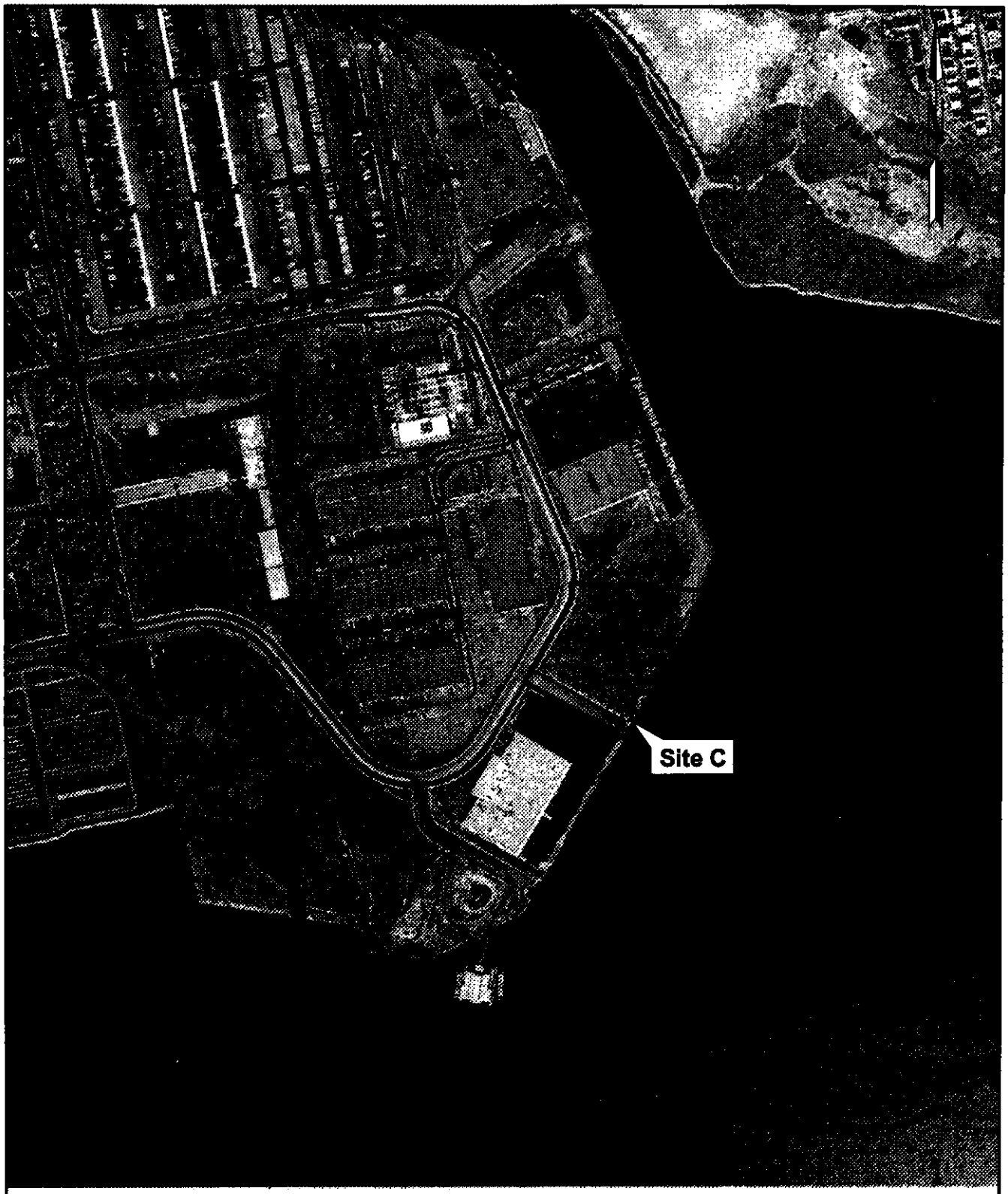
LMS Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Hunts Point Site C - 1975 Aerial Photograph**	**Aerial Photo 3**



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LMS Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Hunts Point Site C - 1984 Aerial Photograph**	**Aerial Photo 4**

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LMS Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Hunts Point Site C - 1994 Aerial Photograph**	**Aerial Photo 5**

2) Groundwater samples were filtered for metals analysis only.

3) Only three (3) samples per trench were collected for volatile organic compounds analyses (as opposed to 4) due to the minimal amount of impacted areas encountered.

FIELD SAMPLING ACTIVITIES

LMS began this assignment by conducting a site inspection to identify the health and safety concerns for the site, access limitations, layout of control areas, preparation of a site specific health and safety plan, and confirmation of utilities at the Site with respect to proposed sampling locations.

A utility markout was requested by contacting the utility clearance hotline. Historical site maps were also reviewed to identify other potential subsurface utilities. However, with the exception of a water line near the bulkhead, no utilities were identified during either activity.

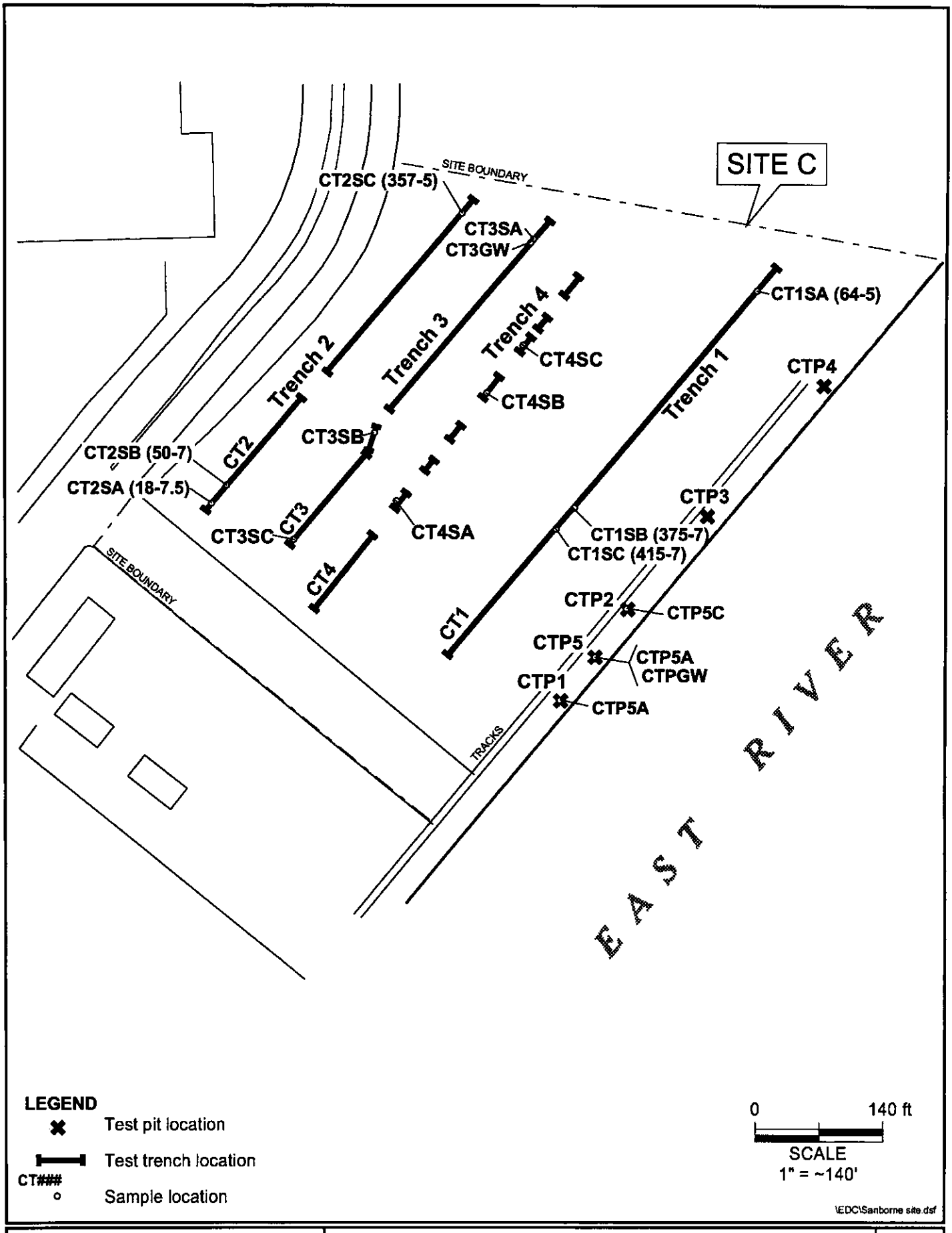
As noted in the Aerial Photographs (aerial Photos 1 and 2) and the historic Sanborn maps, the old road bed for Dock Road ran through the center portion of the Site. No known utilities underlie the old road, but conveyor machines were situated adjacent to the road.

Trench Installation

Sampling consisted of the advancement of five lines of trenches or test pits that were oriented northeast-southwest as shown in Figure 3 and photographs. Trenches and test pits were advanced to the water table using a tire mounted excavator operated by a 40-hour OSHA-trained operator. Excavation activities commenced on 14 September 1999 and were completed on 20 September with backfilling activity occurring on 21 September 1999.

This sampling procedure allowed for greater visual inspection of the subsurface and for sample collection in a manner not typically available during test boring advancement. By advancing trenches and test pits, the horizontal extent of subsurface features and conditions was observed. Material excavated from the trenches and test pits was scanned with a photoionization detector (PID) at regular intervals or when an area of potential concern was encountered. No readings above background conditions were measured at any of the trenches or test pits advanced at Site C. Activities and observations were logged and documented by the on-site LMS geologist.

Soil samples were collected at three locations across each trench. Three grab samples were collected for target compound list (TCL) volatile organics (VOCs) analysis following EPA Method 8260. A composite sample was also collected from each trench and submitted for analysis of TCL semi-volatile organic compounds (SVOCs), TCL pesticides/PCBs, target analyte list (TAL) metals, and cyanide.



LMS Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**Site C Trenching Diagram** **Hunts Point**	**Figure 3**

Bulkhead facing south

Trench 3

Trench 3

Trench 2
showing buried
pipes

Bulkhead facing south

Test Pit 1

Test Pit 3

Test Pit 4

Groundwater samples were collected from two separate locations and submitted for analysis of TCL VOC, SVOC, pesticides/PCBs, TAL metals, and cyanide. The metals sample was filtered using an in-line filtration apparatus and then preserved prior to shipment to the laboratory. All samples were placed in the appropriate laboratory supplied containers and shipped at 4°C under chain-of-custody protocol to the contract analytical laboratory using an overnight courier.

Typically, a 2 to 4 foot coal layer was present over most of the Site. The northern portion of the site contained hydraulic fill, likely from dredging the Bronx and East River waterways. Occasional tar boils and areas of creosote impacted wood were encountered. Generally, the most impacted soil appeared to be encountered near the southwestern corner of the site. A brief description of each trench advanced at Site C is provided in the following paragraphs.

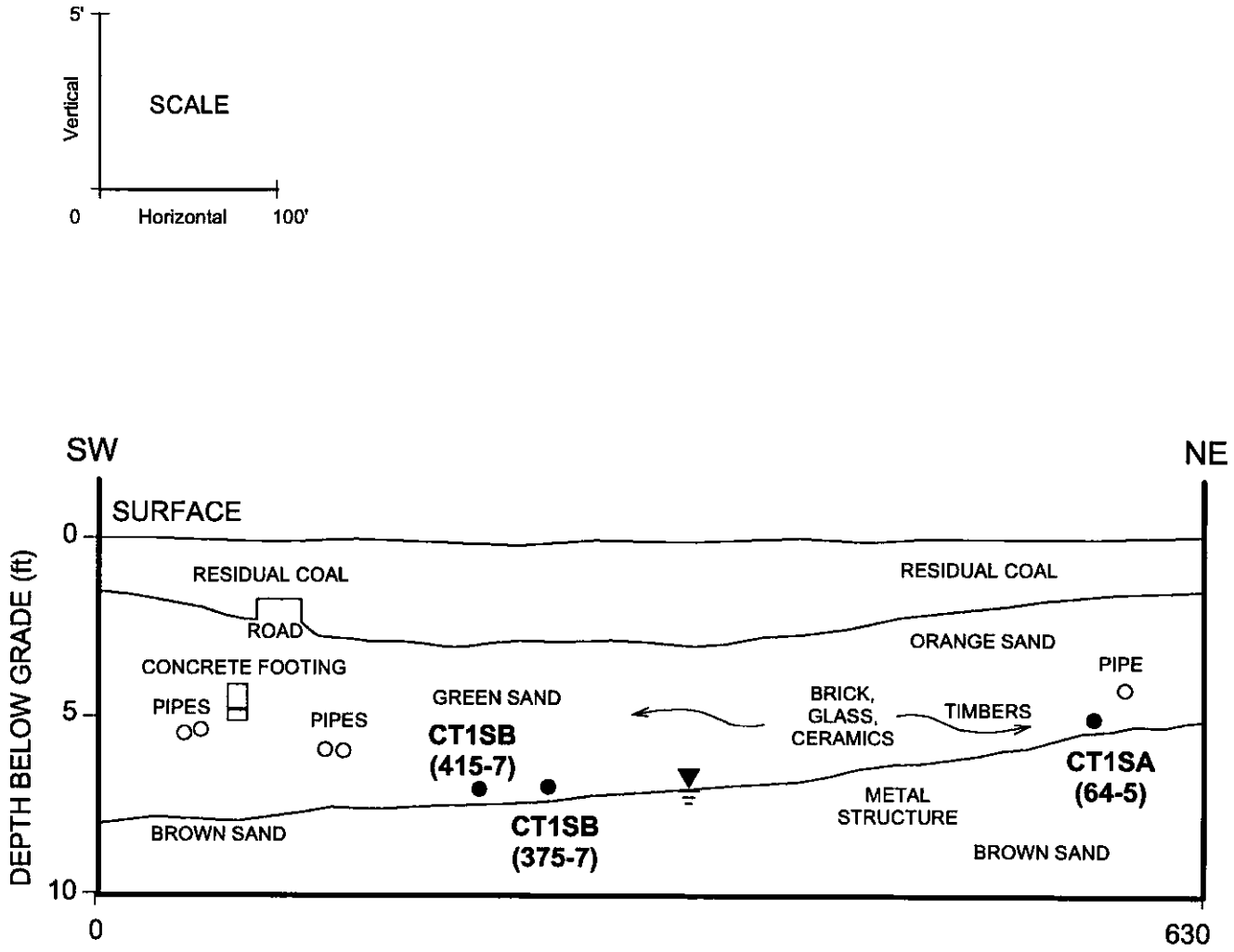
Trench 1

Trench 1 was advanced as the easternmost continuous excavation at Site C, approximately 150 feet from the East River Bulkhead (Figure 3 and photographs). With the exception of the line of test pits advanced adjacent to the bulkhead, Trench 1 provides information of subsurface conditions nearest East River. Trench 1 was approximately 610 feet long with an average depth of about 8 feet. A cross section illustrating the materials encountered and depth of the trench as well as the sampling locations is provided in Figure 4.

Typically, the upper 2 to 4 feet consisted of residual coal remaining from the former stockpile. The thickness of the coal layer increased from the north to center portion of the Site and then decreased toward the southern end of the Site. Beneath the coal layer was a medium brown fine to coarse sand and gravel layer that included glass bottles, ceramics, and brick. A second layer of coal underlies the brown sand layer. Some construction and demolition materials and timbers were interspersed within this coal layer. Purplish brown sand and gravel was beneath the second coal layer.

No major utilities were encountered at the northern portion of this trench. However, one suspected pipe was encountered near the northern end. At the southern portion of the trench, two areas of piping were encountered. One set of pipes included an 8-inch diameter pipe adjacent to a 4-inch diameter pipe. Both pipes appeared to be in good condition. Both pipes were approximately 55 feet from the southern limit of the excavation and were oriented perpendicular to the bulkhead. A second area of piping was encountered approximately 125 feet from the south end and appeared to be about 4 feet in diameter. Other features encountered in this trench included the base of an old road about 90 to 100 feet from the south end and a concrete footing about 75 to 80 feet from the south end.

Other than a potential slight sheen about 64 feet from the north end of the trench, no significant impacts to soil and groundwater were observed. Soil samples for chemical analyses were collected from the area where the potential sheen was



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● Soil sample location

CT1#

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Site C Trench 1

Figure 4

observed (CT1S064-5), from an area that contained some green sand (CT1S415-7), and approximately mid point of the excavation (CT1S375-7).

Trench 2

Trench 2 was advanced at the westernmost portion of the Site (Figure 3 and photographs). It represents the upgradient conditions and intercepts any materials that may potentially have migrated on the Site. The trench was advanced adjacent to the fence that limits access to the site. A railroad spur exists just west of this fence.

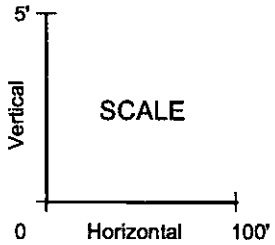
Trench 2 was approximately 415 feet long, but is not continuous. Near the center portion of the trench, a gap exists so an access road to the site could be maintained. A second gap occurred where soft ground was encountered and the backhoe could not be positioned to effectively excavate this area.

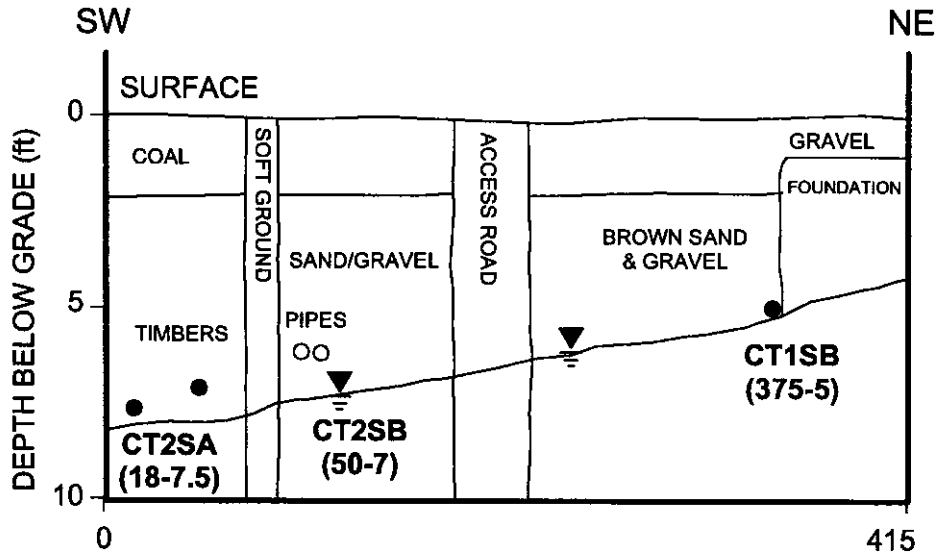
The average depth of the trench was approximately 7.5 feet. A cross section showing the excavation depth and materials encountered is included as Figure 5. As with Trench 1, the coal layer was generally thicker in the center area of the Site. Also, the fill containing construction and demolition materials was thicker toward the southern extent of the trench. A building foundation was encountered at approximately 2 feet below ground surface, near the northern extent of the trench. The foundation was at least 50 feet long although the entire foundation length was not exposed. The northern limit of the foundation was not determined because soft ground limited the backhoe from excavating further. At 50 feet from the south end of the excavation, timbers, possibly treated with creosote, were encountered in the trench. The 4 inch and 8 inch diameter pipes observed in Trench 1 were encountered at approximately 105 feet from the south end of Trench 1.

Three soil samples were collected from Trench 2 for chemical analysis. Sample CT2S018-7.5 was collected approximately 18 feet from the south end of the excavation. The groundwater encountered at this location appeared oily with some sheen. Sample CT2S050-7 was collected approximately 50 feet from the south end of the excavation where the creosote treated timbers were encountered. Sample CT2S357-5 was collected from the northern portion of the trench, approximately 357 feet from the south end, and adjacent to the foundation that was encountered.

Trench 3

Trench 3 was advanced approximately 100 feet east of Trench 2 and it represents the second most upgradient trench (Figure 3 and photographs). Trench 3 is approximately 525 feet long but also is not continuous. Two gaps exist in the trench where the Site access road exists (185 to 215 feet from the south end) and where soft ground was encountered (345 to 355 feet from the south end). The soft ground was attributed to the hurricane and extremely large volumes of rain that fell on the site during the project. A cross section of Trench 3 illustrating the subsurface materials encountered and the sample locations is included as Figure 6.





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● Soil sample location

CT1#

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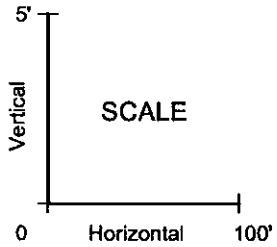

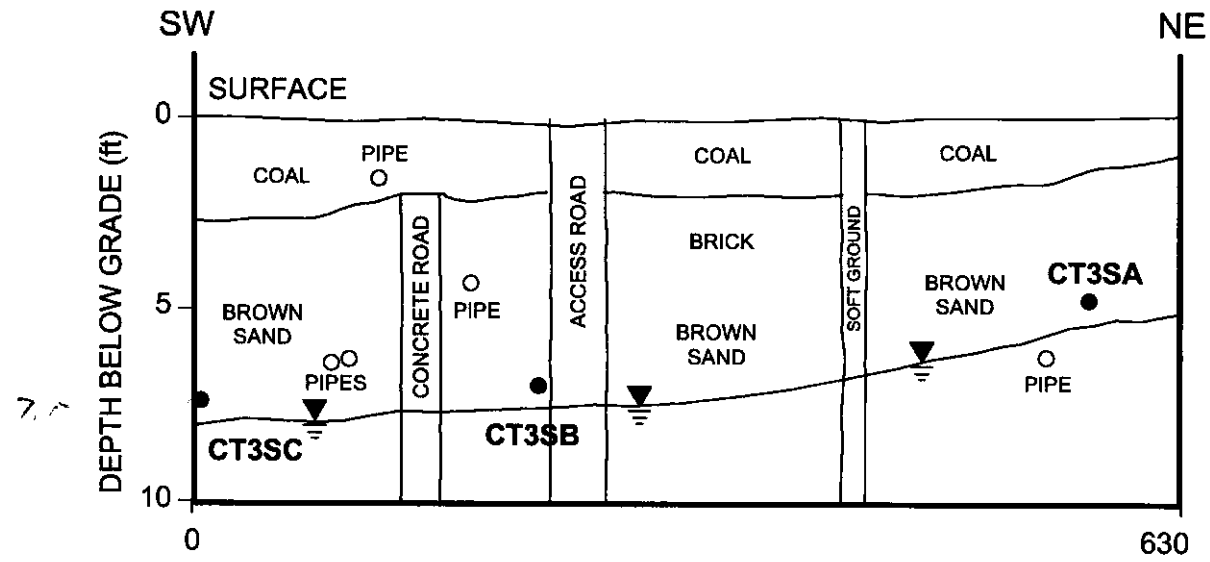

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● Soil sample location

CT1#

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As with Trenches 1 and 2, the thickness of the surficial coal layer was less at the northern end of the site and thickened toward the center of the trench. However, the coal layer increased in thickness toward the south end of the trench where it generally was up to 4 feet deep. Brown fine to coarse sand and gravel was encountered below the clay layer. A road base was encountered at approximately 2 feet bgs, approximately 110 to 130 feet from the south end of the trench. An area containing concrete was encountered just south of the road base. The 4 inch and 8 inch diameter pipes observed in both Trench 1 and Trench 2 were observed between 75 and 80 feet from the south end of the trench. Creosote treated timbers were encountered approximately 40 feet from the north end of the trench.

Three soil samples were collected from Trench 3 for chemical analysis. Sample CT3SA was collected approximately 40 feet from the north end of the excavation where the creosote treated timbers were encountered. A groundwater sample identified as CT3GW was also collected at this location. Sample CT3SB was collected approximately 185 feet from the south end of the excavation where tar boils were observed at the surface. Sample CT3SC was collected at the south limit of the trench, where a possible slight sheen was observed.

Trench 4

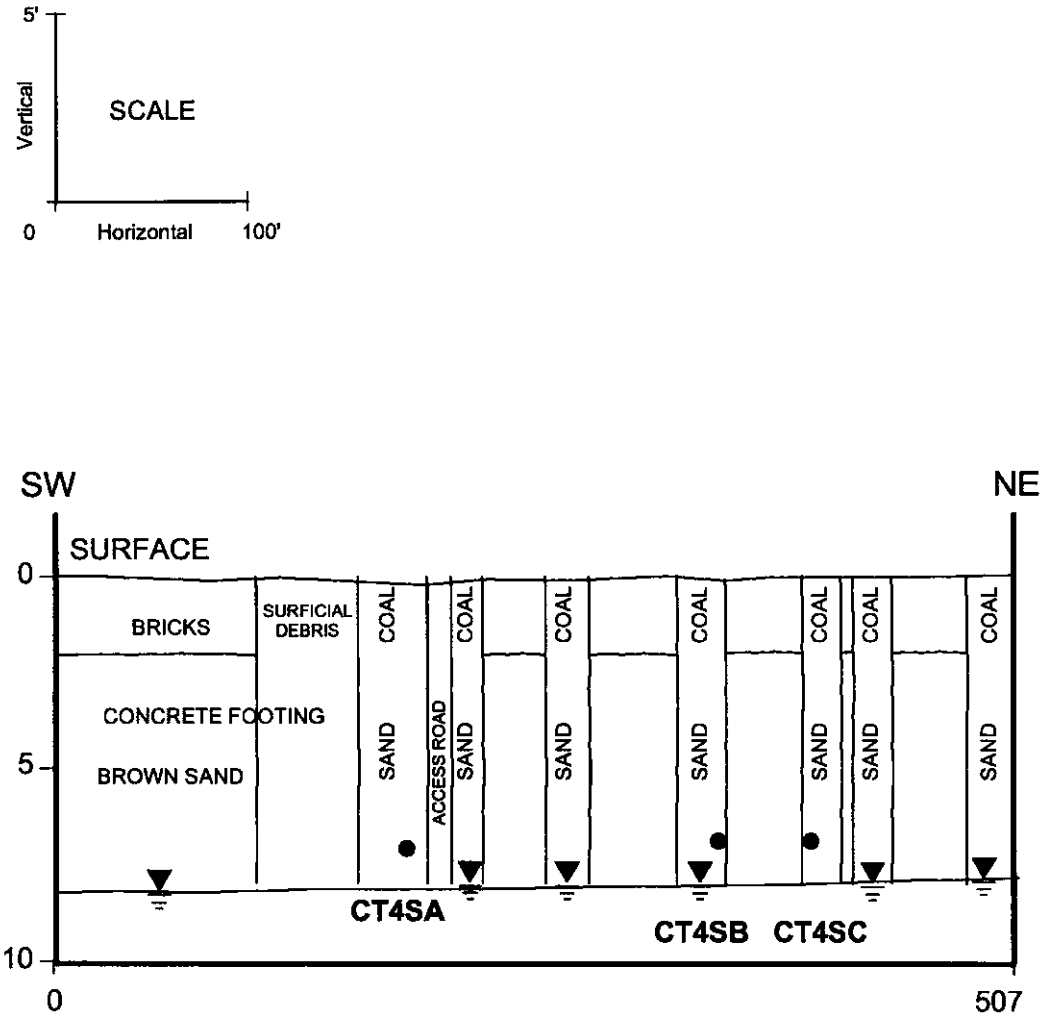
Trench 4 was advanced approximately 75 feet east of Trench 3 and 160 feet west of Trench 1 (Figure 3 and photographs). The trench was initiated as a continuous excavation at the southern end but a series of test pits was advanced at the center and northern portions of the Site. This scope change occurred because the impacted material was generally encountered more at the southern portion of the site than the northern portion. The first gap in the trench occurred because a large pile of construction and demolition material was situated along the orientation of the trench. A cross section of Trench 4 illustrating the subsurface materials encountered and the sample locations is included as Figure 7.

Some piping was encountered approximately 180 feet from the south end of the excavation, including one pipe that was oriented at a 30-degree angle with the trench. All other piping was essentially perpendicular to the trench.

Three soil samples were collected from Trench 4 for chemical analysis. Sample CT4SA was collected approximately 185 feet from the south end of the trench in an area where some creosote and coal tar was observed. Samples CT4SB and CT4SC were collected from test pits at the northern portion of the site, approximately 340 feet and 400 feet from the southern limit of the excavation, respectively.

Test Pits

Five test pits were advanced adjacent to the bulkhead to characterize materials at the downgradient portion of the site (Figure 3 and photographs). These test pits were advanced at low tide and to depths approximately 2 feet below the water table. Initially, four test pits were planned, but the fifth test pit was added to observe



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● Soil sample location

CT4#

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subsurface conditions in the vicinity of a small seep that was identified at the surface of the East River, approximately 25 feet from the shore line. The four initial test pits were advanced from the south end of the site and proceeded north.

Test pit CTP1 was advanced approximately 220 feet from the south end of the site to a depth of approximately 8.5 feet below ground surface. The material encountered in this test pit included mostly sand with some concrete and brick. A 3-inch diameter pipe was encountered, but it did not contain any fluids. A small seam of black tar was also encountered. The sample identified as CTPSA was collected from this test pit.

Test Pit 2 was advanced approximately 355 feet from the south end of the site to a depth of approximately 7.75 feet bgs where groundwater was encountered. Black sandy coal with brick and masonry fill was observed in this test pit. A 4-inch diameter pipe was also encountered that was oriented parallel to the River. The sample identified as CTPSC was collected from this test pit.

Test Pit 3 was advanced approximately 495 feet from the south end of the site to a depth of approximately 7.5 feet bgs. The test pit was advanced to the east of an old railroad bed. The material encountered in the test pit was mainly reddish brown fine sand. Concrete was observed at the west wall and floor of the excavation. A piece of weathered metal resembling an old container was removed from this excavation. The container was approximately 2 feet long and 1 foot in diameter. No samples were collected from this test pit for chemical analysis.

Test Pit 4 was the northernmost test pit advanced along the east side of the site. It was advanced approximately 720 feet from the south end of the site, to a depth of approximately 6.5 feet bgs. The material excavated from this test pit included orange to brown, fine to medium sands that appear to have been used as fill from dredged material. No samples for chemical analysis were collected from this test pit.

Test Pit 5 was advanced between TP-1 and TP-2 so that subsurface material near the seep could be investigated. The test pit was advanced approximately 285 feet from the south end of the site, near a former outfall in the bulkhead. The material excavated from TP-5 consisted of mostly sand with some concrete and brick, similar to the material encountered at TP-1. A soil and a groundwater sample, identified as CTPSB and CTPGW respectively, were collected from this test pit.

Soil Boring

Although one soil boring was included with the scope of this investigation, the drilling has not yet been completed. Because of the limited soil boring scope for Site C, the activity was scheduled to occur concurrently with drilling activities during another investigation within the Hunts Point Market. At this time however, LMS would propose that based on current conditions and the analytical data that this boring, which was to look for DNAPL, be deleted from the scope.

Sample Results

For Site C, a total of 15 grab soil samples were collected for TCL VOC analyses (following EPA Method 8260) and 5 composite soil samples for TCL SVOCs (following EPA Method 8270), pesticides/PCBs (following EPA Method 8081/8082), TAL Metals (following EPA Methods 6010/7470) and cyanide (following EPA Method 335.2). Also, two groundwater samples were collected for TCL VOCs, SVOCs, pesticides/PCBs, filtered TAL Metals and cyanide analyses. The results of these samples are discussed in the following paragraphs.

Soil Samples

All soil samples were collected from the areas of each trench that showed the greatest potential impact from historic site operations. Locations of these samples are shown on Figure 3. All samples were submitted to a contract analytical laboratory using an overnight courier. The sample results are summarized on Tables 1 through 5. These tables include a comparison of the VOC, SVOC, and pesticides/PCBs with the NYSDEC TAGM (January 1994) whereas the metal results are compared to USA background and the Eastern TAGM criteria.

Samples collected from Trench 1 contained total VOC concentrations ranging from 5 µg/kg to 102 µg/kg with the specific compounds detected including acetone, methylene chloride, benzene, tetrachloroethene, and naphthalene (Table 1). VOC compounds were below the recommended soil cleanup objectives. The recommended cleanup limits for organic compounds are primarily focused on protection of drinking water and specific compounds such as acetone and methylene chloride are believed to be associated with low level laboratory contamination. For SVOCs, the total concentration of the detected compounds was 3.683 mg/kg, below the recommended soil cleanup criteria of 50 mg/kg. However, benzo(a)pyrene and dibenzo(a,h)anthracene were detected in concentrations exceeding the recommended soil cleanup objectives. No pesticides or PCBs were detected. Arsenic, beryllium, chromium, copper, iron, mercury, nickel, selenium, and zinc were detected in concentrations exceeding the recommended soil cleanup criteria. No background concentrations have been used in this comparison.

At Trench 2, the total VOC concentrations ranged from 88 µg/kg to 366 µg/kg, below the recommended soil cleanup objective (Table 2). The total SVOC concentration was also below the soil cleanup objectives. However, seven individual SVOCs, including benzo(a,h)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene were detected above their respective recommended soil cleanup objective. No pesticides or PCBs were reported at concentrations exceeding the detection levels. Arsenic, beryllium, cadmium, chromium, copper, iron, mercury, nickel, selenium, and zinc were detected in concentrations exceeding the recommended soil cleanup criteria.

TABLE 1 (Page 1 of 4)

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Trench #1

LMS Sample ID		CT1S375-7		CT1S416-7		CT1S964-8		RECOMMENDED
Sampling Date		9/15/99		9/15/99		9/15/99		SOIL CLEANUP
Matrix		SOIL		SOIL		SOIL		OBJECTIVE (a)
Units		mg/kg		mg/kg		mg/kg		
VOLATILE ORGANIC COMPOUNDS (mg/kg)								
Acetone		0.004	j	0.025		0.004	j	0.2
Methylene Chloride		0.005	j	0.017		0.001	j	0.1
Benzene		<0.006		0.002	j	<0.006		0.06
Tetrachloroethene		0.003	j	0.054		<0.006		1.4
Naphthalene		<0.006		0.004	j	<0.006		13
	Totals:	0.012		0.102		0.005		

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limit.
< - Not detected at the indicated analytical detection limit.
Note - Numbers in bold exceed cleanup objective.
Only those compounds that were detected are included in this table.

TABLE 1 (Page 2 of 4)

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Trench #1

LMS Sample ID		CT1SCOMP		RECOMMENDED
Sampling Date		9/15/99		SOIL CLEANUP
Matrix		SOIL		OBJECTIVE (a)
Units		mg/kg		
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)				
Naphthalene		0.039	j	13
Acenaphthylene		0.062	j	41
Acenaphthene		0.044	j	50***
Dibenzofuran		0.041	j	6.2
Flourene		0.087	j	50***
Phenanthrene		0.5		50***
Anthracene		0.11	j	50***
Carbazole		0.12	j	N/A
Flouranthene		0.62		50***
Pyrene		0.47		50***
Benzo (a) anthracene		0.22	j	0.224 or MDL
Chrysene		0.25	j	0.4
Benzo (b) flouranthene		0.29	j	1.1
Benzo (k) flouranthene		0.17	j	1.1
Benzo (a) pyrene		**0.27**	j	0.061 or MDL
Indeno (1,2,3-cd) pyrene		0.16	j	3.2
Dibenzo (a,h) anthracene		**0.05**	j	0.014 or MDL
Benzo (g,h,i) perylene		0.18	j	50***
	Totals:	3.683		
		141		

Only those compounds that were detected are included on the table.

*** - As per TAGM #4046, total VOCs < 10 ppm, total SVOCs < 500 ppm, and individual SVOCs < 50 ppm.

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.

j - Estimated concentration; compound present below quantitation limit.

MDL - Method detection limit.

N/A - Not applicable.

ND - Not detected at analytical detection limit.

Note: Numbers in bold exceed cleanup objective.

TABLE 1 (Page 3 of 4)

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Trench #1

LMS Sample ID Sampling Date Matrix Units	CT1SCOMP 9/15/99 SOIL mg/kg	RECOMMENDED SOIL CLEANUP OBJECTIVE (a)
PESTICIDES/PCBs (mg/kg)		
	ND	N/A

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
ND - Not detected at analytical detection limit.
N/A - Not available.
Note - Numbers in bold exceed cleanup objective.
Only those compounds that were detected are included on the table.

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Trench #1

LMS Sample ID Sampling Date Matrix Units	CT1SCOMP 9/15/99 SOIL mg/kg	RECOMMENDED SOIL CLEANUP OBJECTIVE (a)
METALS(mg/kg)		
Aluminum	5260	SB
Antimony	<0.15 N	SB
Arsenic	**9.4**	7.5 or SB
Barium	80.1	300 or SB
Beryllium	**0.42**	0.16 or SB
Cadmium	0.7	1 or SB
Calcium	1660	SB
Chromium	**11.3**	10 or SB
Cobalt	5.2	30 or SB
Copper	**28**	25 or SB
Iron	**11500**	2000 or SB
Lead	64.7	SB****
Magnesium	1860	SB
Manganese	88.9 R	SB
Mercury	**0.18**	0.1
Nickel	**19.6**	13 or SB
Potassium	847	SB
Selenium	**:8**	2 or SB
Silver	1.3 B	SB
Sodium	<11	SB
Thallium	<0.22	SB
Vanadium	14	150 or SB
Zinc	**65.3**	20 or SB
Cyanide	0.3 B	***

*** - Site specific forms of Cyanide should be taken into consideration when establishing soil cleanup objective.

**** - Background levels for lead range from 4 - 61 ppm in undeveloped, rural areas to 200 - 500 ppm in metropolitan or suburban areas or near highways.

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.

B - Value is less than the contract-required detection limit but greater than the instrument detection limit.
ND - Not detected at analytical detection limit.
N/A - Not available.
R - Duplicate analysis not within control limits.
SB - Site background.
Note: - Numbers in bold exceed cleanup objective.

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Trench #2

LMS Sample ID	CT2S357-5		CT2S14-7.5		CT2S50-7		RECOMMENDED
Sampling Date	9/17/99		9/17/99		9/17/99		SOIL CLEANUP
Matrix	SOIL		SOIL		SOIL		OBJECTIVE (a)
Units	mg/kg		mg/kg		mg/kg		
VOLATILE ORGANIC COMPOUNDS (mg/kg)							
Trichloroflouromethane	0.001	j	<0.008		0.003	j	N/A
Acetone	0.004	j	0.1		0.091		0.2
Carbon Disulfide	<0.006		0.005	j	0.002	j	2.7
Methylene Chloride	0.023		0.006	j	0.048		0.1
Methyl tert-butyl ether	<0.006		0.14		<0.006		N/A
cis-1,2-Dichloroethene	<0.006		<0.008		0.002	j	*
2-Butanone	<0.006		0.037		0.017		0.3
Benzene	0.003	j	<0.008		0.008		0.06
Trichloroethene	<0.006		<0.008		0.001	j	0.7
Toluene	0.001	j	<0.008		0.002	j	1.5
Tetrachloroethene	0.054		0.016		0.18		1.4
Ethylbenzene	<0.006		<0.008		0.002	j	5.5
Xylene (Total)	<0.006		<0.008		0.002	j	1.2
Naphthalene	0.002	j	<0.008		0.008		13
1,2,3-Trichlorobenzene	<0.006		<0.008		<0.006		N/A
Totals:	0.088		0.304		0.366		

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
b - Detected in associated blanks.
d - Concentration recovered from diluted sample.
j - Estimated concentration; compound present below quantitation limit.
N/A - Not applicable.
ND - Not detected at analytical detection limit.
Note - Numbers in bold exceed cleanup objective.
Only those compounds that were detected are included on this table.

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Trench #2 √

LMS Sample ID Sampling Date Matrix Units	CT2SCOMP 9/17/99 SOIL mg/kg		CT2SCOMPDL 9/17/99 SOIL mg/kg		RECOMMENDED SOIL CLEANUP OBJECTIVE (a)
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)			[DL:5:1]		
4-Methylphenol	0.23	j	0.22	d j	0.9
Naphthalene	0.72	.	0.81	d j	13
2-Methylnaphthalene	0.3	j	0.33	d j	36.4
Acenaphthylene	2.3		3	d	41
Dibenzofuran	0.27	j	0.32	d j	6.2
Flourene	0.34		0.43	d j	50***
Phenanthrene	1.6		2	d	50***
Anthracene	1.2		1.3	d j	50***
Carbazole	0.42		0.45	d j	N/A
Flouranthene	7.6	e	14	d	50***
Pyrene	9.3	e	12	d	50***
√ Benzo (a) anthracene	**7.9**	**e**	**8.1**	**d**	0.224 or MDL
√ Chrysene	**4.4**		**6.8**	**d**	0.4
bis (2-Ethylhexyl) phthalate	0.055	j	<1.7		50
√ Benzo (b) flouranthene	**11**	**e**	**11**	**d**	1.1
√ Benzo (k) flouranthene	**3.4**		**7.1**	**d**	1.1
√ Benzo (a) pyrene	**14**	**e**	**11**	**d**	0.061 or MDL
√ Indeno (1,2,3-cd) pyrene	**4.6**		**7.3**	**d**	3.2
√ Dibenzo (a,h) anthracene	**1.2**		**1.7**	**d**	0.014 or MDL
Benzo (g,h,i) perylene	4.5		7.8	d	50***
Totals:	75.34		95.66		

46.5 > 1-10 ppm

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
e - Concentration of this compound exceeds the calibration range of the instrument for this analysis.
d - Concentration recovered from diluted sample.
DL - Dilution factor.
j - Estimated concentration; compound present below quantitation limit.
MDL - Method detection limit.
< - Not detected at analytical detection limit.
Only those compounds that were detected are included on this table.
Note - Numbers in bold exceed cleanup objective.

carcin
cPAH > 1- 10 ppm

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Trench #2

LMS Sample ID Sampling Date Matrix Units	CT2SCOMP 9/17/99 SOIL mg/kg	RECOMMENDED SOIL CLEANUP OBJECTIVE (a)
PESTICIDES/PCBs (mg/kg)	ND	N/A

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
ND - Not detected at analytical detection limit.
N/A - Not available.

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Trench #2

LMS Sample ID		CT2SCOMP	RECOMMENDED SOIL CLEANUP OBJECTIVE (ppm)(a)
Sampling Date		9/17/99	
Matrix		SOIL	
Units		mg/kg	
METALS(mg/kg)			
Aluminum		4600	SB
Antimony		0.77 B N	SB
Arsenic		**31.7**	7.5 or SB
Barium		253	300 or SB
Beryllium		**0.38 B**	0.16 or SB
Cadmium		**2.3**	1 or SB
Calcium		22000	SB
Chromium		**18.5**	10 or SB
Cobalt		7.4	30 or SB
Copper	I	**155**	25 or SB
Iron		**20800**	2000 or SB
Lead		657	SB****
Magnesium		2140	SB
Manganese		280 R	SB
Mercury	I	**.2**	0.1
Nickel		**27.6**	13 or SB
Potassium		1050	SB
Selenium	I	**16**	2 or SB
Silver		3.2 B	SB
Sodium		352	SB
Thallium		<0.34	SB
Vanadium		18.7	150 or SB
Zinc	I	**518**	20 or SB
Cyanide		N/A	***

*** - Site specific forms of Cyanide should be taken into consideration when establishing soil cleanup objective.
**** - Background levels for lead range from 4 - 61 ppm in undeveloped, rural areas to 200 - 500 ppm in metropolitan or suburban areas or near highways.
(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
B - Value is less than the contract-required detection limit but greater than the instrument detection limit
N - Spiked sample recovery is not within control limits.
ND - Not detected at analytical detection limit.
N/A - Not available.
R - Duplicate analysis not within control limits.
SB - Site background.
Note - Numbers in bold exceed cleanup objective.

SOIL SUMMARY
EDC Hunts Point
Site C
Trench #3

LMS Sample ID	CT3SA		CT3SADL		CT3SB		CT3SBRE		CT3SC		RECOMMENDED
Sampling Date	9/17/99		9/17/99		9/20/99		9/20/99		9/20/99		SOIL CLEANUP
Matrix	SOIL		SOIL		SOIL		SOIL		SOIL		OBJECTIVE (a)
Units	mg/kg		mg/kg		mg/kg		mg/kg		mg/kg		
Volatile Organic Compounds (mg/kg)			[DL:2:1]								
Trichloroflouromethane	0.023		0.011	d j	<0.007		<0.007		<0.006		N/A
Acetone	0.021		0.012	d j	0.014	b	0.012	b	0.017	b	0.2
Carbon Disulfide	<0.006		<0.014		<0.007		<0.007		0.002	j	2.7
Methylene Chloride	0.052		0.034	d	**0.14**		0.068		0.01		0.1
cis-1,2-Dichloroethylene	0.002	j	<0.014		<0.007		<0.007		<0.006		0.3
Benzene	0.009		0.005	d j	<0.007		<0.007		<0.006		0.06
Toluene	0.003	j	<0.014		0.004	j	0.002	j	<0.006		1.5
Tetrachloroethene	0.24	e	0.11	d	<0.007		<0.007		<0.006		1.4
Ethylbenzene	0.004	j	<0.014		<0.007		<0.007		<0.006		5.5
Xylene (Total)	0.006		<0.014		<0.007		<0.007		<0.006		1.2
4-Isopropyltoluene	<0.006		<0.014		0.002	j	<0.007		<0.006		
1,2,4-Trichlorobenzene	0.004	j	<0.014		<0.007		<0.007		<0.006		3.4
Naphthalene	<0.006		<0.014		0.01	b	0.061		0.012		13
1,2,3-Trichlorobenzene	0.005	j	<0.014		<0.007		<0.007		<0.006		N/A
Totals:	0.369		0.172		0.17		0.143		0.041		

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
b - Detected in associated blanks.
d - Concentration recovered from diluted sample.
j - Estimated concentration; compound present below quantitation limit.
e - Concentration of this compound exceeds the calibration range of the instrument for this analysis.
N/A - Not applicable.
< - Not detected at analytical detection limit.
Note - Concentrations in bold exceed cleanup objective.
Only those compounds that were detected are included on the table.

SOIL SUMMARY
EDC Hunts Point
Site C
Trench #3

LMS Sample ID	CTSSCOMP		RECOMMENDED
Sampling Date	9/20/99		SOIL CLEANUP
Matrix	SOIL		OBJECTIVE (a)
Units	mg/kg		
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)			
Naphthalene	1.9		
Napthalene	1.9		13
2-Methylnaphthalene	1.4		36.4
Acenaphthylene	0.83		41
Acenaphthene	0.16	j	50***
Dibenzofuran	0.5		6.2
Flourene	0.32	j	50***
Phenanthrene	3.6		50***
Anthracene	0.94		50***
Carbazole	0.42	j	N/A
Flouranthene	2.6		50***
Pyrene	3.3		50***
Benzo (a) anthracene	**2.3**		0.224 or MDL
Chrysene	**2.4**		0.4
Benzo (b) flouranthene	**2.5**		1.1
Benzo (k) flouranthene	**1.5**		1.1
Benzo (a) pyrene	**2.3**		0.061 or MDL
Indeno (1,2,3-cd) pyrene	1.2		3.2
Dibenzo (a,h) anthracene	**0.5**		0.014 or MDL
Benzo (g,h,i) perylene	1.3		50***
Totals:	29.97		
	12.07		

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limit.
MDL - Method Detection Limit.
ND - Not detected at analytical detection limit.
Note: Numbers in bold exceed cleanup objective.
*** - As per TAGM #4046, Total VOCs < 10 ppm, Total SVOCs < 500 ppm, and individual SVOCS < 50 ppm.
Only those compounds that were detected are included on the table.

SOIL SUMMARY
EDC Hunts Point
Site C
Trench #3

LMS Sample ID	CT3SCOMP		RECOMMENDED
Sampling Date	9/20/99		CLEANUP
Matrix	SOIL		OBJECTIVE (a)
Units	mg/kg		
PESTICIDES/PCBs (mg/kg)			
Heptachlor	0.012		0.1
Aldrin	0.004		0.041
Endosulfan I	0.0042	p	0.9
Endrin	0.0069	p	0.1
Ensosulfan II	0.011	p	0.9
4,4'-DDD	0.0066	p	2.9
Endosulfan sulfate	<0.0042		1
4,4'-DDT	0.0077		2.1
Methoxychlor	0.025	p	***
Endrin ketone	0.016	p	N/A
Aroclor-1260	0.044	p	N/A

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limit.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columns.
e - Estimated concentration; exceeds GC/MS calibration range.
< - Not detected at analytical detection limit.
Only those compounds that were detected are included on the table.
N/A - Not available.
*** - As per TAGM #4046, Total Pesticides < 10 ppm.

SOIL SUMMARY
EDC Hunts Point
Site C
Trench #3

LMS Sample ID	CT3SCOMP		RECOMMENDED
Sampling Date	9/20/99		CLEANUP
Matrix	SOIL		OBJECTIVE (a)
Units	mg/kg		
TAL METALS (mg/kg)			
Aluminum	2910	33,000	SB
Antimony	1.4	B	SB
Arsenic	**14.6**	3-12	7.5 or SB
Barium	141		300 or SB
Beryllium	**0.41**	0-1.75 B	0.16 or SB
Cadmium	**1.6**	0.1-1	1 or SB
Calcium	1520	130-35,000	SB
Chromium	**12.2**	1.5-40	10 or SB
Cobalt	4.8	B	30 or SB
Copper	**48.1**	1-50	25 or SB
Iron	**15600**	2,000-55,000	2000 or SB
Lead	205	200-500	SB****
Magnesium	763	100-5,000	SB
Manganese	73.3	50-5,000	SB
Mercury	**0.65**	0.01-0.2	0.1
Nickel ✓	**14.5**	0.5-25	13 or SB
Potassium	552	8,500-	SB
Selenium ✓	**14.2**	0.1-3.9	2 or SB
Silver	2.4	B	SB
Sodium	<17.7	6,000-	SB
Thallium	<0.35		SB
Vanadium	24.5	1-300	150 or SB
Zinc	**96.2**	9-50	20 or SB
Cyanide	3.2		***

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
B - Value is less than the contract-required limit but greater than the instrument detection limit.
ND - Not detected at analytical detection limit.
N/A - Not available.
SB - Site background.
*** - Some forms of Cyanide are complex and very stable while other forms are pH dependent and unstable.
**** - Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm, while metropolitan or suburban areas range from 200-500 ppm.
Note - Numbers in bold exceed cleanup objective.

SOIL DATA SUMMARY
EDC HUNTS POINT
Site C
Trench #4

VOLATILE ORGANIC COMPOUNDS (mg/kg)								
Chloromethane	<0.006		<0.005		<0.006		0.002	j
Trichlorofluoromethane	ND		<0.005		0.002	j	0.004	j
Acetone	0.069	b	0.004	j b	0.007	b	0.022	b
Carbon Disulfide	0.001	j	<0.005		<0.006		<0.005	
Methylene Chloride	0.011		0.002	j	0.02		0.037	
Toluene	<0.006		<0.005		0.001	j	0.002	j
Xylene (Total)	<0.006		<0.005		0.002	j	0.002	j
Naphthalene	0.002	j b	0.007		0.007		0.069	
Totals:	0.083		0.013		0.039		0.138	

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
b - Detected in associated blanks
d - Concentration recovered from diluted sample
j - Estimated concentration; compound present below quantitation limit
N/A - Not applicable.
< - Not detected at analytical detection limit

Only those compounds that were detected are included on the table.

SOIL DATA SUMMARY
EDC HUNTS POINT
Site C
Trench #4

LMS Sample ID:			RECOMMENDED SOIL CLEANUP OBJECTIVES
Sampling Date:			
Matrix:			
Depth:			
SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)			
Napthalene		0.43	
2-Methylnaphthalene		0.71	
Acenaphthylene		0.043	j
Dibenzofuran		0.24	j
Flourene		0.062	j
Phenanthrene		0.88	
Anthracene		0.13	j
Carbazole		0.09	j
Flouranthene		0.96	
Pyrene		1	
Benzo (a) anthracene		**0.55**	
Chrysene		**0.49**	
bis (2-Ethylhexyl) phthalate		0.058	j
Benzo (b) flouranthene		0.58	
Benzo (k) flouranthene		0.21	j
Benzo (a) pyrene		**0.46**	
Indeno (1,2,3-cd) pyrene		0.18	j
Benzo (g,h,i) perylene		0.21	j
	Totals:	7.283	

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limit.
MDL - Method Detection Limit.
ND - Not detected at analytical detection limit.
Note: Numbers in bold exceed cleanup objective.
*** - As per TAGM #4046, Total VOCs < 10 ppm, Total SVOCs < 500 ppm, and individual SVOCS < 50 ppm.
Only those compounds that were detected are included on the table.

SOIL DATA SUMMARY
EDC HUNTS POINT
Site C
Trench #4

LMS Sample ID Sampling Date Matrix Units	[illegible] [illegible] Soil ppm		RECOMMENDED CLEANUP OBJECTIVE (a)
Heptachlor	0.0053		[illegible]
Endrin	0.0068	p	[illegible]
Ensosulfan II	0.004	p	[illegible]
Endosulfan sulfate	0.0059	p	[illegible]
Methoxychlor	0.0076	j p	[illegible]

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limit.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columns.
e - Estimated concentration; exceeds GC/MS calibration range.
ND - Not detected at analytical detection limit.
N/A - Not available.
Only those compounds that were detected are included on the table.
*** - As per TAGM #4046, Total Pesticides < 10 ppm.

SOIL DATA SUMMARY
EDC HUNTS POINT
Site C
Trench #4

LMS Sample ID	C-4SCOMP
Sampling Date	7/20/99
Matrix	SOIL
Units	mg/kg

			RECOMMENDED CLEANUP OBJECTIVE (a)
TAL METALS (mg/kg)			
Aluminum	7490		SB
Antimony	<0.20		SB
Arsenic	**8.9**		7.5 or SB
Barium	96.2		300 or SB
Beryllium	**0.58**		0.16 or SB
Cadmium	**1.6**		1 or SB
Calcium	2350		SB
Chromium	**14.7**		10 or SB
Cobalt	7.5		30 or SB
Copper	**47.8**		25 or SB
Iron	**15100**		2000 or SB
Lead	99.9		SB****
Magnesium	2700		SB
Manganese	143		SB
Mercury	**0.13**	B	0.1
Nickel	**20.6**		13 or SB
Potassium	1600		SB
Selenium	**10**		2 or SB
Silver	1.7	B	SB
Sodium	<15.2		SB
Thallium	<0.30		SB
Vanadium	21.4		150 or SB
Zinc	**84.8**		20 or SB
Cyanide	0.7	B	40***

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
B - Value is less than the contract-required limit but greater than the instrument detection limit.
ND - Not detected at analytical detection limit.
N/A - Not available.
SB - Site background.
*** - Some forms of Cyanide are complex and very stable while other forms are pH dependent and unstable.
**** - Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm, while metropolitan or suburban areas range from 200-500 ppm.
Note - Numbers in bold exceed cleanup objective.

Table 5 (Page 1 of 4)

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Test Pits

VOLATILE ORGANIC COMPOUNDS (mg/kg)									
Acetone	0.006	b	0.017	b	0.015	b	0.037	b	0.2
Methylene Chloride	0.005	j	0.015		0.077		**0.2**		0.1
Benzene	<0.006		<0.006		<0.006		0.001	j	0.06
Toluene	<0.006		0.001	j	0.002	j	0.004	j	1.5
Tetrachloroethene	<0.006		<0.006		0.001	j	0.003	j	1.4
Xylene (Total)	<0.006		<0.006		0.001	j	0.002	j	1.2
Ethylbenzene	<0.006		<0.006		<0.006		0.002	j	5.5
1,2,4-Trimethylbenzene	<0.006		<0.006		<0.006		0.002	j	N/A
Naphthalene	<0.006		<0.006		<0.006		0.005	j	13
Totals:	0.011		0.033		0.096		0.256		

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
b - Detected in associated blanks.
j - Estimated concentration; compound present below quantitation limit.
N/A - Not applicable.
ND - Not detected at analytical detection limit.
Note - Concentrations in bold exceed recommended cleanup objective
Only those compounds that were detected are included on the table.

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Test Pits

SEMIVOLATILE ORGANIC COMPOUNDS (mg/kg)			
Napthalene	0.1	j	
2-Methylnaphthalene	0.064	j	
Acenaphthylene	0.059	j	
Dibenzofuran	0.047	j	
Phenanthrene	0.65		
Anthracene	0.15	j	
Carbazole	0.1	j	
Flouranthene	1.5		
Pyrene	3.1		
Benzo (a) anthracene	**0.93**		
Chrysene	**0.93**		
bis (2-Ethylhexyl) phthalate	0.14	j	
Benzo (b) flouranthene	**1.9**		
Benzo (k) flouranthene	0.63		
Benzo (a) pyrene	**1.4**		
Indeno (1,2,3-cd) pyrene	1.3		
Dibenzo (a,h) anthracene	**0.28**	j	
Benzo (g,h,i) perylene	2.6		
Totals:	15.88		

Only those compounds that were detected are included on the table. 7.37

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limit.
MDL - Method Detection Limit.
ND - Not detected at analytical detection limit.
Note: Numbers in bold exceed cleanup objective.
*** - As per TAGM #4046, Total VOCs < 10 ppm, Total SVOCs < 500 ppm, and individual SVOCS < 50 ppm.

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Test Pits

PESTICIDES/PCBs (mg/kg)	ND	

Only those compounds that were detected are included on the table.

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
j - Estimated concentration; compound present below quantitation limit.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columns.
e - Estimated concentration; exceeds GC/MS calibration range.
ND - Not detected at analytical detection limit.
N/A - Not available.
*** - As per TAGM #4046, Total Pesticides < 10 ppm.

SOIL ANALYTICAL DATA SUMMARY
EDC Hunts Point
Site C
Test Pits

LMS Sample ID	[illegible]		RECOMMENDED
Sampling Date	[illegible]		CLEANUP
Matrix	SOIL		OBJECTIVE (a)
Units	mg/kg		
TAL METALS (mg/kg)			
Aluminum	5890	33,000	SB
Antimony	6.8		SB
Arsenic	**23.9**	3-12	7.5 or SB
Barium	145		300 or SB
Beryllium	**0.55**	0-1.75	0.16 or SB
Cadmium	**7.3**		1 or SB
Calcium	2060	130-35,000	SB
Chromium	**22.7**	15-40	10 or SB
Cobalt	16.3		30 or SB
Copper	**245**	1-50	25 or SB
Iron	**65000**	2,000-550,000	2000 or SB
Lead	252	200-500	SB****
Magnesium	1910	100-5,000	SB
Manganese	457	50-5000	SB
Mercury	**0.37**		0.1
Nickel	**45.7**		13 or SB
Potassium	1620	8,000-	SB
Selenium	**52.9**	3-9	2 or SB
Silver	8.6		SB
Sodium	<15.7	6,000	SB
Thallium	<0.31		SB
Vanadium	30.9		150 or SB
Zinc	**352**	9-80	20 or SB
Cyanide	3.7		***

(a) - NYSDEC Technical Administrative Guidance Memorandum, January 1994.
B - Value is less than the contract-required limit but greater than the instrument detection limit.
ND - Not detected at analytical detection limit.
N/A - Not available.
SB - Site background.
*** - Some forms of Cyanide are complex and very stable while other forms are pH dependent and unstable.
**** - Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm, while metropolitan or suburban areas range from 200-500 ppm.
Note - Numbers in bold exceed cleanup objective.

The total VOC concentrations detected at Trench 3 ranged from 41 µg/kg to 369 µg/kg (Table 3). The total VOC concentrations were below the recommended soil cleanup objectives. However, methylene chloride was detected at a concentration exceeding the compound specific soil cleanup objective. Methylene chloride is a common laboratory artifact. The total SVOC concentration was 29.97 mg/kg, below the soil cleanup objectives. Six individual SVOCs were detected above the recommended soil cleanup objectives: benzo(a,h)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and dibenzo(a,h)anthracene. Nine pesticides and one PCB were detected although the concentrations were below the soil cleanup objectives. Arsenic, beryllium, cadmium, chromium, copper, iron, mercury, nickel, selenium, and zinc were detected in concentrations exceeding the recommended soil cleanup criteria.

At Trench 4, the total VOC concentrations ranged from 13 µg/kg to 138 µg/kg, below the soil cleanup objectives (Table 4). The total SVOC concentration was 7.283 mg/kg, below the soil cleanup objectives. Three individual SVOCs, benzo(a)anthracene, chrysene, and benzo(a)pyrene were detected in concentrations exceeding their respective soil cleanup objectives. Five pesticides were detected, but at concentrations below the soil cleanup objectives. No PCBs were reported above the detection limits. Arsenic, beryllium, cadmium, chromium, copper, iron, mercury, nickel, selenium, and zinc were detected in concentrations exceeding the recommended soil cleanup criteria.

The total VOC concentrations detected in the samples collected from the test pits ranged from 11 µg/kg to 256 µg/kg, below the soil cleanup objectives (Table 5). However, the methylene chloride concentration detected in one sample exceeded the soil cleanup objectives, again this is believed to be attributed to laboratory contamination. The total SVOC concentration was 15.88 mg/kg, below the soil cleanup objectives. However, five individual SVOCs exceeded their respective soil cleanup objectives. These SVOCs included benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and dibenzo(a,h)anthracene. No pesticides or PCBs were reported above the detection limits. Arsenic, beryllium, cadmium, chromium, copper, iron, mercury, nickel, selenium, and zinc were detected in concentrations exceeding the recommended soil cleanup criteria.

Groundwater Samples

Two groundwater samples were collected from Site C. These samples were collected from Trench 3, near a creosote-impacted area, and test pit TP-5, installed adjacent to the creosote-impacted area. (Figure 3). These samples were submitted for TCL VOCs, SVOCs, pesticides/PCBs, filtered TAL Metals and cyanide analyses. Table 6 presents a summary of these analytical results.

The groundwater sample collected from Trench 3 (CT3GW) was reported as not containing any reportable volatile organics. However, the total SVOC concentration was 249 µg/l, and included seven individual SVOCs that exceeded their respective

NYSDEC Class GA drinking water standard or guidance values. These VOCs included phenol, naphthalene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, and indeno(1,2,3-cd)pyrene. No pesticides or PCBs were reported at concentrations above the detection limits. The only metal that was detected at a concentration that exceeded the Class GA guidance value was thallium.

No VOCs in the sample that was collected from Test Pit TP-5 were reported above the detection limits. Only four SVOCs were detected in this sample with the total concentration being 4 μg/l. No individual SVOCs exceeded the Class GA standards or guidance values. No pesticides or PCBs were reported above the detection limits. Only three metals, manganese, sodium, and thallium exceeded the Class GA standards or guidance values. The sodium concentration may be the result of the sample location's close proximity to the bulkhead and the saline waters of the East River.

Table 6 (Page 1 of 4)

GROUNDWATER ANALYTICAL DATA SUMMARY
EDC HUNTS POINT
Site C

VOLATILE ORGANIC COMPOUNDS (ug/L)						
Methylene Chloride		<5	<5	5		<5
1,2,4-Trichlorobenzene		<5	<5	1	j b	<5
Hexachlorobutadiene		<5	<5	1	j b	<5
Naphthalene		<5	<5	2	j b	<5
1,2,3-Trichlorobenzene		<5	<5	2	j	<5
	Totals:	ND	ND	11		ND

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.
b - Detected in associated blanks.
GV - Guidance Value.
j - Estimated concentration; compound present below quantitation limit.
ND - Not detected.
< - Less than the analytical detection limit
Note - Numbers in bold exceed cleanup standard.
Only those compounds that were detected are included on the table.

Table 6 (Page 2 of 4)

GROUNDWATER ANALYTICAL DATA SUMMARY
EDC HUNTS POINT
Site C

LMS Sample ID:	[illegible]		[illegible]		[illegible]	STANDARD (b)
Sampling Date:	[illegible]		[illegible]		[illegible]	
Matrix:	WATER		WATER		WATER	
Units:	ug/L		ug/L		ug/L	
SEMIVOLATILE ORGANIC COMPOUNDS (ug/L)						
Phenol	**7**	j	<10		<10	[illegible]
2-Methylphenol	2	j	<10		<10	[illegible]
4-Methylphenol	8	j	<10		<10	[illegible]
2,4-Dimethylphenol	4	j	<10		<10	[illegible]
Naphthalene	**76**		<10		<10	[illegible]
2-Methylnaphthalene	22		<10		<10	[illegible]
Acenaphthylene	8	j	<10		<10	[illegible]
Acenaphthene	1	j	<10		<10	[illegible]
Dibenzofuran	8	j	<10		<10	[illegible]
Fluorene	5	j	<10		<10	[illegible]
Phenanthrene	25		<10		<10	[illegible]
Anthracene	6	j	<10		<10	[illegible]
Carbazole	12		<10		<10	[illegible]
Fluoranthene	15		1	j	<10	[illegible]
Pyrene	10		1	j	<10	[illegible]
Butylbenzylphthalate	<10		1	j	<10	[illegible]
Benzo(a)anthracene	**6**	j	<10		<10	[illegible]
Chrysene	**7**	j	<10		<10	[illegible]
bis(2-Ethylhexyl)phthalate	<10		1	j	<10	[illegible]
Benzo(b)fluoranthene	**7**	j	<10		<10	[illegible]
Benzo(k)fluoranthene	**5**	j	<10		<10	[illegible]
Benzo(a)pyrene	6	j	<10		<10	[illegible]
Indeno (1,2,3-cd) pyrene	**4**	j	<10		<10	[illegible]
Dibenzo(a,h)anthracene	1	j	<10		<10	[illegible]
Benzo(g,h,i)perylene	4	j	<10		<10	[illegible]
Totals:	249		4		ND	

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.
b - Detected in associated blanks.
d - Concentration recovered from diluted sample.
GV - Guidance value.
j - Estimated concentration; compound present below quantitation limit.
N/A - Not applicable.
ND* - A non-detectable concentration by the approved analytical methods.
ND - Not detected at analytical detection limit.
Note Numbers in bold exceed cleanup standard.

Only those compounds that were detected are included on the table.

GROUNDWATER ANALYTICAL DATA SUMMARY
EDC HUNTS POINT
Site C

LMS Sample ID			TPGW	FB092099	NYSDEC
Sampling Date			9/20/99	9/20/99	STANDARDS (b)
Matrix			WATER	WATER	
Units			ug/L	ug/L	
PESTICIDES/PCBs (ug/L)					
	ND		ND	ND	N/A

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.

ND - Not detected at analytical detection limit.

N/A - Not available.

Only those compounds that were detected are included on the table.

GROUNDWATER ANALYTICAL DATA SUMMARY
EDC HUNTS POINT
Site C

LMS Sample ID:							
Sample ID:							
Matrix:	WATER		WATER		WATER		
Units:	ug/L		ug/L		ug/L		
TAL METALS (ug/L)							
Aluminum	60.5	B	175		ND		
Antimony	<2.0		<2.0		<2.0		
Arsenic	<3.0		<3.0		<3.0		
Barium	149	B	245	E	3.6	B E	
Beryllium	<2.0		<2.0		<2.0		
Cadmium	<2.0		<2.0		<2.0		
Calcium	58900		123000		259	B	
Chromium	<2.0		<2.0		<2.0		
Cobalt	<140		<140		<140		
Copper	5.8	B	7.8	B	5.2	B	
Iron	199	B	129	B	<23		
Lead	15.1		11		16.7		
Magnesium	15000		24200		<19		
Manganese	71.2		334		<3.0		
Mercury	<0.14		<0.14		<0.14		
Nickel	4.6	B	11.5	B	<1.0		
Potassium	6240		3210		<126		
Selenium	10	B	4.2	B	<4.0		
Silver	<3.0		<3.0		<3.0		
Sodium	11100		3310000		359	B	
Thallium	9.5	B	20.9		6.4	B	
Vanadium	2.3	B	6.7	B	<2.0		
Zinc	70		58.3		4.8	B	
Cyanide	350		39.9		<1.0		

(b) - Division of Water Technical and Operational Guidance Series (1.1.1) June 1998.

B - Value is less than the contract-required detection limit but greater than the instrument detection limit.

E - Value estimated due to interference.

GV - Guidance value.

N/ - Not available.

ND - Not detected at analytical detection limit.

ot - Numbers in bold exceed standard.

Conclusions and Recommendations

LMS has reviewed the available information for Site C and following the completion of the trenching activities at the site, we have prepared the following summary of the investigation and concluded the following:

- The trenching investigation included observation of subsurface conditions over approximately 2,000 feet across the site. During the trenching activities, samples were collected for analysis from those areas that were observed to have the greatest impacts from historic site activities. The site conditions that were encountered indicate there are 3 or 4 small areas (1-4 feet in diameter) where residual coal tar was observed. The coal tar was generally observed at the surface but occasionally encountered at 3 to 4 feet below ground surface. No free phase oil was observed in any of the trenches, but light sheens were occasionally observed. A layer of residual coal was observed over most of the site, ranging from 1 to 4 feet thick. Other materials encountered were considered fill and were composed of sand and gravel, concrete, brick, asphalt, and glass/ceramics.

- During the trenching activities, some underground and abandoned or potentially existing pipes/utilities were encountered, mainly in the southern portion of the site. These appeared to have originated off site and dead end at the bulkhead. It is not known what service these lines provided. No maps were provided by Con Ed to indicate historic underground utilities or service lines.

- Based on the analytical data for the site, there appears to be relatively little impact of the historic activities at the site. One VOC (methylene chloride) was detected in concentrations exceeding the TAGM in two samples. However, this compound is a common laboratory artifact and LMS believes its presence is not attributed to the site. SVOCs were more prevalent over the site, but the relative low concentrations detected were consistent with very weathered and degraded coal tar waste. No pesticides or PCBs were detected at levels exceeding the TAGM. The metal concentrations that were detected were consistent with concentrations typically detected in urban fill.

- No light or dense non-aqueous phase layers were observed during the field activities. However, a small seep was observed in the East River, approximately 30 feet off the bulkhead at Site C. The results of a groundwater sample (CTPGW) collected near this location showed no VOCs and very low concentrations of SVOCs (4 µg/l). Although the groundwater sample collected from Trench 3, near the creosote-soaked wood, shows some SVOC impacts, the concentrations do not suggest a widespread concern. The VOC data for the Trench 3 groundwater samples were also below detection limits. No pesticides or PCBs were detected in either groundwater sample. The metal concentrations detected in both samples are indicative of saline groundwater. Groundwater fluctuations were not measured during the field activities, as the storm event

(hurricane) that occurred during the investigation caused large fluctuations in groundwater that were not believed to represent typical groundwater conditions. Tidal influences were evident, especially near the eastern portion of the site.

- The proposed Site usage includes construction of an asphalt parking lot and a warehouse facility. This construction would not necessarily require significant excavation or removal of material off site, and subsurface disturbances would be limited to drainage and utility installation. Upon review of the data and considering the proposed site usage, LMS has concluded the following issues:

- Essentially no volatile organics were detected. Therefore, migration and exposure to VOCs are not a concern at Site C. This would include both during and after construction.

- Based on the concentrations of SVOCs detected, these compounds do not pose an inhalation threat. After being capped with additional materials and other petroleum products in the form of an asphalt parking lot, the SVOCs will be encapsulated. Using minor precautions during excavation, the levels of SVOCs should not pose an exposure problem.

- Metals detected in the fill material, including cyanide, also do not pose an exposure concern after additional grading and encapsulation is complete.

- Pesticides and PCBs do not pose a concern at the site.

- Based on the concentrations detected, the conditions and intended site use, LMS recommends that no additional environmental investigations or work is necessary before redevelopment of the site. Prior to redevelopment, the plans should be reviewed and any potential area where workers may be exposed can be addressed.