CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
New York, New York

ECHO AVENUE REMEDIAL CLEANUP
SUMMARY REPORT

June 2007
(Revised January 2008)
(Revised September 2008)

One Blue Hill Plaza
Pearl River, New York 10965

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF FIGURES

LIST OF FIGURES

LIST OF FIGURES

LIST OF FIGURES

LIST OF TABLES

LIST OF TABLES

LIST OF PLATES

Plate No.	Title	Location
1	Concentration of PCBs Remaining On-Site	In Back Pocket In Back of Report

ECHO AVENUE REMEDIAL CLEANUP
SUMMARY REPORT

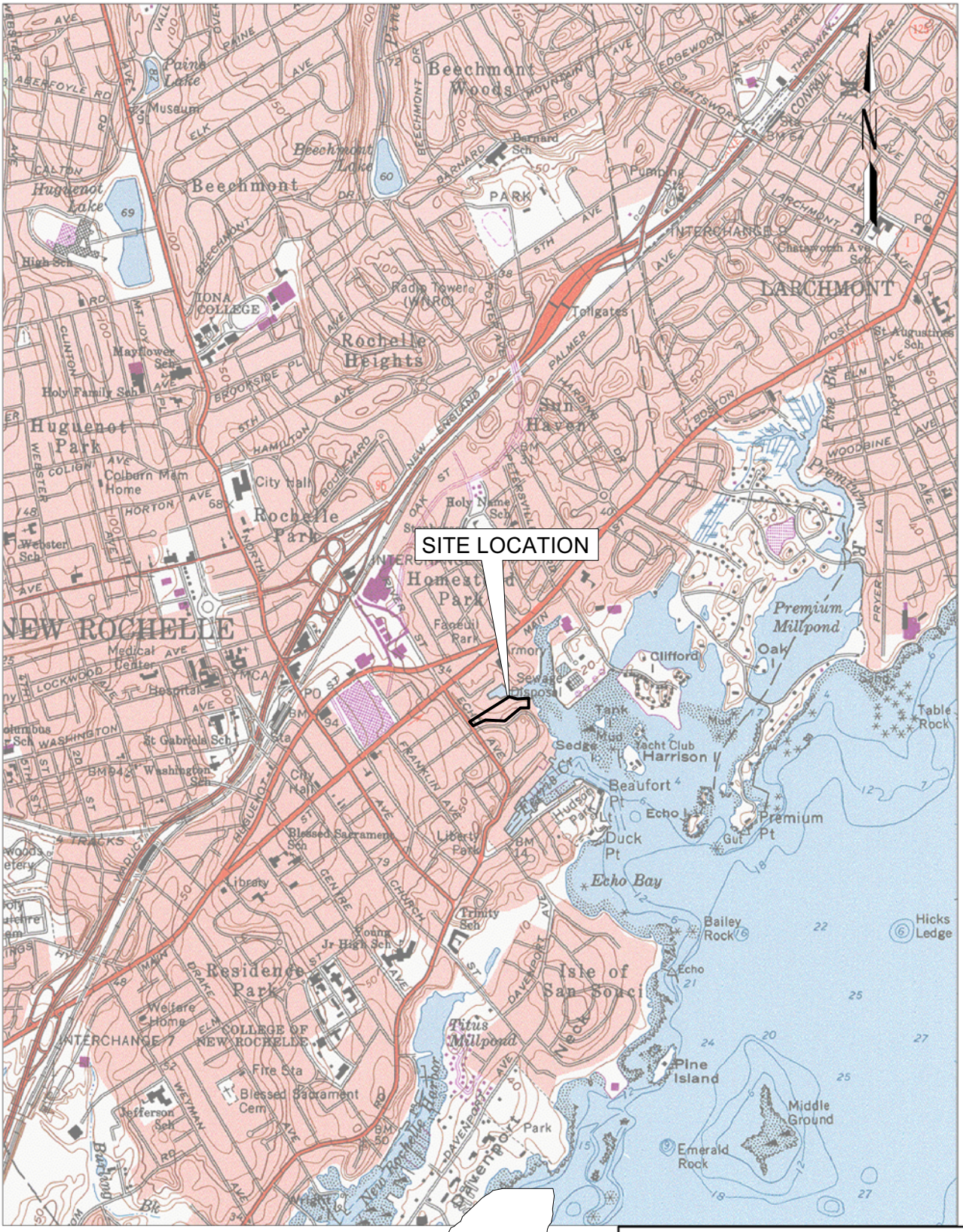
1.0 EXECUTIVE SUMMARY

In response to a request by the New York State Department of Environmental Conservation ("NYSDEC") and New York State Department of Health ("NYSDOH"), Consolidated Edison of New York, Inc. ("Con Edison") has prepared this Report to provide a summary of the various phases of NYSDEC-approved investigation and interim remedial measures ("IRM") that have been completed since 1992 for the Echo Avenue State Superfund Site (Site #3-60-016) pursuant to NYSDEC Administrative Order on Consent Index No. W3-05131-91-02 ("Consent Order"). As specified by the NYSDEC and NYSDOH, this Report includes a compilation of the following information for the Echo Avenue Superfund Site ("Site") intended to facilitate their evaluation of whether the Site should remain listed in the New York State Registry of Inactive Hazardous Waste Disposal Sites ("Registry") as a Class 2a site:

- Scope of the NYSDEC-approved IRMs that have been completed for the Site;
- Remedial objectives of the completed NYSDEC-approved IRMs and the rationale for those objectives;
- Site areas for which remediation has not been conducted; and
- A summary of current Site conditions, including the concentration and distribution of contaminants remaining on and adjacent to the Site.

The Site is located at 78 Echo Avenue in New Rochelle, Westchester County, New York (Figure 1-1). It is bordered to the north by Echo Bay, an estuary of the Long Island Sound. It is bordered to the east and south by residential properties, to the southwest by Echo Avenue, and to the west by a former commercial fuel oil terminal (Sentinel Fuel Oil Company) that is now operated as a storage yard for landscaping equipment and supplies (Figure 1-2).

The Site was originally owned by several Con Edison predecessor companies, including the Westchester Lighting Company, which operated a power plant on the Site and an outdoor transformer yard used for the distribution of the electricity generated by the plant. Con Edison acquired the Site in 1951, when the Westchester Lighting Company was merged with and into Con Edison. Con Edison operated an electrical distribution substation at the Site until 1981,



Map source:
USGS 7.5-minute quadrangle map,
Mt. Vernon, NY, 1966, photorevised 1979.

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig1-1_SiteLocation.dsf

Figure 1-1

Site Location

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

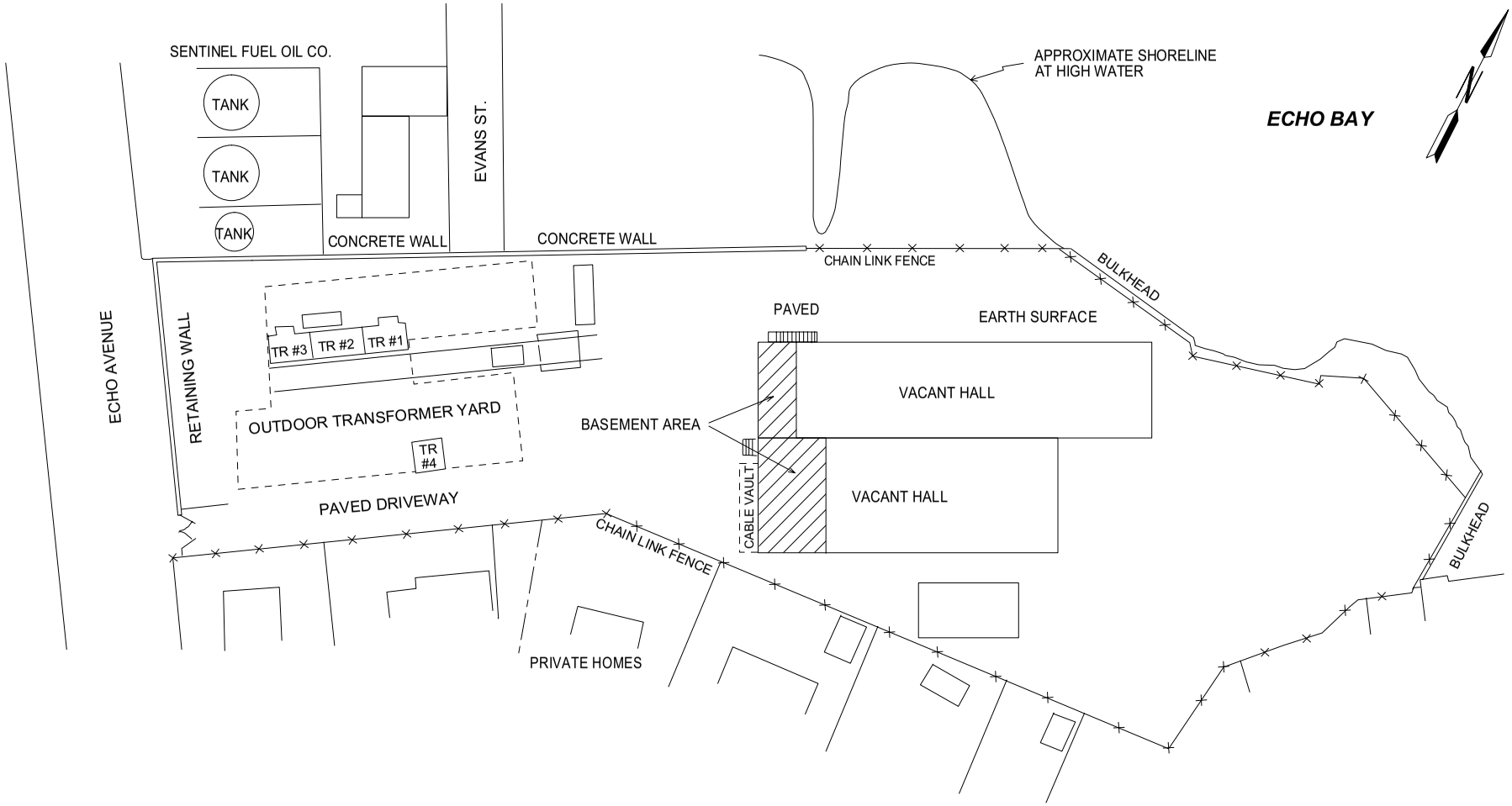


Figure 1-2*

Site Sketch

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig1-2_SiteSketch.dsf

*Figure 1-2 from June 2001 Remediation Report

when the substation was retired. The Site has not been used for utility or other operations since then.[1]

In January 1988, after receiving reports from Con Edison that it had been investigating and cleaning up polychlorinated biphenyl ("PCB") contamination at the Site, the NYSDEC included the Site on the Registry as a Class 2a site - a temporary classification assigned to sites with confirmed hazardous waste contamination, but with inadequate information regarding associated environmental and/or human health impacts to be assigned to another Registry classification. On June 15, 1992, the NYSDEC and Con Edison entered into the Order on Consent which obligated Con Edison to conduct a Phase II investigation for the Site pursuant to an NYSDEC-approved work plan. The Consent Order also allowed Con Edison to implement NYSDEC-approved IRMs for the Site under NYSDEC oversight.

The Phase II investigation required under the Consent Order was completed by HDR|LMS [formerly Lawler, Matusky & Skelly Engineers] in 1993. Additional samples were collected on the Site at the request of the NYSDEC in 1995. The results of the Phase II investigation and additional sampling indicated the presence of PCBs in soil above cleanup objectives on the Site. In 1996, Con Edison elected to remediate portions of the Site as an IRM pursuant to work plans approved by the NYSDEC, as permitted by the Consent Order.

The IRMs were conducted in several phases from 1996 until 2004 on various areas of the Site, in the adjacent mudflat area of Echo Bay, and in the backyards of adjoining residential properties. As indicated in the following table, during the 12-year period in which the NYSDEC-approved investigation activities and IRMs for the Site were conducted the remedial objectives for the Site changed.

[1] In 1986, Con Edison and the City of New Rochelle entered into a contract under which Con Edison agreed to sell and the City of New Rochelle agreed to buy the Site after Con Edison had completed sufficient remediation for the Site for it to be used for residential purposes. Title to the Site has not yet been conveyed to the City of New Rochelle. Con Edison and the City of New Rochelle are presently discussing modifications that may be made to the contract before ownership of the Site is transferred to the City of New Rochelle.

MEDIA	DATES	PARAMETER	REMEDIAL OBJECTIVE
On-Site Soil & Sediment	February 1992 to February 1993	PCBs	≤10 mg/kg
		TCL organics	None
		TAL inorganics	Background concentrations from J. Dragun, The Soil Chemistry of Hazardous Materials
	October 1993 to present	PCBs	≤1 mg/kg for soils ≤2 ft deep; ≤10 mg/kg for soils >2 ft deep
		2,3,7,8-Dioxin	<1.0 µg/kg
	January 1994 to present	TCL organics	NYSDEC TAGM 4046
		TAL inorganics	NYSDEC TAGM 4046
Concrete and Other Solid Surfaces	February 1992 to February 1993	PCBs	≤10 µg/100 cm^2 in wipe samples
	October 1993 to present	PCBs	≤1 µg/100 cm^2 in wipe samples
Mudflat Sediments	July 1996 to 2003	PCBs	≤5 mg/kg
	2003 to present	PCBs	≤1 mg/kg
Groundwater	February 1992 to present	PCBs	Class GA Groundwater Standards
		TCL organics	Class GA Groundwater Standards
		TAL inorganics	Class GA Groundwater Standards
Surface Water	February 1992 to present	PCBs	Class SB Surface Water Standards
		TCL organics	Class SB Surface Water Standards
		TAL inorganics	Class SB Surface Water Standards

Two reports were prepared by HDR|LMS that documented the cleanup of the site, the June 2001 Remediation Report and the July 2003 Remediation Report Addendum. In 2003, Con Edison retained TRC Environmental Corporation ("TRC") to conduct the remediation of the mudflat area of Echo Bay; this work was completed in 2004 and reported on by TRC in the February 2005 Remedial Action Report. During all remediation work, NYSDEC provided regulatory oversight of the cleanup activities and directed Con Edison as to on whether additional cleanup or excavation work was required.

Based on the results of post-remedial confirmatory sampling that was conducted as part of the NYSDEC-approved IRMs and the results of the NYSDEC-approved investigation for Site areas for which IRMs were not implemented, there are no PCBs on Site, in the Echo Bay mudflat areas, or

adjoining off-Site residential properties that exceed the cleanup objectives specified by the NYSDEC for the Site. These cleanup objectives are ≤ 1 mg/kg PCBs for soils ≤ two ft deep, ≤ 10 mg/kg PCBs for soils deeper than two feet, and ≤ 1 mg/kg PCBs for sediment. The cleanup objectives for PCBs in soil are consistent with the recommended soil cleanup objectives ("RSCOs") specified in NYSDEC ***Technical and Administrative Guidance Memorandum 4046: Determination of Soil Cleanup Objectives and Cleanup Levels*** ("TAGM 4046") published on January 24, 1994.

Based on the same data, there are no known on-Site lead concentrations that exceed the TAGM 4046 RSCO of <500 mg/kg of lead in soils in urban areas. However, there were sporadic exceedances of the TAGM RSCOs for antimony, arsenic, beryllium, cadmium, copper, chromium, nickel, thallium, and zinc throughout the Site.

Several semi-volatile organic compounds ("SVOCs"), primarily polycyclic aromatic hydrocarbons ("PAHs"), are also present above the TAGM 4046 RSCOs on the Site. Where contaminants other than PCBs or lead were found above the TAGM 4046 guidelines, NYSDEC did not request additional remediation during the IRMs and allowed the areas excavated as part of the IRMs to be backfilled with clean fill. Several metals, including arsenic, cadmium, chromium, iron, manganese, magnesium, and sodium, are present in the Site's groundwater at concentrations that exceed NYSDEC Class GA groundwater standards. However, the groundwater regime at the Site is tidally influenced and some of the elevated concentrations of metals appear to be attributable to saltwater intrusion from the Echo Bay. All monitoring wells on the Site were either destroyed during the implementation of the NYSDEC-approved IRMs or abandoned with the NYSDEC's consent.

After the electric distribution substation on the Site was retired in 1981, Con Edison subsequently decommissioned that facility and razed various aboveground structures on the Site. A number of subsurface structures remain on the Site as summarized below:

- Substation building basement and basement storage room. In 1995 these rooms were backfilled with construction debris and rubble from the floors above them.
- Substation building sub-slab structures. These include a tunnel in the former North Hall of the building and other structures in the building's former North and South Halls. Cindery fill material present in the North Hall tunnel was removed from the tunnel and the tunnel was backfilled in 2000.
- Tunnel between substation and office building. The tunnel was cleaned and backfilled in 1998.
- Office building foundation wall. The office building's foundation slab was removed in 1995, but the foundation walls were left in place. Reports for prior work conducted at the Site by Con Edison indicate that there was an extension on the western end of the office building. Consequently, the foundation walls may extend out further than shown on Con Edison's available drawings for the office building.

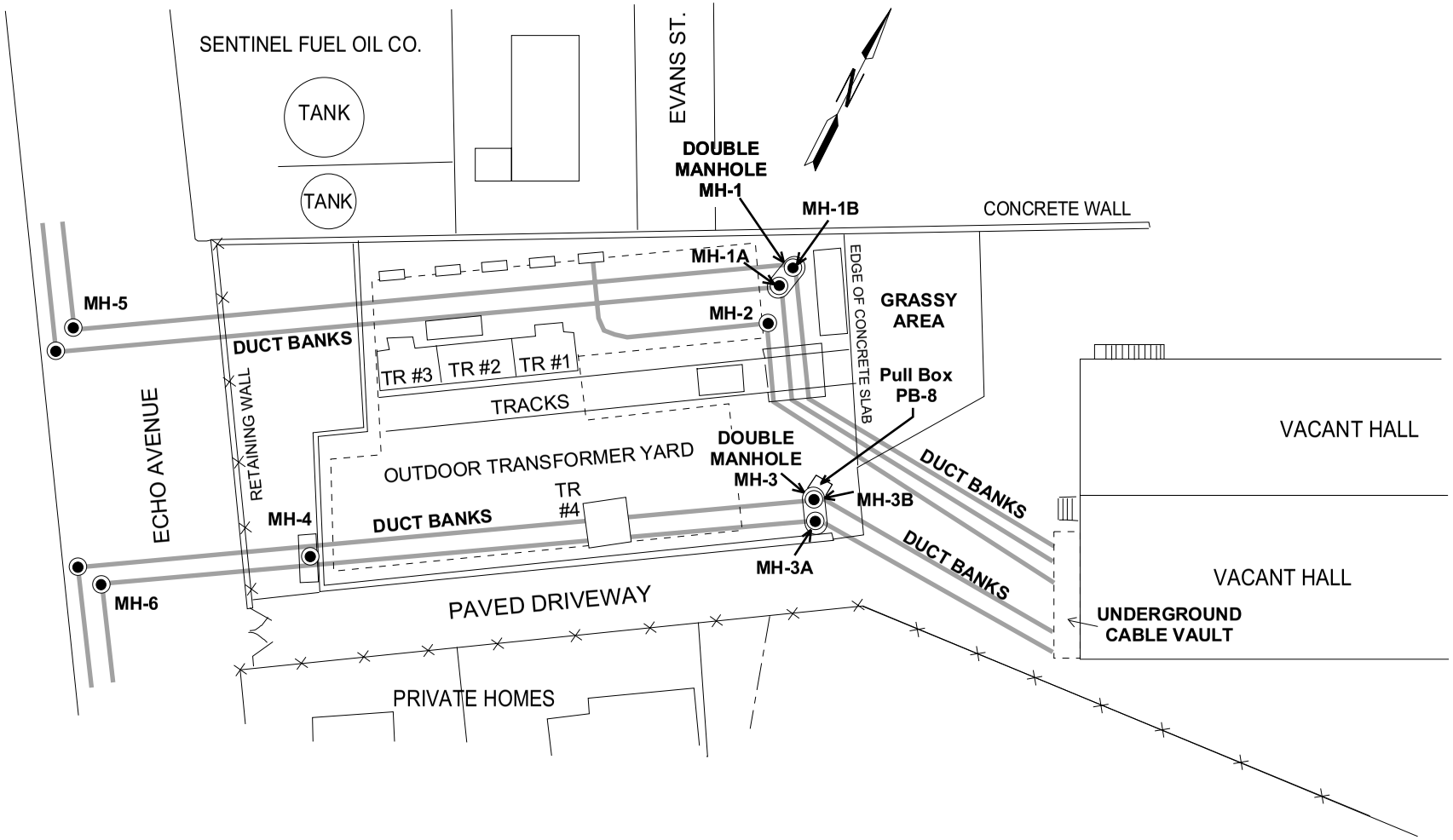
- EASP-06. This sump was sampled and backfilled in 1998.
- CB-04 and CB-06. Catch basin CB-04 is located in the center of the former South Hall. Catch basin CB-06 is located along the north side of the former North Hall slab in the northeast corner area. A concrete meter vault is located along the outside of the foundation wall in the northwest corner area of the North Hall. These structures were not removed during the building slab removal conducted in 1999.
- Concrete drainpipe from the former CB-13 location and the tile drainpipe along Echo Bay.
- Four concrete pedestals in the area immediately adjacent to the backyard of the neighboring V. Lockwood residential property. An old insurance map from 1931 that shows the site when it was a coal-fired generating plant indicates that a 50,000 gal water tank was at this location. This map also shows a number of other areas where there could still be some structures below grade that were not encountered during the environmental investigations and remediation activities conducted at the site. There is a possibility that some of these structures and possibly other structures still remain below grade on site.
- The duct banks between the manholes on Echo Avenue and the concrete retaining wall on the western end of the site were not removed. The duct banks were cleaned and plugged on both ends and manhole MH-4 was completely filled with concrete (see Figure 1-3).

The remainder of this Report is organized as follows: Section 2.0 provides additional background and Site history; Section 3.0 identifies the remedial objectives for the Site and their evolution over time; Section 4.0 summarizes the remedial activities conducted for the Site; Section 5.0 documents the known distribution of residual contaminants on the Site; and Section 6.0 provides the summary and conclusions of the Report. The following appendices are included with the Report: Appendix A – Reference Documentation; Appendix B – Summary of Quality Assurance/Quality Control Procedures; Appendix C – Sampling Logs; Appendix C – Analytical Data Summary Sheets; and Appendix E – Data Validation.

2.0 BACKGROUND

Con Edison voluntarily collected samples and cleaned up portions of the Site from 1984 to 1987. All samples were analyzed for PCBs and the results reported to the NYSDEC. In January 1988, the NYSDEC listed the Site on the Registry as a Class 2A site (Site #3-60-016). This classification is normally assigned to sites that have known contamination, but that have inadequate and/or insufficient data regarding associated human health and/or environmental impacts for inclusion in any other Registry classification. NYSDEC requested that Con Edison collect additional samples on the Site, and between 1988 and 1989 a scope of work for the additional investigation was prepared by Con Edison and submitted to the NYSDEC.

In 1990, Con Edison retained HDR|LMS to perform a Phase II investigation of the Site. HDR|LMS modified Con Edison's initial draft work plan to ensure that it conformed to NYSDEC guidelines



0 80 160 ft

SCALE IN FEET

Figure 1-3*

Location of Electrical Manholes and Deep Pull Box in Transformer Yard

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig1-3_TransformerYardFeatures.dsf

*Figure 6-22 from June 2001 Remediation Report

for Phase II investigations. The revised draft work plan was submitted to the NYSDEC in 1992, and included the collection of wipe samples from the Site's substation slab and walls, concrete core samples from the Site's transformer yard moats, and sediment and soil samples from throughout the Site. All such samples were to be analyzed for PCBs. In addition, selected soil samples, groundwater samples from the on-Site monitoring wells, and surface water samples from Echo Bay were to be analyzed for target compound list ("TCL") organics and target analyte list ("TAL") inorganics.

On June 15, 1992, Con Edison and the NYSDEC entered into Administrative Order on Consent Index # W3-05131-91-02 ("Consent Order") which required Con Edison to implement a NYSDEC-approved Phase II investigation for the Site (Ref. 1, Appendix A of this Report). The Consent Order approved the HDR/LMS work plan as the work plan for the Phase II investigation (Ref. 2, Appendix A of this Report). The Consent Order also allowed Con Edison to implement NYSDEC-approved IRMs for the Site under NYSDEC oversight.

The Phase II investigation for the Site was conducted during 1992, and a report entitled ***Phase II Investigation at Echo Avenue Site*** ("Phase II Report") was prepared in February 1993 (Ref. 3, Appendix A of this document). The report included the results of the sampling and remediation that Con Edison had conducted at the Site between 1984 and 1987, and the sampling results of the 1992 Phase II investigation.

The following summarizes the relevant findings and conclusions of the Site's Phase II Investigation:

- On-Site soils were found to contain low levels of PAHs, naphthalene and like substances, chlorinated pesticides, lead, mercury, antimony, arsenic, copper, cadmium, and zinc. HDR|LMS concluded that the PAH contamination was most likely associated with coal tars, asphalt, and fuel products, the naphthalene and lead contamination was probably associated with diesel fuel or other fuels, and the pesticides found were most likely a result of their use for termite and other insect control. The metals appeared to be surficial contamination and possibly attributable to fill materials used at the Site or other Site activities.

- PCBs were found in soil at low levels throughout the Site. With one exception, PCB concentrations in soil generally ranged from less than 1 mg/kg to less than 10 mg/kg. PCBs at a concentration of greater than 10 mg/kg were found in soil samples collected from a compost pile. With this one exception, all soil samples were found to contain PCB concentrations less than the United States Environmental Protection Agency's ("EPA") PCB Spill Clean-up Level of 10 mg/kg for restricted access facilities.

- PCBs were not detected in groundwater. However, arsenic, cadmium, chromium, iron, manganese, magnesium, and sodium were present in groundwater samples from the Site at concentrations that exceeded NYSDEC Class GA groundwater standards. Beryllium

was present at concentrations that exceeded its NYSDEC guidance value. The arsenic, beryllium, cadmium, chromium, iron, and manganese exceedances were believed to be attributable to particulate matter suspended in the groundwater samples. The elevated magnesium and sodium levels were believed to be attributable to salt water intrusion from the adjacent Echo Bay.

- No PCBs were found in the Echo Bay surface water samples. Metals were detected above NYSDEC Class SB surface water standards, but at fairly low levels.

- Sediment in the drainage pipes on the Site and in Echo Bay contained levels of PCBs of less than 1 mg/kg.

- Sediment in manhole MH-3 (see Figure 1-3) on the Site contained PCBs at concentrations over 10 mg/kg of PCBs in the north side of the manhole.

- Stained concrete areas in the Site's outdoor transformer yard had low concentrations of PCBs, with most of the results at less than 1 mg/kg. Two samples were above 1 mg/kg but were less than 10 mg/kg.

- Except for scattered small areas on the floor in the two vacant halls of the former substation building, for which wipe sample results confirmed PCB concentrations that exceeded the EPA Spill Clean-up Guidance Level of 10 $\mu g/100\ cm^2$, on-Site structures were clean as evidenced by wipe samples.

3.0 REMEDIAL OBJECTIVES

The NYSDEC-approved investigation and IRMs for the Site were conducted in phases at various times between 1992 and 2004. Over the course of this period, the remedial objectives and cleanup guidelines for the Site changed. This section of the report covers the evolution of these objectives and how they affected the various stages of the investigations and remedial work. Section 4.0 presents a chronological history of the actual remediation work conducted on the Site.

The Phase II investigation report covered the initial sampling and investigation work conducted by HDR|LMS in 1992. The Phase II Report referenced the EPA PCB Spill Cleanup Policy of 10 mg/kg for soils and 10 $\mu g/100\ cm^2$ for wipe samples of solid surfaces as the clean up levels for PCBs. At the time, there were no definitive cleanup objectives for sediments, or concrete cores. The cleanup levels for groundwater samples were the NYSDEC Class GA groundwater standards. The NYSDEC surface water Class SB standards (saline surface waters) were used as the clean up objective for surface water samples from Echo Bay.

On October 19, 1993, the NYSDEC commented on the Phase II investigation, indicating that the appropriate PCB cleanup levels for Site soils were $\leq$1 mg/kg for soils $\leq$2 ft deep and $\leq$10 mg/kg for soils over 2 ft deep. For solid surfaces, the NYSDEC indicated that the appropriate cleanup criterion was $\leq$1 $\mu g/100\ cm^2$, as evidenced by wipe sampling. These cleanup levels were

developed by the NYSDOH for PCB spills near residential areas (Ref. 4, Appendix A of this Report). The PCB cleanup levels for soils and cleanup levels for the other TCL and TAL compounds in soils were later published as RSCOs in the NYSDEC's TAGM 4046 guidance document which was issued on January 24, 1994 (Ref. 5, Appendix A).

In its October 19, 1993 comment letter, NYSDEC also requested that Con Edison collect and analyze samples for polychlorinated dibenzo-p-dioxins ("PCDDs") and polychlorinated dibenzofurans ("PCDFs"). These samples were to be collected on the Site in the vicinity of the area where a fire occurred in the transformer yard in 1981. The specified detection limits for these constituents were to be below the NYSDEC cleanup criteria of 1.0 µg/kg for 2,3,7,8-TCDD equivalents (Ref. 4, Appendix A of this Report). A meeting was held on February 15, 1994, among Con Edison, NYSDOH, and NYSDEC at which the need for the sampling for these compounds was eliminated based on information that Con Edison provided on the PCB concentration of the transformer that burnt (Ref. 6, Appendix A of this Report). Con Edison provided the requisite documentation to the NYSDEC in a letter dated March 17, 2007. In the letter, Con Edison confirmed that the concentration of PCBs in the transformer that had burned (12000 KVA transformer Serial No. 3195692 located in Bank No. 2) was 69 mg/kg. This level of PCBs was believed to be too low to cause concern for the formation of PCDDs and PCDFs as combustion by-products (Ref. 7, Appendix A of this Report).

Subsequently, NYSDEC requested Con Edison to conduct additional sampling to delineate further the extent of the on-Site PCB contamination. HDR|LMS prepared three additional work plans to conduct the requested additional sampling. These plans were prepared and approved by the NYSDEC in 1995, the field work was conducted in 1995, and the results were reported to the NYSDEC in April 1996 (Refs.. 8, 9, 10, and 11, Appendix A of this Report).

The additional sampling included the collection of samples from the soil and sediment in the mudflat area of the adjacent Echo Bay, delineation soil sampling in four on-Site areas, collection of three additional sediment samples from Echo Bay, collection of water samples from on-Site drain pipes, collection of sediment and water samples from an on-Site sump pit, collection of concrete chip samples from the basement of the Site's former substation building, resampling in areas where sediment core samples were collected during 1992, sampling of the sediment in Echo Bay just below the discharge structure of a Site drain pipe that emptied into Echo Bay, and the collection of sediment from several locations on Site. Consistent with NYSDEC's request and the NYSDEC-approved work plans, these samples were analyzed for PCBs, but not other TAL and TCL constituents.

In addition to the investigation field work undertaken at the Site, in July and August 1995 Con Edison demolished the Site's substation building down to the building's floor slab, backfilled the

basement in the western portion of the substation building with the building demolition rubble (after collection and analysis of the concrete chip samples), demolished the office building on the Site, and removed the above ground structures of the Site's transformer yard.

In 1996, NYSDEC advised Con Edison that the PCB clean-up level to be achieved in the Echo Bay mudflat area was ≤5 mg/kg (Ref. 12, Appendix A of this Report). Because the results of the additional sampling conducted during 1996 indicated that the sediment in one area of Echo Bay did not meet the ≤5 mg/kg PCB cleanup criterion level and selected areas on the Site did not meet the PCB soil and solid surface cleanup levels specified by the NYSDEC and NYSDOH in October 1993, Con Edison elected to remediate these areas as an IRM. HDR|LMS prepared a detailed remediation work plan (***Additional Sampling and Remediation Work Plan***) in July 1996 [the "July 1996 Work Plan" (Ref. 13, Appendix A of this Report)] that was approved by the NYSDEC in August 1996. The July 1996 Work Plan included remediation of the PCB contamination in on-Site soils, off-Site residential soils, sediments, and on concrete surfaces, as well as mudflat sediment. The approved work plan specified that samples would be collected for analyses for TCL organics, TAL inorganics, resource conservation and recovery act ("RCRA") parameters, and total petroleum hydrocarbons ("TPH") in the event that a potential underground tank located near the concrete wall separating the Site from Echo Bay was confirmed. HDR|LMS did not find an underground tank at the reported location. No other contaminants found on the Site during the previous investigations required remediation. Remedial objectives for PCBs were set by the NYSDEC as follows:

- For soils and on-site sediment: ≤1 mg/kg PCBs for soils ≤2 ft deep and ≤10 mg/kg for soils greater than 2 ft deep.
- For mudflat sediment in Echo Bay: all sediment ≤5 mg/kg.

The remediation work contained in the July 1996 Work Plan was initiated in November 1997, and essentially completed in June 1998. In May 1998, NYSDEC requested that Con Edison collect soil samples beneath the substation slab and transformer yard slab. In response to this request, Con Edison decided to remove the slabs and the associated structures in their entirety and then sample and, if necessary, remediate the underlying soils (the original approved remediation plan called for the slabs to be cleaned and then left in place). In May 1998, Con Edison submitted to the NYSDEC a ***Sampling/Remedial Work Plan for Transformer Yard Slab and Substation Building Slab*** [the "May 1998 Work Plan" (Ref. 14, Appendix A of this Report)]. The May 1998 Work Plan included remediation for PCBs only. Subsequently, the NYSDEC requested that if visually contaminated soils were observed beneath the transformer yard slab, samples would be collected and analyzed for TCL organics and TAL inorganics and compared to the RSCOs in TAGM 4046. The NYSDEC approved the revised May 1998 Work Plan in May 1999.

The work specified in the revised May 1998 Work plan was initiated in August 1999. The substation slab removal and sampling of soils was completed in January 2000 and removal of the transformer slab and excavation of PCB-contaminated soils above cleanup objectives were completed in November 2000.

One of the samples collected from the transformer yard moat drain during the original remediation (January 1998) work was analyzed for the full TCL and TAL compounds at the NYSDEC's request and showed elevated levels of cadmium, chromium, lead, and zinc when compared to either typical site background concentrations or the RSCOs in TAGM 4046. Site background concentrations for the eastern USA or New York State are provided in TAGM 4046 for various metals. Therefore, the NYSDEC requested that the area be excavated until the metals levels were reduced to acceptable levels. Con Edison submitted a letter to NYSDEC in August 1999 that described the proposed sampling plan for metals in this area (Ref. 15, Appendix A of this Report). Sampling and excavation were conducted in October 1999. An X-ray Fluorescence ("XRF") analyzer was used for the metals analysis on Site with selected samples sent to an off-site laboratory for confirmation. The results indicated elevated levels of the metals of concern. Con Edison conducted an additional investigation that led to the conclusion that the metals found were associated with the cindery fill material present immediately below the transformer yard slab.

The results of the metals investigation were transmitted to NYSDEC. The NYSDOH responded with a letter stating that the high levels of lead were of concern and that, if Con Edison did not remediate the hot spots to levels of less than 500 mg/kg., Con Edison would either have to pave over the area of the transformer yard or cover it with two feet of clean fill and execute and record a deed restriction for the Site property (Ref. 16, Appendix A of this Report). NYSDEC agreed with NYSDOH's comments. Con Edison elected to remove the cindery fill material, so that all remaining lead concentrations would be less than 500 mg/kg. Therefore, the Site cleanup objective for lead was established as 500 mg/kg.

The cinder layer removal was initiated in February 2000, and halted in March 2000, when oily water and soils were encountered. A series of test pits were completed in the area in order to investigate the potential source(s) of the oil. Based on the results of the test pit investigation, Con Edison elected to halt all remediation work until a new work plan could be developed.

An additional work plan entitled ***Additional Remediation Work Plan for Transformer Yard of Con Edison's Echo Avenue Site, New Rochelle, New York*** [the "June 2001 Work Plan" (Ref. 17, Appendix A of this Report)] was prepared in June 2001. The work included the removal of the remaining cinder layer and the removal of the duct banks in the transformer yard. The

cleanup objective for the cinder layer removal was 500 mg/kg for lead and ≤1 mg/kg for soils ≤2 ft deep and ≤10 mg/kg for soil >2 ft deep for PCBs.

The results of the remediation conducted from 1996 to 2000 were summarized in a report entitled ***Echo Avenue Site Remediation Report*** dated June 2001 ["the June 2001 Remediation Report" (Ref. 18, Appendix A of this document)].

In October 2001, Con Edison submitted a separate proposed IRM work plan entitled ***Remediation Proposal for Fuel-Oil Contaminated Soil in Con Edison's Echo Avenue Site Transformer Yard*** (the "October 2001 Work Plan") for the fuel oil-contaminated area that was found during the test pit investigation in the northwestern corner of the transformer yard (Ref. 19, Appendix A of this Report). The work included in that plan called for the excavation of the visually contaminated soil that had been detected in that portion of the Site and the collection and analysis of five post-excavation confirmatory samples from the excavation for TCL volatile organic compounds ("VOCs") and TCL semi-volatile organic compounds ("SVOCs"). The work was completed in May 2002 after receipt of approval of the work plan by NYSDEC.

The field work specified in the June 2001 Work Plan was initiated in April 2002 and completed in August 2002. In August 2002, Con Edison elected to conduct additional IRM work on the Site. The scope of this additional work was summarized in a work plan entitled ***Additional On-Site Work*** (the "October 2002 Work Plan") that was submitted to NYSDEC in October 2002 (Ref. 20, Appendix A of this Report). The proposed additional work included:

- the removal of the concrete pedestals in the Site's transformer yard;
- removal of all additional structures, including the electrical manholes and a pullbox in the Site's transformer yard;
- excavation of all soil down to a depth of six feet in the Site's transformer yard;
- removal of all paper-insulated lead cable ("PILC") between the Site's transformer yard and cable vault;
- removal of additional duct runs between the electrical manholes and cable vault and between the cable vault and the tunnel on the Site;
- excavation and removal of the cable vault;
- collection of groundwater samples from the remaining on-site monitoring wells and analysis for TCL organics and TAL inorganics; and
- abandonment of the wells after NYSDEC reviewed the groundwater data.

Con Edison elected to start the work in August 2002, because the remediation contractor was already on site. NYSDEC subsequently approved the work plan in November 2002. The work was completed in May 2003.

With the exception of the groundwater samples taken from monitoring wells, PCBs were the only parameter analyzed for as part of the post-remedial confirmation sampling conducted under the October 2002 work plan.

There were only two monitoring wells remaining that could still be sampled on the Site after the IRM work was completed. These wells were sampled on August 7, 2002 and analyzed for TCL organics and TAL inorganics plus cyanide. The NYSDEC Class GA standards were used as the remedial objectives for groundwater.

The IRM work conducted on the Site from 2002 to 2003 was summarized in a report dated July 2003 entitled ***Echo Avenue Site Remediation Report Addendum*** [the "July 2003 Remediation Report Addendum" (Ref. 21, Appendix A of this Report)].

As stated previously, all PCBs in the mudflat area of Echo Bay with a concentration greater than 5 mg/kg were removed in 1998 and the results reported in the June 2001 Remediation Report. Subsequently, at a meeting held in August 2001, NYSDEC requested that Con Edison remove the PCB-contaminated sediments in the mudflat area of Echo Bay that contained more than 1 mg/kg PCBs. Con Edison retained TRC in 2003 to conduct the mudflat remediation project.

TRC prepared a ***Remedial Action Work Plan for the Echo Avenue Project New Rochelle, New York*** ("RAWP") in May 2003 (Ref. 22, Appendix A of this Report) that described the proposed remediation plan and included a pre-design sampling program for the mudflat area. The RAWP identified four areas of concern ("AOC") that required excavation to meet the 1.0 mg/kg PCB cleanup objective. The RAWP was approved by the NYSDEC in June 2003.

The mudflat remediation work was conducted in November and December 2003 and March and April 2004 and reported on in a document prepared by TRC entitled ***Remedial Action Report for the Echo Avenue Project, New Rochelle, New York*** ("RAR") dated February 2005 (Ref. 23, Appendix A of this Report)

In summary the remedial objectives for the Site developed over time as the investigation/IRM project proceeded. The table on the following page summarizes the objectives for the different time periods:

MEDIA	DATES	PARAMETER	VALUE
On-Site Soil & Sediment	February 1992 to February 1993	PCBs	≤10 mg/kg
		TCL organics	None
		TAL inorganics	Background concentrations from J. Dragun, The Soil Chemistry of Hazardous Materials
	October 1993 to present	PCBs	≤1 mg/kg for soils ≤2 ft deep; ≤10 mg/kg for soils >2 ft deep
		2,3,7,8-Dioxin	<1.0 µg/kg
	January 1994 to present	TCL organics	NYSDEC TAGM 4046
		TAL inorganics	NYSDEC TAGM 4046
Concrete and Other Solid Surfaces	February 1992 to February 1993	PCBs	≤10 µg/100 cm^2 in wipe samples
	Octobr 1993 to present	PCBs	≤1 µg/100 cm^2 in wipe samples
Mudflat Sediments	July 1996 to 2003	PCBs	≤ 5 mg/kg
	2003 to present	PCBs	≤ 1 mg/kg
Groundwater	February 1992 to present	PCBs	Class GA Groundwater Standards
		TCL organics	Class GA Groundwater Standards
		TAL inorganics	Class GA Groundwater Standards
Surface Water	February 1992 to present	PCBs	Class SB Surface Water Standards
		TCL organics	Class SB Surface Water Standards
		TAL inorganics	Class SB Surface Water Standards

4.0 SUMMARY OF REMEDIAL ACTIVITIES

This section summarizes the chronological history of the IRM activities conducted for the Echo Avenue Site.

4.1 1984 to 1987

From 1984 to 1987, Con Edison conducted voluntary cleanup activities at the Site without NYSDEC oversight. These activities consisted of the: removal of shallow soil from several on-Site locations; cleaning cable ducts ; pressure washing of the Site substation building's basement

floor, transformer yard moat drains, concrete slab of transformer yard, manholes and cable vault; and removal of oil or oily material from structures around the Site. Details of the entire sampling and cleanup efforts voluntarily conducted by Con Edison during this time period are provided in the Phase II Report (Ref. 3, Appendix A of this Report).

4.2 1996 to 1998

A pre-remediation investigation was conducted in October and November 1996 to delineate the extent of contamination at selected areas on the Site. Con Edison retained OHM Remediation Services Corporation ("OHM") to complete the IRM activities specified in the July 1996 Work Plan. The actual remediation work was initiated in November 1997. These activities included the excavation and disposal of soil from four areas on the Site and four adjacent residential properties, the excavation and disposal of sediment from the mudflat area, cleaning and plugging of the duct banks, sampling and either backfilling or removing the manholes in the transformer yard, removing the cable vault, backfilling of the underground tunnel, and removing or backfilling of sumps on the Site. Prior to the implementation of IRM activities on adjacent residential properties, additional samples were collected to further delineate the extent of contamination. HDR|LMS provided environmental oversight, collected all samples, reviewed the data and recommended if additional clean-up was required, and documented the remediation undertaken in detail. All samples were analyzed for PCBs with the following cleanup objectives:

- $\leq$1 mg/kg for soils $\leq$ 2 ft deep; $\leq$10 mg/kg for soils >2 ft deep
- $\leq$5 mg/kg for mudflat sediments

To accelerate the determination of whether or not cleanup objectives were met, a mobile laboratory was used to quickly analyze the samples for PCBs. HDR|LMS retained Severn Trent Laboratories ("STL") to conduct these on-site analyses. HDR|LMS also retained H2M Labs to analyze split samples to confirm both the mobile laboratory data and confirm that clean-up levels had been achieved. The IRM activities specified in the July 1996 Work Plan were completed in 1998.

At five locations (see Figure 6-3 in Section 6.0) during the course of the on-Site excavation work, oily soil or soil with a fuel-oil like odor were noted. For these locations NYSDEC requested that a sample be collected and analyzed for TCL organics and TAL inorganics. The RSCOs in TAGM 4046 were used to compare the results from these samples. With the exception of metals, for all other compounds, only compounds that were detected in the samples are provided on the tables.

Descriptions of the five locations, sampling results, and remediation performed, if any, is summarized below:

- **WTD-01**. This sample was collected as part of the soil removal conducted in the backyard of 34 Decatur Road along the fence line adjacent to the Site. The sample was collected near a valve from a pipe that formerly connected to a 50,000 gal service water tank that no longer existed on the Con Edison property. Attached Table 4-1, originally Table 6-3 from the June 2001 Remediation Report, shows two SVOCs, benzo(a)anthracene and benzo(a)pyrene ("BaP"), and three metals, mercury, nickel, and zinc, above the RSCOs in TAGM 4046. A fingerprint analysis determined that the oil was similar to dielectric fluid. Since additional pits dug around the area showed no evidence of oily soil, no additional soil was excavated. After the results were reviewed by NYSDEC on-site personnel, the contractor was instructed in the field by NYSDEC to backfill the area with certified clean backfill and topsoil.

- **E-A-25.** This sample was collected as part of the EADEC-E on-Site soil remediation. The sample was collected along the concrete wall. The results, provided in attached Table 4-2, originally Table 6-4 from the June 2001 Remediation Report, showed two VOCs in the sample, acetone and methylene chloride, one SVOC, BaP, and two metals, mercury and zinc, above the RSCOs. Acetone and methylene chloride are not considered representative of Site conditions as they were also found in the field blank indicative of a laboratory contamination problem. A fingerprint analysis determined that the oil was similar to dielectric fluid. After the results were reviewed by NYSDEC on-site personnel, the contractor was instructed in the field by NYSDEC to backfill the area with certified clean backfill and topsoil.

- **TYSS-05.** This sample was collected near a concrete pedestal from an area in the transformer yard where the concrete slab did not cover the soil. The sample results as contained in attached Table 4-3, formerly Table 6-5 of the June 2001 Remediation Report, indicated one VOC, methylene chloride and one metal, zinc, above the RSCOs in TAGM 4046. Methylene chloride is not considered a Site contaminant; it was detected in the field blank, indicative of a laboratory problem. A fingerprint analysis determined that the oil was similar to dielectric fluid. All structures and soil down to six ft in the transformer yard were subsequently removed as part of the 2002 remediation.

- **TYMD-01.** This sample was collected in the area of the transformer yard moat drain. The sample results on Table 4-4, originally Table 6-8 of the June 2001 Remediation Report, showed one VOC, methylene chloride, and five metals, arsenic, cadmium, copper, lead, and zinc, above the RSCOs in TAGM 4046. Methylene chloride is not considered a site contaminant as it was also detected in the field blank, indicative of a laboratory problem. The area was subsequently remediated as part of the transformer yard remediation conducted from 1999 to 2002.

- **CVDP-02, CVDP-04, CVDP-05, and CVDP-06.** These samples were collected as part of the cable vault drainpipe excavation. CVDP-02 was the original sample collected from the soil beneath the drainpipe after its removal. It had nine SVOCs, phenanthrene, fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, BaP, and indeno(1,2,3-c,d)pyrene, and one metal, zinc, above the RSCOs in TAGM 4046. A fingerprint analysis determined that the oil was similar to dielectric fluid. The SVOC contamination at this location and other locations on the site may have been associated with the fill material on the site; however, the levels of SVOCs

Originally Table 6-3 (June 2001 Remediation Report)

WTD-01 SOIL DATA SUMMARY
ADJACENT RESIDENTIAL PROPERTY
V. Lockwood (March 1998)

PARAMETER	WTD-01[a]	WTD-01[c]	EAFB-04 (µg/l)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
VOLATILE ORGANICS (mg/kg)					
Methylene chloride	ND	♦	4 b j	0.1	NA
Acetone	ND	♦	5 b j	0.2	NA
2-Butanone	ND	♦	1 j	0.3	NA
SEMIVOLATILE ORGANICS (mg/kg)					
Fluoranthene	1.32	♦	ND	50.0 ***	NA
Pyrene	0.50	♦	ND	50.0 ***	NA
Benzo(a)anthracene	**0.29**	♦	ND	0.224 or MDL	NA
Chrysene	0.27	♦	ND	0.4	NA
bis(2-Ethylhexyl)phthalate	0.15	♦	1 b j	50.0 ***	NA
Benzo(b)fluoranthene	0.36	♦	ND	1.1	NA
Benzo(a)pyrene	**0.31**	♦	ND	0.061 or MDL	NA
Indeno(1,2,3-c,d)pyrene	0.20	♦	ND	3.2	NA
Benzo(g,h,i)perylene	0.21	♦	ND	50.0 ***	NA
PESTICIDES/PCBs (mg/kg)					
Aroclor 1254	ND	ND	ND	1.0/10*	NA
Aroclor 1260	ND	ND	ND	1.0/10*	NA
METALS (mg/kg)					
Aluminum	9,510	♦	53 B	SB	33,000
Antimony	ND	♦	ND	SB	0.6 - 10 (n)
Arsenic	7.4	♦	ND	7.5 or SB	3.0 - 12.0 æ
Barium	53	♦	2.6 B	300 or SB	15 - 600
Beryllium	0.48	♦	0.10 B	0.16 or SB	0 - 1.75
Cadmium	0.85	♦	ND	1 or SB	0.1 - 1.0
Calcium	1,720	♦	109 B	SB	130 - 35,000 æ
Chromium	20	♦	ND	10 or SB	1.5 - 40.0 æ
Cobalt	6.7	♦	ND	30 or SB	2.5 - 60.0 æ
Copper	30	♦	ND	25 or SB	1.0 - 50.0
Iron	9,190	♦	85 B	2,000 or SB	2,000 - 550,000
Lead	60	♦	3.5	SB**	4.0 - 61 or 200 - 500**
Magnesium	2,480	♦	16 B	SB	100 - 5,000
Manganese	102	♦	1.5 B	SB	50 - 5,000
Mercury	**0.34**	♦	ND	0.1	0.001 - 0.2
Nickel	**31**	♦	ND	13 or SB	0.5 - 25
Potassium	495	♦	15 B	SB	8,500 - 43,000 æ
Selenium	3.5	♦	ND	2 or SB	0.1 - 3.9
Silver	ND	♦	ND	SB	0.1 - 5.0 (n)
Sodium	ND	♦	ND	SB	6,000 - 8,000
Thallium	ND	♦	ND	SB	0.1 - 0.8 (q)
Vanadium	23	♦	ND	150 or SB	1.0 - 300
Zinc	88	♦	7.6 B	20 or SB	9.0 - 50
Cyanide	ND	♦	ND	****	N/A

Note : Numbers in bold exceed objectives.
♦ - Not analyzed.
*** - As per TAGM #4046, Total VOCs < 10 ppm., total SVOCs < 500 ppm. And individual SVOCs < 50 ppm.
(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
a - Sample analyzed by Environmental Testing Laboratories, Inc.
c - Sample analyzed by Severn Trent Laboratories, Inc.
b - Found in associated blanks.
* - 1.0 ppm refers to surface concentrations; 10 ppm refers to subsurface concentrations.
** - 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.
**** - Some forms of Cyanide are complex and stable while other forms are pH dependent and hence are very unstable. Site-specific form(s) of Cyanide should be taken into consideration when establishing soil cleanup objectives.
æ - New York State background concentration.
(n) - Dragun, J., The Soil Chemistry of Hazardous Materials.
(q) - Bowan, H.J., Environmental Chemistry of the Elements.
B - Value is less than the contract-required detection limit but greater than the instrument detection limit.
ND - Not detected at analytical detection limit.
SB - Site background.
FB - Field blank

Originally Table 6-4 (June 2001 Remediation Report)

E-A-25 SOIL DATA SUMMARY
EADEC-E AREA
(January 1998)

PARAMETER	E-A-25	RE E-A-25	DL E-A-25	E-A-25[c]	EAFB-04 (µg/l)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
VOLATILE ORGANICS (mg/kg)							
Methylene chloride	**1.1 b e**	◆	0.049 b j	◆	4 b j	0.1	NA
Acetone	**0.22 b**	◆	**0.39 b**	◆	5 b j	0.2	NA
2-Butanone	0.062	◆	0.17	◆	1 j	0.3	NA
4-Methyl-2-pentanone	0.25 b	◆	ND	◆	ND	1.0	NA
SEMIVOLATILE ORGANICS (mg/kg)							
Naphthalene	0.95	0.71	◆	◆	ND	13	NA
2-Methylnaphthalene	2.9	2.6	◆	◆	ND	36.4	NA
Acenaphthene	0.50	0.51	◆	◆	ND	41	NA
Dibenzofuran	0.45 j	0.41 j	◆	◆	ND	6.2	NA
Fluorene	1.0	0.89	◆	◆	ND	50.0***	NA
Phenanthrene	2.0	1.7	◆	◆	ND	50.0***	NA
Anthracene	0.36 j	0.33 j	◆	◆	ND	50.0***	NA
Fluoranthene	0.32 j	0.26 j	◆	◆	ND	50.0 ***	NA
Pyrene	0.36 j	0.35 j	◆	◆	ND	50.0 ***	NA
Benzo(a)anthracene	0.12 j	0.10 j	◆	◆	ND	0.224 or MDL	NA
Chrysene	0.15 j	0.13 j	◆	◆	ND	0.4	NA
Benzo(b)fluoranthene	0.086 j	0.070 j	◆	◆	ND	1.1	NA
Benzo(k)fluoranthene	0.071 j	0.060 j	◆	◆	ND	1.1	NA
Benzo(a)pyrene	**0.11 j**	**0.096 j**	◆	◆	ND	0.061 or MDL	NA
PESTICIDES/PCBs (mg/kg)							
alpha-BHC	0.0025 b	◆	◆	◆	ND	0.11	NA
Endrin	0.0047 j p	◆	◆	◆	ND	0.1	NA
Aroclor 1254	ND	◆	◆	ND	ND	1.0/10*	NA
Aroclor 1260	ND	◆	◆	ND	ND	1.0/10*	NA
METALS (mg/kg)							
Aluminum	6,900 R	◆	◆	◆	53 B	SB	33,000
Antimony	0.77 B N	◆	◆	◆	ND	SB	0.6 - 10 (n)
Arsenic	12 E	◆	◆	◆	ND	7.5 or SB	3.0 - 12.0 æ
Barium	59	◆	◆	◆	2.6 B	300 or SB	15 - 600
Beryllium	0.44 B	◆	◆	◆	0.10 B	0.16 or SB	0 - 1.75
Cadmium	ND	◆	◆	◆	ND	1 or SB	0.1 - 1.0
Calcium	874	◆	◆	◆	109 B	SB	130 - 35,000 æ
Chromium	17	◆	◆	◆	ND	10 or SB	1.5 - 40.0 æ
Cobalt	7.1 B	◆	◆	◆	ND	30 or SB	2.5 - 60.0 æ
Copper	29	◆	◆	◆	ND	25 or SB	1.0 - 50.0
Iron	18,100 R	◆	◆	◆	85 B	2,000 or SB	2,000 - 550,000
Lead	61	◆	◆	◆	3.5	SB**	4.0 - 61 or 200 - 500**
Magnesium	1,890	◆	◆	◆	16 B	SB	100 - 5,000
Manganese	89 R	◆	◆	◆	1.5 B	SB	50 - 5,000
Mercury	**0.13**	◆	◆	◆	ND	0.1	0.001 - 0.2
Nickel	14 E	◆	◆	◆	ND	13 or SB	0.5 - 25
Potassium	1,130	◆	◆	◆	15 B	SB	8,500 - 43,000 æ
Selenium	2.4	◆	◆	◆	ND	2 or SB	0.1 - 3.9
Silver	ND	◆	◆	◆	ND	SB	0.1 - 5.0 (n)
Sodium	97 B E	◆	◆	◆	ND	SB	6,000 - 8,000
Thallium	0.72 B	◆	◆	◆	ND	SB	0.1 - 0.8 (q)
Vanadium	25	◆	◆	◆	ND	150 or SB	1.0 - 300
Zinc	**131**	◆	◆	◆	7.6 B	20 or SB	9.0 - 50
Cyanide	ND	◆	◆		ND	****	N/A

Note : Numbers in bold exceed objectives.
◆ - Not analyzed.
*** - As per TAGM #4046, Total VOCs < 10 ppm., total SVOCs < 500 ppm. And individual SVOCs < 50 ppm.
(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
a - Sample analyzed by Environmental Testing Laboratories, Inc.
c - Sample analyzed by Severn Trent Laboratories, Inc. in December 1997.
b - Found in associated blanks
e - Estimated concentration; exceeds GC/MS calibration range.
j - Estimated concentration; compound present below quantitation limit.
DL - Diluted sample analysis.
ND - Not detected at analytical detection limit.
RE - Reanalysis.
MDL - Method detection limit.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columsn.
* - 1.0 ppm refers to surface concentrations; 10 ppm refers to subsurface concentrations.
** - 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.
**** - Some forms of Cyanide are complex and stable while other forms are pH dependent and hence are very unstable. Site-specific form(s) of Cyanide should be taken into consideration when establishing soil cleanup objectives.
æ - New York State background concentration.
(n) - Dragun, J., The Soil Chemistry of Hazardous Materials.
(q) - Bowen, H.J., Environmental Chemistry of the Elements.
B - Value is less than the contract-required detection limit but greater than the instrument detection limit.
E - Value estimated due to interference.
N - Spiked sample recovery is not within control limits.
R - Duplicate analysis not within control limits.
SB - Site background.

TABLE 4-3 (1 of 1)

Originally Table 6-5 (June 2001 Remediation Report)

TYSS-05 SOIL DATA SUMMARY
TRANSFORMER YARD
(January 1998)

PARAMETER	TYSS-05	DL TYSS-05	EAFB-04 (µg/l)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
VOLATILE ORGANICS (mg/kg)					
Methylene chloride	**0.20 b**	♦	4 b j	0.1	NA
Acetone	0.017 b	♦	5 b j	0.2	NA
2-Butanone	0.005 j	♦	1 j	0.3	NA
SEMIVOLATILE ORGANICS (mg/kg)		[DL: 10:1]			
bis(2-Ethylhexyl)phthalate	ND	ND	1 b j	50.0 ***	NA
PESTICIDES/PCBs (mg/kg)					
Endrin aldehyde	0.0025 j p	♦	ND	NS	NA
Aroclor 1254	ND	♦	ND	1.0/10*	NA
Aroclor 1260	0.096	♦	ND	1.0/10*	NA
METALS (mg/kg)					
Aluminum	9,890 R	♦	53 B	SB	33,000
Antimony	0.73 B N	♦	ND	SB	0.6 - 10 (n)
Arsenic	8.6 E	♦	ND	7.5 or SB	3.0 - 12.0 æ
Barium	90	♦	2.6 B	300 or SB	15 - 600
Beryllium	0.43 B	♦	0.10 B	0.16 or SB	0 - 1.75
Cadmium	0.38 B	♦	ND	1 or SB	0.1 - 1.0
Calcium	2,290	♦	109 B	SB	130 - 35,000 æ
Chromium	23	♦	ND	10 or SB	1.5 - 40.0 æ
Cobalt	10	♦	ND	30 or SB	2.5 - 60.0 æ
Copper	38	♦	ND	25 or SB	1.0 - 50.0
Iron	17,600 R	♦	85 B	2,000 or SB	2,000 - 550,000
Lead	45	♦	3.5	SB**	4.0 - 61 or 200 - 500**
Magnesium	4,040	♦	16 B	SB	100 - 5,000
Manganese	188 R	♦	1.5 B	SB	50 - 5,000
Mercury	ND	♦	ND	0.1	0.001 - 0.2
Nickel	20 E	♦	ND	13 or SB	0.5 - 25
Potassium	3,360	♦	15 B	SB	8,500 - 43,000 æ
Selenium	0.34 B	♦	ND	2 or SB	0.1 - 3.9
Silver	ND	♦	ND	SB	0.1 - 5.0 (n)
Sodium	74 B E	♦	ND	SB	6,000 - 8,000
Thallium	0.24 B	♦	ND	SB	0.1 - 0.8 (q)
Vanadium	29	♦	ND	150 or SB	1.0 - 300
Zinc	**406**	♦	7.6 B	20 or SB	9.0 - 50
Cyanide	ND	♦	ND	****	N/A

Note : Numbers in bold exceed objectives.
♦ - Not analyzed.
*** - As per TAGM #4046, Total VOCs < 10 ppm., total SVOCs < 500 ppm. And individual SVOCs < 50 ppm.
(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
b - Found in associated blanks.
e - Estimated concentration; exceeds GC/MS calibration range.
j - Estimated concentration; compound present below quantitation limit.
DL - Diluted sample analysis.
ND - Not detected at analytical detection limit.
RE - Reanalysis.
MDL - Method detection limit.
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columsn.
* - 1.0 ppm refers to surface concentrations; 10 ppm refers to subsurface concentrations.
** - 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.
**** - Some forms of Cyanide are complex and stable while other forms are pH dependent and hence are very unstable. Site-specific form(s) of Cyanide should be taken into consideration when establishing soil cleanup objectives.
æ - New York State background concentration.
(n) - Dragun, J., The Soil Chemistry of Hazardous Materials.
(q) - Bowan, H.J., Environmental Chemistry of the Elements.
B - Value is less than the contract-required detection limit but greater than the instrument detection limit.
E - Value estimated due to interference.
N - Spiked sample recovery is not within control limits.
R - Duplicate analysis not within control limits.
SB - Site background.

TABLE 4-4 (1 of 2)

Originally Table 6-8 (June 2001 Remediation Report)

TYMD SOIL DATA SUMMARY
TRANSFORMER YARD MOAT DRAIN
(January 1998)

PARAMETER	TYMD-01 H2M	TYMD-01 H2M	TYMD-01[c] STL	TYMD-02 H2M	TYMD-02[c] STL	EAFB-04 (µg/l) H2M	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
VOLATILE ORGANICS (mg/kg)								
Methylene chloride	**0.16 b**	♦	♦	♦	♦	4 b j	0.1	NA
Acetone	0.035 b	♦	♦	♦	♦	5 b j	0.2	NA
2-Butanone	0.003 j	♦	♦	♦	♦	1 j	0.3	NA
Toluene	0.005 j	♦	♦	♦		ND	1.5	NA
SEMIVOLATILE ORGANICS (mg/kg)								
2-Methylnaphthalene	0.062 j	♦	♦	♦	♦	ND	36.4	NA
bis(2-Ethylhexyl)phthalate	ND	♦	♦	♦	♦	1 b j	50.0 ***	NA
PESTICIDES/PCBs (mg/kg)								
alpha-BHC	0.0022 b j p	♦	♦	♦	♦	ND	0.11	NA
Endosulfan I	0.0017 j p	♦	♦	♦	♦	ND	0.9	NA
4,4'-DDE	0.0041 j p	♦	♦	♦	♦	ND	2.1	NA
Endrin aldehyde	0.0025 j p	♦	♦	♦	♦	ND	NS	NA
Aroclor 1254	0.14 p	0.28	0.48	0.34	0.53	ND	1.0/10*	NA
Aroclor 1260	0.21	0.31p	ND	0.16	ND	ND	1.0/10*	NA

Note : Numbers in bold exceed objectives.
♦ - Not analyzed.
*** - As per TAGM #4046, Total VOCs < 10 ppm., total SVOCs < 500 ppm. And individual SVOCs < 50 ppm.
(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
c - Sample analyzed by Severn Trent Laboratories, Inc.
b - Found in associated blanks.
ND - Not detected at analytical detection limit
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columsn.
* - 1.0 ppm refers to surface concentrations, 10 ppm refers to subsurface concentrations.
FB - Field blank

TABLE 4-4 (2 of 2)

Originally Table 6-8 (June 2001 Remediation Report)

TYMD SOIL DATA SUMMARY
TRANSFORMER YARD MOAT DRAIN
(January 1998)

PARAMETER	TYMD-01 H2M	TYMD-01 H2M	TYMD-01[c] STL	TYMD-02 H2M	TYMD-02[c] STL	EAFB-04 (µg/l) H2M	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
METALS (mg/kg)								
Aluminum	5,250 R	♦	♦	♦	♦	53 B	SB	33,000
Antimony	0.43 B N	♦	♦	♦	♦	ND	SB	0.6 - 10 (n)
Arsenic	**17 E**	♦	♦	♦	♦	ND	7.5 or SB	3.0 - 12.0 æ
Barium	297	♦	♦	♦	♦	2.6 B	300 or SB	15 - 600
Beryllium	0.50 B	♦	♦	♦	♦	0.10 B	0.16 or SB	0 - 1.75
Cadmium	**8.8**	♦	♦	♦	♦	ND	1 or SB	0.1 - 1.0
Calcium	18,500	♦	♦	♦	♦	109 B	SB	130 - 35,000 æ
Chromium	15	♦	♦	♦	♦	ND	10 or SB	1.5 - 40.0 æ
Cobalt	5.5 B	♦	♦	♦	♦	ND	30 or SB	2.5 - 60.0 æ
Copper	**264**	♦	♦	♦	♦	ND	25 or SB	1.0 - 50.0
Iron	22,100 R	♦	♦	♦	♦	85 B	2,000 or SB	2,000 - 550,000
Lead	**2,390**	♦	♦	♦	♦	3.5	SB**	4.0 - 61 or 200 - 500**
Magnesium	1,700	♦	♦	♦	♦	16 B	SB	100 - 5,000
Manganese	144 R	♦	♦	♦	♦	1.5 B	SB	50 - 5,000
Mercury	0.10 B	♦	♦	♦	♦	ND	0.1	0.001 - 0.2
Nickel	17 E	♦	♦	♦	♦	ND	13 or SB	0.5 - 25
Potassium	787	♦	♦	♦	♦	15 B	SB	8,500 - 43,000 æ
Selenium	1.3	♦	♦	♦	♦	ND	2 or SB	0.1 - 3.9
Silver	ND	♦	♦	♦	♦	ND	SB	0.1 - 5.0 (n)
Sodium	134 B E	♦	♦	♦	♦	ND	SB	6,000 - 8,000
Thallium	0.60 B	♦	♦	♦	♦	ND	SB	0.1 - 0.8 (q)
Vanadium	14	♦	♦	♦	♦	ND	150 or SB	1.0 - 300
Zinc	**2,590**	♦	♦	♦	♦	7.6 B	20 or SB	9.0 - 50

Note : Numbers in bold exceed objectives.
♦ - Not analyzed
*** - As per TAGM #4046, Total VOCs < 10 ppm ,
total SVOCs < 500 ppm And individual SVOCs < 50 ppm
(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
a - Sample analyzed by Environmental Testing Laboratories, Inc
c - Sample analyzed by Severn Trent Laboratories, Inc.
b - Found in associated blanks
e - Estimated concentration, exceeds GC/MS calibration range.
j - Estimated concentration, compound present below quantitation limit
DL - Diluted sample analysis
ND - Not detected at analytical detection limit
RE - Reanalysis
MDL - Method detection limit
p - Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columsn
** - 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.
**** - Some forms of Cyanide are complex and stable while other forms are pH dependent and
hence are very unstable. Site-specific form(s) of Cyanide should be taken into
consideration when establishing soil cleanup objectives.
æ - New York State background concentration
(n) - Dragun, J. The Soil Chemistry of Hazardous Materials
(q) - Bowan, H.J. Environmental Chemistry of the Elements.
B - Value is less than the contract-required detection limit but greater than the instrument detection limit
E - Value estimated due to interference.
N - Spiked sample recovery is not within control limits.
R - Duplicate analysis not within control limits
SB - Site background
FB - Field blank

at this location were higher than at other locations on site. The NYSDEC requested that the area around CVDP-02 be widened and deepened to remove the SVOCs down to acceptable levels. Subsequent to soil removal, three additional samples (CVDP-04, CVDP-05, and CVDP-06) were collected after the area was excavated and analyzed for SVOCs only; one or more of these samples showed low levels of benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, and BaP that were slightly above the RSCOs in TAGM 4046. Table 4-5, formerly Table 7-17 from the June 2001 Remediation Report, contains the data from the cable vault drainpipe excavation. NYSDEC reviewed the data, indicated that no further work was required in the area, and granted approval for backfilling the area with clean, certified fill.

In addition, during the excavation to locate the entrance to the intake and discharge tunnels at the substation, a rusty cindery fill material was encountered. Con Edison requested that a sample be taken and analyzed for the full toxicity characteristic leaching procedure ("TCLP") parameters; NYSDEC agreed with this decision. The results were compared to the hazardous waste threshold for each compound. Only barium, chromium, and lead were detected and at levels significantly below their hazardous waste threshold; all other compounds were not detected. Table 4-6, formerly Table 6-16 from the June 2001 Remediation Report, provides these results.

Because the Site was originally owned and operated by other utility companies, the previous use and history of the Site were not always well documented. In addition, the available maps and plans of the Site were not always accurate or complete. These factors resulted in many changes during the investigation and also during the course of remediation, when previously unknown structures including drainpipes, catch basins, electrical boxes, and sumps were encountered. Some of these structures were contaminated with PCBs. As these structures were encountered they were sampled, analyzed, and, if contaminated, removed and then the underlying soil was sampled and analyzed beneath them. Many of these structures were located beneath the transformer yard slab and the substation building slab. In 1998, NYSDEC requested that additional soil samples be collected beneath the slabs. Con Edison elected to remove the slabs and submitted a Work Plan to NYSDEC in May 1998. OHM demobilized from the site in July 1998.

4.3 **1999 to 2000**

The May 1998 Work Plan was approved by NYSDEC in May 1999. Con Edison retained Sarnelli Brothers ("Sarnelli") to conduct this additional remediation work, which was initiated in August 1999. HDR|LMS provided the identical services as was provided during the 1997 to 1998 remediation. STL was again retained as the mobile laboratory to analyze the PCB samples. Mitkem Corporation ("Mitkem") was retained as the off-site laboratory to confirm the mobile laboratory samples.

TABLE 4-5 (1 of 2)

Originally Table 7-17 (June 2001 Remediation Report)

POST REMEDIATION DATA SUMMARY
CABLE VAULT SUMP DRAINPIPE EXCAVATION
(May 1998 - June 1998)

	AFTER DRAINPIPE REMOVAL			AFTER FINAL EXCAVATION				RECOMMENDED SOIL CLEANUP OBJECTIVE (b)
PARAMETER	CVDP-02 ETL	DL CVDP-02 ETL	DL CVDP-02 ETL	CVDP-04 ETL	CVDP-05 ETL	CVDP-06 ETL	DL CVDP-06 ETL	
SAMPLE DEPTH (FT)	8'	8'	8'	11 - 12'	6 - 9'	6 - 9'	6 - 9'	
VOLATILE ORGANICS (mg/kg)	ND	♦	♦	♦	♦	♦	♦	
SEMIVOLATILE ORGANICS (mg/kg)		[DL:10:1]	[DL:20:1]				[DL: 10:1]	
Naphthalene	2.48	ND	ND	ND	ND	0.185	ND	13.0
2-Methylnaphthalene	2.1	ND	ND	ND	ND	ND	ND	36.4
Acenaphthylene	2.52	ND	ND	ND	ND	0.385	ND	
Acenaphthene	1	8.47	ND	ND	ND	0.802	ND	41.0
Dibenzofuran	3.48	ND	ND	ND	ND	0.448	ND	6.2
Fluorene	1	9.95	ND	ND	ND	0.817	ND	50.0 ***
Phenanthrene	1	1	**62.0**	ND	ND	1	9.75	50.0 ***
Anthracene	1	16.9	ND	ND	ND	1.84	ND	50.0 ***
Fluoranthene	1	1	**53.1**	ND	0.335	1	10.2	50.0 ***
Pyrene	1	1	**52.9**	ND	0.459	1	11.1	50.0 ***
Benzo(a)anthracene	1	**22.6**	ND	ND	**0.232**	1	**5.89**	0.224 or MDL
Chrysene	1	**19.3**	ND	ND	0.212	1	**4.81**	0.4
bis(2-Ethylhexyl)phthalate	1	ND	ND	ND	0.859	0.538	ND	50.0 ***
Benzo(b)fluoranthene	1	**22**	ND	ND	0.281	1	**5.32**	1.1
Benzo(k)fluoranthene	1	**8.71**	ND	ND	ND	**1.66**	ND	1.1
Benzo(a)pyrene	1	**19.3**	ND	ND	**0.257**	**4.26**	ND	0.061 or MDL
Indeno(1,2,3-c,d)pyrene	1	**9.85**	ND	ND	0.147	2.04	ND	3.2
Benzo(g,h,i)perylene	1	11.9	ND	ND	0.183	2.45	ND	50.0 ***

Note : Numbers in bold exceed objectives.
1 - Value exceeded calibration range and needed further dilution to obtain an accurate value.
♦ - Not analyzed.
*** - As per TAGM #4046, Total VOCs < 10 ppm., total SVOCs < 500 ppm. And individual SVOCs < 50 ppm.
(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
e - Estimated concentration; exceeds GC/MS calibration range.
DL - Diluted sample analysis.
ND - Not detected at analytical detection limit.
MDL - Method detection limit.

TABLE 4-5 (2 of 2)

Originally Table 7-17 (June 2001 Remediation Report)

POST REMEDIATION DATA SUMMARY

CABLE VAULT SUMP DRAINPIPE EXCAVATION

(May 1998 - June 1998)

PARAMETER SAMPLE DEPTH (FT)	AFTER DRAINPIPE REMOVAL CVDP-02 ETL 8'	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
METALS (mg/kg)			
Aluminum	8220	SB	33,000
Antimony	ND	SB	0.6 - 10 (n)
Arsenic	2.69	7.5 or SB	3.0 - 12.0 æ
Barium	55.6	300 or SB	15 - 600
Beryllium	0.415	0.16 or SB	0 - 1.75
Cadmium	ND	1 or SB	0.1 - 1.0
Calcium	4820	SB	130 - 35,000 æ
Chromium	16.7	10 or SB	1.5 - 40.0 æ
Cobalt	6.63	30 or SB	2.5 - 60.0 æ
Copper	30.1	25 or SB	1.0 - 50.0
Iron	11800	2,000 or SB	2,000 - 550,000
Lead	173	SB*	4.0 - 61 or 200 - 500*
Magnesium	2,810	SB	100 - 5,000
Manganese	186	SB	50 - 5,000
Mercury	**0.081**	0.1	0.001 - 0.2
Nickel	12.6	13 or SB	0.5 - 25
Potassium	1,690	SB	8,500 - 43,000 æ
Selenium	ND	2 or SB	0.1 - 3.9
Silver	ND	SB	0.1 - 5.0 (n)
Sodium	336	SB	6,000 - 8,000
Thallium	ND	SB	0.1 - 0.8 (q)
Vanadium	24	150 or SB	1.0 - 300
Zinc	**64.5**	20 or SB	9.0 - 50
Cyanide	ND	**	N/A

Note : Numbers in bold exceed objectives.

* - 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.

** - Some forms of Cyanide are complex and stable while other forms are pH dependent and hence are very unstable. Site-specific form(s) of Cyanide should be taken into consideration when establishing soil cleanup objectives.

æ - New York State background concentration.

(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.

(n) - Dragun, J., The Soil Chemistry of Hazardous Materials.

(q) - Bowan, H.J., Environmental Chemistry of the Elements.

Originally Table 6-16 (June 2001 Remediation Report)

TRENCH INVESTIGATION SOIL DATA SUMMARY
(December 1997)

PARAMETER	TI-02 H2M	REGULATORY LEVEL (ug/l)
TCLP VOLATILE ORGANICS (ug/l)		
Vinyl Chloride	ND	200
1,1 Dichloroethene	ND	700
Chloroform	ND	6,000
1,2 Dichloroethane	ND	500
Carbon Tetrachloride	ND	500
Trichloroethene	ND	500
Chlorobenzene	ND	100,000
2-Butanone (MEK)	ND	200,000
TCLP SEMIVOLATILE ORGANICS (ug/l)		
1,4 Dichlorobenzene	ND	7,500
Hexachloroethane	ND	3,000
Nitrobenzene	ND	2,000
Hexachlorobutadiene	ND	500
2,4 Dinitrotoluene	ND	130
Hexachlorobenzene	ND	130
2,4,6 Trichlorophenol	ND	2,000
Pentachlorophenol	ND	100,000
2-Methylphenol (o-Cresol)	ND	200,000
2,4,5 Trichlorophenol	ND	400,000
3-Methylphenol (m-Cresol)	ND	200,000
4-Methylphenol (p-Cresol)	ND	200,000
Pyridine	ND	5,000
TCLP PESTICIDES (ug/l)		
Lindane	ND	400
Heptachlor	ND	8
Heptachlor Epoxide	ND	8
Endrin	ND	20
Methoxychlor	ND	10,000
Toxaphene	ND	500
Chlordane	ND	30
TCLP HERBICIDES (ug/l)		
2,4, D	ND	10,000
2,4,5-TP (Silvex)	ND	1,000
TCLP METALS (ug/l)		
Silver	ND	5,000
Arsenic	ND	5,000
Barium	0.58	100,000
Cadmium	ND	1,000
Chromium	0.01	5,000
Mercury	ND	200
Lead	0.09	5,000
Selenium	ND	1,000

ND - Not detected at analytical detection limit.

TABLE 4-6 (2 of 2)

Originally Table 6-16 (June 2001 Remediation Report)

TRENCH INVESTIGATION SOIL DATA SUMMARY
(December 1997)

PARAMETER	TI-01 STL	TI-02 H2M	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
Total METALS (mg/kg)				
Silver	♦	ND	SB	0.1 - 5.0 (n)
Arsenic	♦	6.4	7.5 or SB	3.0 - 12.0 æ
Barium	♦	87.8	300 or SB	15 - 600
Cadmium	♦	ND	1 or SB	0.1 - 1.0
Chromium	♦	9.1	10 or SB	1.5 - 40.0 æ
Mercury	♦	ND	0.1	0.001 - 0.2
Lead	♦	282	SB**	4.0 - 61 or 200 - 500**
Selenium	♦	0.9	2 or SB	0.1 - 3.9
Total Solids	♦	85.30%		
Flash Point	♦	ND	> 60° C	
pH (Corros.)	♦	9.7 Units	<2 / >12.5	
PCBs (mg/kg)				
Aroclor 1254	ND	♦		NA
Aroclor 1260	2.6	♦		NA
Total PCBs	2.6		10*	NA
Sample Depth	3-4 ft			
NYSDEC Clean-up Criteria (mg/kg)	≤ 10			

♦ - Not analyzed.
(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
* - 1.0 ppm refers to surface concentrations; 10 ppm refers to subsurface concentrations. Sample collected from3-4 ft below grade.
** - 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.
æ - New York State background concentration.
(n) - Dragun, J., The Soil Chemistry of Hazardous Materials.
ND - Not detected at analytical detection limit.
SB - Site background.

By the end of January 2000, the remedial efforts in the substation building slab were completed. This included the removal of the slab and associated structures, sampling of underlying soils for PCBs, and removal of soils exceeding the cleanup criteria. Upon completion of the remedial activities and with the NYSDEC's approval, the area was backfilled with clean fill. The removal of the transformer yard slab and associated structures as well as sampling, and, if necessary, remediation of the underlying soils was completed by November 2000. All final post-excavation samples met the cleanup objectives for PCBs (see Section 5.0 for data).

As stated previously, NYSDEC requested that Con Edison delineate the extent of the metals contamination found near the transformer yard moat drain in January 1998. As a result of the delineation and sampling that determined that the metals were associated with the cinder layer, Con Edison elected to remove the entire cinder layer. This cindery layer, 0.5 to 1 ft thick, was most likely used as base material for the transformer yard when it was constructed.

The cinder removal activities were initiated in February 2000. After a portion of the cinder layer was removed, oily water and oily soils were encountered in several areas of the transformer yard, which halted cinder removal activities in March 2000. A series of test pits was completed in the area in order to investigate the potential source(s) of the oil.

Visual inspection of the test pits conducted near the underground duct banks indicated that some of these structures contained residual oil or oily water. Fingerprint analyses of the soil and oil/oily water samples collected from the test pits indicated that most of them contained dielectric fluid or transformer oil.

Visual inspection of the test pits conducted in the northwest corner of the transformer yard indicated the presence of fuel oil contamination. The fingerprint results for the soil samples collected from the test pits confirmed the presence of a fuel oil in the soil. The impacted soil appeared to be confined to an area approximately 50 feet long, 15 feet wide and 5 feet deep. A search of the New York Spills Database revealed a record of a fuel oil spill that occurred in May 1994 on the property located just north of the site behind the retaining wall. Jonel Development Corporation now owns this property, formerly the Shoreline Oil Company Terminal.

After completion of the test pit investigation, Sarnelli demobilized from the site in July 2000.

4.4 **2001 to 2002**

The remediation work completed on the site from 1996 to 2000 was summarized in the Remediation Report submitted to the NYSDEC in June 2001. At the same time, the June 2001

Work Plan that included the removal of the remaining cinder layer and the duct banks in the transformer yard was prepared and submitted to NYSDEC. The field work contained in this work plan was initiated in April 2002 and completed in August 2002 by Sarnelli and overseen by HDR|LMS.

In October 2001, Con Edison submitted a Work Plan for the fuel oil-contaminated area that was found during the test pit investigation in the northwestern corner of the transformer yard. After submittal and approval of this work plan, the soil was excavated to a depth of five ft and five post-excavation samples were collected by HDR|LMS for VOC and SVOC analysis in May 2002. Both the NYSDEC 1994 TAGM soil cleanup objectives and the NYSDEC Recommended Soil Cleanup Objectives for Fuel Oil Contaminated Soil (Ref. 24, Appendix A of this Report) were used as the remedial objectives (see Section 5.0 for results). None of the samples exceeded any cleanup objectives. HDR|LMS prepared a report, dated August 2002, entitled ***Echo Avenue Site Fuel Oil Spill Report*** (the "Fuel Oil Spill Report") that documented the cleanup conducted in the northwestern corner of the transformer yard (Ref. 25, Appendix A of this Report). The report was submitted to NYSDEC, which officially closed the Con Edison Echo Avenue spill (NYSDEC Spill No. 99-12989) on September 30, 2002 (Refs. 26 and 27, Appendix A of this Report).

4.5 2002 to 2003

In August 2002, Con Edison elected to conduct additional remediation work on the Site. A Work Plan was prepared and submitted to NYSDEC in October 2002. However, since the contractor, Sarnelli, was already on the Site, Con Edison elected to have Sarnelli initiate the work prior to submission and approval of the work plan. This work was conducted from August 2002 to May 2003 and included removal of all additional subsurface structures in the transformer yard (pedestals, manholes, and pullbox), removal of the cable vault and duct runs between the cable vault and transformer yard and tunnel, removal of all PILC between the cable vault and tunnel, sampling of the remaining monitoring wells, and abandonment of the wells after review of the sampling data. In addition, selected catch basins and drainpipes in the remainder of the Site were removed. Manhole No. 4 had been sampled and filled in with concrete as part of the 1996 to 1998 remediation. In addition, the cables from the street manholes (MH-5 and MH-6) to the concrete retaining wall in the transformer yard were removed and the duct banks cleaned and plugged on both ends as part of the 1996 to 1998 remediation (see Figure 1-3). These structures (the portion of the concrete duct banks from Echo Avenue to the west wall of the former transformer yard and MH-4) remain in place.

Because three of the six monitoring wells were destroyed during the previous remediation work and one well was bent so severely that it could not be sampled, only two wells could be sampled

on the Site during the final groundwater sampling event. These wells, EAMW-1 and EAMW-4 (see Figure 5-45 in the following section for location), were sampled in August 2002 and analyzed for TCL organics and TAL inorganics and compared to the Class GA Groundwater Standards. The results showed several metals that were above the standards or guidance values, some of which were attributed to saltwater intrusion from Echo Bay (Section 5.0 provides the results and shows the locations). After review of the data by the NYSDEC, Con Edison received permission to abandon the wells (Ref. 28, Appendix of this Report). These two wells plus one additional well that could not be sampled (EAMW-5), were abandoned in accordance with NYSDEC document, ***Decommissioning Procedures NPL Site Monitoring Well Decommissioning*** [Decommissioning Procedures (Ref. 29, Appendix A of this Report)] in January 2003.

The results of the remediation conducted from 2002 to 2003 were summarized in the July 2003 Remediation Report Addendum.

4.6 2003 to 2004

The RAWP prepared by TRC for the mudflat area was approved by NYSDEC in June 2003 and included a pre-design sampling program which occurred in July 2003. A total of sixty sediment samples were collected from fifteen locations with the locations surveyed using global positioning system ("GPS") equipment. As a result of the pre-design sampling, six 'hot spots' in addition to the four original AOCs were identified that required remediation. The results in the hot spots ranged from 1.1 to 3.5 mg/kg of PCBs.

The remediation of the mudflat area took place in three phases:

- Phase 1 - October 27 to November 5, 2003
- Phase 2 - December 15 to 23, 2003
- Phase 3 - March 8 to April 22, 2004.

The remediation was done in stages due to poor weather conditions and a lack of a receding low tide during the first two stages that prevented access to the outer reaches of the excavation. Samples were collected to confirm that the remedial objective of 1.0 mg/kg for PCBs was met.

On December 19, 2003, NYSDEC requested that a sample be collected from area AOC-1 where a fuel oil odor was detected and a sheen was observed on the sediment. The sample was analyzed for TCL VOCs and SVOCs (the results are discussed in Section 5.0)

After the remediation was complete, the excavated area was backfilled with a combination of clean certified top soil and sand. The results of the mudflat remediation were reported by TRC in the RAR prepared in February 2005.

4.7 2007

Based on a review of TRC's RAR (Ref. 22, Appendix A of this Report) for the sediment remediation activities conducted in 2003 and 2004 and a review of the sediment sample results collected by HDR|LMS, there appeared to be three locations where samples collected by HDR|LMS contained concentrations of PCBs above 1 mg/kg and additional sediment was not removed during the remediation activities by TRC. HDR|LMS contacted Con Edison to discuss this information after review of the various reports was completed. A Site visit was conducted by Con Edison, TRC, and HDR|LMS on January 12, 2007 to have personnel involved with the sampling activities from TRC and HDR|LMS look at the locations in question. Apparently, TRC was not provided with HDR|LMS' report which contained the data from these three locations [***Report on Sampling Required in Revised Addendum No. 2 Final Work Plan*** (the "April 1996 Revised Report") dated April 1996 (Ref. 8, Appendix A of this Report)] when they were preparing their proposal and the RAWP for the sediment remediation activities. The following paragraphs describe the three locations in question (see Figure 4-1, formerly Figure 4-5 from the April 1996 Revised Report for the location of these samples).

One location, EAEBSD-16A, is under the overhead pipes leading from the abandoned fuel oil barge dock to the west towards Echo Avenue where the former oil terminal was located. During the remediation activities, TRC was concerned about the condition of this deteriorated structure and the safety of its workers and the possibility of the release of oil from the pipes if they broke. They conducted remediation excavation work in this area by hand and received permission from NYSDEC to excavate to within 2 ft of the pipes further to the west so they would not be undermined. The sediment at location, EAEBSD-16A, was not removed by TRC as part of the 2003 to 2004 TRC remediation activities.

Based on the discussions and a review of photos taken during TRC's remedial activities during the site visit on January 12, 2007, TRC confirmed that they had excavated sediment just north of EAEBSD-13A when working in the VS-04 area. However, it does not appear that sediment was removed this close to the steel bulkhead in this area (EAEBSD-13A was collected 8 ft from the bulkhead).

When TRC was removing sediment from the VS-03/AOC-3 area, it temporarily placed clean material down on top of the EADPOSD-5 area to position the excavator to be able to reach the VS-03/AOC-3 location. When the excavation activities were completed in this area, the clean

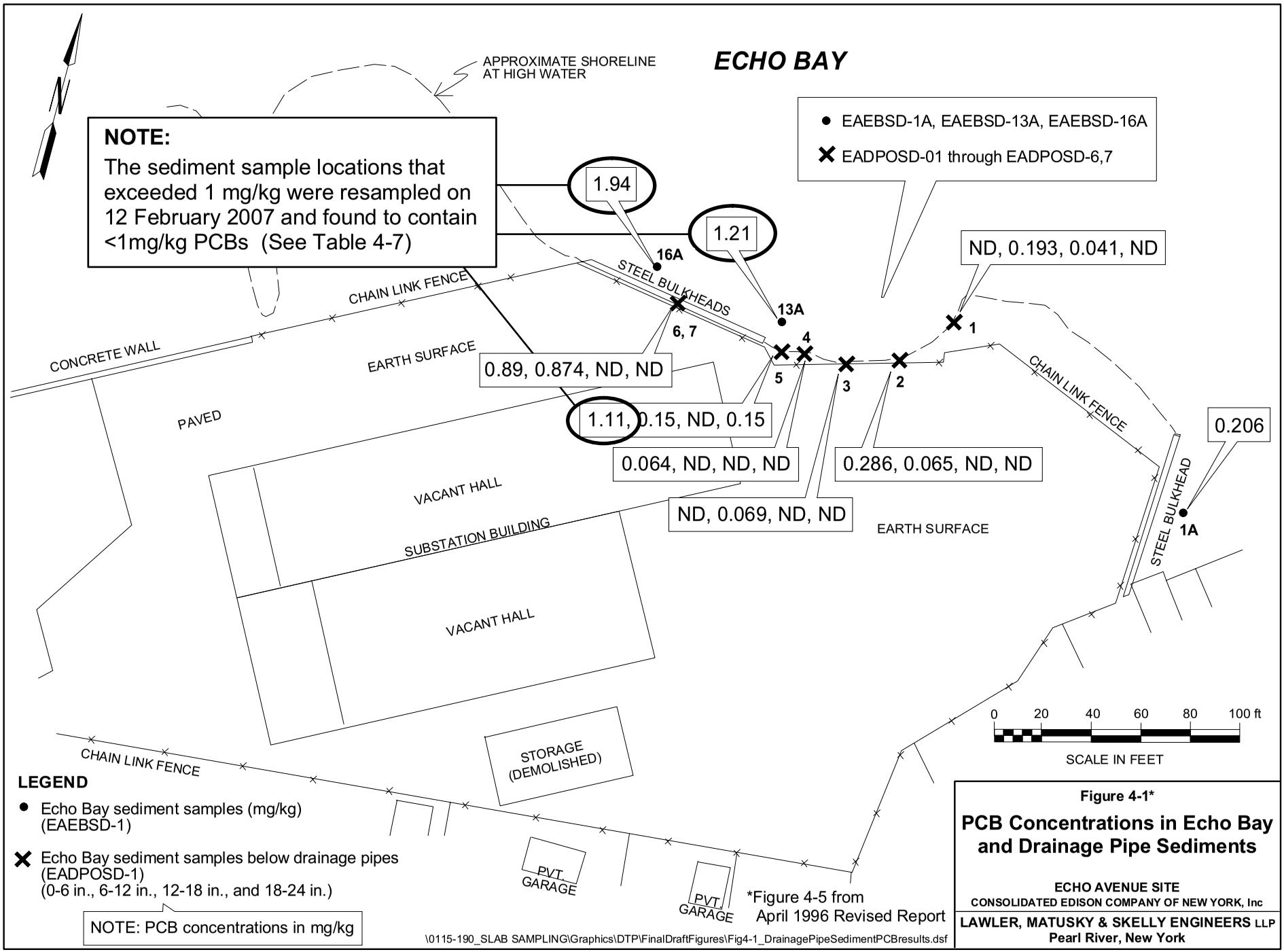


Figure 4-1*

PCB Concentrations in Echo Bay and Drainage Pipe Sediments

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

fill material previously placed was removed and that which was in contact with the sediment was disposed. It is possible that the surface of this area was excavated during this process. However, the deteriorated wooden crib that EADP-5 drained into was still visible suggesting that TRC did not remove the fill material much below the top of the sediment in this area. Therefore, it appeared that the sediment at location EADPOSD-5 had not been removed by TRC. As mentioned previously in this Section, the results from these three sediment samples collected in 1995 ranged from 1.11 to 1.94 mg/kg PCBs (see Figure 4-1).

Subsequent to the site visit, Con Edison elected to resample the three locations in question from the mudflat area (EAEBSD-13A, -16A, and EADPOSD-5) to determine the current concentration of PCBs at these locations. Con Edison retained HDR|LMS to collect the three samples; the sampling event was conducted on February 12, 2007.

Sediment samples were collected from the 0-2 ft interval at these three locations. A hole was dug to a depth of 2 ft with a clean shovel in the original sample locations (based on photographs and measurements from nearby landmarks). A laboratory-cleaned, stainless steel spoon was then used to scrape sediment from the sides of the hole from 0-2 ft. The sediment was placed in a laboratory-cleaned, stainless steel bowl, homogenized, and placed in laboratory-supplied sample containers. The samples were labeled (EAEBSD-13A-R, -16A-R, and EADPOSD-5-R), placed in an iced cooler, and shipped to the analytical laboratory (Mitkem Corp.) under chain-of custody protocol. A blind duplicate sample, a field rinseate blank sample, and matrix spike and matrix spike duplicate samples were collected and submitted to the analytical laboratory with the three sediment samples to provide the applicable QA/QC samples. All samples were analyzed for all PCB aroclors.

The results of the resampling showed that these three locations do not contain PCB concentrations above 1 mg/kg in the sediment from the 0-2 ft depth interval. EADPOSD-5-R and a blind duplicate sample collected at this location (EADPOSD-5-R-D) contained no detectible concentrations of PCBs, and the samples from EAEBSD-13A-R and EAEBSD-16A-R contained PCB concentrations of 0.88 and 0.54 mg/kg, respectively. The results are presented in Table 4-7; only aroclors that were detected are provided on the table.

5.0 SUMMARY OF CONTAMINANT LEVELS REMAINING ON SITE

This Section summarizes the levels of contaminants remaining at various locations on the site. The discussion has been subdivided into soil contaminant levels both on adjacent residences and on site, on site groundwater contaminant levels, and contaminant levels in the mudflat sediment of Echo Bay. Where appropriate, figures showing the final confirmatory contaminant levels have been provided.

Table 4-7

SEDIMENT DATA SUMMARY
MUDFLAT SEDIMENTS
(February 2007)

Sample ID Date Analytical Laboratory	EAEBSD-13A-R 2/12/2007 MITKEM	EAEBSD-16A-R 2/12/2007 MITKEM	EADPOSD-5-R 2/12/2007 MITKEM	EADPOSD-5-R-D 2/12/2007 MITKEM (Blind Duplicate of EADPOSD-5-R)	FB-01 2/12/2007 MITKEM (Field Blank)
					(µg/l)
PCBs (mg/kg)					
Aroclor 1254	0.88	0.54	ND	ND	ND
Aroclor 1260	ND	ND	ND	ND	ND
Total PCBs	0.88	0.54	ND	ND	ND
Sample Depth	0-2 ft	0-2 ft	0-2 ft	0-2 ft	1-2'
NYSDEC Clean-up Criteria (mg/kg)	$\leq$ 1	$\leq$ 1	$\leq$ 1	$\leq$ 1	$\leq$ 1

-- - MITKEM data not validated.
j - Estimated concentration; compound present below quantitation limit.
p - Estimated concentration; Pesticide/Aroclor target analyte has >25% difference for the detected concentrations between the two GC columns.
s - Estimated concentration; solids below 50%.
DL - Diluted sample analysis.
ND - Not detected at analytical detection limit.
MITKEM - Off-site laboratory.

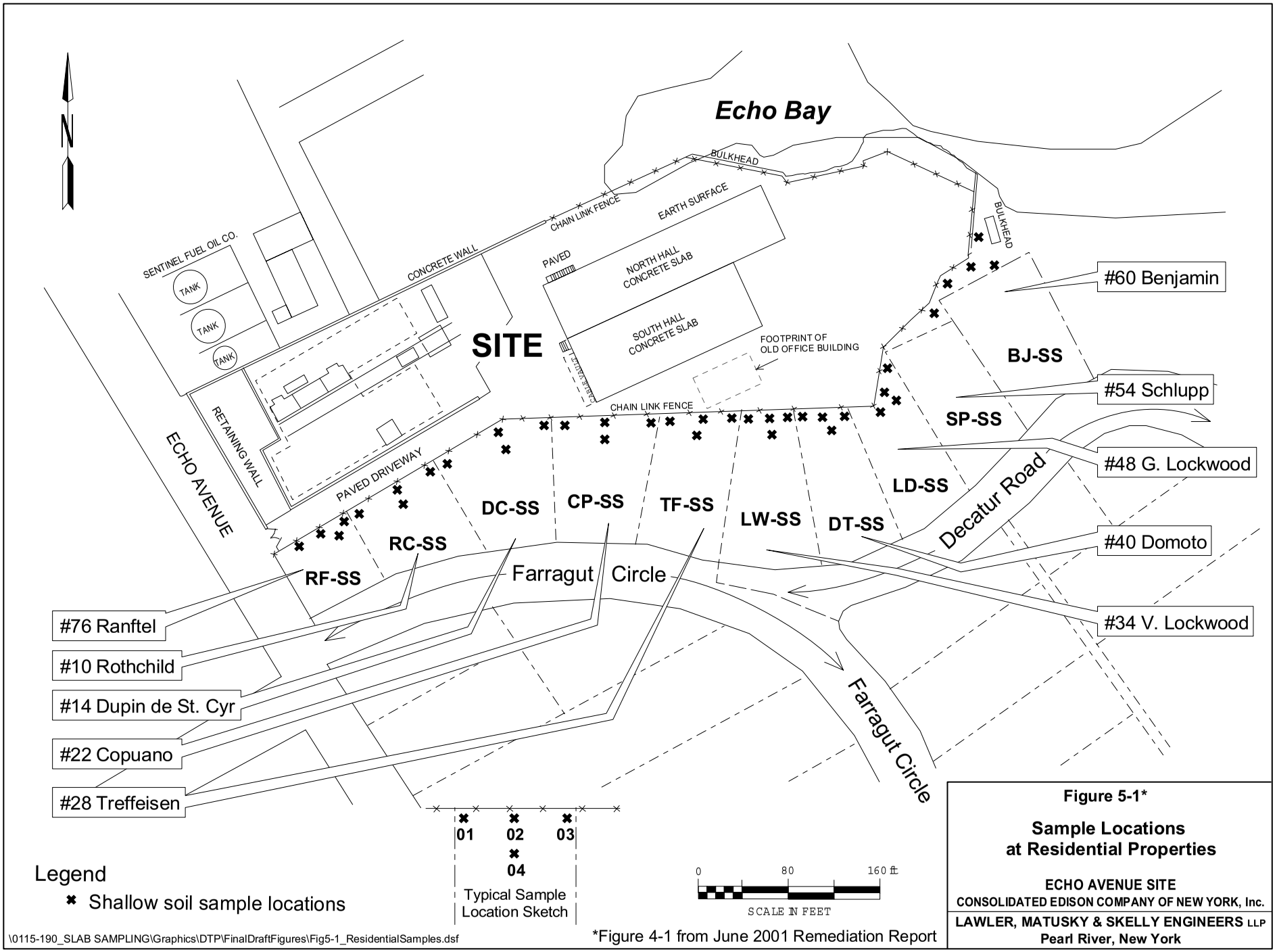
5.1 SOIL

The following sections describe the contaminant levels remaining in soil on- and off-Site. Figures are provided that show the confirmatory sample analyses after remediation was completed or where investigations determined that no contamination existed. In Section 6.0 overall figures are presented that show the contaminant levels that remain throughout the Site.

5.1.1 Adjacent Residences

As part of the Site investigations, soil samples, i.e., ≤2 ft deep, were collected from ten residential properties located adjacent to the former Con Edison Echo Avenue substation in 1996 (see Figure 5-1, formerly Figure 3-1, from the June 2001 Remediation Report). Some of the owners have changed from the time the sampling was conducted. In this section if a new owner exists, the name is in parenthesis after the name during the sampling event; the address is also provided in parenthesis. The owner information and owner address were obtained from the City of New Rochelle 2008 Tentative Assessment Roll (Ref. 30, Appendix A). At six of these residences: Ranftel (76 Echo Avenue, Mullings) Rothchild (10 Farragut Circle, Deutsch Bank), Domoto (40 Decatur Road, Mines), G. Lockwood (48 Decatur Road, Martinez), Schlupp (54 Decatur Road), and Benjamin (60 Decatur Road), no PCBs above the cleanup level of ≤1 mg/kg at a depth of ≤2 ft were found. Figures 5-2, 5-3, 5-4, 5-5, 5-6, and 5-7, formerly Figures 5-1, 5-2, 5-7, 5-8, 5-9, and 5-10, from the June 2001 Remediation Report, respectively, document the PCB levels remaining at these six residences. Four of the residences: Dupin de St. Cyr (14 Farragut Circle), Copuano (22 Farragut Circle), Treffeissen (28 Farragut Circle), and V. Lockwood (34 Decatur Road) had PCBs above the cleanup objective for surface soils (≤ 1 mg/kg for soils ≤2 ft deep) and therefore, required remediation. Figures 5-8, 5-9, 5-10, and 5-11, formerly Figures 7-1, 7-2, 7-3, and 7-4a to 7-4m, from the June 2001 Remediation Report, show the final confirmatory PCB concentrations after the remediation was completed at the Dupin de St. Cyr, Copuano, Treffeissen, and V. Lockwood residences, respectively. Figure 5-11 is a composite of Figures 7-4a – 7-4m. The excavation at the V. Lockwood property extended onto the Con Edison property and ranged from between 0.5 ft deep to 8 ft deep. The excavation had continued until all confirmatory PCB sample results met the RSCOs in TAGM 4046. This is the reason that the results provided on Figure 5-11 are for different sections. Figure 5-11a shows only the data where PCBs are found at concentrations of greater than 1 mg/kg. Note that all the locations where PCBS were detected at greater than 1 mg/kg are at depths greater than two ft bgs.

As stated in Section 4.2, one sample was collected from the V. Lockwood excavation on the Con Edison property and analyzed for TCL organics and TAL inorganics. After the results (provided in Table 4-1) were received from this sample, WTD-01, NYSDEC authorized Con Edison to backfill the area.



\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-1_ResidentialSamples.dsf

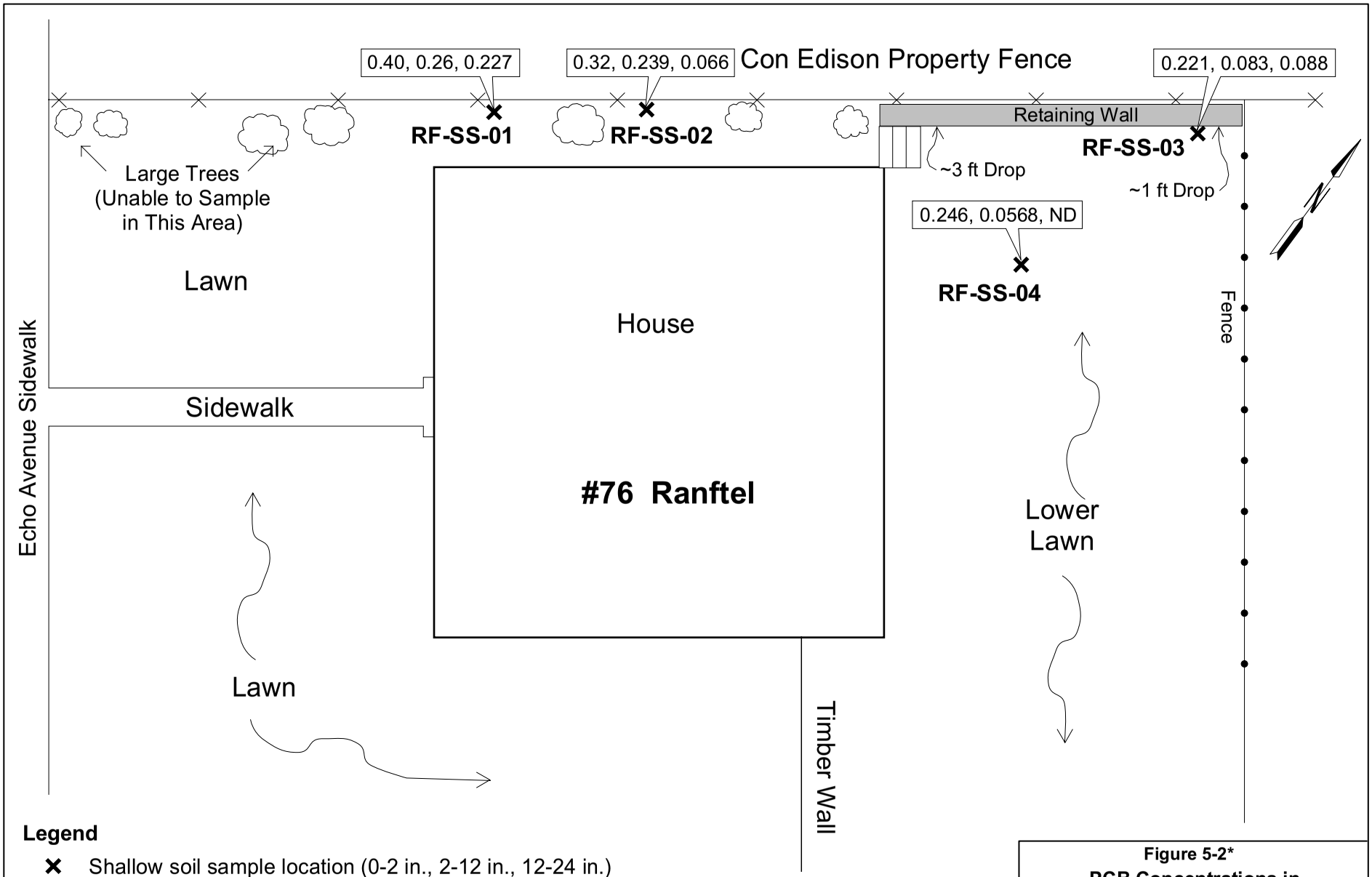
*Figure 4-1 from June 2001 Remediation Report

Figure 5-1*

Sample Locations at Residential Properties

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



Legend

✕ Shallow soil sample location (0-2 in., 2-12 in., 12-24 in.)

ND Not detected

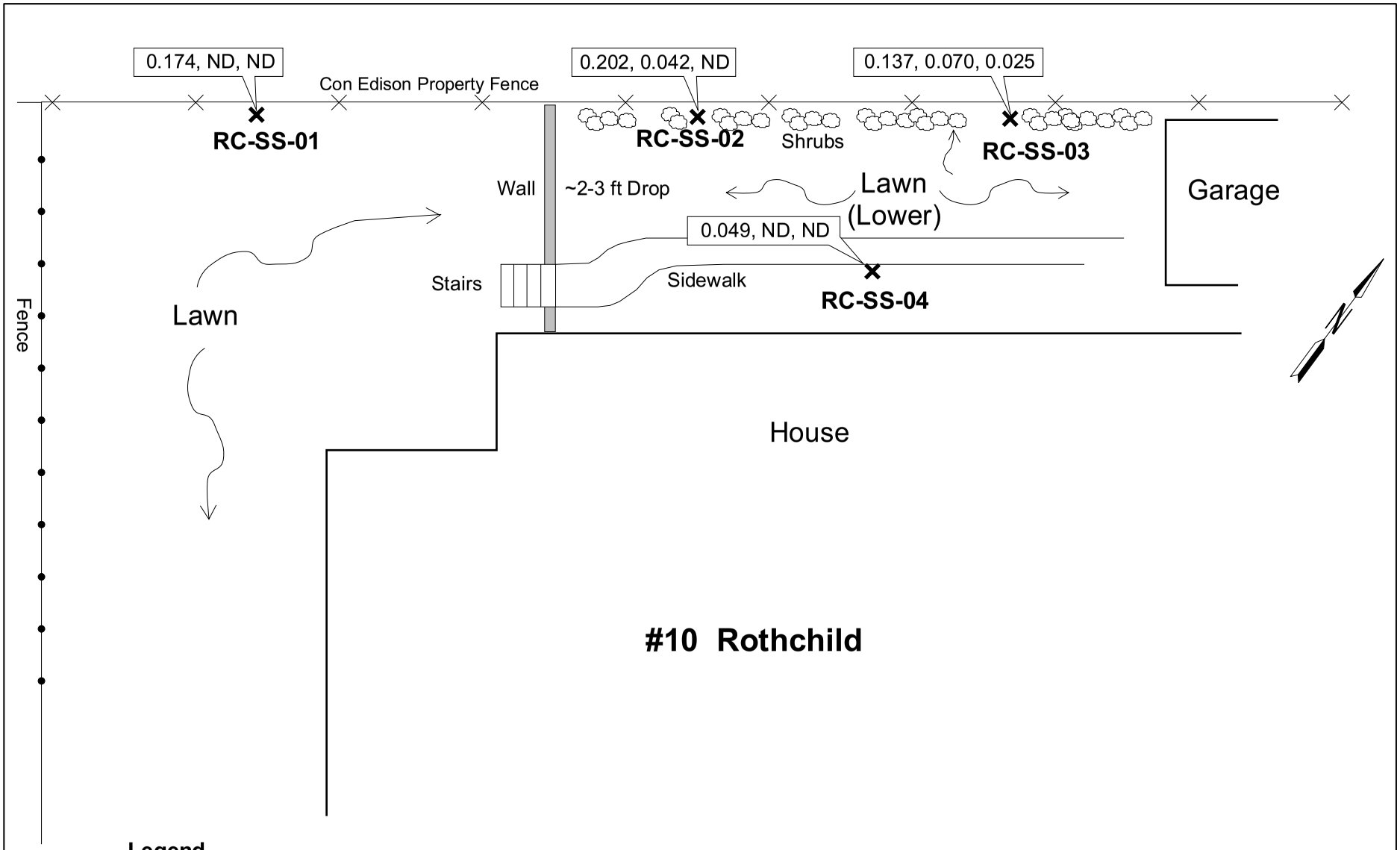
NOTE: All dimensions estimated from observations
All concentrations in mg/kg

0 10 ft
APPROX. SCALE
1 in. = 10 ft

Figure 5-2*
PCB Concentrations in Shallow Soil Samples at Ranftel Property
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-2_RanftelPropertyPCBs.dsf

*Figure 5-1 from June 2001 Remediation Report



Legend

✕ Shallow soil sample location (0-2 in., 2-12 in., 12-24 in.)

ND Not detected

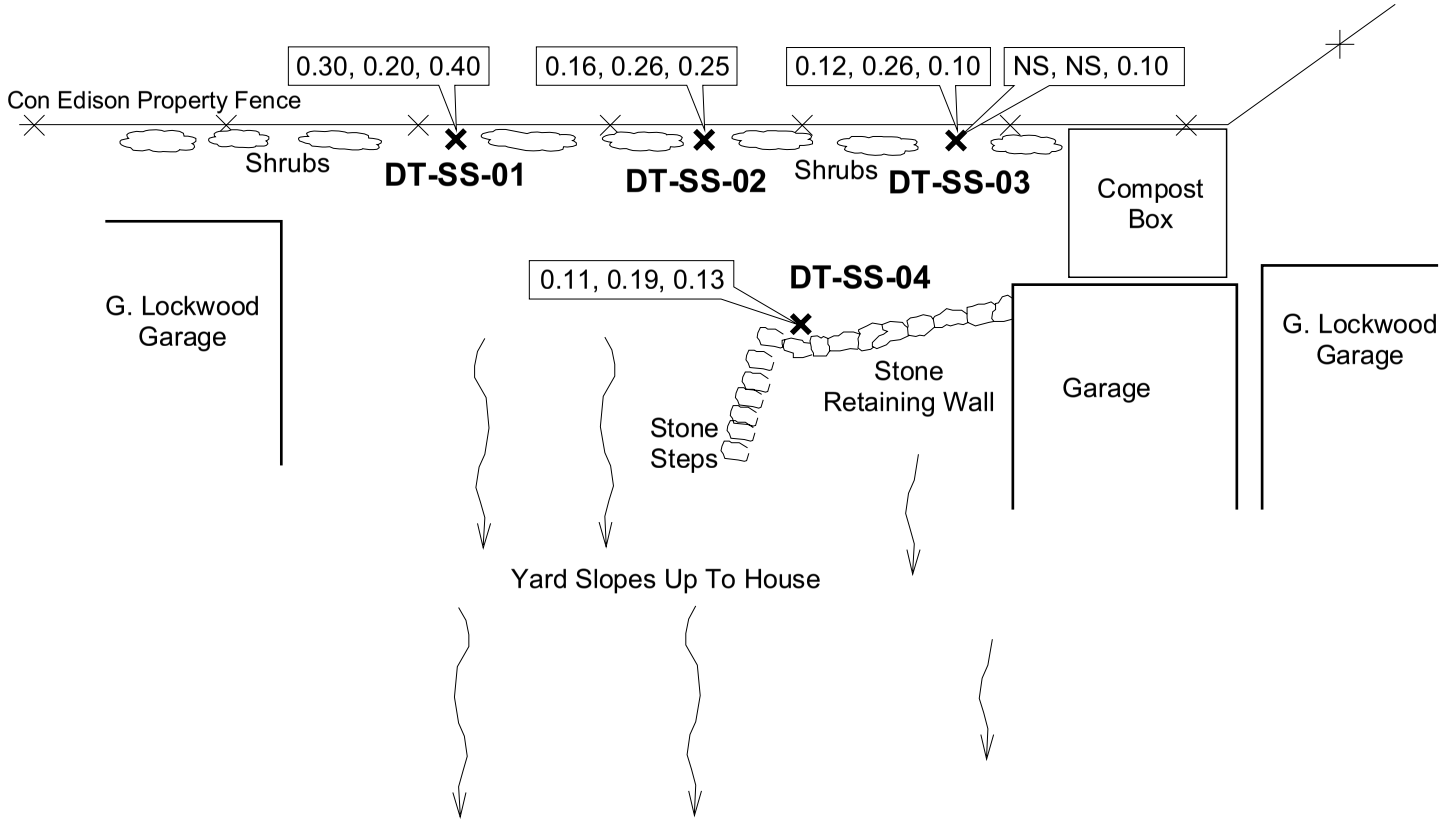
NOTE: All dimensions estimated from observations
All concentrations in mg/kg

0 10 ft
APPROX. SCALE
1 in. = 10 ft

Figure 5-3*
PCB Concentrations in Shallow Soil Samples at Rothchild Property
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-3_RothchildPropertyPCBs.dsf

*Figure 5-2 from June 2001 Remediation Report



Legend

- ✕ Shallow soil sample location (0-2 in., 2-12 in., 12-24 in.)
- **ND** Not detected
- **NS** Not resampled
- ***** Resample data (February 1997)

NOTE: All dimensions estimated from observations
All concentrations in mg/kg

0 10 ft
APPROX. SCALE
1 in. = 10 ft

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-4_DomotoPropertyPCBs.dsf

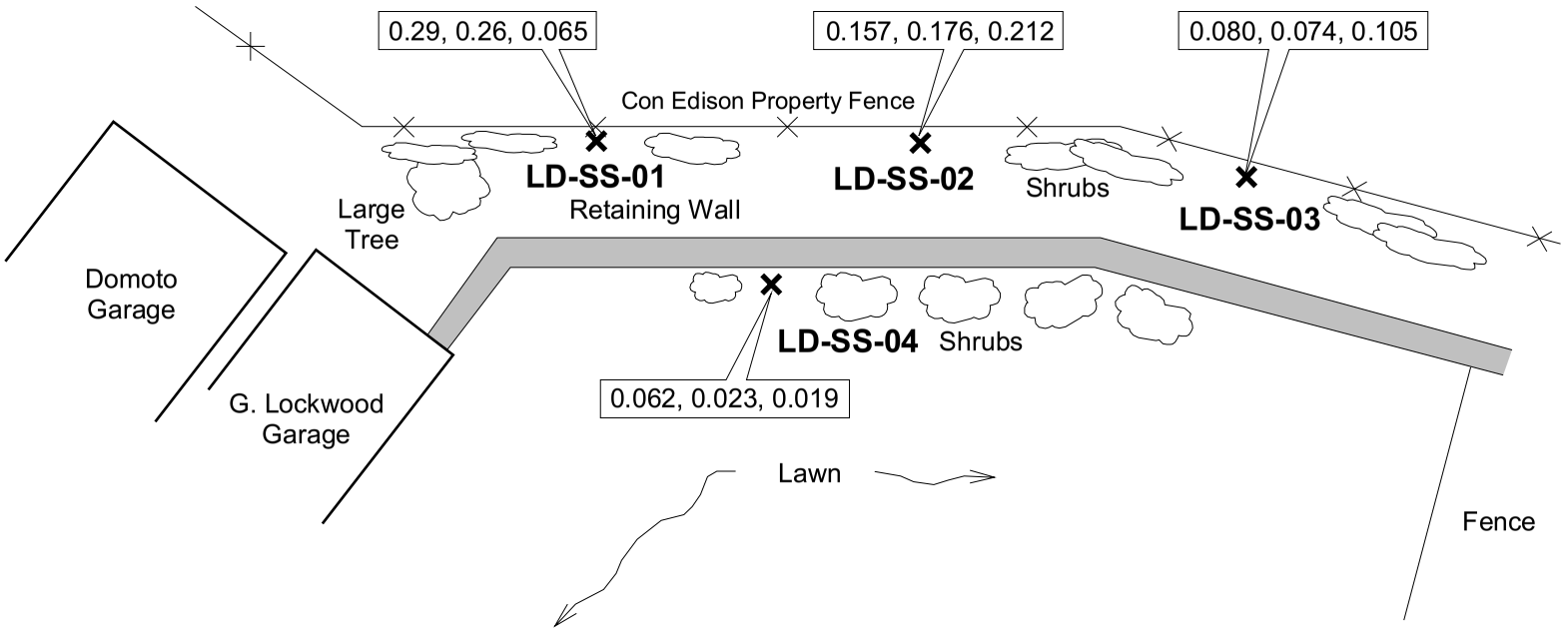
*Figure 5-7 from June 2001 Remediation Report

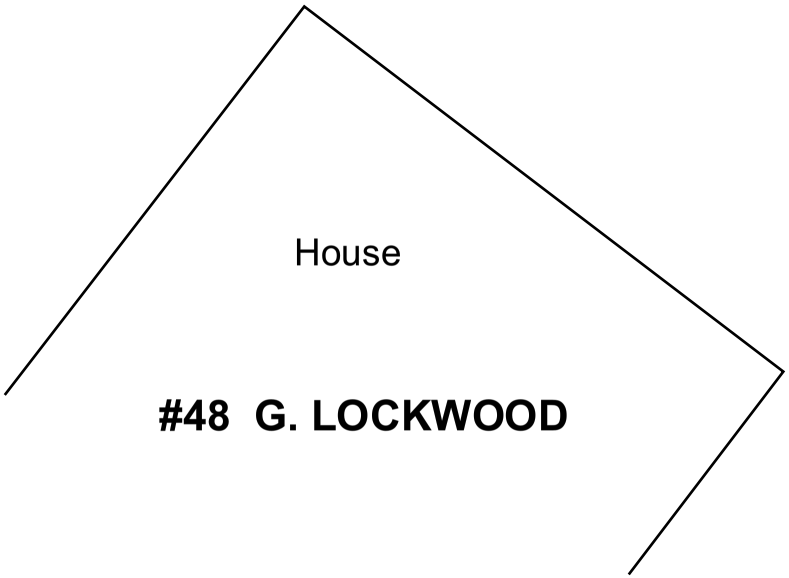
Figure 5-4*

PCB Concentrations in Shallow Soil Samples at Domoto Property

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York





NOTE:
There is a 2 ft drop at retaining wall. It appears that they compost leaves in areas between wall and fence.

Legend

✕ Shallow soil sample location (0-2 in., 2-12 in., 12-24 in.)

ND Not detected

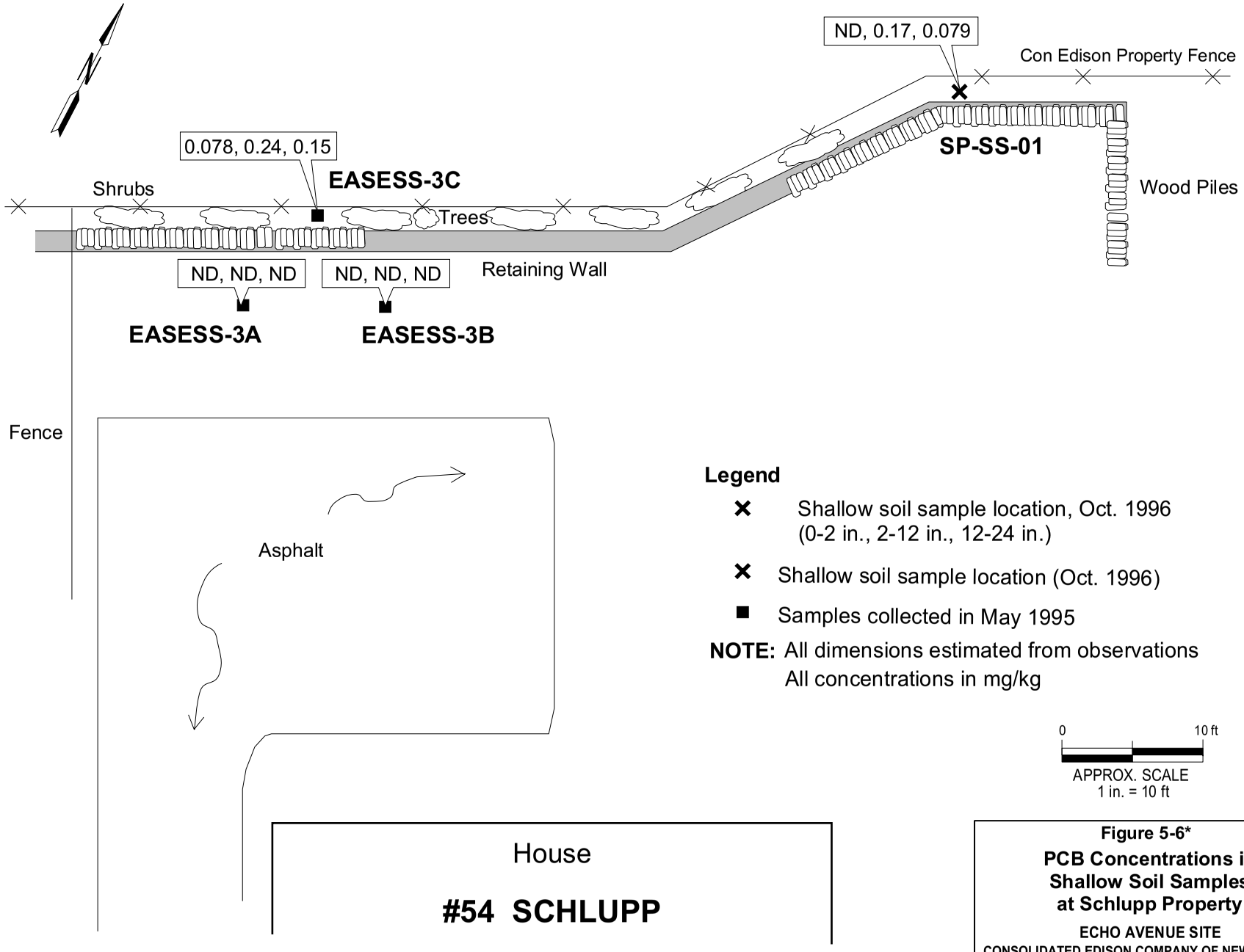
NOTE: All dimensions estimated from observations
All concentrations in mg/kg

0 10 ft
APPROX. SCALE
1 in. = 10 ft

Figure 5-5*
PCB Concentrations in Shallow Soil Samples at G. Lockwood Property
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

*Figure 5-8 from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-5_GLockwoodPropertyPCBs.dsf



Legend

- ✕ Shallow soil sample location, Oct. 1996 (0-2 in., 2-12 in., 12-24 in.)
- ✕ Shallow soil sample location (Oct. 1996)
- ■ Samples collected in May 1995

NOTE: All dimensions estimated from observations
All concentrations in mg/kg

0 10 ft

APPROX. SCALE
1 in. = 10 ft

Figure 5-6*

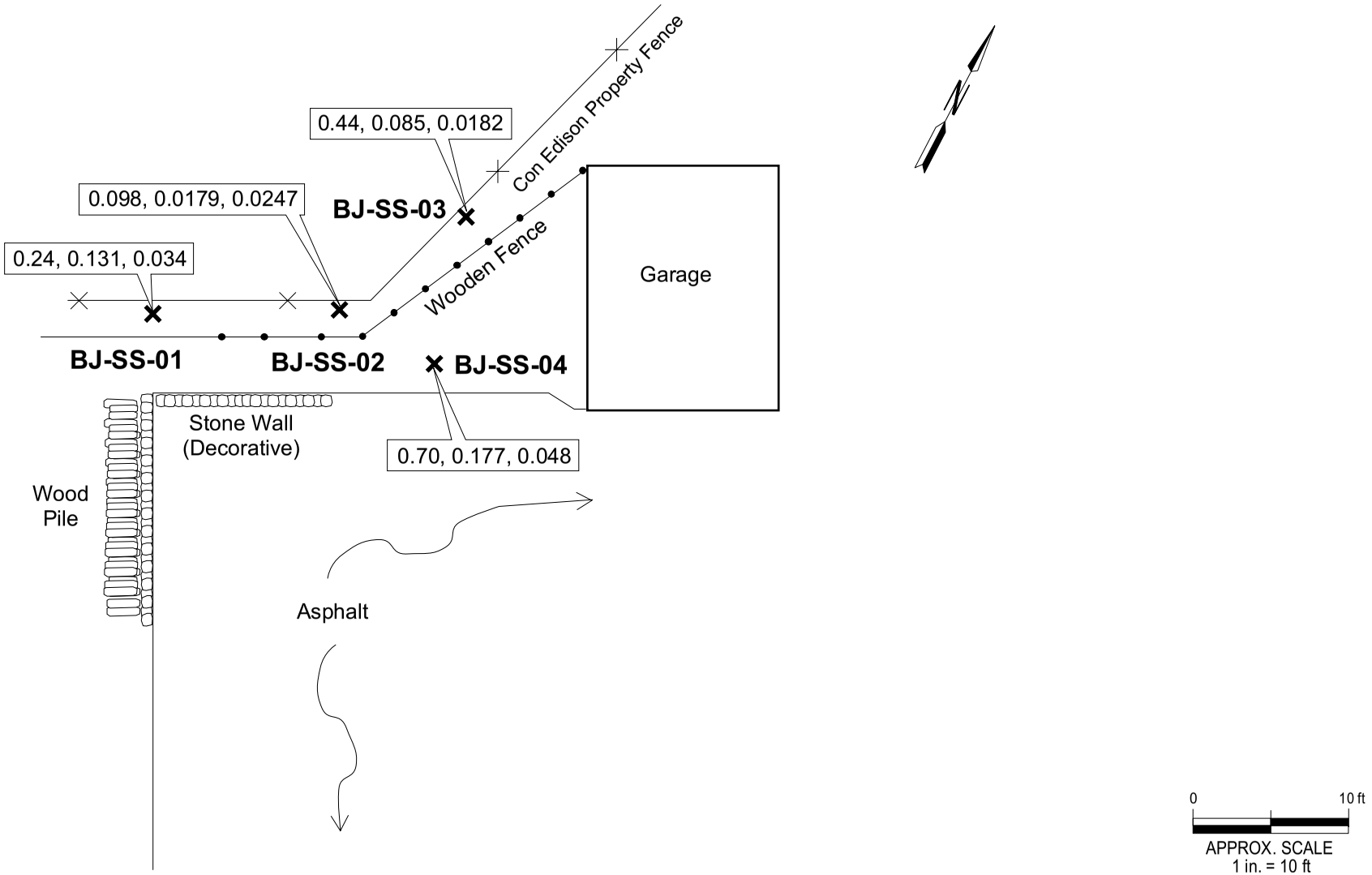
PCB Concentrations in Shallow Soil Samples at Schlupp Property

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-9_SchluppPropertyPCBs.dsf

*Figure 5-9 from June 2001 Remediation Report



Legend

✕ Shallow soil sample location
(0-2 in., 2-12 in., 12-24 in.)

NOTE: All dimensions estimated from observations
All concentrations in mg/kg

House

#60 BENJAMIN

Figure 5-7*

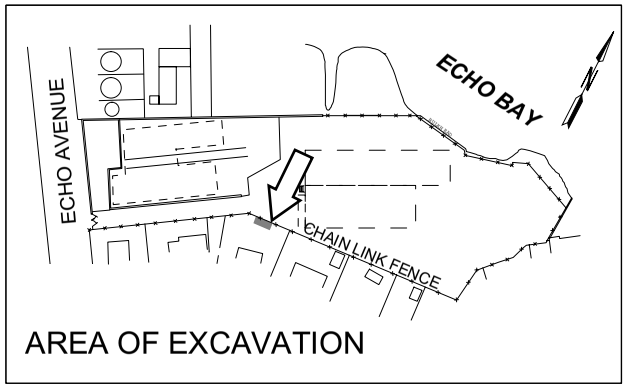
PCB Concentrations in Shallow Soil Samples at Benjamin Property

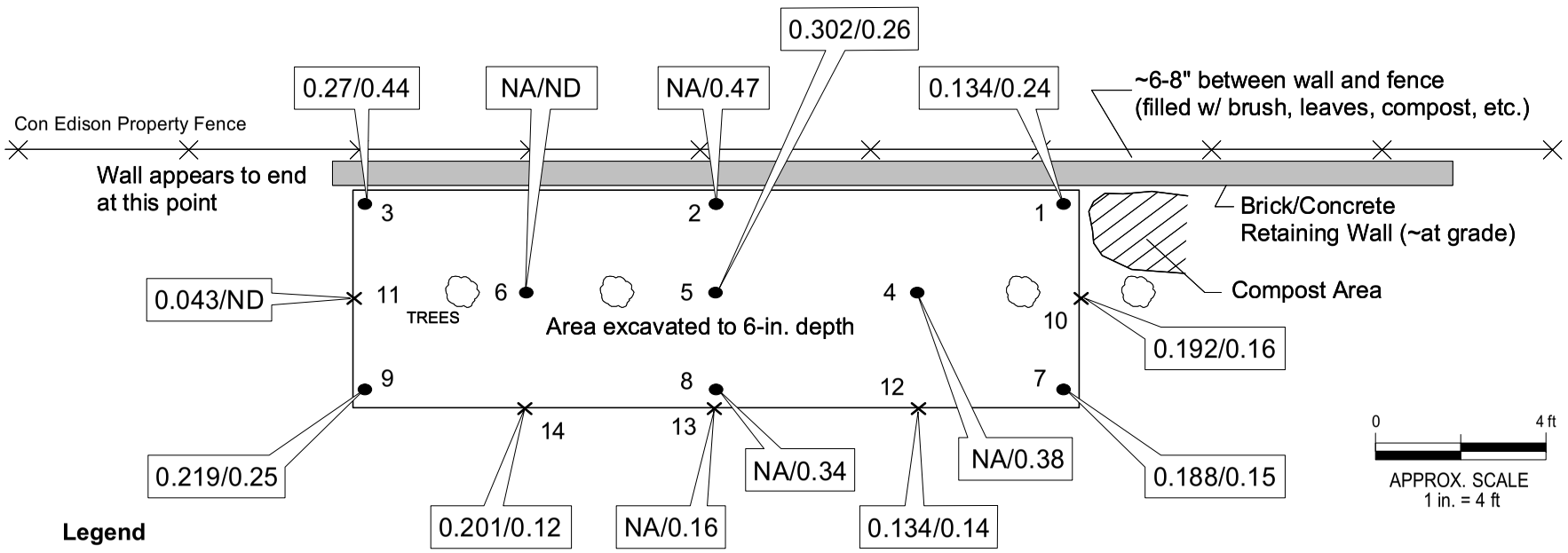
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

*Figure 5-10 from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-7_BenjaminPropertyPCBs.dsf





Legend

●	Floor sample
×	Wall sample
0.27/0.44	Outside lab results (H2M)/Mobile lab results (STL) PCB concentration (mg/kg)
NA	Not analyzed
ND	Not detected at analytical detection limit

NOTE:
All sample numbers are prefixed with DCE-, e.g., DCE-01

*Figure 7-1 from June 2001 Remediation Report

Figure 5-8*
Dupin de St. Cyr Property
Final Post-Remediation
Sample Locations
and PCB Results
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-8_DupinPropertyPCBs.dsf

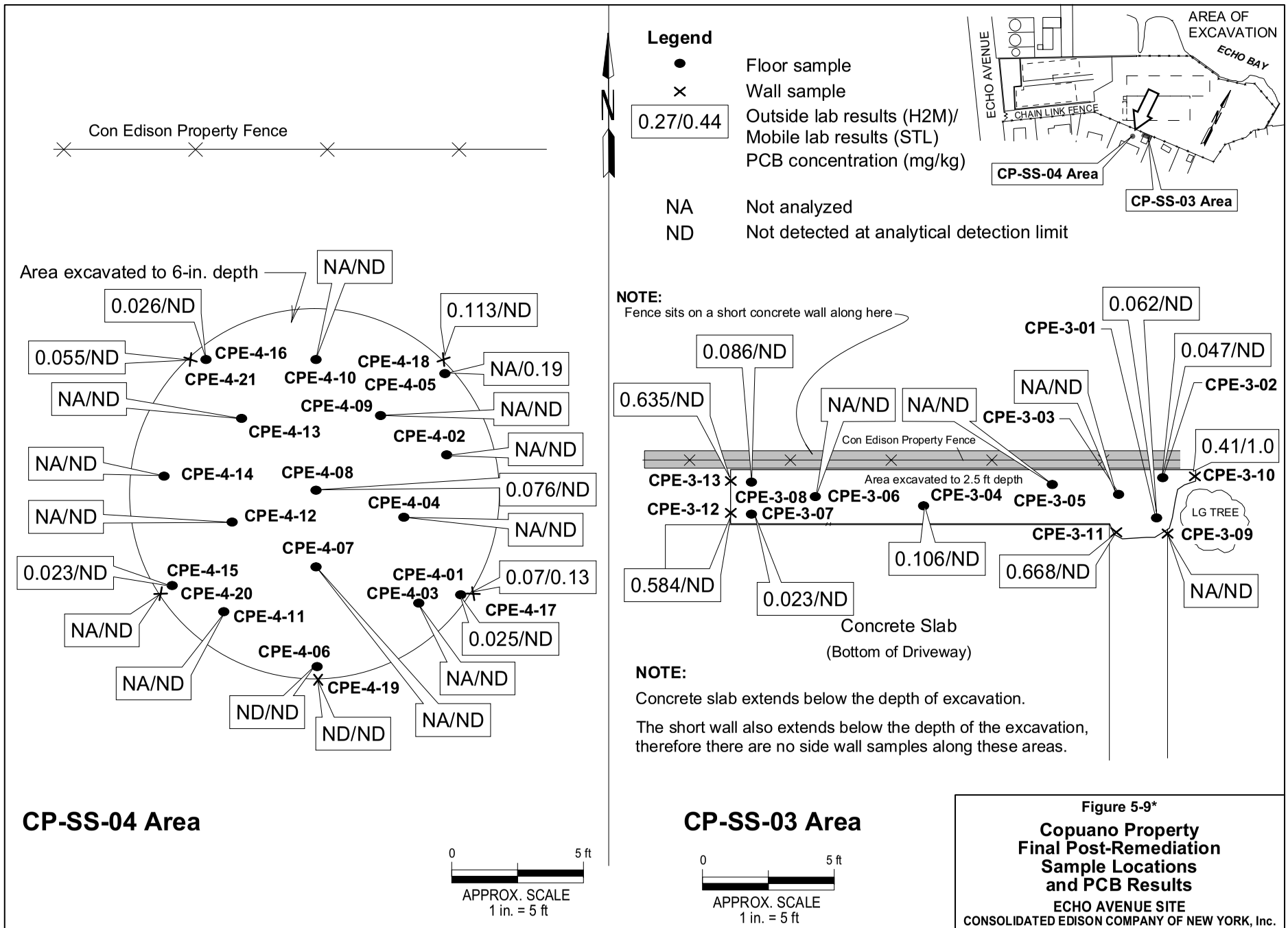


Figure 5-9*

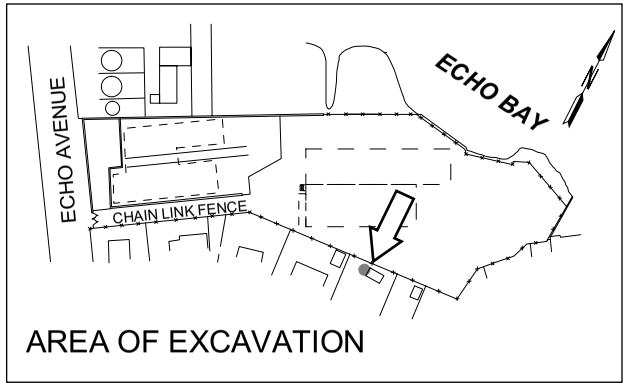
Copuano Property
Final Post-Remediation
Sample Locations
and PCB Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

*Figure 7-2 from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-9_CopuanoPropertyPCBs.dsf



ND/ND
NA/ND
0.49/ND
0.33/0.74
TFE-17
TFE-20
TFE-13
TFE-06
TFE-22
NA/ND
NA/ND
TFE-21
NA/ND
TFE-15
NA/ND
0.041/ND
0.92/ND
TFE-09
TFE-03
NA/ND
TFE-05
TFE-23
TFE-12
AREA EXCAVATED
T0 6-in. DEPTH
NA/ND
TFE-02
7'
FOOTING FOR
SWING SET
NA/ND
TFE-24
ND/ND
NA/ND
NA/ND
ND/ND
TFE-14
TFE-01
NA/ND
TFE-19
TFE-11
NA/ND
TFE-04
0.028/ND
TFE-08
TFE-25
0.397/ND
NA/ND
TFE-10
NA/ND
TFE-07
TFE-18
TFE-16
0.032/ND
NA/ND
0.233/ND

Concrete Ramp

Playground Area

(Old Garage
Slab/Foundation)

CREVICE BETWEEN RAMP AND SLAB (~4" WIDE)

Legend

- ● Floor sample
- × Wall sample
- 0.27/0.44 Outside lab results (H2M)/ Mobile lab (STL) results PCB concentration (mg/kg)
- NA Not analyzed
- ND Not detected at analytical detection limit

NOT TO SCALE

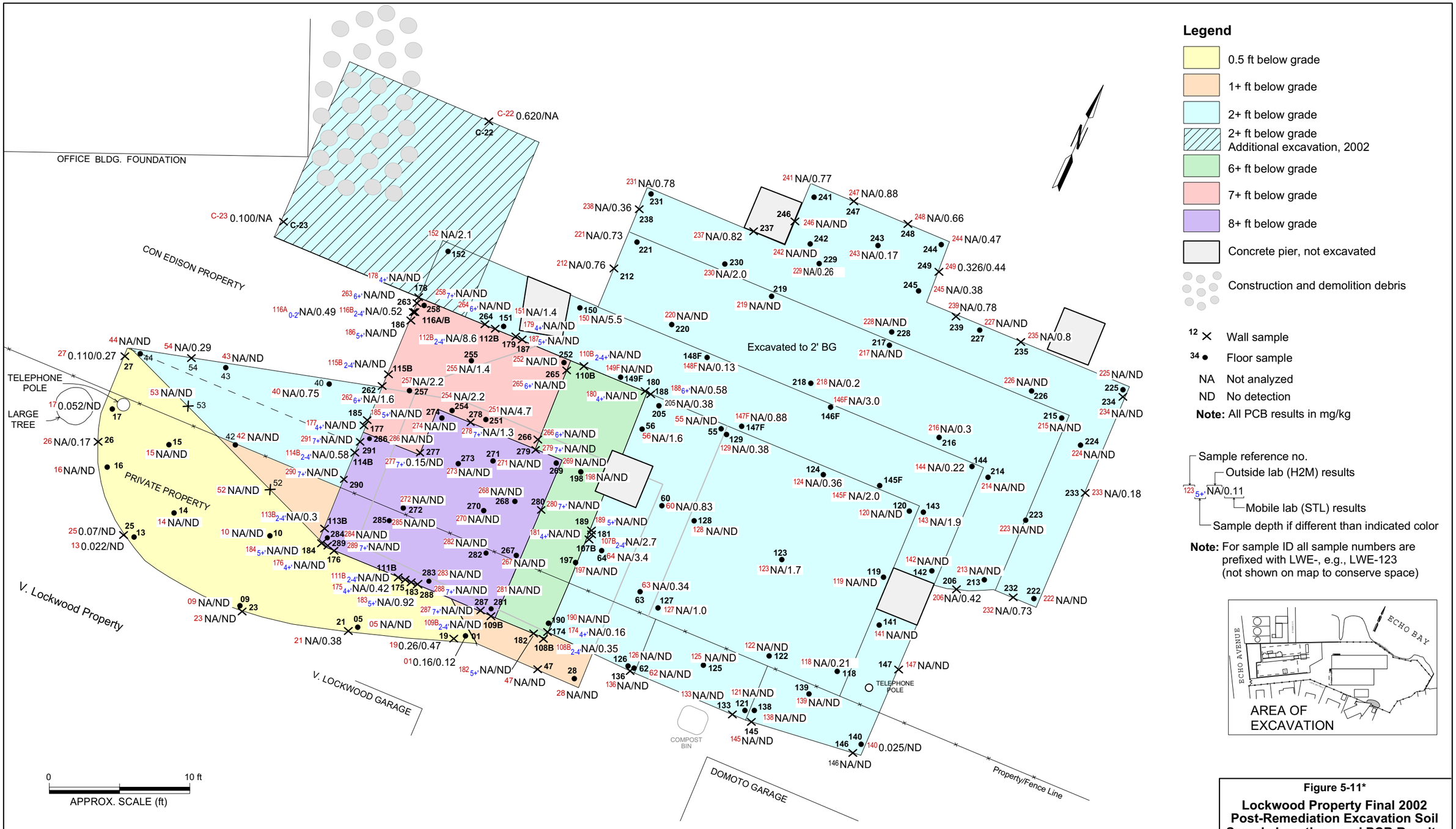
\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-10TreffeisenPropertyPCBs.dsf

*Figure 7-3 from June 2001 Remediation Report

Figure 5-10*
Treffeisen Property
Final Post-Remediation
Sample Locations
and PCB Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



Legend

- 0.5 ft below grade
- 1+ ft below grade
- 2+ ft below grade
- 2+ ft below grade Additional excavation, 2002
- 6+ ft below grade
- 7+ ft below grade
- 8+ ft below grade
- Concrete pier, not excavated
- Construction and demolition debris

12 × Wall sample

34 ● Floor sample

NA Not analyzed

ND No detection

Note: All PCB results in mg/kg

Sample reference no.
Outside lab (H2M) results
123 5+' NA/0.11
Mobile lab (STL) results
Sample depth if different than indicated color

Note: For sample ID all sample numbers are prefixed with LWE-, e.g., LWE-123 (not shown on map to conserve space)

*Figure 7-4a - 7-4m from June 2001 Remediation Report, and Figure 5-12 from July 2003 Remediation Report Addendum

Figure 5-11*

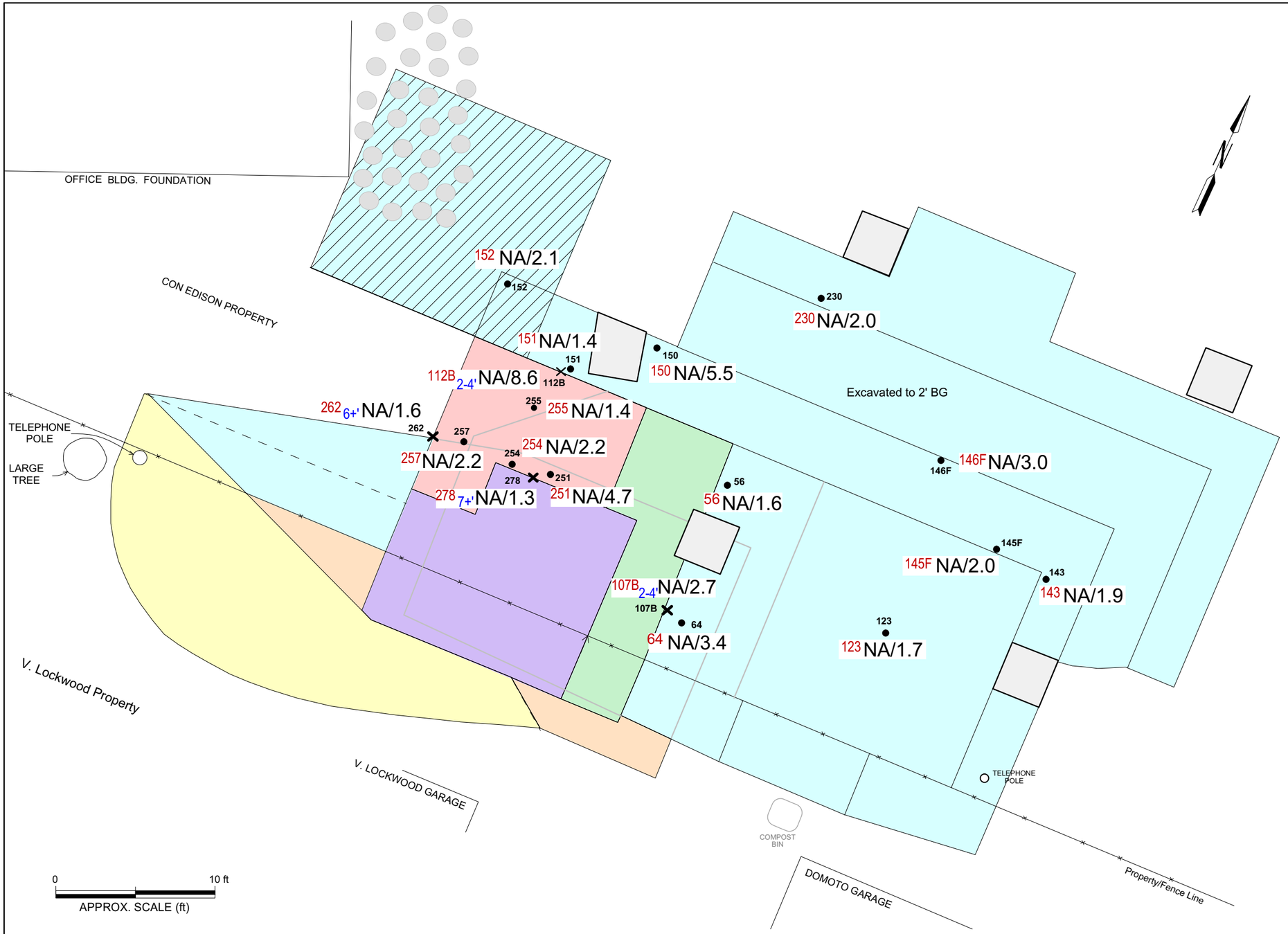
Lockwood Property Final 2002 Post-Remediation Excavation Soil Sample Locations and PCB Results

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-11_VLockwoodPropertyExcavation.dsf



Legend

- 0.5 ft below grade
- 1+ ft below grade
- 2+ ft below grade
- 2+ ft below grade Additional excavation, 2002
- 6+ ft below grade
- 7+ ft below grade
- 8+ ft below grade
- Concrete pier, not excavated
- Construction and demolition debris

12 × Wall sample

34 ● Floor sample

NA Not analyzed

ND No detection

Note: All PCB results in mg/kg

Sample reference no.
Outside lab (H2M) results
123 5+' NA/0.11
Mobile lab (STL) results
Sample depth if different than indicated color

Note: For sample ID all sample numbers are prefixed with LWE-, e.g., LWE-123 (not shown on map to conserve space)

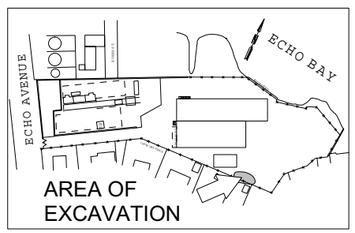


*Figure 7-4a - 7-4m from June 2001 Remediation Report, and Figure 5-12 from July 2003 Remediation Report Addendum

Figure 5-11a*

Lockwood Property Excavation Area Final PCB Soil Sample Results Exceeding 1mg/kg

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

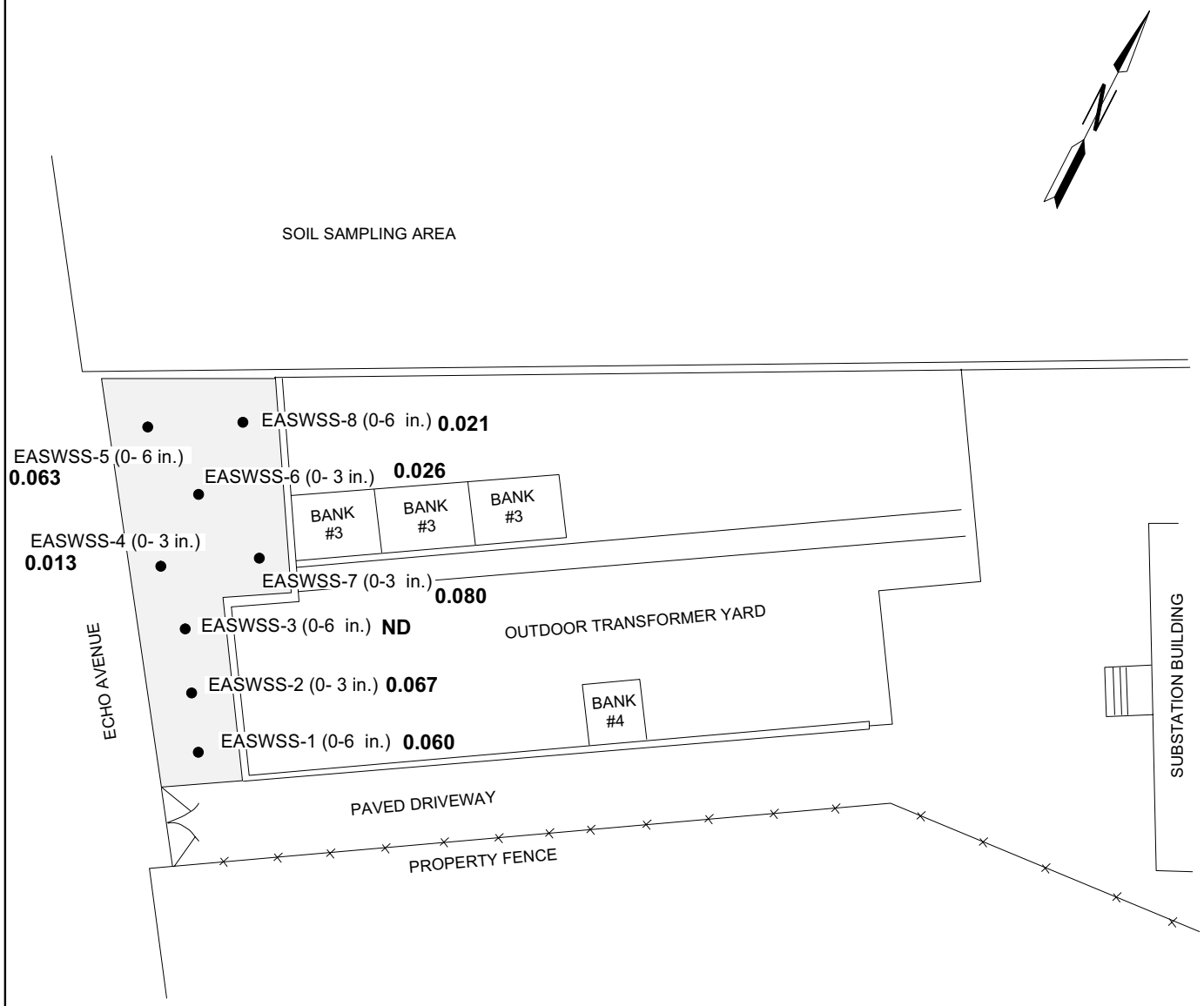
\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-11a_VLockwoodPropertyExcavationSUMMARY.dsf

After the remediation for each residence was completed, the area was backfilled with clean top soil and restored as nearly as possible to the pre-remediation condition. The V. Lockwood residential remediation extended onto the Con Edison property (see Figure 5-11). On the Con Edison property, the excavated area was partially filled with clean stone and backfilled with clean certified fill. The remediation was completed in March 1998. In 2002, NYSDEC requested that additional soil be re-excavated in the area of one sample from the V. Lockwood excavation. The sample, LWE-156, had 1.4 mg/kg of PCBs in soil less than 2 ft deep. The initial results of this wall sample from the mobile laboratory indicated it was below 1 mg/kg; however, the mobile laboratory data were reviewed in a QC process by the analytical laboratory. The revised results (1.4 mg/kg) were received after the excavation area had already been backfilled. This location was on the Con Edison property portion of the excavation area. The results of the additional excavation that was required by the NYSDEC have been added to Figure 5-11. The area was backfilled with clean certified backfill after the confirmatory sample results were received.

5.1.2 On-Site Soils (Other than Soils Addressed in Sections 5.1.3-5.1.6)

As part of the Phase II investigation conducted on the site in 1992, shallow soil samples and deeper soil samples were collected on-site. At two areas, EASW and EASE, shallow soils were sampled in 1992 (see Figure 5-12 and 5-13, formerly Figures 4-20 and 4-18, respectively, from the February 1993 Phase II Investigation report). Figure 5-13 also shows the data collected from soil borings constructed on the site in 1992. With the exception of soils collected during the construction of monitoring well MW-6, all samples were analyzed only for PCBs. At six additional scattered locations throughout the Site, shallow soil samples were collected and labeled with the EADEC prefix. Three of the samples, EADEC-B, D, and E were analyzed for TCL organics and TAL inorganics; all of the remaining samples were analyzed for PCBs only (see Figure 5-14, formerly Figure 4-19 from the February 1993 Phase II Investigation report for location). None of the samples in the EASW area or in the deeper boring samples had PCBs above 1 mg/kg; therefore, no remediation was required. One of the six samples from the EADEC locations (EADEC-E with 12.0 mg/kg) and two of the EASE locations (EASESS-3 with 6.2 mg/kg and EASESS-7 with 1.09 mg/kg) had PCBs above the RSCO of 1 mg/kg. These areas were subsequently remediated as part of the 1997-1998 remediation as described later in this Section.

Table 5-1, formerly Table 4-18 from the 1993 Phase II Report, summarizes the TCL organic and TAL inorganic results from the three EADEC locations (EADEC-B, C, and E) where samples were collected for these locations. The 1994 TAGM 4046 RSCOs have been added to Table 5-1 for comparison. The results showed no TCL organics above the cleanup levels in samples



0 50 100 ft

SCALE
1 in. = 50 ft

LEGEND

- ● Soil sample point
- **ND** No detection

NOTE: Concentration units = mg/kg

*Figure 4-20 from February 1993 Phase II Investigation Report

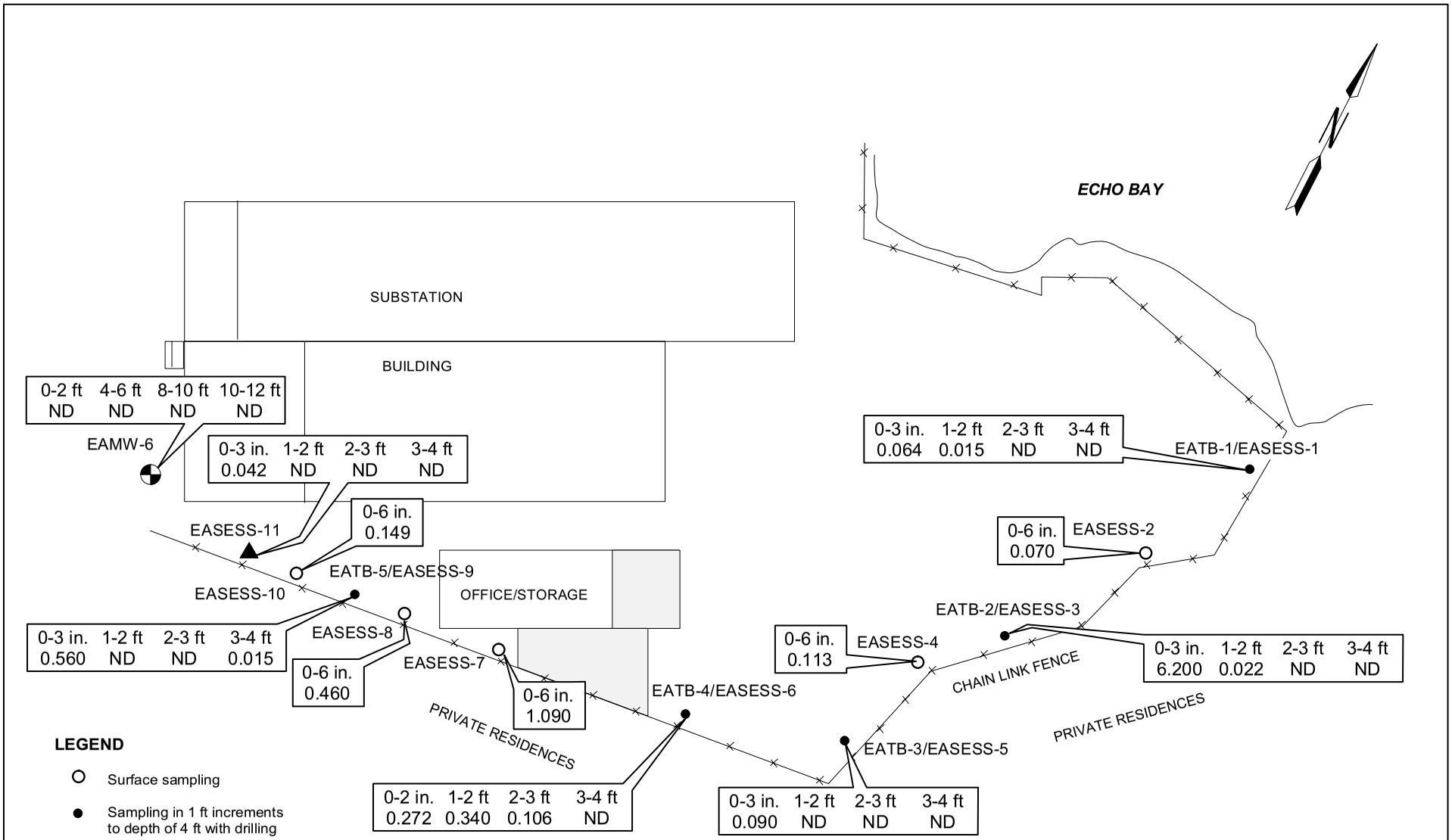
\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-12_PCBconcShallowSoilSWendOfPpty

Figure 5-12*

PCB Concentrations
Shallow Soil Samples at
Southwestern End of Property

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc

LAWLER, MATUSKY & SKELLY ENGINEERS
Pearl River, New York



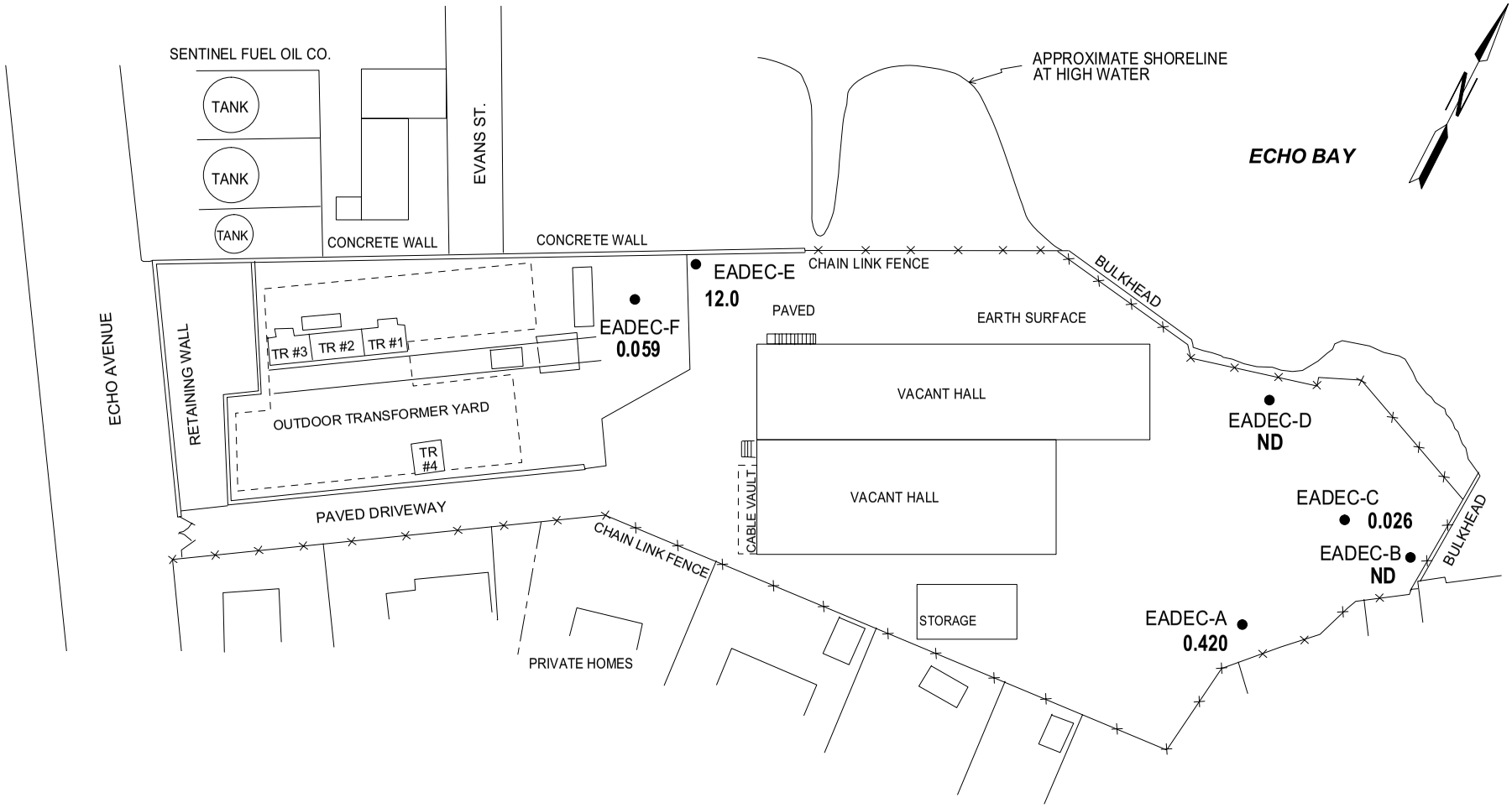
\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-13_PCBconcInBoringsAndSSalongSEppty.dsf

*Figure 4-18 from February 1993 Phase II Investigation Report

Figure 5-13*
PCB Concentrations in Borings and Shallow Soil Samples Along Southeastern Edge of Property

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc

LAWLER, MATUSKY & SKELLY ENGINEERS
Pearl River, New York



LEGEND

- ● Soil sample point
- **ND** No detection
- **NOTE:** concentration units = mg/kg

0 80 160 ft

SCALE
1 in. = 80 ft

*Figure 4-19 from February 1993 Phase II Investigation Report

Figure 5-14*

PCB Concentrations at NYSDEC Shallow Soil Sample Locations

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP

Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-14_PCBconcNYSDECsssLocations.dsf

TABLE 5-1 (Page 1 of 3)

Originally Table 4-18 (February 1993 Phase II Investigation Report)

SHALLOW SOIL SAMPLE DATA SUMMARY (JULY 1992)

CON EDISON - ECHO AVENUE

PARAMETER	EADEC-B (0-6 in.)	EADEC-D (0-6 in.)	EADEC-E (0-6 in.)	RE/DL EADEC-E (0-6 in.)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
VOLATILE ORGANICS (mg/kg)	ND	ND	ND	ND		NA
SEMIVOLATILE ORGANICS (mg/kg)						
Naphthalene	ND	0.130j	ND	♦	13	NA
2-Methylnaphthalene	ND	ND	0.240j	♦	36.4	NA
Phenanthrene	ND	ND	0.66	♦	50.0 ***	NA
Anthracene	ND	ND	0.220j	♦	50.0 ***	NA
Fluoranthene	0.180j	0.120j	1.5	♦	50.0 ***	NA
Pyrene	0.160j	0.110j	1.6	♦	50.0 ***	NA
Benzo(a)anthracene	ND	ND	**1.0**	♦	0.224 or MDL	NA
Chrysene	ND	ND	**1.2**	♦	0.4	NA
bis(2-Ethylhexyl)phthalate	0.200j	0.250j	0.450j	♦	50.0 ***	NA
Benzo(b)fluoranthene	ND	ND	1.1	♦	1.1	NA
Benzo(k)fluoranthene	ND	ND	0.640	♦	1.1	NA
Benzo(a)pyrene	ND	ND	**1.0**	♦	0.061 or MDL	NA
Indeno(1,2,3-c,d)pyrene	ND	ND	ND	0.510j	3.2	NA
Benzo(g,h,i)perylene	ND	ND	ND	0.52	50.0 ***	NA
PESTICIDES/PCBs (mg/kg)						
Heptachlor epoxide	ND	ND	0.016px	ND	0.02	NA
Endosulfan I	ND	ND	0.036pxe	ND	0.9	NA
Dieldrin	ND	ND	**0.10xe**	ND	0.044	NA
4,4'-DDE	0.0018jp	ND	ND	ND	2.1	NA
Endrin	ND	ND	0.095px	ND	0.10	NA
Endosulfan II	ND	ND	0.098pxe	ND	0.9	NA
4,4'-DDD	ND	ND	0.021x	ND	2.9	NA

TABLE 5-1 (Page 2 of 3)

Originally Table 4-18 (February 1993 Phase II Investigation Report)

SHALLOW SOIL SAMPLE DATA SUMMARY (JULY 1992)

CON EDISON - ECHO AVENUE

PARAMETER	EADEC-B (0-6 in.)	EADEC-D (0-6 in.)	EADEC-E (0-6 in.)	RE/DL EADEC-E (0-6 in.)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
PESTICIDES/PCBs (mg/kg) (Continued)						
4,4'-DDT	ND	ND	0.049px	ND	2.1	NA
Methoxychlor	ND	ND	0.073pxe	ND	***	NA
Endrin ketone	ND	ND	0.017jpx	ND	NA	NA
Endrin aldehyde	ND	ND	0.025pxe	ND	NA	NA
Endosulfan sulfate	ND	ND	0.075pxe	ND	1.0	NA
α-Chlordane	0.0016j	ND	ND	ND	0.54	NA
β-Chlordane	0.0019p	ND	0.043px	ND	0.54	NA
Aroclor 1254	ND	ND	**8.2**	**12.0**	1.0/10*	NA
Aroclor 1260	0.42	ND	ND	ND	1.0/10*	NA
METALS (mg/kg)						
Aluminum	4,060	8,800	7,460	♦	SB	33,000
Antimony	4.0	**20.3**	8.0 B	♦	SB	0.6 - 10 (n)
Arsenic	6.8 SA	**91.5 SA**	4.9	♦	7.5 or SB	3.0 - 12.0 æ
Barium	161	216	124	♦	300 or SB	15 - 600
Beryllium	**2.4**	1.5	1.2 B	♦	0.16 or SB	0 - 1.75
Cadmium	**1.4**	**1.7**	**7.6**	♦	1 or SB	0.1 - 1.0
Calcium	**128,000**	**56,200**	36,700	♦	SB	130 - 35,000 æ
Chromium	9.8	25.6	**85.4**	♦	10 or SB	1.5 - 40.0 æ
Cobalt	4.2	6.9 B	6.7 B	♦	30 or SB	2.5 - 60.0 æ
Copper	16.7	**101**	**160**	♦	25 or SB	1.0 - 50.0
Iron	8,630	15,300	14,600	♦	2,000 or SB	2,000 - 550,000
Lead	105 N SA	279 N	**2030 N**	♦	SB**	4.0 - 61 or 200 - 500**
Magnesium	**61,700**	**28,100**	**7,780**	♦	SB	100 - 5,000
Manganese	152	375	332	♦	SB	50 - 5,000
Mercury****	**0.13 N**	**1.2 N**	**0.44 N**	♦	0.1	0.001 - 0.2

TABLE 5-1 (Page 3 of 3)

Originally Table 4-18 (February 1993 Phase II Investigation Report)

SHALLOW SOIL SAMPLE DATA SUMMARY (JULY 1992)

CON EDISON - ECHO AVENUE

PARAMETER	EADEC-B (0-6 in.)	EADEC-D (0-6 in.)	EADEC-E (0-6 in.)	RE/DL EADEC-E (0-6 in.)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
METALS (mg/kg) (Continued)						
Nickel	8.5	14.7	**34.3**	♦	13 or SB	0.5 - 25
Potassium	1,670	1,940	887 B	♦	SB	8,500 - 43,000 æ
Selenium	ND W	ND	ND W	♦	2 or SB	0.1 - 3.9
Silver	ND	ND	ND	♦	SB	0.1 - 5.0 (n)
Sodium	98.0	190 B	200 B	♦	SB	6,000 - 8,000
Thallium	ND	ND	ND	♦	SB	0.1 - 0.8 (q)
Vanadium	13.2	29.0	35.9	♦	150 or SB	1.0 - 300
Zinc	**51.7**	**278**	**1,640**	♦	20 or SB	9.0 - 50
Cyanide	ND	ND	ND	♦	****	N/A

Note : Numbers in bold exceed objectives

♦ - Not analyzed.

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

(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.

b - Found in associated blanks

* - 1.0 ppm refers to surface concentrations; 10 ppm refers to subsurface concentrations.

** - 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

**** - Some forms of Cyanide are complex and stable while other forms are pH dependent and hence are very unstable. Site-specific form(s) of Cyanide should be taken into consideration when establishing soil cleanup objectives.

æ - New York State background concentration

(n) - Dragun, J., The Soil Chemistry of Hazardous Materials.

(q) - Bowan, H.J., Environmental Chemistry of the Elements.

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

ND - Not detected at analytical detection limit

SB - Site background

SA - Value determined by the method of standard addition

W - Post-digestion spike out of control limits,sample absorbance is less than 50% of spike absorbance.

N - Spike sample recovery is not within control limits.

***** - Mercury results are likely biased low as the MS recovered 30.8%; actual concentration may be greater than those reported.

RE - Re-extracted

DL - Diluted sample

EADEC-B and D. Selected metals were above either the cleanup objective or the eastern USA background soil concentration range. The metals found in the shallow soil were attributed to the fill material used on the Site. NYSDEC did not request that either of these areas be remediated for the metals contamination. The sample from EADEC-E had two SVOCs, one pesticide, and several metals, including lead, above the cleanup level in addition to and exceedance for PCBs. The EADEC-E area was subsequently remediated as part of the 1997-1998 remediation, as described later in this Section.

In 1995, additional shallow soil samples were collected around three of the sample points (EASESS-3, EASESS-7, and, EADEC-E) that had PCBs >1 mg/kg in the 1992 samples. These areas were subsequently remediated as part of the 1997-1998 remediation, as described later in this Section. At sample location EASESS-7C, a 2 in. layer of red-speckled soil/fill was encountered at 8 in. below grade. NYSDEC requested that a separate sample be collected of this material and analyzed for TCL organics and TAL inorganics. The data are provided in Table 5-1a, formerly Table 4-2 from the April 1996 Report on Sampling Required in Revised Addendum No. 2. The 1994 TAGM 4046 RSCOs have been added to Table 5-1a for comparison. The results showed six SVOCs, two pesticides, and several metals, including lead, above the cleanup level in addition to an exceedance for PCBs. The soil in this area was excavated to a depth of 3-5 ft as part of the 1997-1998 remediation, as decribed later in this Section. Since the contamination was located in the 8-10 in. layer, it was removed as part of the remediation.

Several borings were installed in 1994 by Con Edison; the sample from the 0-2 ft interval at one location (Boring B-3) showed PCBs of 2.2 mg/kg; additional samples were collected in 1995 to delineate the extent of the contamination at this location. This area, B-3, was also subsequently remediated as part of the 1997-1998 remediation, as described later in this Section

Figure 5-15, a composite figure of Figures 7-5a to g from the June 2001 Remediation Report, documents the PCB levels remaining at the EASESS-3 area after the remediation was completed in March 1998. The area was backfilled with certified clean backfill; the deeper areas were backfilled in lifts to ensure proper compaction. The area was backfilled to the original grade and covered with a layer of wood chips. Figure 5-15a shows only the data where PCBs are found at concentrations of greater than 1 mg/kg. Note that all the locations where PCBS were detected at greater than 1 mg/kg are at depths greater than two ft bgs.

Figure 5-16, a composite of Figures 7-6a to e taken from the June 2001 Remediation Report, shows the remaining PCBs after the remediation was completed at the EASESS-7 area in February 1998. Figure 5-16a shows only the data where PCBs are found at concentrations of greater than 1 mg/kg. Note that all the locations where PCBS were detected at greater than 1 mg/kg are at depths greater than two ft bgs.

TABLE 5-1a (Page 1 of 3)

Originally Table 4-2 (April 1996 Report on Sampling Required in Revised Addendum No. 2)

SOIL SAMPLE DATA SUMMARY (MAY 1995)

CON EDISON - ECHO AVENUE

PARAMETER	EASESS-7C (8-10 in.)	Trip Blank (µg/L)	FB-05 (µg/L)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
VOLATILE ORGANICS (mg/kg)					
Methylene chloride	ND	1.0 bj	1.0 bj	0.1	NA
Acetone	ND	6.0 bj	8.0 bj	0.2	NA
SEMIVOLATILE ORGANICS (mg/kg)					
Naphthalene	2.4j	▲	ND	13	NA
2-Methylnaphthalene	2.2j	▲	ND	36.4	NA
Acenaphthylene	7.8j	▲	ND	NA	NA
Fluorene	4.3j	▲	ND	50.0***	NA
Phenanthrene	21	▲	ND	50.0 ***	NA
Anthracene	4.9j	▲	ND	50.0 ***	NA
Fluoranthene	13	▲	ND	50.0 ***	NA
Carbazole	2.8j	▲	ND	NA	NA
Pyrene	19	▲	ND	50.0 ***	NA
Benzo(a)anthracene	**7.2j**	▲	ND	0.224 or MDL	NA
Chrysene	**9.2j**	▲	ND	0.4	NA
Benzo(b)fluoranthene	**4.7j**	▲	ND	1.1	NA
Benzo(k)fluoranthene	**8.7j**	▲	ND	1.1	NA
Benzo(a)pyrene	**5.9j**	▲	ND	0.061 or MDL	NA
Indeno(1,2,3-c,d)pyrene	**3.9j**	▲	ND	3.2	NA
Benzo(g,h,i)perylene	3.7j	▲	ND	50.0 ***	NA

Note : Numbers in bold exceed objectives.

▲ - Not analyzed.

b - Found in associated blanks.

j - Estimated concentration; compound detected below quantitation limit.

ND - Not detected at analytical detection limit.

(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.

*** - As per TAGM 4046, total VOCS <10 ppm, total SVOCS < 500 ppm, individual SVOCS , 50 ppm, and total pesticides <10 ppm.

Originally Table 4-2 (April 1996 Report on Sampling Required in Revised Addendum No. 2)

SOIL SAMPLE DATA SUMMARY (MAY 1995)

CON EDISON - ECHO AVENUE

PARAMETER	EASESS-7C (8-10 in.)	DL EASESS-7C (8-10 in.)	ACID CLEANED EASESS-7C (8-10 in.)	ACID CLEANED EASESS-7C (8-10 in.)	FB-05 (µg/L)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
		[DL:10.1]		[DL:10.1]			
PESTICIDES/PCBs (mg/kg)							
Heptachlor epoxide	**0.12 ex**	**0.097 dpx**	▲	▲	ND	0.02	NA
Endosulfan I	0.025 px	0.030 dpx	▲	▲	ND	0.9	NA
Aldrin	**0.045 ep**	**0.048 dp**	▲	▲	ND	0.041	NA
4,4'-DDE	0.019 px	ND	▲	▲	ND	2.1	NA
Endrin	0.0053 px	ND	▲	▲	ND	0.10	NA
Endosulfan II	0.078 epx	0.096 dpx	▲	▲	ND	0.9	NA
4,4'-DDD	ND	ND	▲	▲	ND	2.9	NA
4,4'-DDT	0.013 px	ND	▲	▲	ND	2.1	NA
Methoxychlor	ND	ND	▲	▲	ND	***	NA
Endrin aldehyde	0.083 epx	0.092 dpx	▲	▲	ND	NA	NA
Endosulfan sulfate	0.011 px	ND	▲	▲	ND	1.0	NA
Aroclor 1254	**2.6 e**	**2.5 d**	**1.3 e**	**1.7 d**	ND	1.0/10*	NA
Aroclor 1260	ND y	ND y	0.55	0.58 d	ND	1.0/10*	NA

Note : Numbers in bold exceed objectives.

▲ - Not analyzed.

d - Concentration recovered from diluted sample.

e - Estimated concentration: exceeds GC/ECD calibration range.

p - Pesticide/Aroclor target analyte has >25% difference for detected concentrations between the two GC columns.

x - Pesticide detected partially or totally due to the presence of Aroclors.

y - Potentially present but masked by interferences.

DL - Diluted sample analysis.

N - Not detected at analytical detection limit.

*** - As per TAGM 4046, total VOCS < 10 ppm, total SVOCS < 500 ppm, individual SVOCS , 50 ppm, and total pesticides <10 ppm.

Originally Table 4-2 (April 1996 Report on Sampling Required in Revised Addendum No. 2)

SOIL SAMPLE DATA SUMMARY (MAY 1995)

CON EDISON - ECHO AVENUE

PARAMETER	EASESS-7C (8-10 in.)	FB-05 (µg/L)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
METALS (mg/kg)				
Aluminum	14,900 R	40 B	SB	33,000
Antimony	1.1 BN	ND	SB	0.6 - 10 (n)
Arsenic	**16.0**	ND	7.5 or SB	3.0 - 12.0 æ
Barium	**1270 R**	1.0 B	300 or SB	15 - 600
Beryllium	**0.81 B**	0.030 B	0.16 or SB	0 - 1.75
Cadmium	**2.1**	ND	1 or SB	0.1 - 1.0
Calcium	4,100 R	178 B	SB	130 - 35,000 æ
Chromium	**42 R**	ND	10 or SB	1.5 - 40.0 æ
Cobalt	15.0	ND	30 or SB	2.5 - 60.0 æ
Copper	ND J	ND J	25 or SB	1.0 - 50.0
Iron	22,700	17 B	2,000 or SB	2,000 - 550,000
Lead	**1,550.0**	1.3 B	SB**	4.0 - 61 or 200 - 500**
Magnesium	3,770	40 B	SB	100 - 5,000
Manganese	376	0.67 B	SB	50 - 5,000
Mercury****	**1.0**	ND	0.1	0.001 - 0.2
Nickel	**28.0**	ND	13 or SB	0.5 - 25
Potassium	2,060 E	ND	SB	8,500 - 43,000 æ
Selenium	**2.2**	ND	2 or SB	0.1 - 3.9
Silver	ND	ND	SB	0.1 - 5.0 (n)
Sodium	192 B	ND	SB	6,000 - 8,000
Thallium	**1.3 B**	ND	SB	0.1 - 0.8 (q)
Vanadium	48.0	ND	150 or SB	1.0 - 300
Zinc	**379 R**	5.9 B	20 or SB	9.0 - 50
Cyanide	ND	ND	****	N/A

Note : Numbers in bold exceed objectives.

(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.

** - 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.

**** - Some forms of Cyanide are complex and stable while other forms are pH dependent and hence are very unstable. Site-specific form(s) of Cyanide should be taken into condsideration when establishing soil cleanup objectives.

æ - New York State background concentration

(n) - Dragun, J . The Soil Chemistry of Hazardous Materials

ND - Not detected at analytical detection limit

N - Spike sample recovery is not within control limits.

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

SB - Site background

(q) - Bowan, H J . Environmental Chemistry of the Elements.

R - Duplicate analysis not within control limits

J - Results rejected; based on QC evaluation

Legend

- 1+ ft below grade
- 2+ ft below grade
- 3+ ft below grade
- 3-4+ ft below grade

12 × Wall sample

34 ● Floor sample

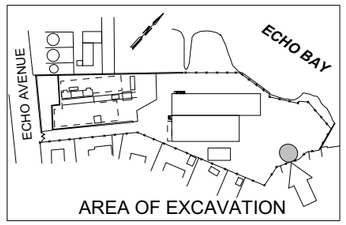
NA Not analyzed

ND No detection

Note: All PCB results in mg/kg

Sample reference no.
Outside lab (H2M) results
123 5+ NA/0.11
Mobile lab (STL) results
Sample depth if different than indicated color

Note: For sample ID all sample numbers are prefixed with SE-3-, e.g., SE-3-123 (not shown on map to conserve space)



AREA OF EXCAVATION

0 10 ft

APPROX. SCALE (ft)

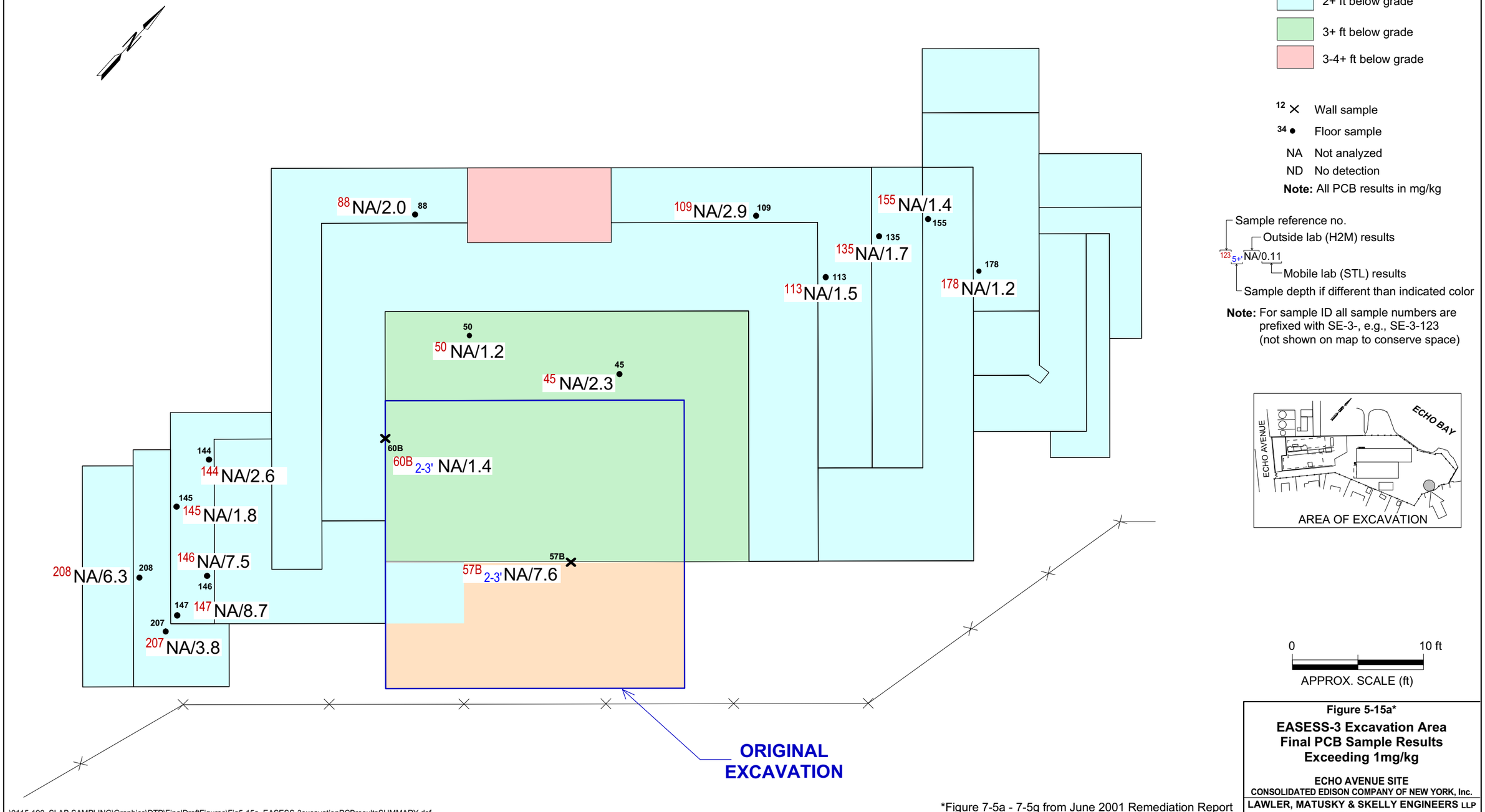
ORIGINAL EXCAVATION

*Figure 7-5a - 7-5g from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-15_EASESS-3excavationPCBresults.dsf

Figure 5-15*
EASESS-3
Final Remediation Excavation Sample Locations and PCB Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



Legend

- 1+ ft below grade
- 2+ ft below grade
- 3-4+ ft below grade

12 × Wall sample

34 ● Floor sample

NA Not analyzed

ND No detection

Note: All PCB results in mg/kg

Sample reference no.
Outside lab (H2M) results
123 5+ NA/0.11
Mobile lab (STL) results
Sample depth if different than indicated color

Note: For sample ID all sample numbers are prefixed with SE-3-, e.g., SE-3-123 (not shown on map to conserve space)

0 10 ft

APPROX. SCALE (ft)

Figure 5-15a*

EASESS-3 Excavation Area Final PCB Sample Results Exceeding 1mg/kg

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

*Figure 7-5a - 7-5g from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-15a_EASESS-3excavationPCBresultsSUMMARY.dsf

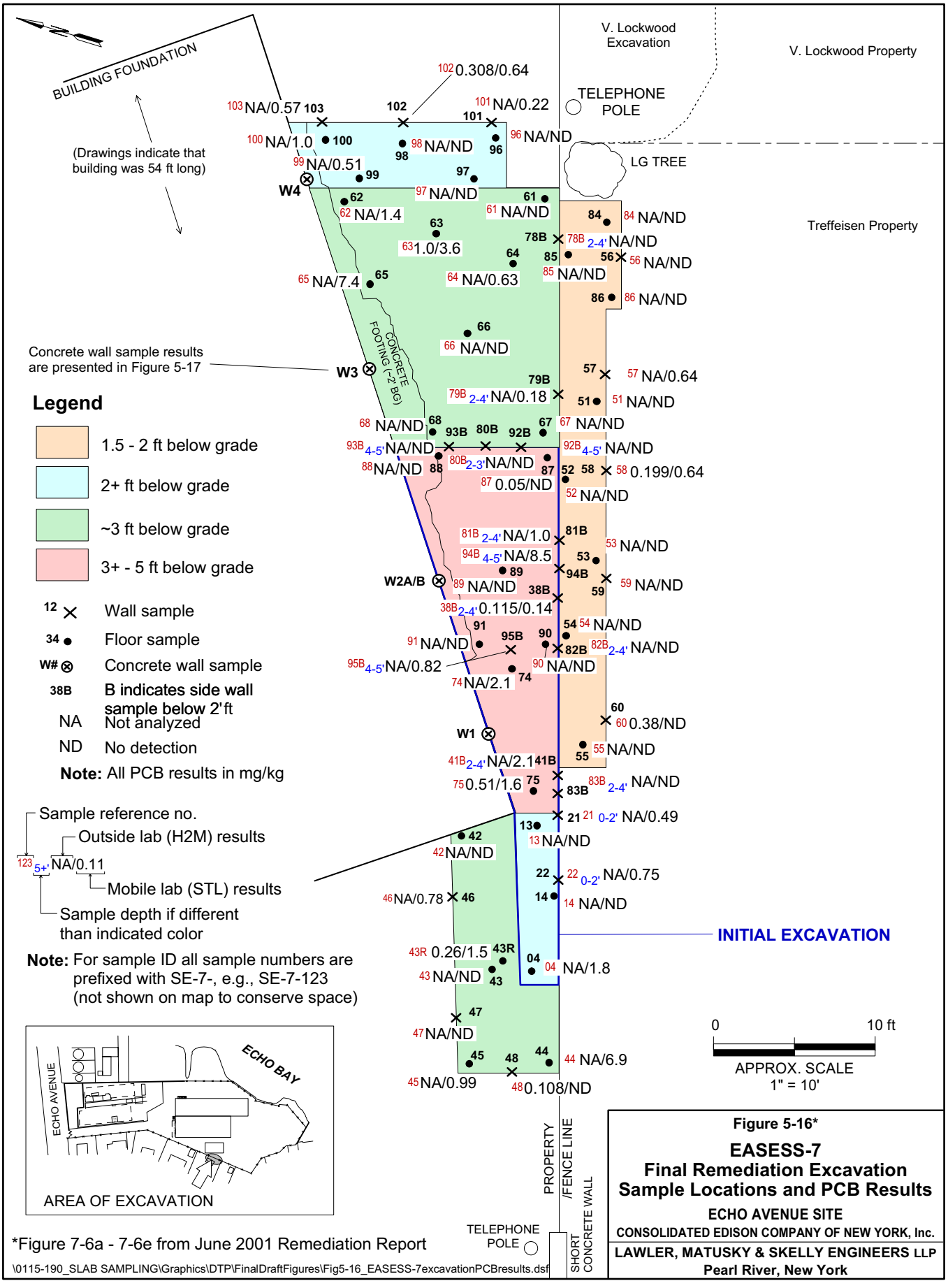


*Figure 7-6a - 7-6e from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-16_EASESS-7excavationPCBresults.dsf

Figure 5-16*

EASESS-7
Final Remediation Excavation Sample Locations and PCB Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

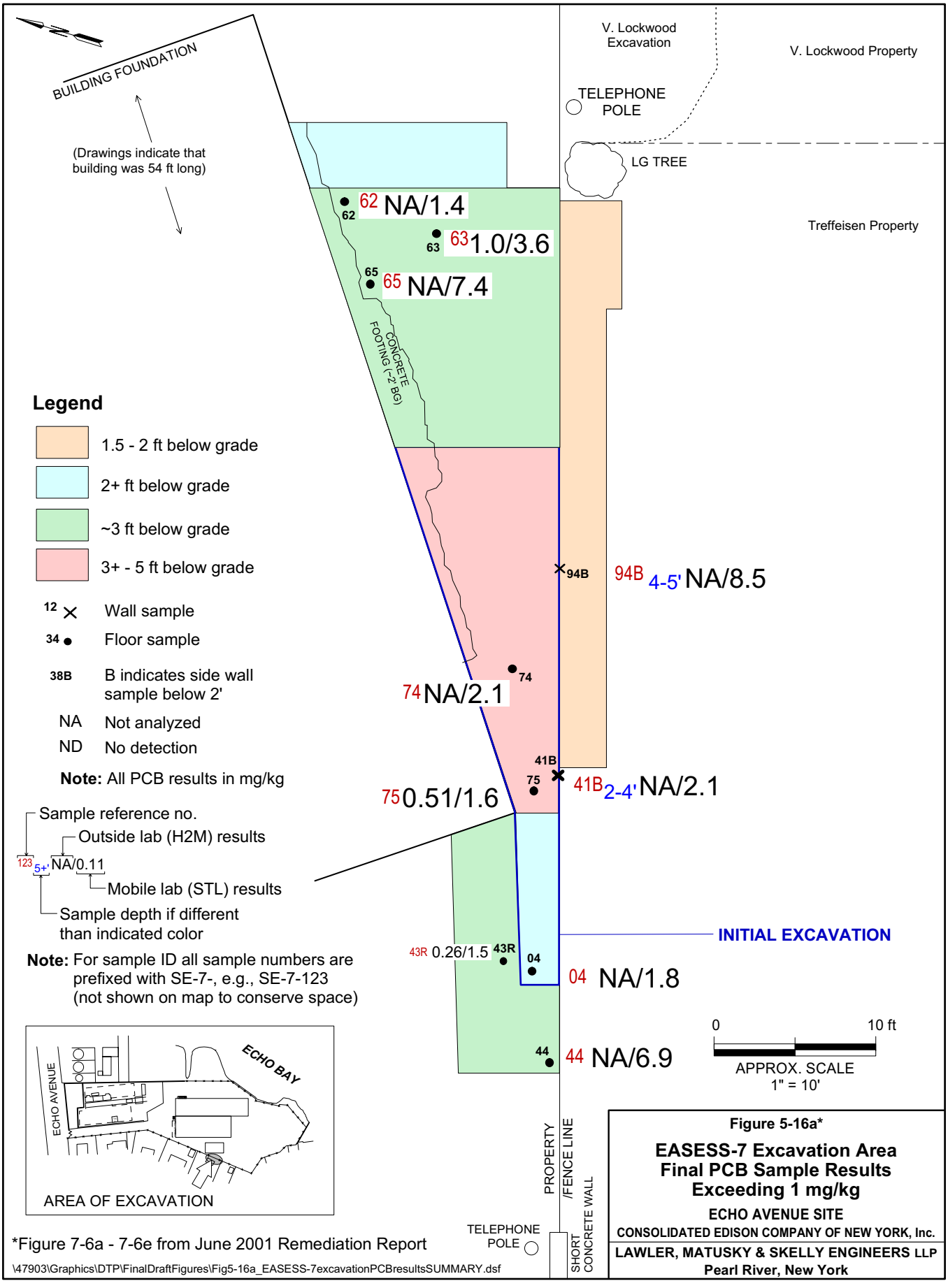


*Figure 7-6a - 7-6e from June 2001 Remediation Report

\47903\Graphics\DTP\FinalDraftFigures\Fig5-16a_EASESS-7excavationPCBresultsSUMMARY.dsf

Figure 5-16a*

EASESS-7 Excavation Area Final PCB Sample Results Exceeding 1 mg/kg

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP

Pearl River, New York

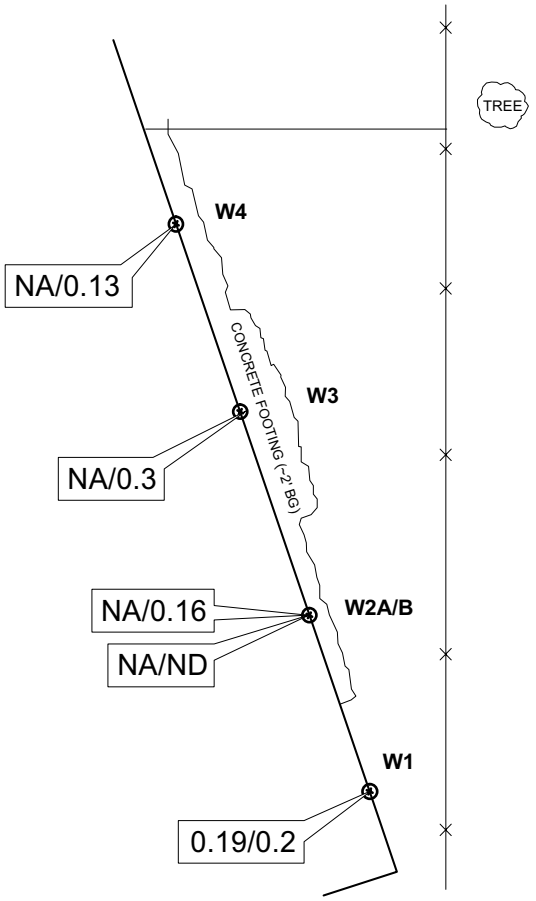
The excavated area on the east end met the limits of the V. Lockwood excavation and extended onto the Treffeisen property along the fence line to the south. At the request of NYSDEC, concrete samples were collected from the former office building foundation wall on the northwest side of the excavation; the concrete sample results as shown on Figure 5-17, formerly Figure 7-7 from the June 2001 Remediation Report, were all less than 1 mg/kg. Note that the office building had been demolished and the first floor slab removed by Con Edison in 1995. After the final results were received, and the results verified that the cleanup objectives were met, the area was backfilled with clean certified backfill to the original grade. The bottom of the deep excavation area (excavated to 5 ft deep) was backfilled with clean crushed stone to ensure proper compaction would be obtained. The Treffeisen side of the property line was replanted with shrubs and ground cover, and the Echo Avenue site was covered with wood chips.

The EADEC-E area was remediated from December 1997 to January 1998. Figure 5-18, a composite of Figures 7-8a and b taken from the June 2001 Remediation Report, document the remaining levels of PCBs from this area. Figure 5-18a shows only the data where PCBs are found at concentrations of greater than 1 mg/kg. Note that all the locations where PCBS were detected at greater than 1 mg/kg are at depths greater than two ft bgs.

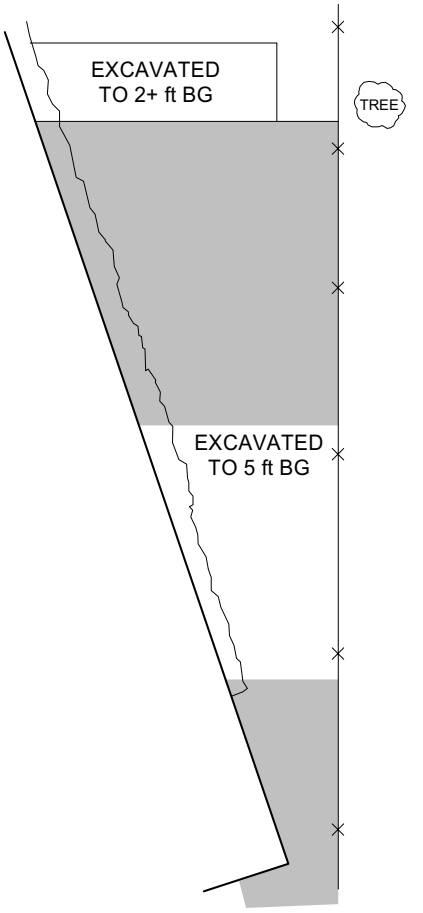
Sump EASP-01, which was also located in the area, was removed. As described above in Section 4.2, sample EA-25 was also collected from this area in 1998 and analyzed for TCL organics and TAL inorganics. The results, provided in Table 4-2 of this document, showed TAGM 4046 SVOC and metals exceedances, most likely due to the presence of a substance similar to dielectric fluid, which was probably the source of the contamination found in 1992 at the same location. After the results were reviewed and found acceptable by the NYSDEC, the area was backfilled with certified clean fill and covered with wood chips. This area was further excavated down to a depth of six feet as part of the 2003 remediation of the transformer yard area. Figure 5-19, formerly Figure 5-5 from the July 2003 Remediation Report Addendum, shows the final PCB concentrations from the transformer yard excavation. Samples FC-F25, FC-W8 and FC-W8a were taken in the vicinity of the EADEC-E remediation, and all had no detectable PCBs.

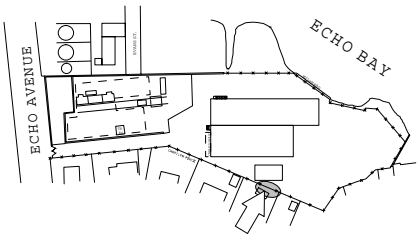
Area B-3 was remediated as a result of a sample collected from a boring installed in April 1994 that contained 2.2 mg/kg of PCBs. Figure 5-20, formerly Figure 7-9 from the June 2001 Remediation Report, shows the PCB contamination remaining after the remediation of this area was completed in December 1997. The location of the original boring is also shown on the figure. The area was backfilled with certified clean fill to the original grade and covered with wood chips. Figure 5-20a shows only the data where PCBs are found at concentrations of greater

EASESS-7
(Concrete Samples From Building Foundation)



EASESS-7
(East End Extension and Deep Pipe Area)





AREA OF EXCAVATION

- • Floor sample
- × Wall sample
- ⊛ Concrete wall sample

A Designates wall sample from above 2 ft

B Designates wall sample from below 2 ft

0.27/0.44 Outside lab (H2M) results/ Mobile lab (STL) results
PCB concentration (mg/kg)

NA Not analyzed

ND Not detected at analytical detection limit

NOTE: For sample ID all sample numbers are prefixed with SE-7- e.g. **SE-7-21**

0 10 ft

APPROX. SCALE
1" = 10'

*Figure 7-7 from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-17_EASESS-7ConcreteSamplePCBresults.dsf

Figure 5-17
EASESS-7
Final Remediation Excavation
Concrete Sample Locations
and PCB Results
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

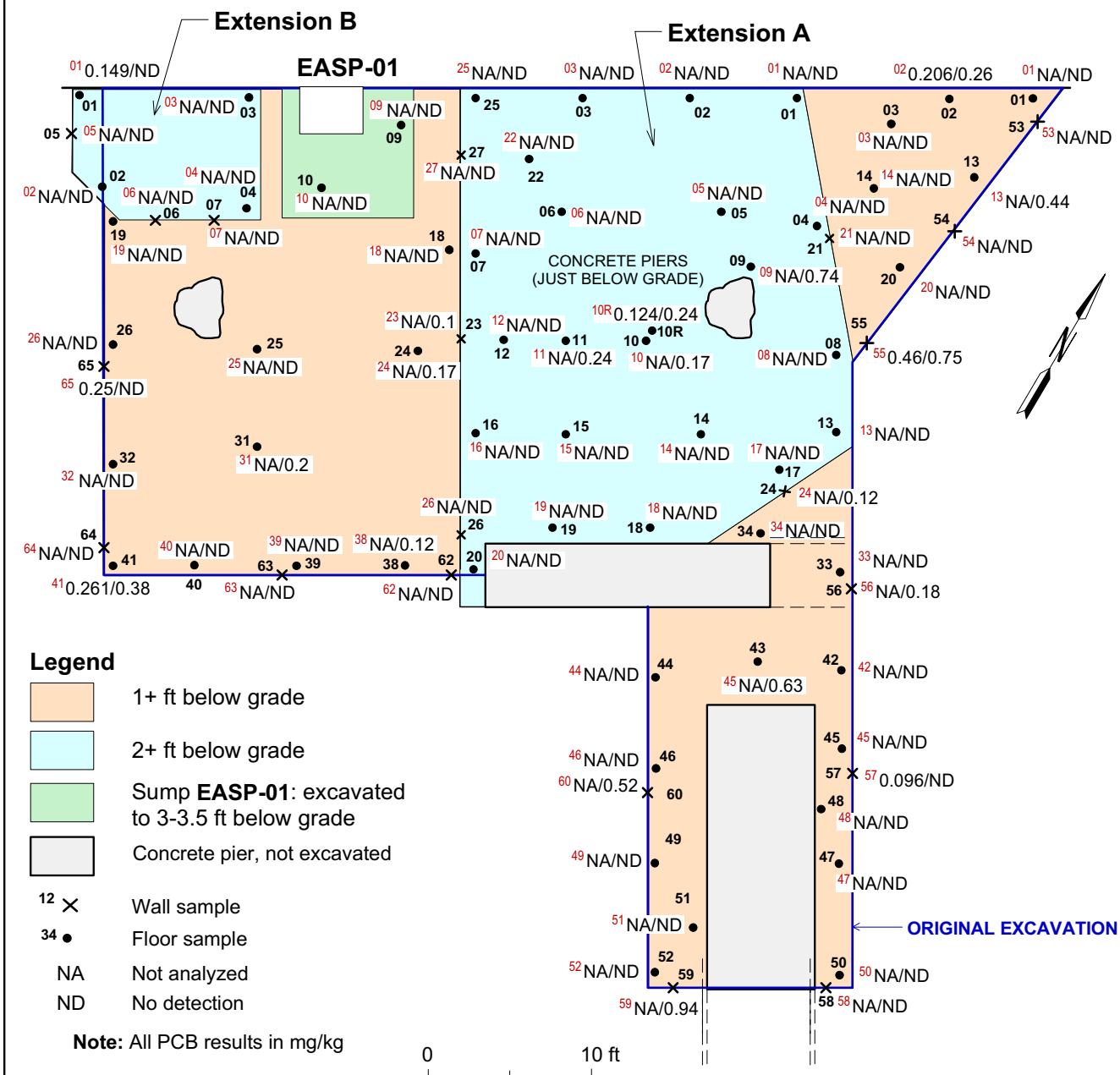


*Figure 7-8a and b from June 2001 Remediation Report

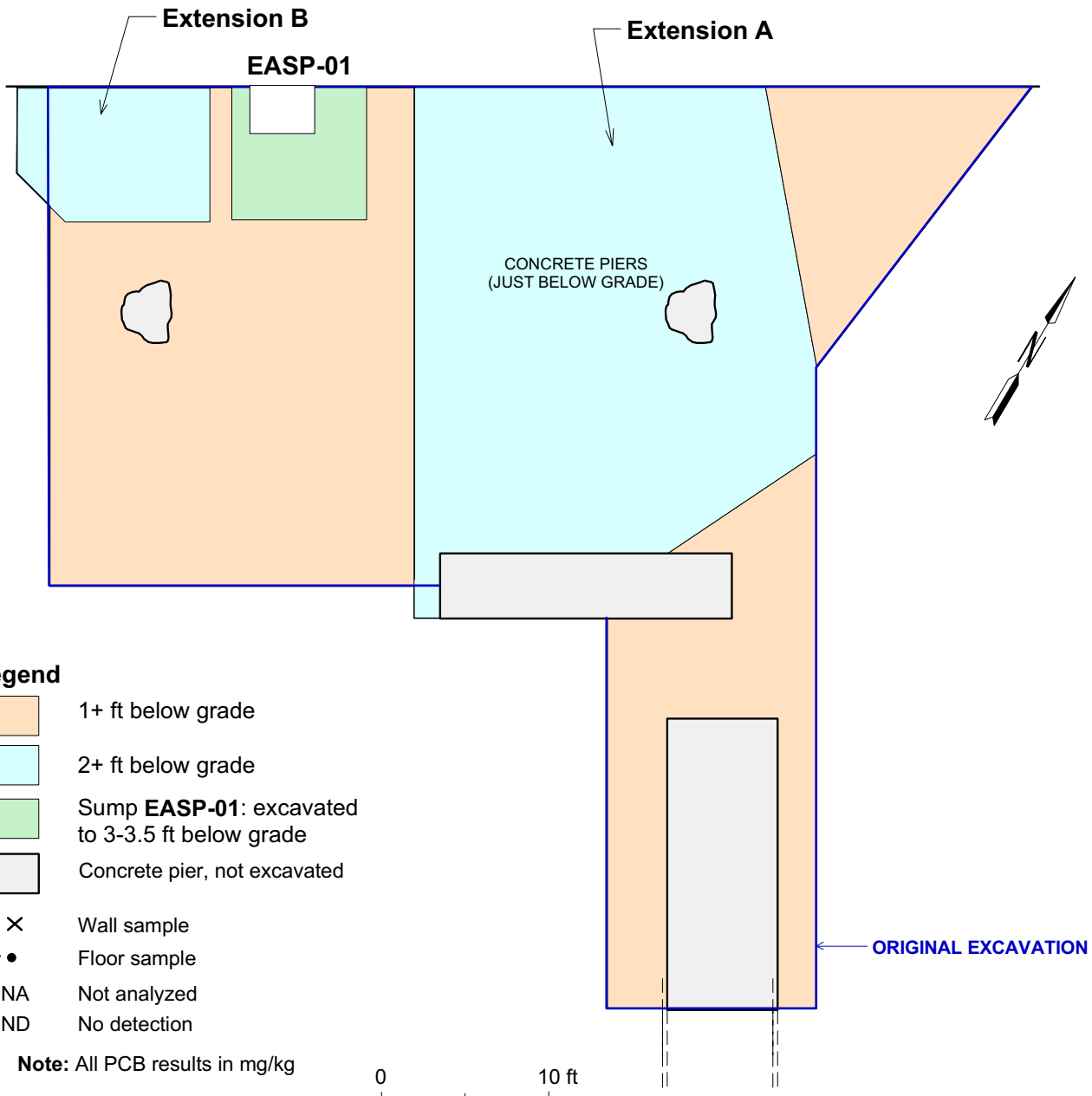
Figure 5-18*

EADEC-E/F
Final Remediation Excavation Sample Locations and PCB Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-18_EADEC-EFexcavationPCBresults.dsf



Legend

- 1+ ft below grade
- 2+ ft below grade
- Sump **EASP-01**: excavated to 3-3.5 ft below grade
- Concrete pier, not excavated
- 12 × Wall sample
- 34 ● Floor sample
- NA Not analyzed
- ND No detection

Note: All PCB results in mg/kg

0 10 ft

APPROX. SCALE
1" = 10'

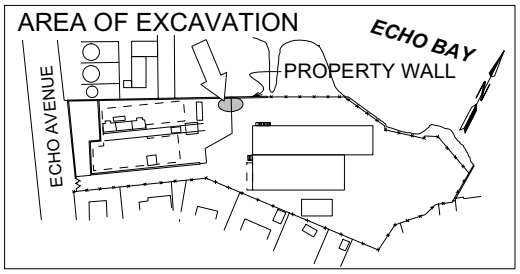
Sample reference no.
Outside lab (H2M) results
123 5+ NA/0.11
Mobile lab (STL) results
Sample depth if different than indicated color

Note: For sample ID the samples in the 0-1 ft excavation are prefixed with E-, e.g., E-123

The sample IDs for the subsequent extension A & B are prefixed with E-A and E-B, e.g.,

E-A-01 and E-B-01

(not shown on map to conserve space)



Note: All post-excavation samples collected at this location were <1 mg/kg.

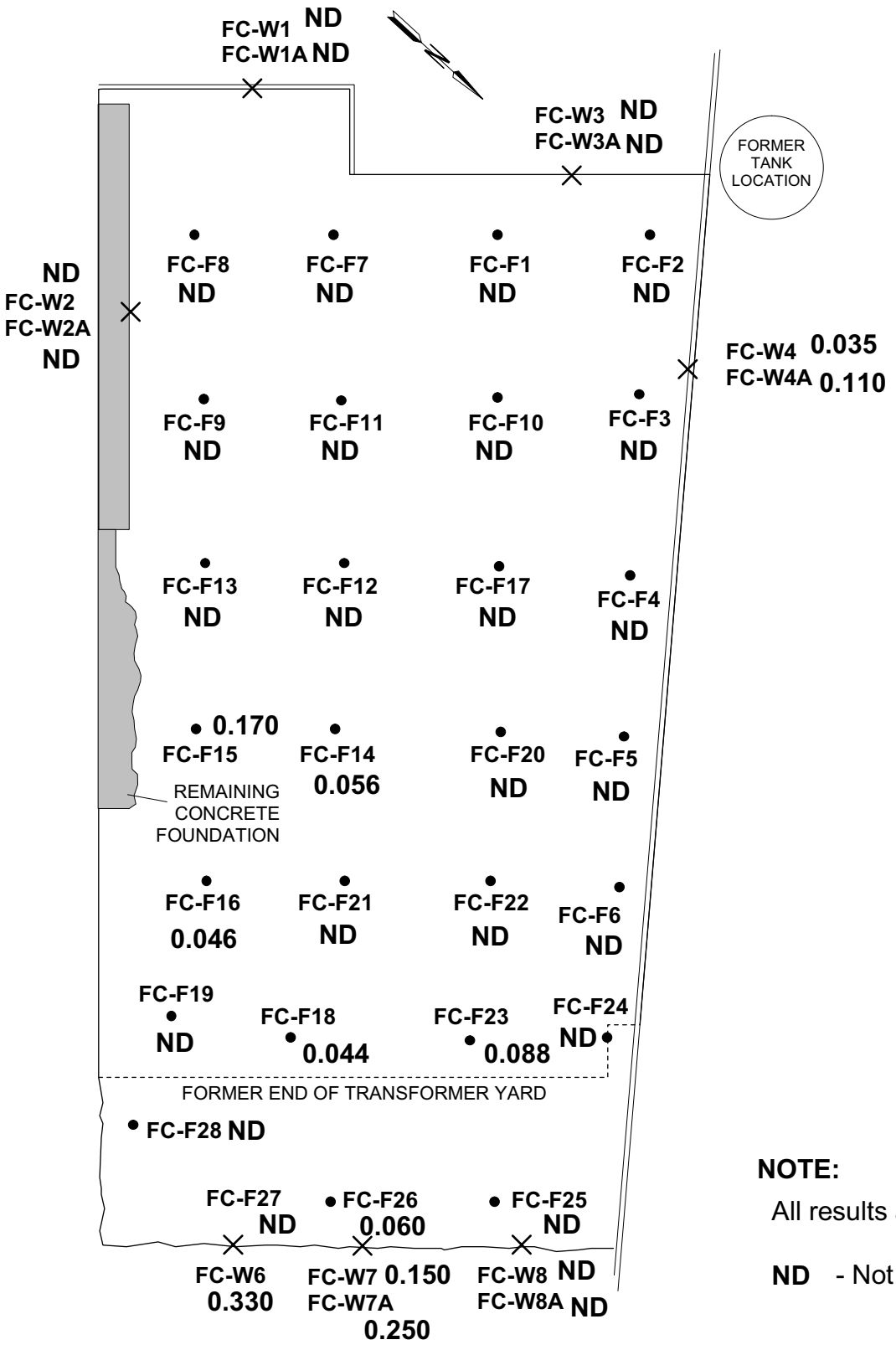
*Figure 7-8a and b from June 2001 Remediation Report

\47903_\Graphics\DTP\FinalDraftFigures\Fig5-18a_EADEC-EFexcavationPCBresultsSUMMARY.dsf

Figure 5-18a*

EADEC-E/F Excavation Area Final PCB Sample Results Exceeding 1 mg/kg

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



NOTE:

All results are in mg/kg

ND - Not detected

LEGEND

- Wall sample
- **FC-W#** 2 ft sample depth
- **FC-W#A** > 2 ft sample depth
- Floor sample
- **FC-F#**

0 50 ft

APPROX. SCALE
1 in. = 50 ft

*Figure 5-5 from July 2003 Remediation Report Addendum

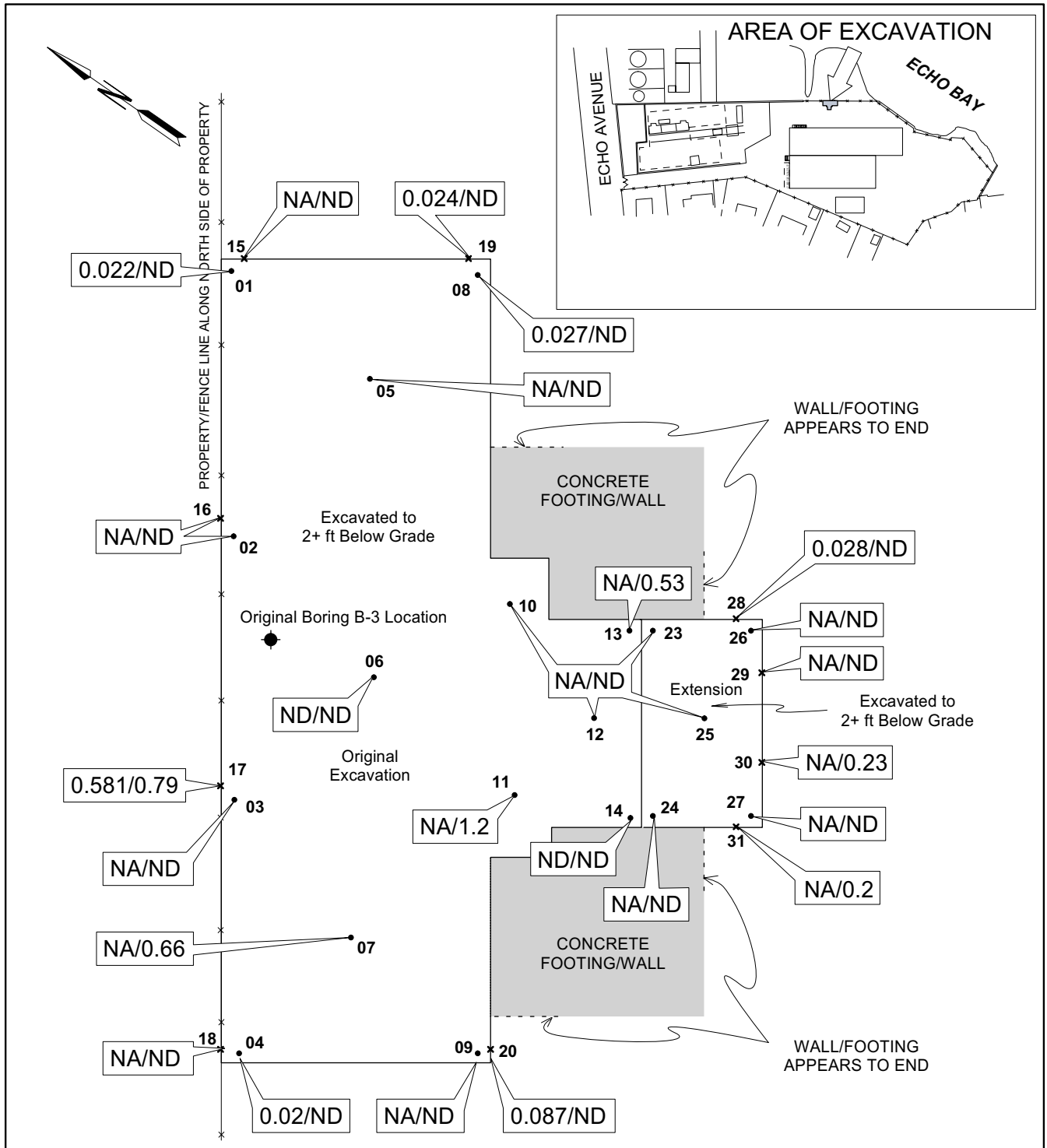
\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-19_TransformerYardPCBresults.dsf

Figure 5-19*

Transformer Yard
Post-Excavation Confirmatory
PCB Soil Sample Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



Legend

- • Floor sample
- × Wall sample
- B Side wall sample below 2 ft

0.27/0.44 Outside lab (H2M) results/ Mobile lab (STL) results PCB concentration (mg/kg)

NA Not analyzed

ND Not detected at analytical detection limit

0 5 ft

APPROX. SCALE 1" = 5'

NOTE:

For sample ID all sample numbers are prefixed with B-3- e.g. **B-3-01**

*Figure 7-9 from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-20_B3PCBresults.dsf

Figure 5-20*

B-3

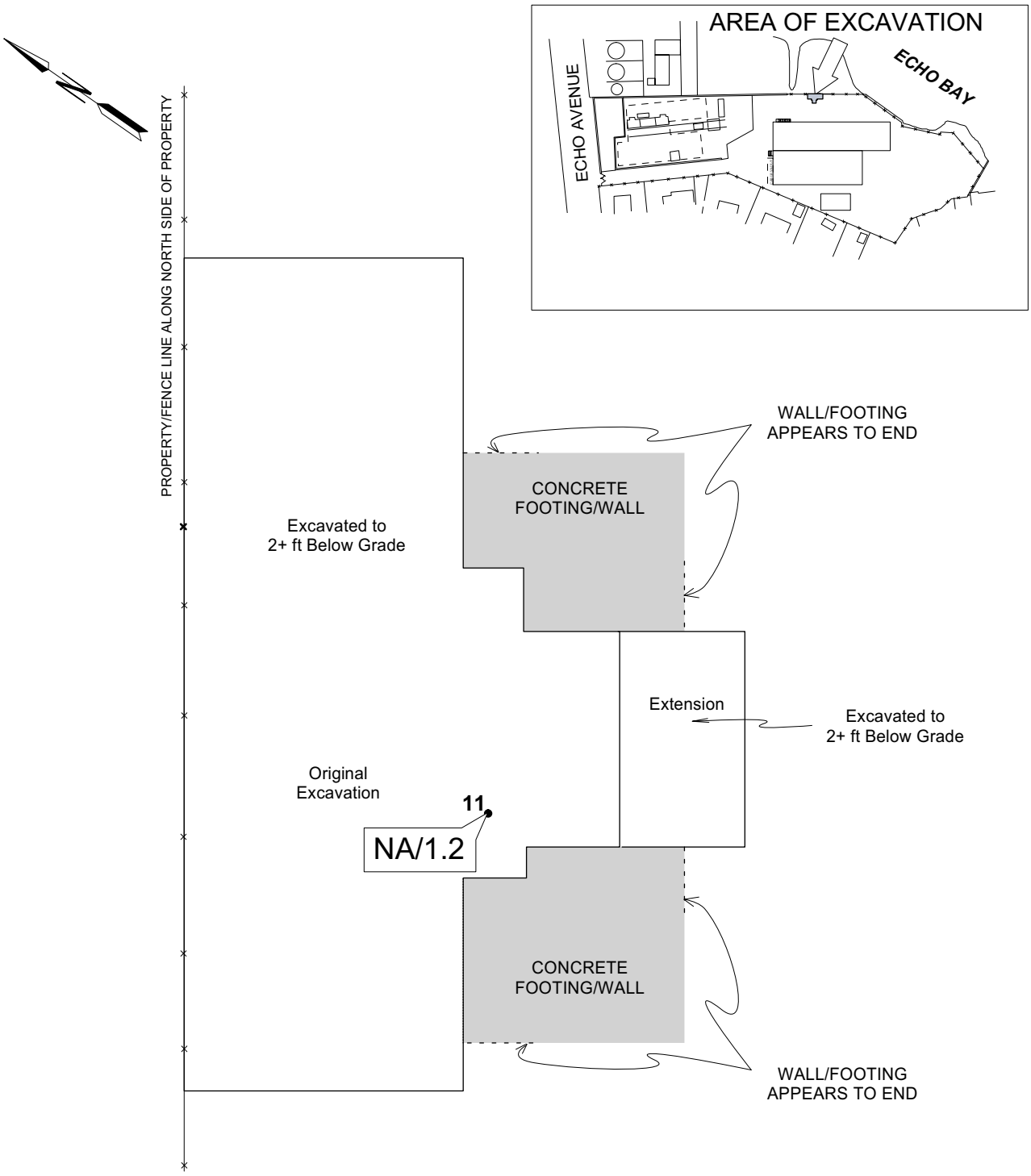
Final Remediation Excavation Sample Locations and PCB Results

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP

Pearl River, New York



Legend

- • Floor sample
- × Wall sample
- B Side wall sample below 2 ft

0.27/0.44 Outside lab (H2M) results/ Mobile lab (STL) results PCB concentration (mg/kg)

NA Not analyzed

ND Not detected at analytical detection limit

0 5 ft

APPROX. SCALE
1" = 5'

NOTE:

For sample ID all sample numbers are prefixed with B-3- e.g. **B-3-01**

*Figure 7-9 from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-20_B3PCBresults.dsf

Figure 5-20a*

B-3 Excavation Area
Final PCB Sample Results
Exceeding 1 mg/kg

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

than 1 mg/kg. Note that all the locations where PCBS were detected at greater than 1 mg/kg are at depths greater than two ft bgs.

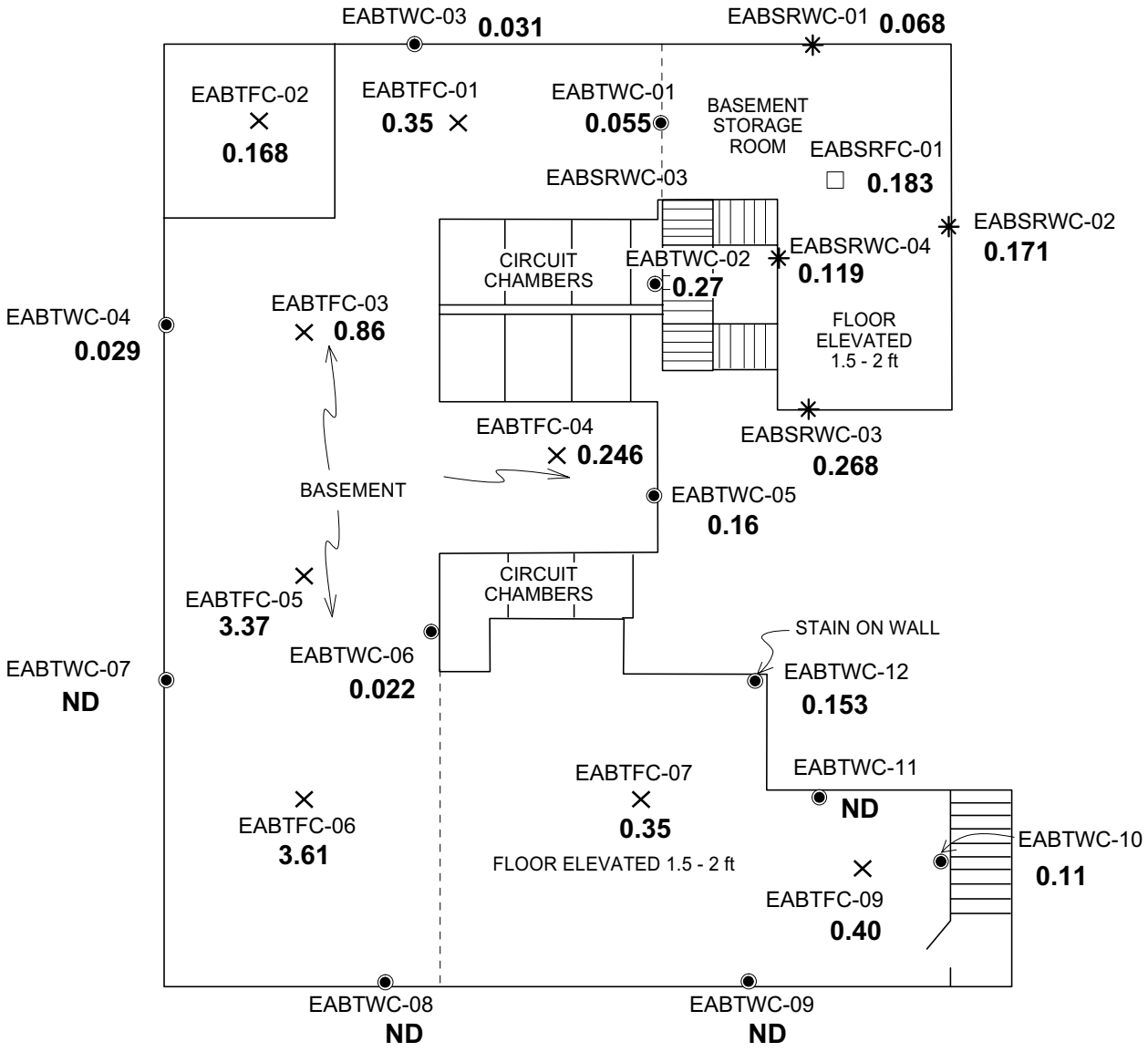
5.1.3 On-Site Soils beneath the Substation Building Slabs

The substation building was demolished down to the slab by Con Edison in 1995. Prior to demolition, the basement area, at the western end of the building (see Figure 1-2), was dewatered and concrete chip samples were collected from the basement and basement storage area. These results are provided on Figure 5-21, formerly Figure 4-1 from the ***Second Report on Sampling Required in Revised Addendum No. 2 Final Work Plan*** (the "April 1996 Second Report") dated April 1996 (Ref. 10, Appendix A). The concrete in the basement contained low levels of PCBs with two samples having PCBs of 3.37 and 3.61 mg/kg; all other samples were less than 1 mg/kg. The NYSDEC determined that the area did not require additional remediation and authorized Con Edison to proceed with backfilling the basement with debris from the building demolition.

The South Hall substation slab was removed as part of the 1999-2000 remediation. Catch basin CB-05, the tile drainpipes from catch basins CB-04 and CB-05, and the drainpipe that ran along the outside of the foundation wall on the south side were all removed as part of this remediation effort. Figure 5-22, formerly Figure 6-61 from the June 2001 Remediation Report, shows the locations of the catch basins and drainpipes in both the North and South Halls of the substation building. Confirmatory PCB soil samples were collected to verify that the PCB cleanup objectives and been met. These results are shown on Figure 5-23, formerly Figure 7-21a from the June 2001 Remediation Report.

Figure 5-23a shows only the data where PCBs are found at concentrations of greater than 1 mg/kg. Two locations, SH-14B, collected at 1.75 ft bgs, and SH-08W, collected between 0.5 and 2.5 ft bgs, have > 1 mg/kg of total PCBs. The sample results shown on Figure 5-23a were analyzed by the mobile laboratory and were originally reported as <1 mg/kg; however, after an internal review by the mobile laboratory, the results were changed to those reported on Figure 5-23a. The substation area had already been backfilled by the time the change was reported. NYSDEC was informed of this issue in a telephone conversation on January 5, 2000; Con Edison was directed by NYSDEC that the since the exceedances were negligible, no further remediation or sampling was warranted in these two areas. This was documented in a letter from Con Edison to NYSDEC (Ref. 31, Appendix A, this report).

Additional samples were collected from two concrete structures near the common foundation wall between the two halls that may have been related to the intake and discharge of water from the bay when the facility was a coal-fired electric generating station. These sample results are shown on Figure 5-24, formerly Figure 7-23 from the June 2001 Remediation Report. There



LEGEND

- Basement core wall samples
- Basement storage room core wall samples
- Basement core floor samples
- Basement storage room core floor sample

0 10 ft

SCALE
1 in. = 10 ft

NOTE: All results are in mg/kg

*Figure 4-1 from April 1996 Second Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\
Fig5-21_BasementStorageRoomConcCorePCBresults.dsf

Figure 5-21*

PCB Concentrations in Basement and Basement Storage Room Concrete Core Samples

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

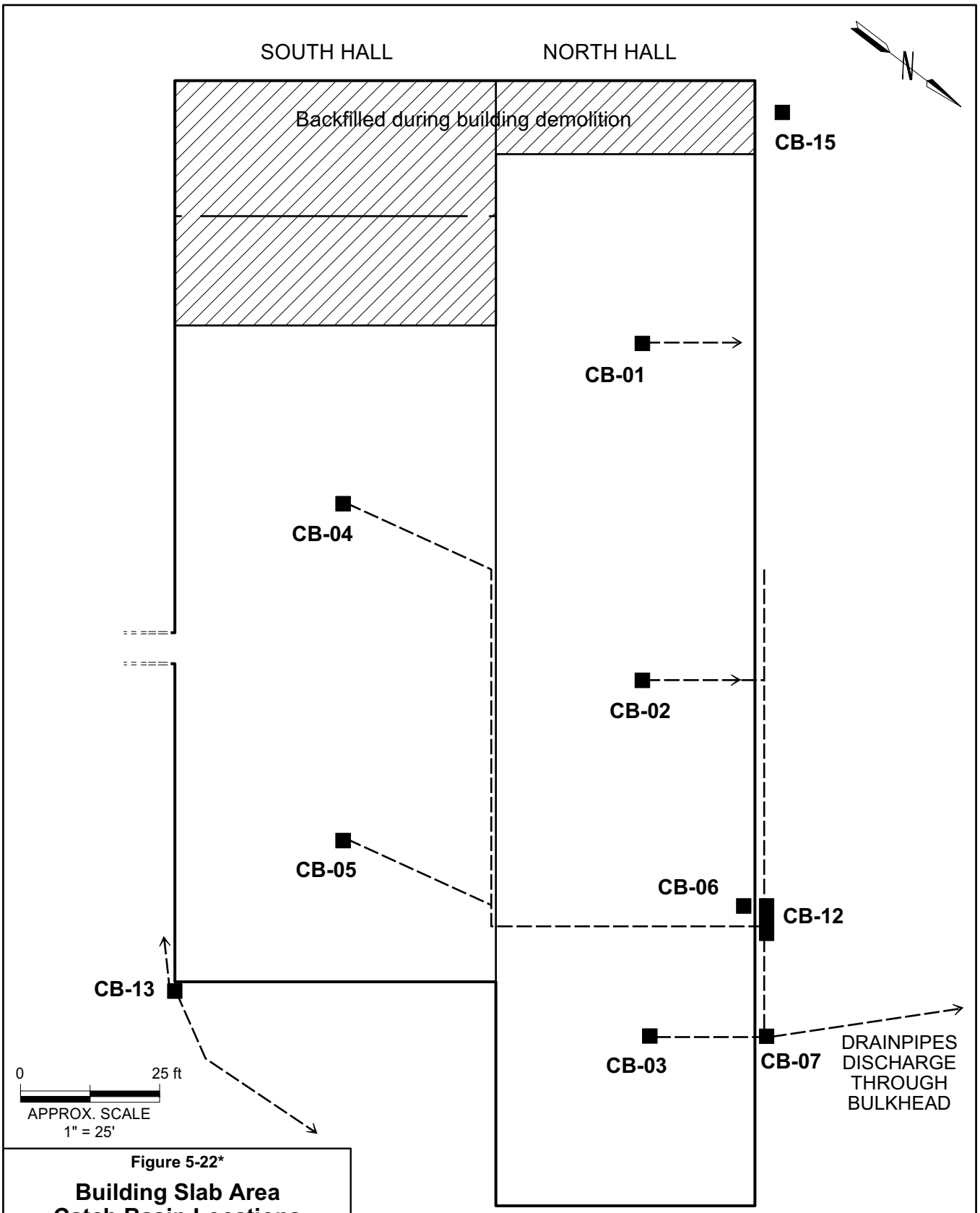


Figure 5-22*

Building Slab Area Catch Basin Locations

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

NOTE: All sample markers are prefixed with NH-, e.g. NH-45 (except CB-15)

*Figure 6-61 from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-22_BldgSlabAreaCatchBasinLocations.dsf

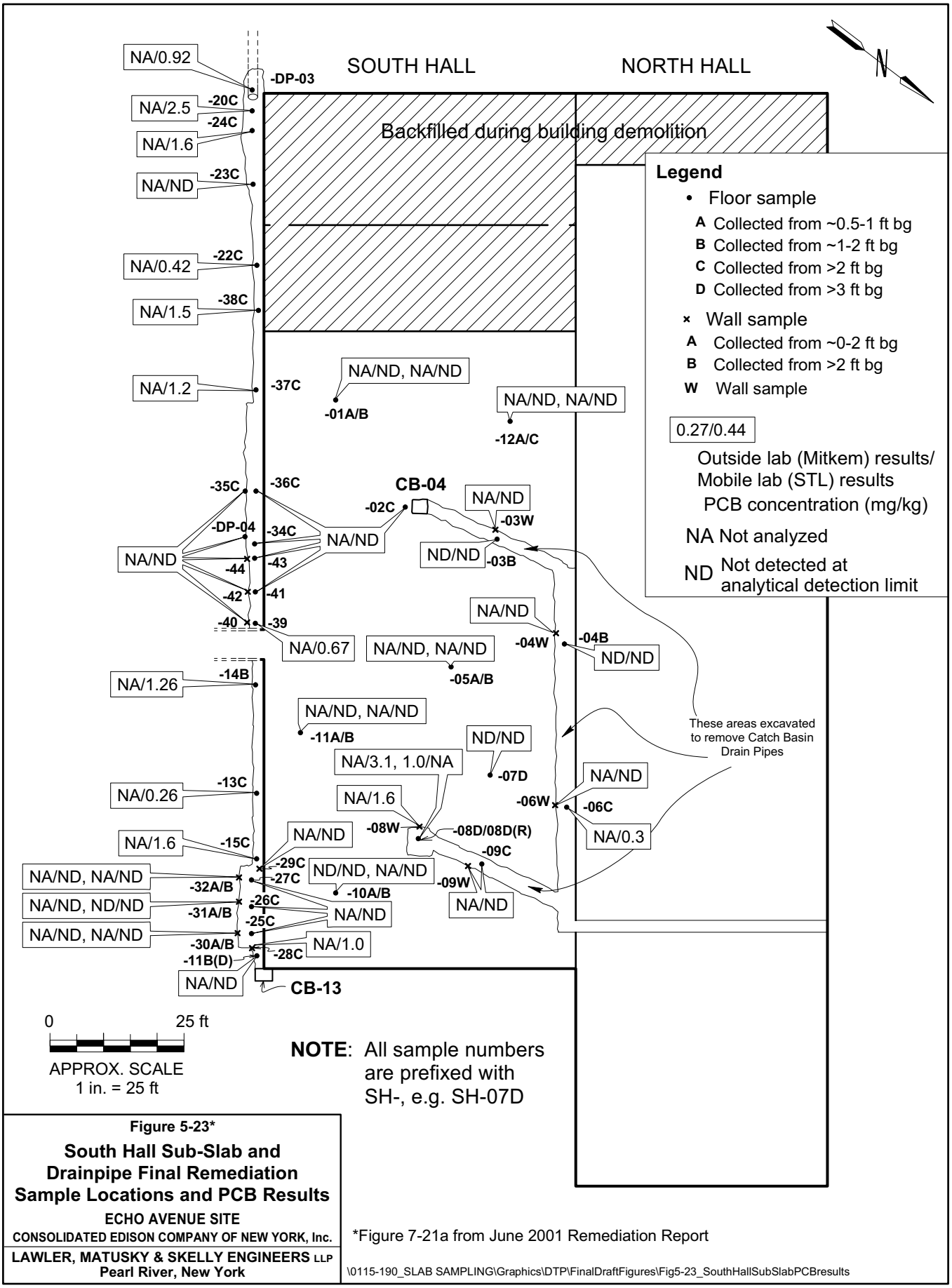


Figure 5-23*

South Hall Sub-Slab and Drainpipe Final Remediation Sample Locations and PCB Results

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

*Figure 7-21a from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-23_SouthHallSubSlabPCBresults

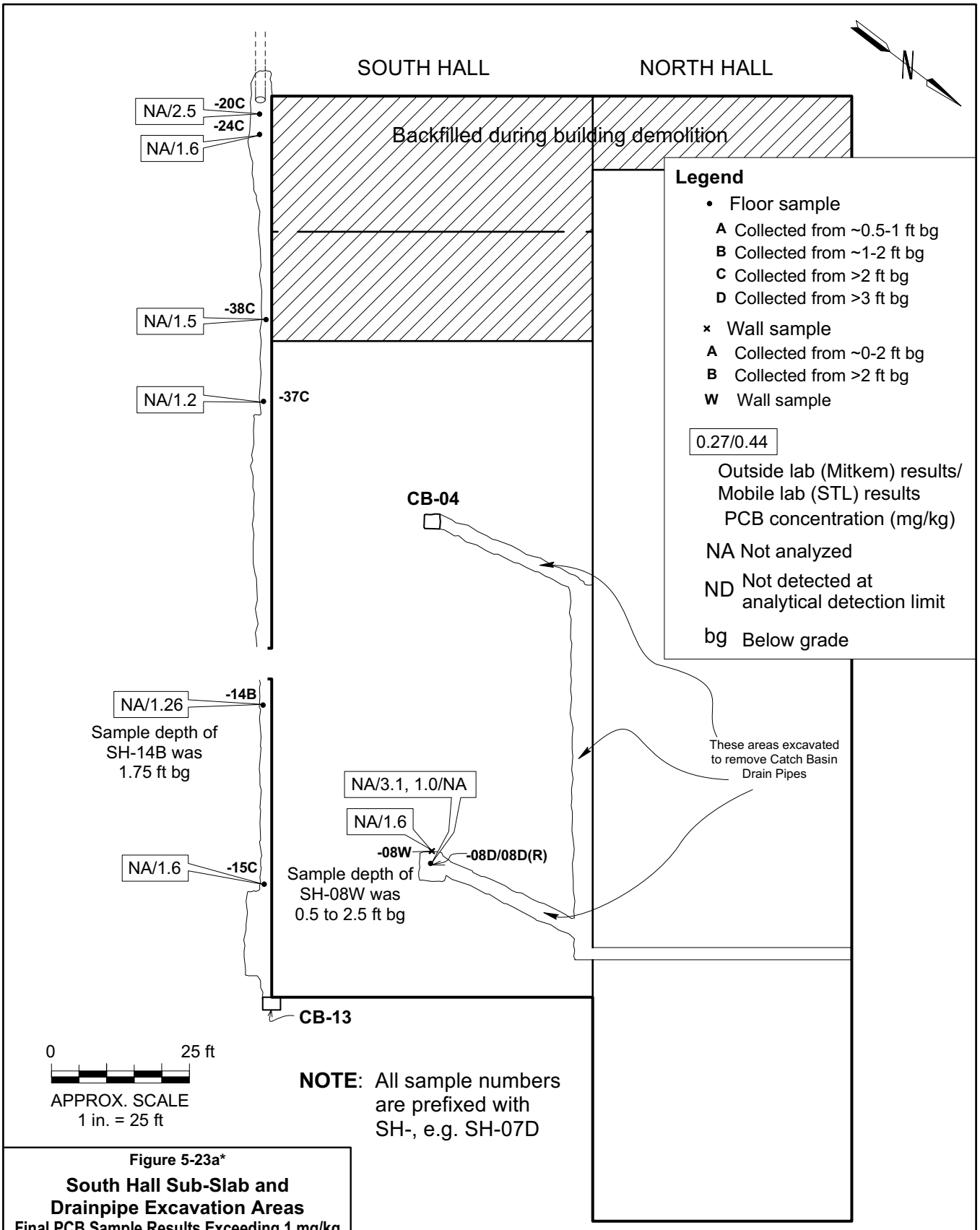


Figure 5-23a*

South Hall Sub-Slab and Drainpipe Excavation Areas

Final PCB Sample Results Exceeding 1 mg/kg

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

*Figure 7-21a from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-23_SouthHallSubSlabPCBresults

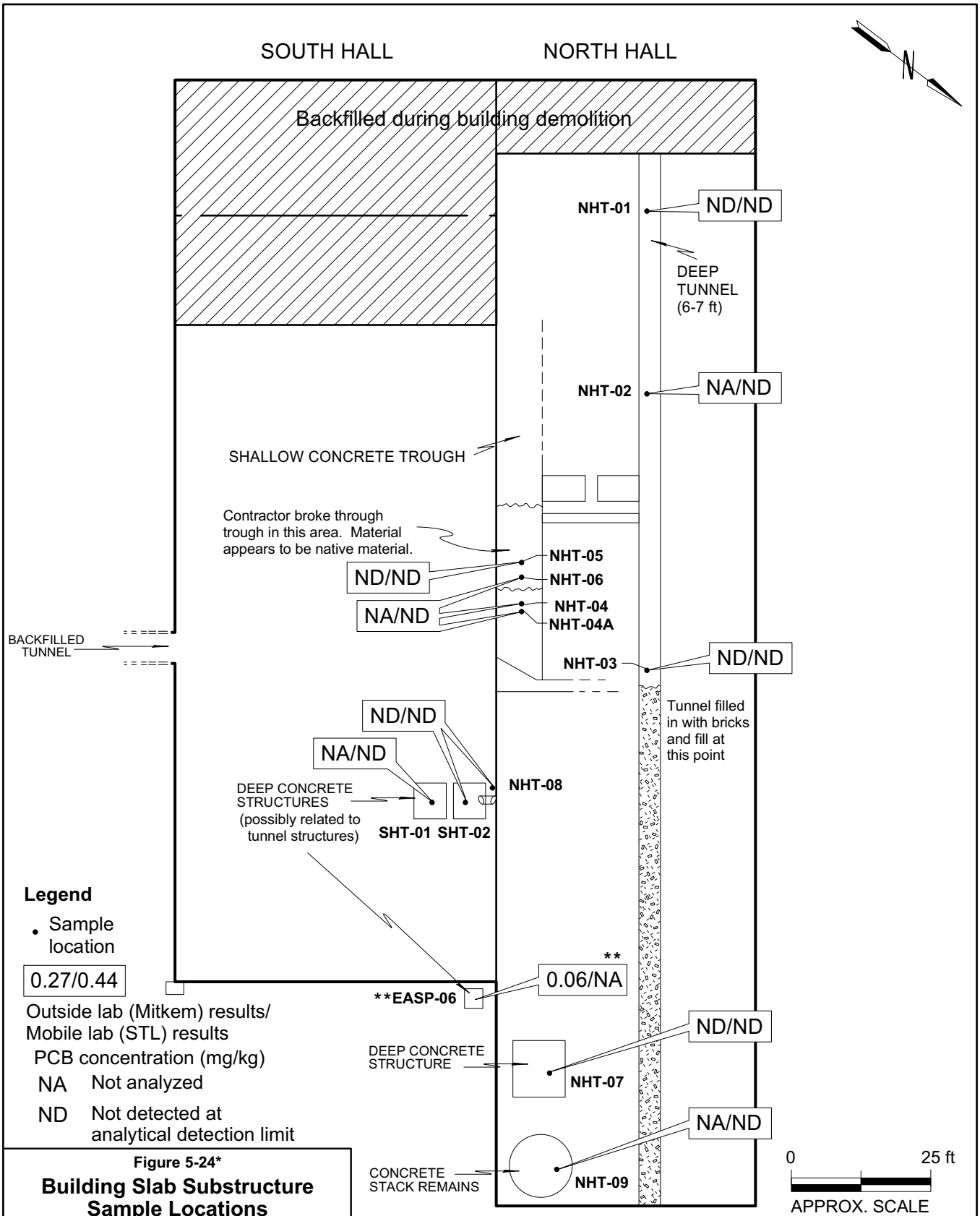


Figure 5-24*

Building Slab Substructure Sample Locations and PCB Results

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

** The sediment from EASP-06 was sampled and analyzed by H2M labs in November 1998.

*Figure 7-23 from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-24_BuildingSlabSubstructurePCBresults.dsf

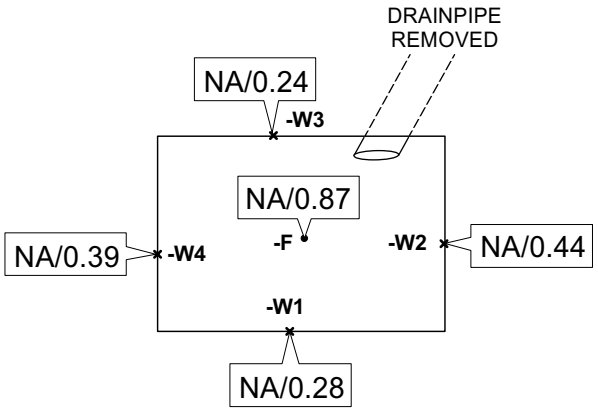
appeared to be a series of shallow brick sluiceways under the slab of the South Hall. A number of gate-type valves were found in these shallow brick channels. Some of the confirmatory PCB samples were collected from material in these sluiceways to ensure they were not contaminated with PCBs (see Figure 5-24 of this Report).

In January 2000, Con Edison received approval from NYSDEC to backfill the South Hall building slab area with clean certified fill. At the time, CB-04 and CB-13 were allowed to remain in place. Figure 5-25, formerly Figure 7-21b from the June 2001 Remediation Report, shows the PCB concentrations in the concrete from these two catch basins. In 2002-2003, CB-13, which consisted of two catch basins adjacent to each other, and the drainpipe were removed. The results of the confirmatory PCB concentrations are provided on Figure 5-26, previously Figure 5-10 from the July 2003 Remediation Report Addendum. CB-04 remains in place.

The North Hall substation slab was also removed as part of the 1999-2000 remediation. In addition, catch basins CB-01, CB-02, CB-03, CB-07, CB-12, and CB-15, the drainpipes from CB-01, CB-02, CB-03, and CB-15, the drainpipe that ran from CB-04 and CB-05 under the North Hall slab to CB-12, and the drainpipe between CB-07 and CB-12 along the outside of the northern foundation wall were all removed. A concrete trough along the inside of the north wall foundation in the northwest corner area was also removed. CB-06 and a concrete pit near CB-15 were allowed to remain in place. The confirmatory PCB samples from the North Hall slab, catch basins and drainpipe removal are shown on Figure 5-27a to d, formerly Figures 7-22a to 7-22d from the June 2001 Remediation Report. Figures 5-27a1 and 5-27b1 show only the data where PCBs are found at concentrations of greater than 1 mg/kg. Note that all the locations where PCBS were detected at greater than 1 mg/kg are at depths greater than two ft bgs.

A deep concrete tunnel/trough was discovered along the centerline of the building slab of the North Hall. The western half had an intact roof and the tunnel area was filled with a cindery-ashy material. The eastern half was exposed and was filled with construction debris and rubble. Other deep concrete structures were also located beneath the slab. NYSDEC requested that Con Edison sample the cindery-ashy material in the tunnel and material found in other structures. The results are shown on Figure 5-24 of this report. Samples of the rubble material were also collected and analyzed at the request of NYSDEC; these results are shown on Figure 5-28, originally Figure 7-24 from the June 2001 Remediation Report. After reviewing the results, the NYSDEC granted approval to Con Edison to backfill the substructures with the rubble that was removed from them. The cindery material was removed from the tunnel and disposed of off-site as industrial waste. This section of the tunnel was double washed with an industrial detergent and double rinsed with potable water by Con Edison. The North Hall area was backfilled with certified clean fill in January 2000.

CB-04



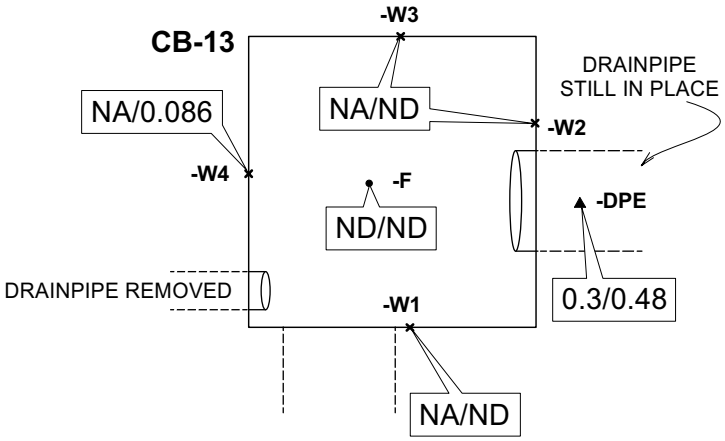
Catch Basin Wall Composite
CB-04-C
0.208/0.38

NOTE:

All sample numbers are prefixed with catch basin ID, e.g. **CB-04-W2**

Catch basin is 1.5 ft deep

CB-13



Catch Basin Wall Composite
CB-13-C
ND/ND

NOTE:

All sample numbers are prefixed with catch basin ID, e.g. **CB-13-W2**

Catch basin is 3.5 ft deep

Legend

- • Floor concrete sample
- × Wall concrete sample
- ▲ Drainpipe sample

0.27/0.44 Outside lab (H2M) results/ Mobile lab (STL) results
PCB concentration (mg/kg)

NA Not analyzed

ND Not detected at analytical detection limit

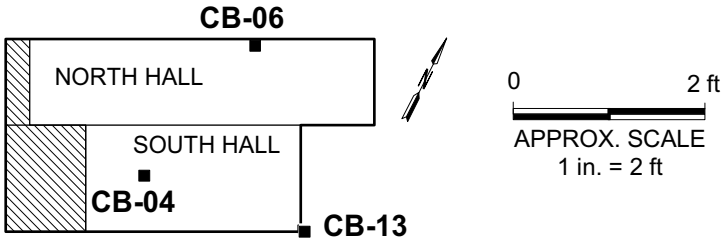


Figure 5-25*
South Hall Catch Basin Concrete, and Sediment Sample Locations and PCB Results
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

*Figure 7-21b from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\
Fig5-25_SouthHallCatchBasinConcreteAndSedimentPCBresults.dsf

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

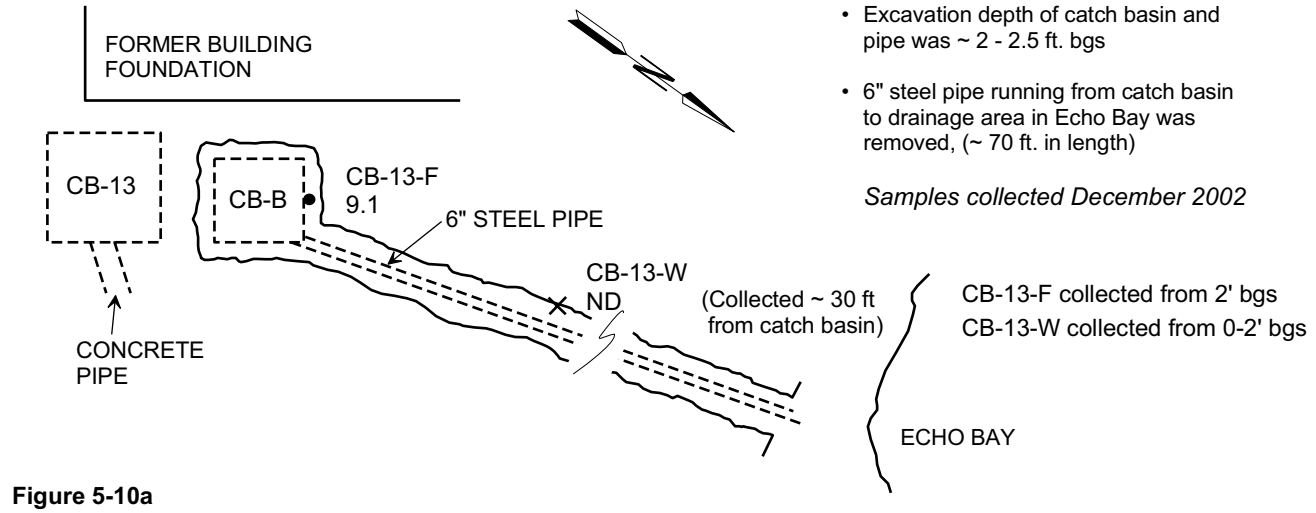


Figure 5-10a

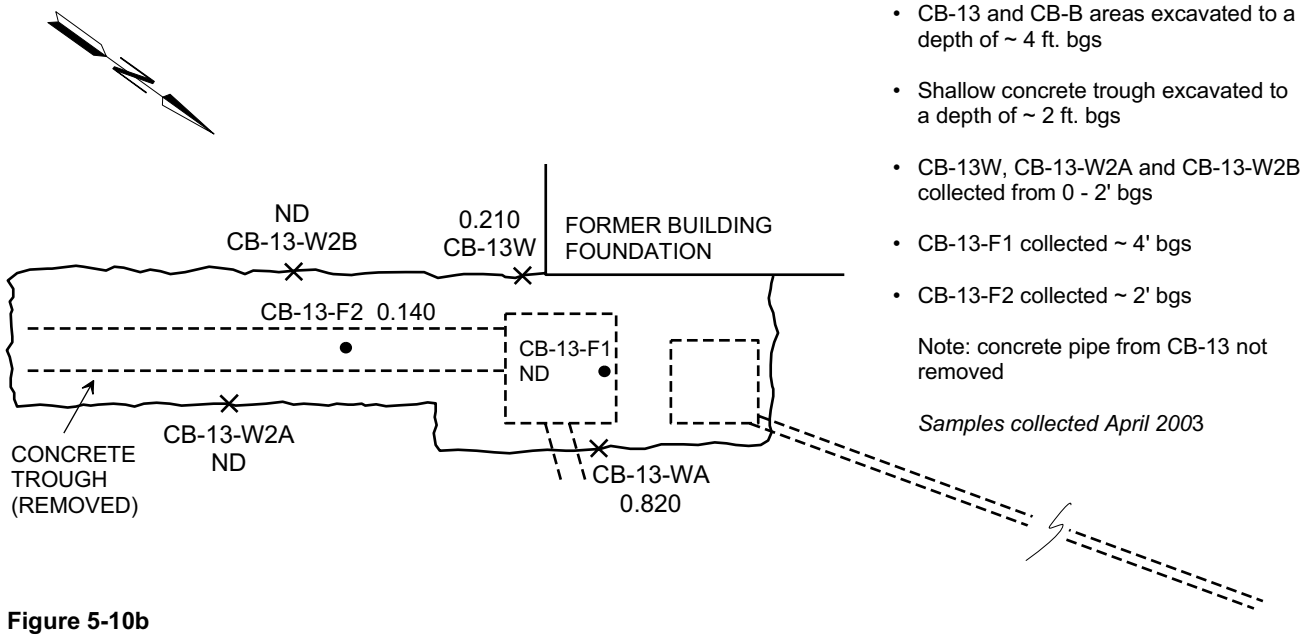


Figure 5-10b

NOTE ND Not detected
All results are in mg/kg

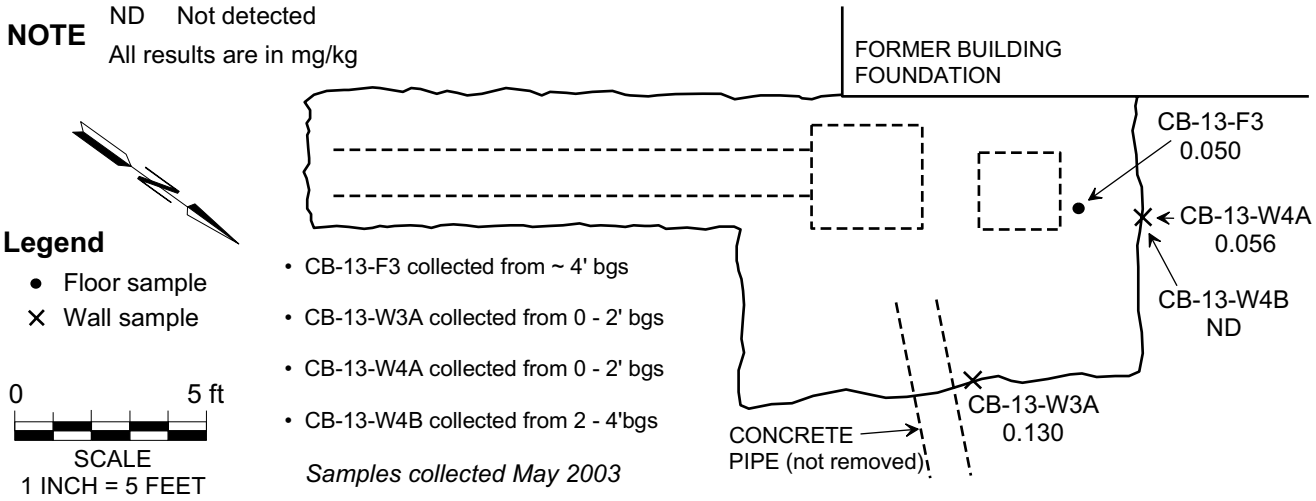


*Figure 5-10 from July 2003 Remediation Report Addendum

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-26_CB-13soilPCBresults.dsf

Lawler, Matusky & Skelly Engineers LLP One Blue Hill Plaza • Pearl River, New York 10965 ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS	**CB-13 Area Excavation** **PCB Soil Sample Results**	**Figure 5-26***

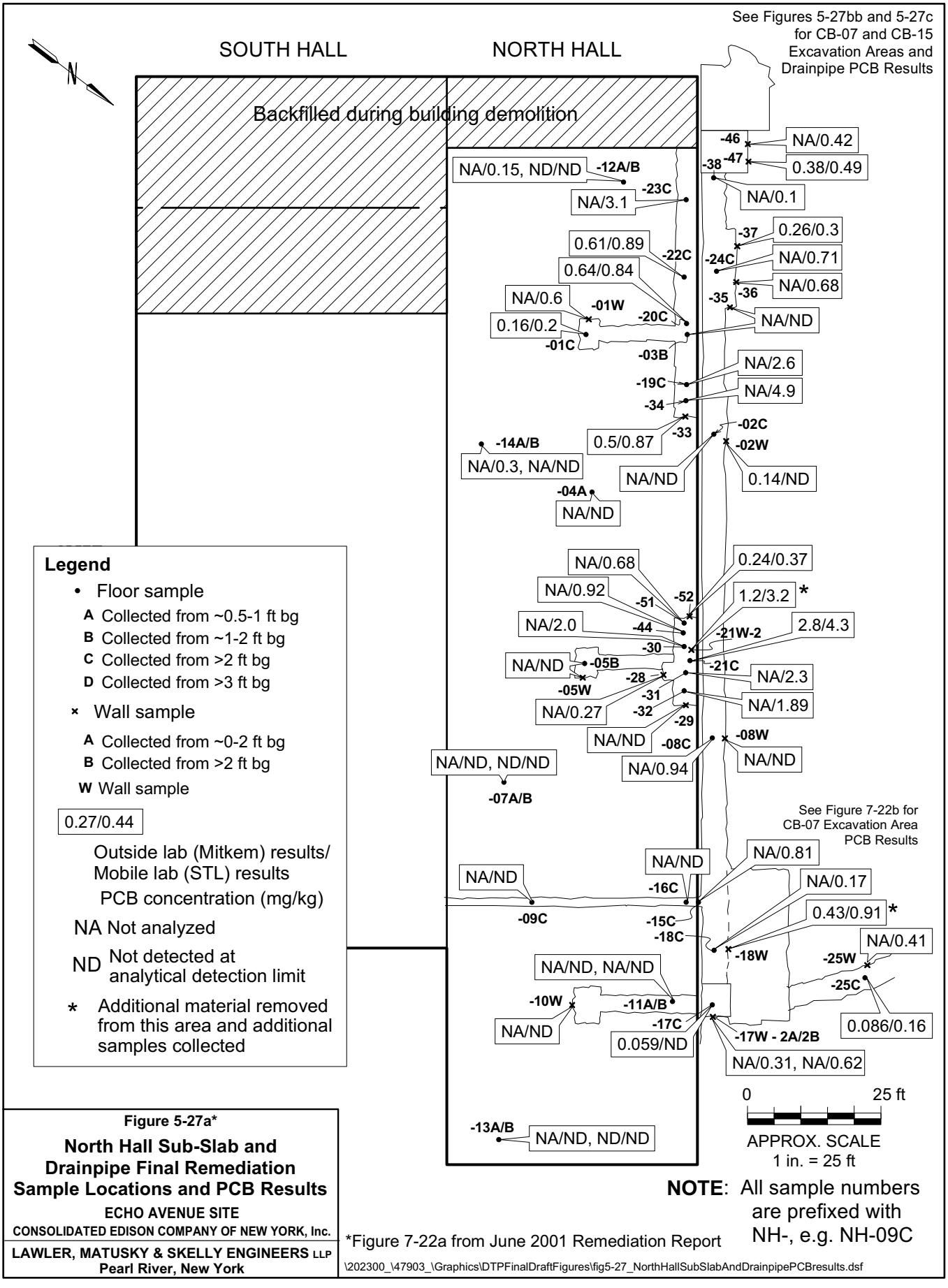


Figure 5-27a*

North Hall Sub-Slab and Drainpipe Final Remediation Sample Locations and PCB Results

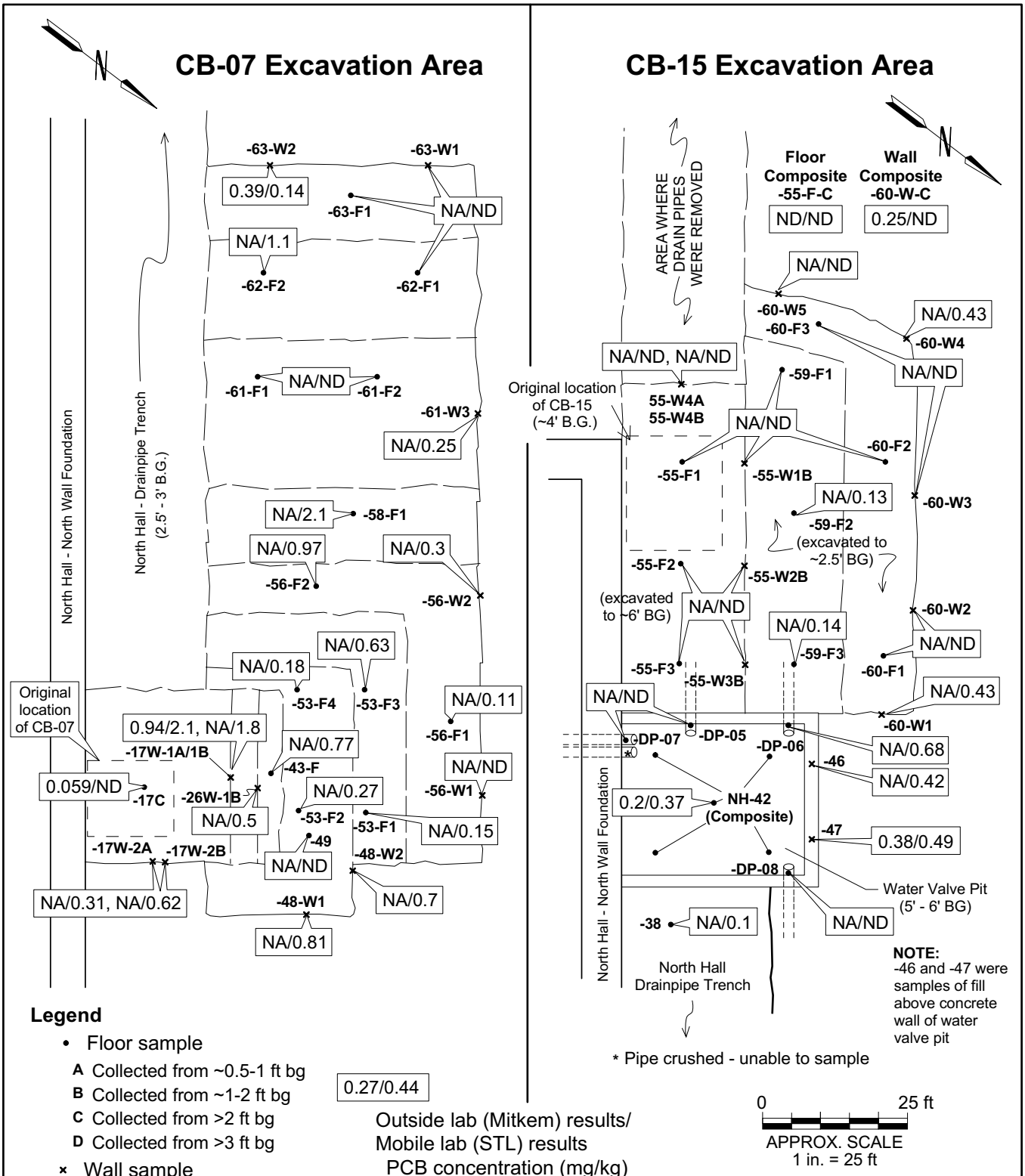
ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

*Figure 7-22a from June 2001 Remediation Report

\202300_\47903_\Graphics\DTPFinalDraftFigures\fig5-27_NorthHallSubSlabAndDrainpipePCBresults.dsf



Legend

- • Floor sample
  - **A** Collected from ~0.5-1 ft bg
  - **B** Collected from ~1-2 ft bg
  - **C** Collected from >2 ft bg
  - **D** Collected from >3 ft bg
- × Wall sample
  - **A** Collected from ~0-2 ft bg
  - **B** Collected from ~2-4 ft bg
  - **W** Wall sample

0.27/0.44 — Outside lab (Mitkem) results/ Mobile lab (STL) results PCB concentration (mg/kg)

NA Not analyzed

ND Not detected at analytical detection limit

NOTE: All sample numbers are prefixed with NH-, e.g. NH-62-F2

*Figure 7-22b from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\
Fig5-27b _NorthHallSubSlabAndDrainpipePCBdetails.dsf

Figure 5-27b*

North Hall Sub-Slab and Drainpipe Final Remediation Sample Locations and PCB Results (Expanded Drawing)

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP

Pearl River, New York

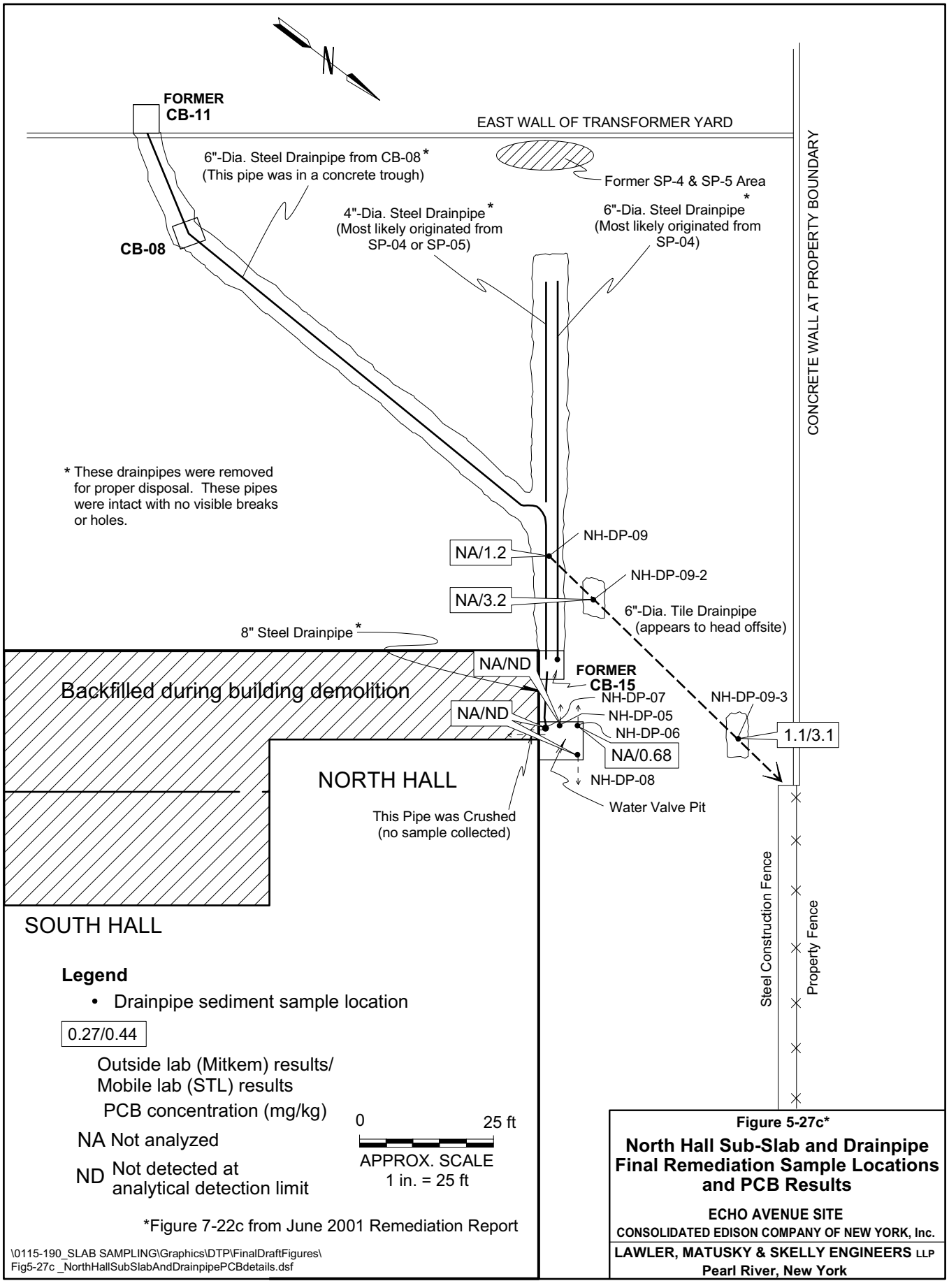


*Figure 7-22c from June 2001 Remediation Report

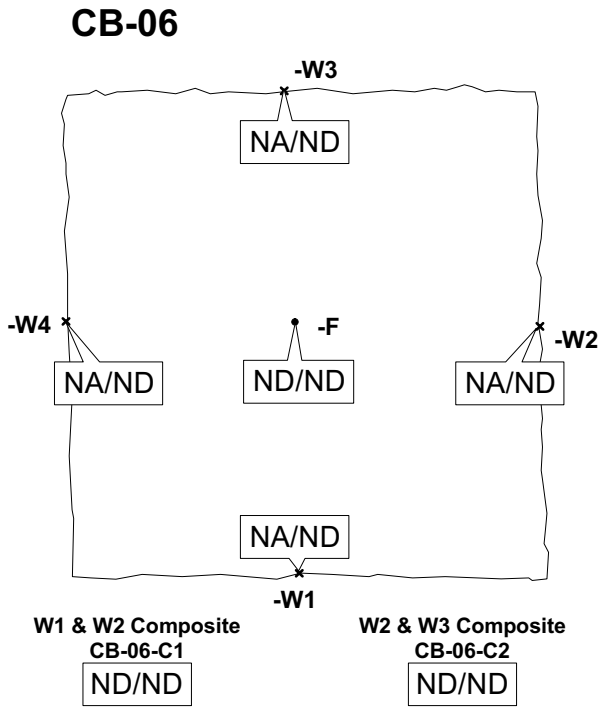
\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\
Fig5-27c _NorthHallSubSlabAndDrainpipePCBdetails.dsf

Figure 5-27c*

North Hall Sub-Slab and Drainpipe Final Remediation Sample Locations and PCB Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



NOTE:

All sample numbers are prefixed with catch basin ID, e.g. **CB-06-W2**

- No drainpies in CB-06
- W1 & W2 were fill walls
- W2 & W3 were brick/concrete walls
- Catch basin is 3 ft deep

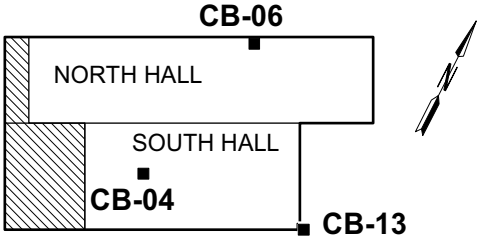
Legend

- • Floor concrete sample
- × Wall concrete sample

0.27/0.44 Outside lab (H2M) results/ Mobile lab (STL) results PCB concentration (mg/kg)

NA Not analyzed

ND Not detected at analytical detection limit



0 2 ft

APPROX. SCALE
1 in. = 2 ft

*Figure 7-22d from June 2001 Remediation Report

Figure 5-27d*
North Hall
Catch Basin Concrete, and Soil Sample Locations and PCB Results
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-27d _NorthHallSubSlabAndDrainpipePCBdetails.dsf

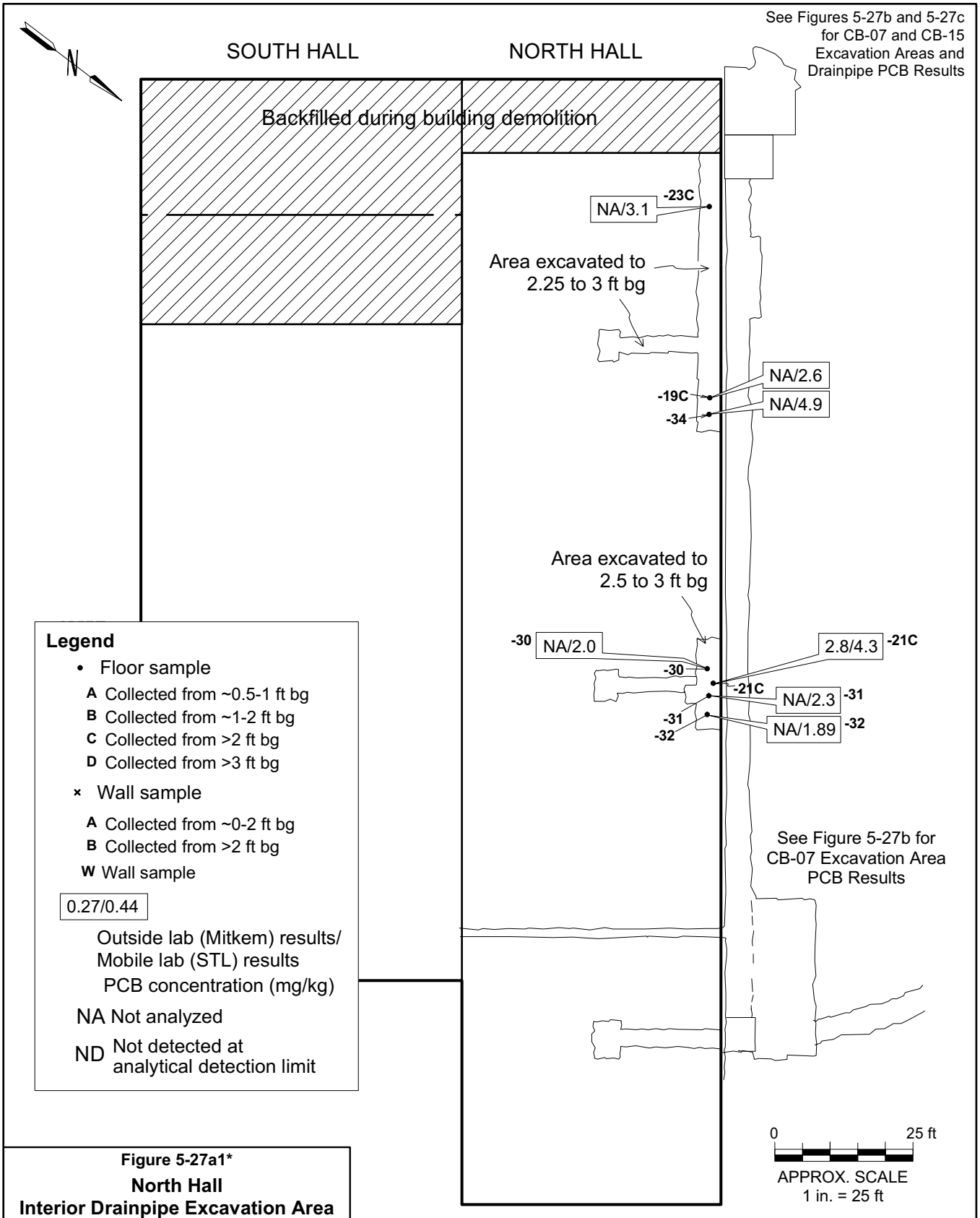


Figure 5-27a1*

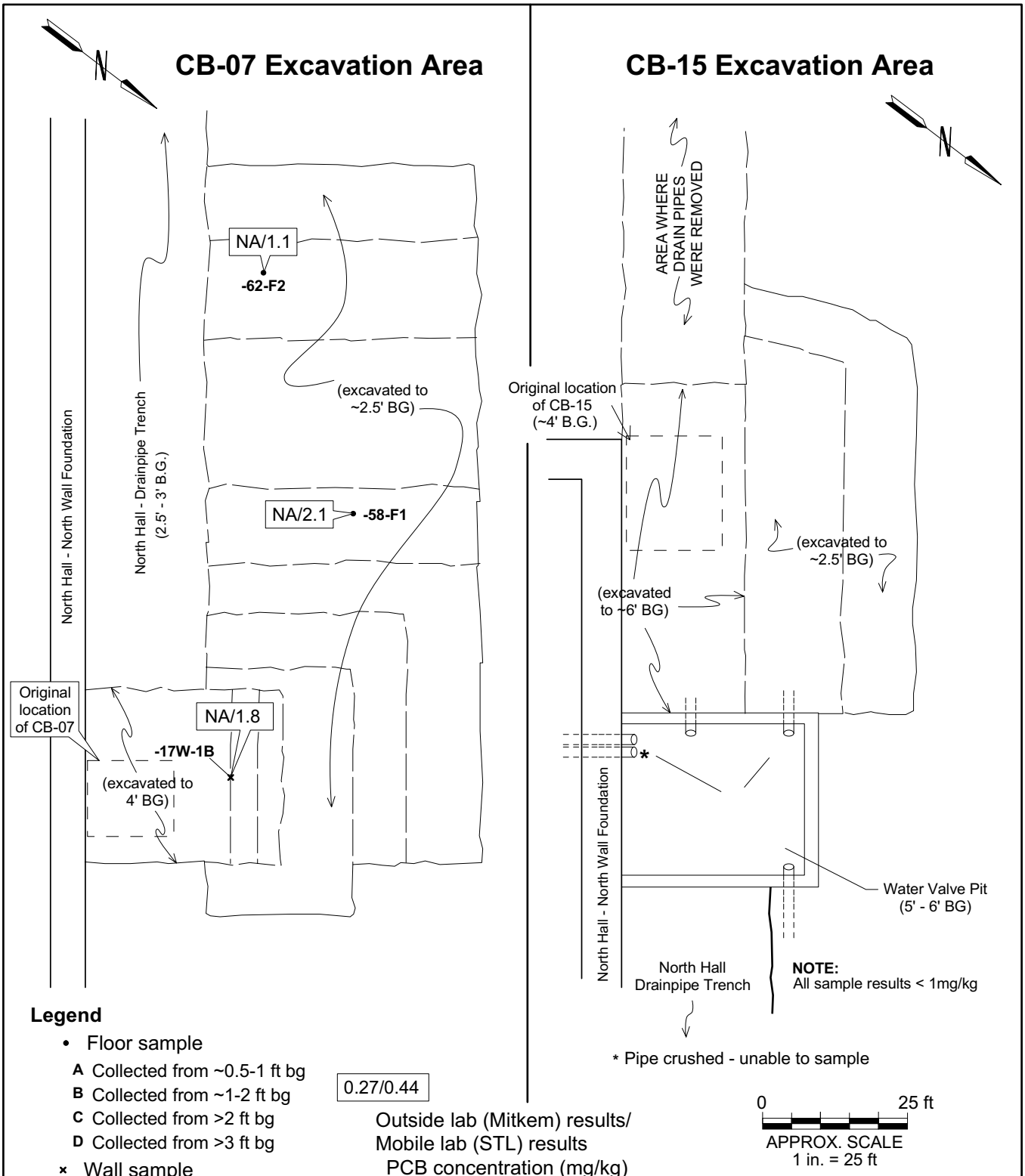
North Hall
Interior Drainpipe Excavation Area
Final PCB Sample Results Exceeding 1 mg/kg

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

*Figure 7-22a from June 2001 Remediation Report

\202300_\47903_\Graphics\DTP\FinalDraftFigures\Fig5-27a1_NorthHallSubSlabAndDrainpipePCBresults.dsf



Legend

- • Floor sample
  - **A** Collected from ~0.5-1 ft bg
  - **B** Collected from ~1-2 ft bg
  - **C** Collected from >2 ft bg
  - **D** Collected from >3 ft bg
- × Wall sample
  - **A** Collected from ~0.5-1 ft bg
  - **B** Collected from ~1-2 ft bg
  - **W** Wall sample

0.27/0.44

Outside lab (Mitkem) results/
Mobile lab (STL) results
PCB concentration (mg/kg)

NA Not analyzed

ND Not detected at analytical detection limit

NOTE: All sample numbers are prefixed with NH-, e.g. NH-62-F2

*Figure 7-22b from June 2001 Remediation Report

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\
Fig5-27b1 _NorthHallSubSlabAndDrainpipePCBdetailsSUMMARY.dsf

Figure 5-27b1*

North Hall Exterior Drainpipe Excavation Areas
Final PCB Sample Results Exceeding 1 mg/kg

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

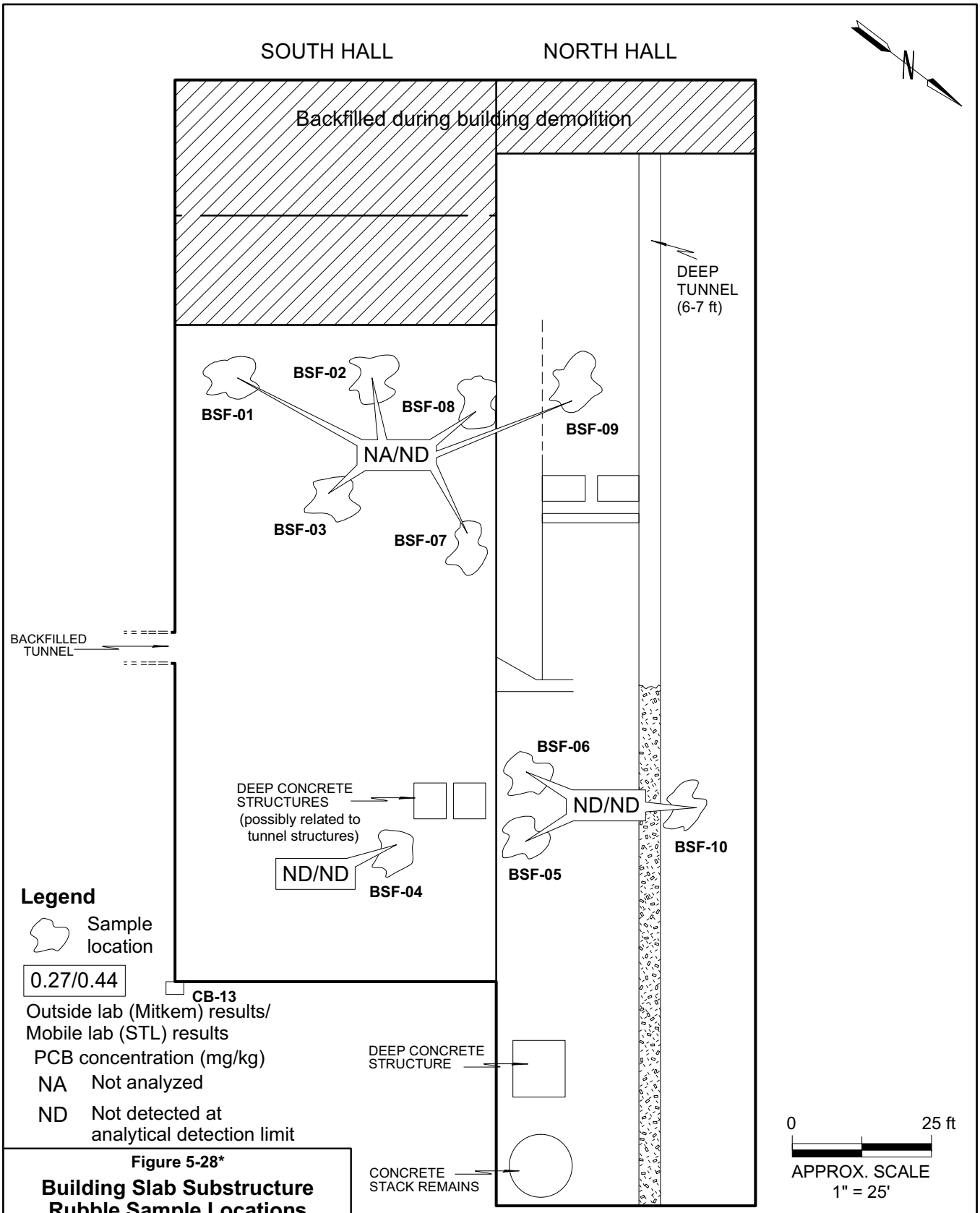


Figure 5-28*

Building Slab Substructure Rubble Sample Locations and PCB Results

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP

Pearl River, New York

*Figure 7-24 from June 2001 Remediation Report

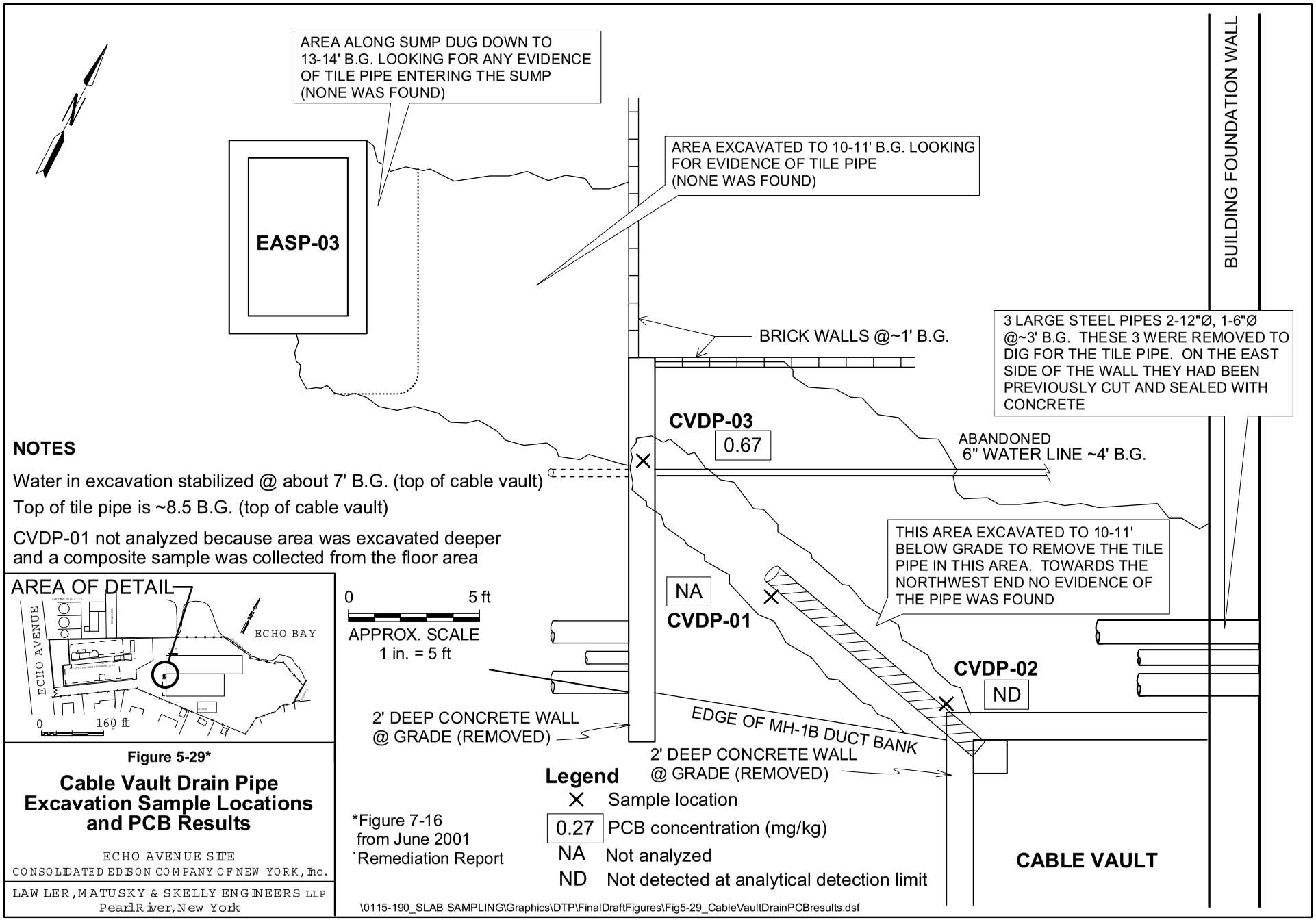
\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-28_BldgSlabRubbleSamplePCBresults.dsf

5.1.4 **On-Site Soil beneath the Cable Vault**

The cable vault was initially remediated as part of the 1997-1998 remediation. At that time the cable vault was cleaned and concrete samples were collected from the floor and walls of the structure; the samples met the cleanup criteria for PCBs. The ducts entering the cable vault were cleaned and plugged. Soil samples were collected from beneath the concrete floor of the cable vault; these samples all met the PCB cleanup criteria. NYSDEC granted approval to backfill the cable vault with clean fill in May 1998.

A drainpipe from the cable vault that ran towards the northwest was removed during the 1998 remediation. The results from this investigation are shown on Figure 5-29, formerly Figure 7-16 from the June 2001 Remediation Report. Monitoring well EAMW-6 was located in the vicinity of the drainpipe excavation and was removed as a result of the excavation (see Figure 5-45 in Section 5.2 of this report for location). The original boring for this well had selected samples collected from different depths for analysis for TCL organics and TAL inorganics. The results are provided on Table 5-2, formerly Table 4-17 from the 1993 Phase II Report. The RSCOs specified in TAGM 4046 for the TCL and TAL constituents detected in these samples have been added to the table for comparison. The data indicated several SVOCs and metals above the RSCOs. As described above in Section 4.2, a sample from the cable vault drainpipe investigation was analyzed for TCL organics and TAL inorganics. The results, which are provided in Table 4-5 of this Report, showed the presence of several SVOCs above the cleanup objectives. Additional excavation was requested by NYSDEC followed by confirmatory sampling to verify that the SVOC contamination was removed to acceptable levels. See Section 4.2 for further discussion, Table 4-5 for the data, and Figure 6-3 for location of these samples.

In 2003, Con Edison elected to remove the entire cable vault. Three walls and the floor were removed; the fourth (east) wall could not be removed because it is part of the basement wall of the Site's substation building, which had been backfilled in 1995. Results of concrete samples collected from this fourth wall are provided on Figure 5-30, formerly Figure 7-14a from the June 2001 Remediation Report. After the three walls and floor were removed, soil samples were collected from the bottom and north, south, and west side walls of the cable vault excavation; these results are shown on Figure 5-31, formerly Figure 5-8 from the July 2003 Remediation Report Addendum. The excavation was backfilled with the original backfill material used when the cable vault was originally backfilled in 1998. Additional certified clean fill was used to bring the excavation up to grade. Top soil was added and grass planted to prevent erosion.



NOTES

Water in excavation stabilized @ about 7' B.G. (top of cable vault)

Top of tile pipe is ~8.5 B.G. (top of cable vault)

CVDP-01 not analyzed because area was excavated deeper and a composite sample was collected from the floor area

Figure 5-29*

Cable Vault Drain Pipe Excavation Sample Locations and PCB Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-29_CableVaultDrainPCBresults.dsf

TABLE 5-2 (Page 1 of 2)

Originally Table 4-18 (February 1993 Phase II Investigation Report)

SOIL BORING DATA SUMMARY (JULY 1992)

CON EDISON - ECHO AVENUE

PARAMETER	EAMW-6 (0-2 ft)	RE EAMW-6 (0-2 ft)	DL EAMW-6 (0-2 ft)	EAMW-6 (4-6 ft)	EAMW-6 (8-10 ft)	EAMW-6 (10-12 ft)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
VOLATILE ORGANICS (mg/kg)								
Methylene chloride	ND	0.002j	•	0.002j	ND	ND	0.1	NA
SEMIVOLATILE ORGANICS (mg/kg)								
Naphthalene	0.82	0.79	0.93j	ND	ND	ND	13	NA
2-Methylnaphthalene	1.5	1.0	1.2 j	ND	ND	ND	36.4	NA
Acenaphthalene	4.0e	3.9e	6.5	ND	ND	ND	41	NA
Acenaphthene	0.25j	0.27j	0.32j	ND	ND	ND	50.0 ***	NA
Dibnezofuran	0.51	0.78	0.83j	ND	ND	ND	6.2	NA
Fluorene	0.9	1.1	2.0	ND	ND	ND	50.0 ***	NA
Phenanthrene	1.7	0.63	1.6j	ND	ND	ND	50.0 ***	NA
Anthracene	8.8e	2.9e	3.3	ND	ND	ND	50.0 ***	NA
Carbazole	0.19j	0.1j	0.25j	ND	ND	ND	-	NA
Fluoranthene	2.9	1.2	3.4	ND	ND	ND	50.0 ***	NA
Pyrene	2.7	2.3	2.4	ND	ND	ND	50.0 ***	NA
Benzo(a)anthracene	**4.0e**	**2.9**	**4.8**	ND	ND	ND	0.224 or MDL	NA
Chrysene	**4.9e**	**4.8e**	**4.8**	ND	ND	ND	0.4	NA
bis(2-Ethylhexyl)phthalate	0.38	0.34j	0.42j	ND	ND	ND	50.0 ***	NA
Benzo(b)fluoranthene	**2.3**	**2.4**	**2.8**	ND	ND	ND	1.1	NA
Benzo(k)fluoranthene	**2.1**	**1.8**	**4.0**	ND	ND	ND	1.1	NA
Benzo(a)pyrene	**0.64**	**0.62**	**0.8j**	ND	ND	ND	0.061 or MDL	NA
Indeno(1,2,3-c,d)pyrene	0.46	0.56	0.52j	ND	ND	ND	3.2	NA
Dibenzo(a,h)anthracene	**0.62**	**1.1**	**0.57**	ND	ND	ND	0.014	NA
PESTICIDES/PCBs (mg/kg)								
Aldrin	0.0081p	•	•	ND	ND	ND	0.041	NA
Heptachlor epoxide	0.0085p	•	•	ND	ND	ND	0.02	NA
Endrin ketone	0.0092p	•	•	ND	ND	ND	-	NA
Endosulfan II	0.017	•	•	ND	ND	ND	0.9	NA
α-Chlordane	0.0022p	•	•	ND	ND	ND	0.54	NA
4,4'-DDD	0.0079p	•	•	ND	ND	ND	2.9	NA
Aroclor 1254	ND	•	•	ND	ND	ND	1.0/10*	NA
Aroclor 1260	ND	•	•	ND	ND	ND	1.0/10*	NA

Originally Table 4-18 (February 1993 Phase II Investigation Report)

SOIL BORING DATA SUMMARY (JULY 1992)

CON EDISON - ECHO AVENUE

PARAMETER	EAMW-6 (0-2 ft)	EAMW-6 (4-6 ft)	EAMW-6 (8-10 ft)	EAMW-6 (10-12 ft)	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)	EASTERN USA BACKGROUND SOIL CONCENTRATIONS (b)
METALS (mg/kg)						
Aluminum	7,080	18,900	18,900	20,500	SB	33,000
Antimony	ND	ND	ND	ND	SB	0.6 - 10 (n)
Arsenic	4.4	2.3	0.82B	0.95	7.5 or SB	3.0 - 12.0 æ
Barium	81.6	69.8	189	193	300 or SB	15 - 600
Beryllium	**0.42B**	**0.70 B**	**0.62B**	**0.59B**	0.16 or SB	0 - 1.75
Cadmium	**1.4**	ND	**2.2**	**1.7**	1 or SB	0.1 - 1.0
Calcium	3,750	1,210	1,530	1,220	SB	130 - 35,000 æ
Chromium	**12.4**	**28.1**	**56.2**	**52.2**	10 or SB	1.5 - 40.0 æ
Cobalt	9.1B	7.6B	22.9	17.8	30 or SB	2.5 - 60.0 æ
Copper	**45.7**	18.5	**30.9**	**30.3**	25 or SB	1.0 - 50.0
Iron	14,100	20,800	35,600	34,200	2,000 or SB	2,000 - 550,000
Lead	141+	9.0 SA	5.5	5.2	SB**	4.0 - 61 or 200 - 500**
Magnesium	3,060	4,420	**8,240**	**8,520**	SB	100 - 5,000
Manganese	128	375	849	686	SB	50 - 5,000
Mercury****	ND N	ND N	ND N	ND N	0.1	0.001 - 0.2
Nickel	**14.9**	**18.5**	**40.6**	**35.0**	13 or SB	0.5 - 25
Potassium	2,530	2,390	8,460	9,770	SB	8,500 - 43,000 æ
Selenium	0.60B	ND W	ND W	ND W	2 or SB	0.1 - 3.9
Silver	ND	ND	ND	0.70 B	SB	0.1 - 5.0 (n)
Sodium	408B	405B	267B	259B	SB	6,000 - 8,000
Thallium	0.20 B	ND	0.62B	**1.1B**	SB	0.1 - 0.8 (q)
Vanadium	35.2	37.9	63.5	70.2	150 or SB	1.0 - 300
Zinc	**78.0**	**43.0**	**73.5**	**74.0**	20 or SB	9.0 - 50
Cyanide	ND	ND	ND	ND	****	N/A

Note : Numbers in bold exceed objectives.
* - Not analyzed
*** - As per TAGM #4046, total VOCs < 10 ppm , total SVOCs < 500 ppm, individual SVOCs < 50 ppm, and total Pesticides < 10 ppm
(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94
b - Found in associated blanks
j - Estimated concentration; compound present below quantitation limit
e - Estimated concentration, exceeds GC/MS calibration range
* - 1.0 ppm refers to surface concentrations; 10 ppm refers to subsurface concentrations
** - 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
**** - Some forms of Cyanide are complex and stable while other forms are pH dependent and hence are very unstable. Site-specific form(s) of Cyanide should be taken into consideration when establishing soil cleanup objectives.
æ - New York State background concentration
(n) - Dragun, J. The Soil Chemistry of Hazardous Materials
(q) - Bowan, H.J., Environmental Chemistry of the Elements
B - Value is less than the contract-required detection limit but greater than the instrument detection limit
ND - Not detected at analytical detection limit
DL - Diluted sample analysis
RE - Re-analysis
P - Estimated concentration; pesticide/PCB analyte has>25% difference for the detected concentrations between the two GC columns
SB - Site background
SA - Value determined by the method of standard addition
W - Post-digestion spike out of control limits,sample absorbance is less than 50% of spike absorbance
N - Spike sample recovery is not within control limits
+ - Correlation coefficient for the MSA is <0.995
**** - Mercury results are likely biased low as the MS recovered 30.8%; actual concentration may be greater than those reported

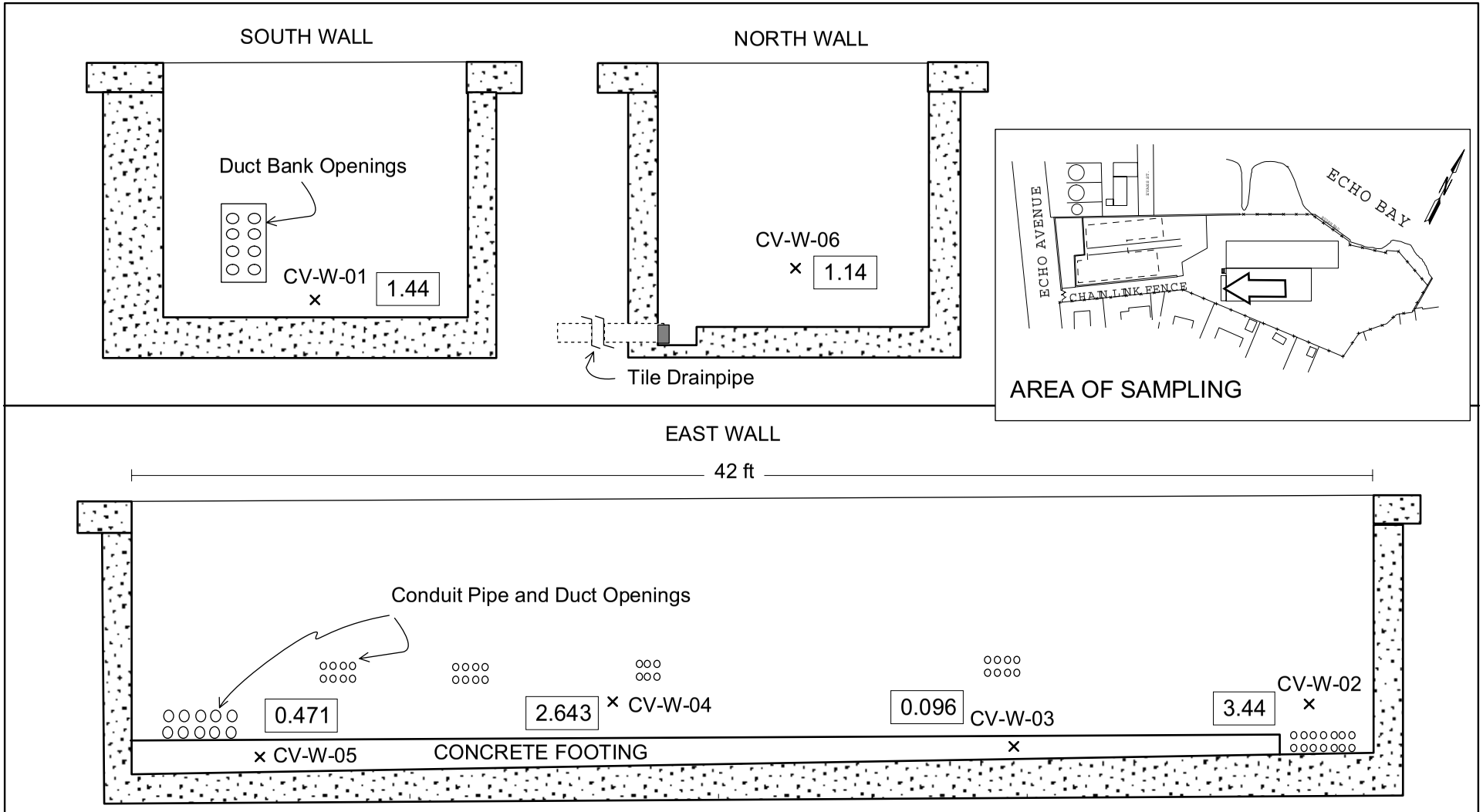


*Figure 7-14a from June 2001 Remediation Report

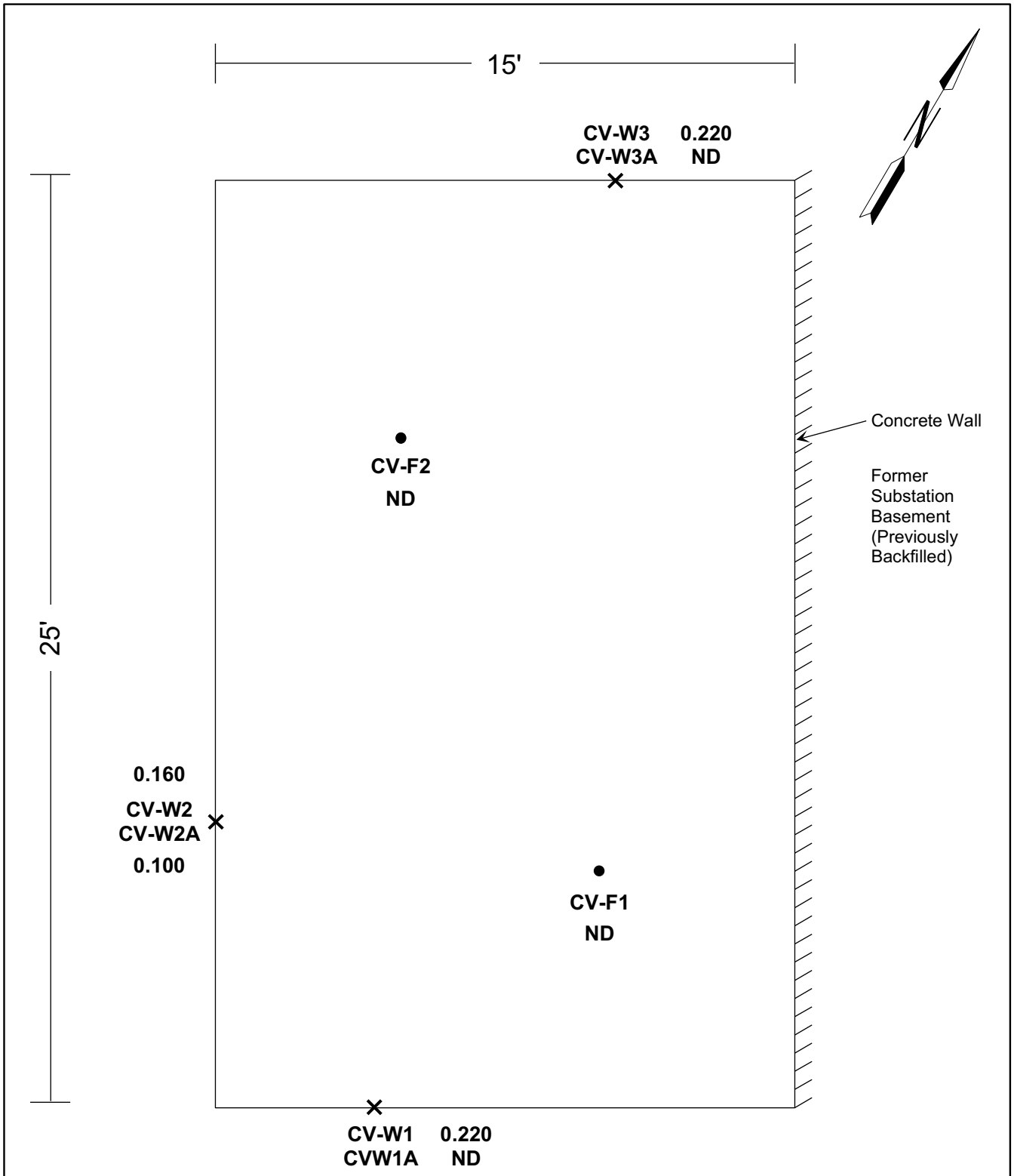
Figure 5-30

Cable Vault Concrete Wall and Floor Sample Locations and PCB Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-30_CableVaultConcreteWallFloorPCBresults.dsf



Legend

- ✕ Wall Sample
- ● Floor Sample

Note: All Results in mg/kg

NOT TO SCALE

NOTE: CV-W1, -W2, and -W3 taken from 0-2 ft depth

CV-W1A, -W2A, and -W3A taken from 2-6 ft depth

CV-F1and -F2 taken from 6 ft depth

*Figure 5-8 from July 2003 Remediation Report Addendum

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-31_CableVaultExcavationPCBsoilResults.dsf

Figure 5-31*

Cable Vault Excavation Confirmatory PCB Soil Sample Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

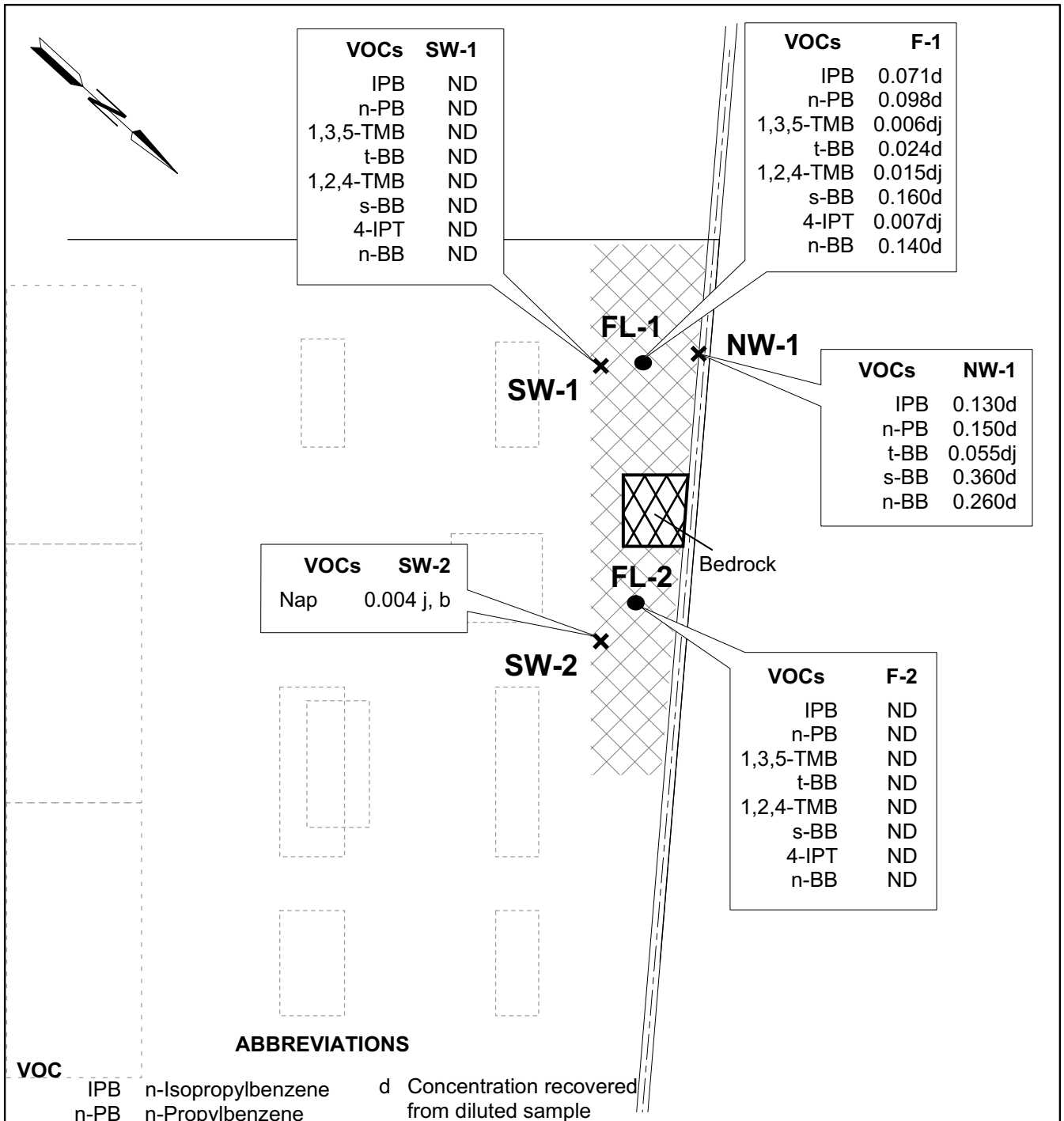
5.1.5 On-Site Soil beneath the Transformer Yard Slab

As part of the building demolition project conducted by Con Edison in 1995, the transformer yard superstructure and concrete structures above the slab were removed. As part of the 1997-1998 remediation, various structures, e.g. manholes, electrical boxes, catch basins, moat drains, etc. were sampled and either removed or allowed to remain in place. Soil samples were collected from various areas in the transformer yard not covered by concrete. The slab itself was to be cleaned and allowed to remain. As described above in Section 4.2, one soil sample, TYSS-01, which was analyzed for TCL organics and TAL inorganics showed only elevated levels of zinc. A second sample, TYMD-01, collected from the transformer yard moat drain area and analyzed for TCL organics and TAL inorganics, had elevated levels of lead, cadmium, copper, and zinc above the RSCOs in TAGM 4046. These areas were subsequently excavated.

NYSDEC requested that soil samples be collected beneath the transformer yard slab. Instead Con Edison elected to remove the transformer yard slab in its entirety; the slab was removed in 1999. An investigation to determine the source of the high metals concentrations found in the transformer yard moat drain area was conducted and found that the cindery-ash fill material located just beneath the slab was the source. Con Edison elected to remove the cinder layer. This removal effort was halted in March 2000 when oil was observed seeping through the exposed soil. An investigation determined that the source of the oil was the concrete duct banks.

Oil was also observed in the northwest corner of the transformer yard; the source was traced to a previous oil spill that occurred on the adjacent property. Con Edison excavated the area in 2002 to a depth of five feet and then collected samples from the floor and walls of the excavation for VOC and SVOC analysis. The results are provided on Figures 5-32 and 5-33, formerly Figures 5-2 and 5-3 of the July 2003 Remediation Report Addendum; all detected compounds are provided on the figures. With the exception of one PAH, BaP, found in NW-1, none of the results exceeded either the RSCOs in TAGM 4046 or the cleanup guidelines in NYSDEC's fuel oil contaminated soil cleanup guidelines (Ref. 24, Appendix A of this Report). The BaP result of an estimated concentration of 0.067 mg/kg was just above the RSCO TAGM 4046 concentration of 0.061 mg/kg. A report entitled Echo Avenue Fuel Oil Spill Report was prepared and submitted to NYSDEC in August 2002 and on September 30, 2002, NYSDEC closed the spill. At the request of NYSDEC, the excavation was lined with a bentonite-impregnated sheeting material, CCW MiraCLAY®, before backfilling in May 2003. No further excavation was conducted in this area.

The cinder layer removal was completed in 2002. Figure 5-34, previously Figure 5-1 from the July 2003 Remediation Report Addendum, shows the final lead concentrations in the soil after the cinder layer was removed; all levels were less than the 500 mg/kg cleanup level. The results



ABBREVIATIONS

VOC

IPB	n-Isopropylbenzene
n-PB	n-Propylbenzene
1,3,5-TMB	1,3,5-Trimethylbenzene
t-BB	tert-Butylbenzene
1,2,4-TMB	1,2,4-Trimethylbenzene
s-BB	sec-Butylbenzene
4-IPT	4-Isopropyltoluene
n-BB	n-Butylbenzene
Nap	Naphthalene

d	Concentration recovered from diluted sample
j	Estimated concentration; compound present below quantitation level
g	Estimated concentration based on data validator's report
ND	Not detected

0 25 ft

APPROX. SCALE

Legend

Fuel Oil Excavation (50' long x 13' wide x 5' deep)

● Floor Sample

✕ Wall Sample (taken 3 ft BGS)
All results in mg/kg

*Figure 5-2 from July 2003 Remediation Report Addendum

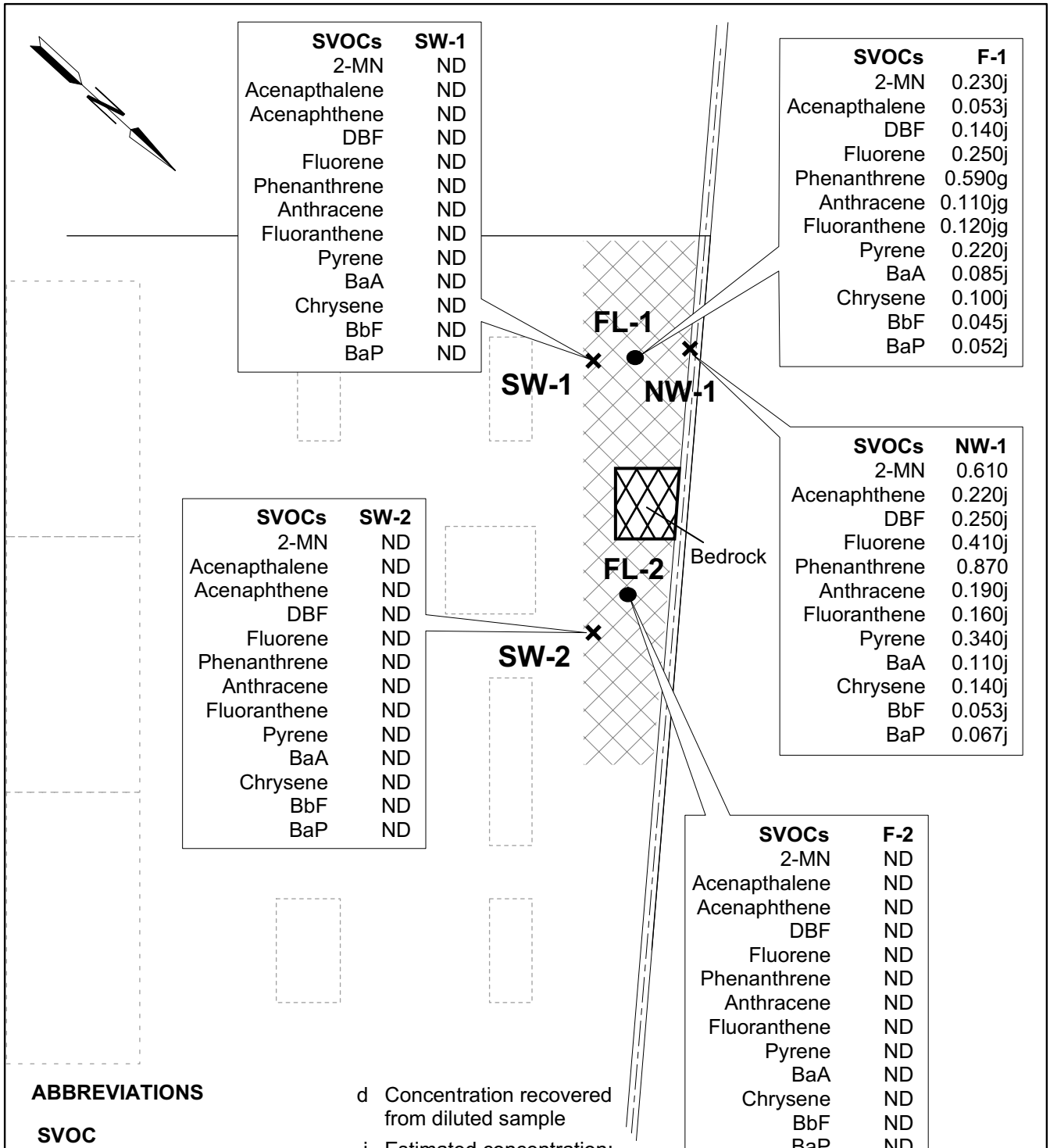
Figure 5-32*

Transformer Yard May 2002
Fuel Oil Post-Excavation
VOC Soil Sampling Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-32_TransformerYardVOCsoilResults.dsf



ABBREVIATIONS

SVOC

2-MN	2-Methylnaphthalene
DBF	Dibenzofuran
BaA	Benzo(a)anthracene
BbF	Benzo(b)fluoranthene
BaP	Benzo(a)pyrene

d	Concentration recovered from diluted sample
j	Estimated concentration; compound present below quantitation level
g	Estimated concentration based on data validator's report
ND	Not detected

0 25 ft

APPROX. SCALE

Legend

Fuel Oil Excavation (50' long x 13' wide x 5' deep)

● Floor Sample

✕ Wall Sample (taken 3 ft BGS)

All results in mg/kg

*Figure 5-3 from July 2003 Remediation Report Addendum

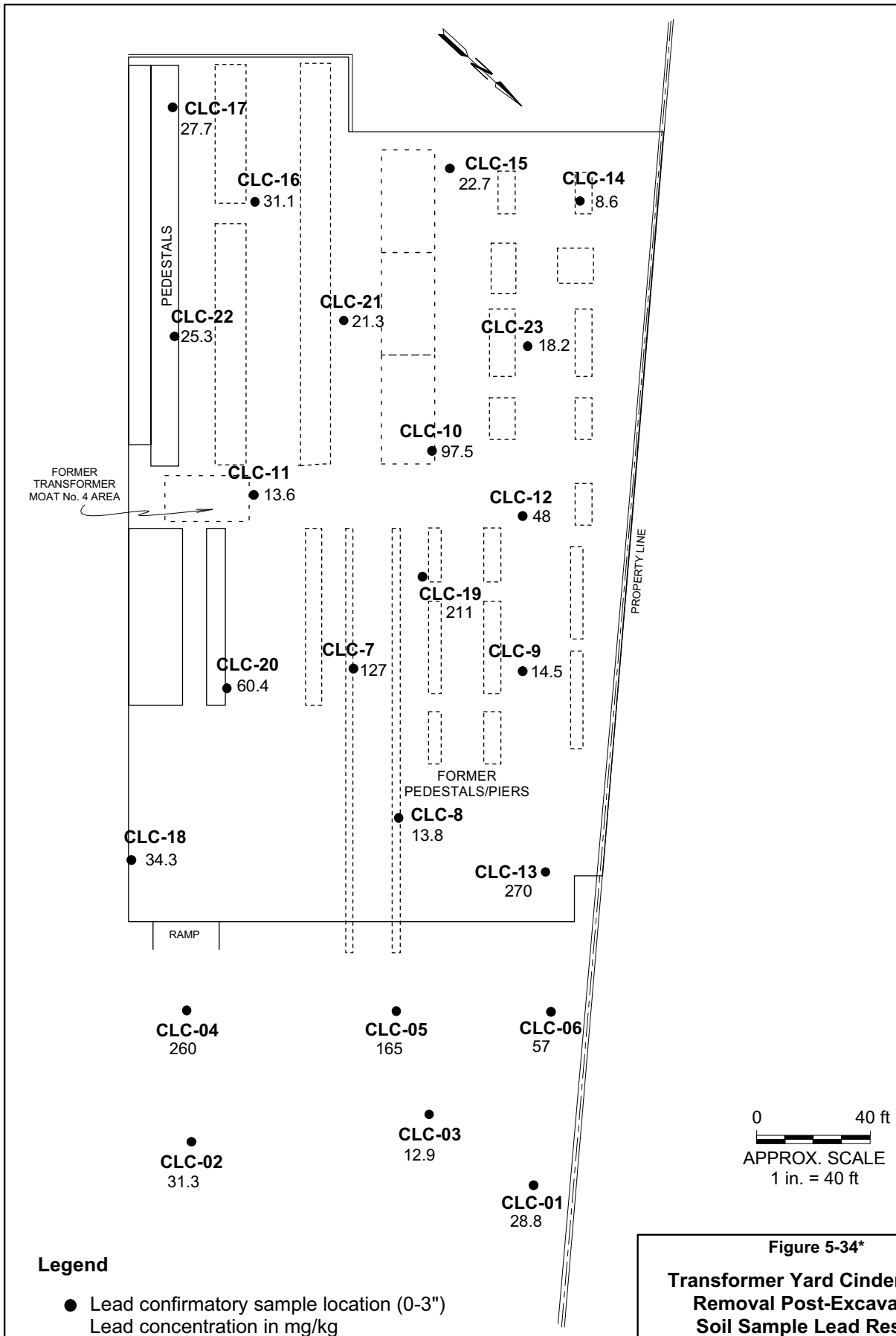
\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-33_TranformerYardMay02SVOCsoilResults.dsf

Figure 5-33*

Transformer Yard May 2002
Fuel Oil Post-Excavation
SVOC Soil Sampling Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



Legend

- Lead confirmatory sample location (0-3")
  Lead concentration in mg/kg

*Figure 5-1 from July 2003 Remediation Report Addendum

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-34_TranformerYardCinderSoilLeadResults.dsf

Figure 5-34*

Transformer Yard Cinder Layer Removal Post-Excavation Soil Sample Lead Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

of the 17 samples collected from the former transformer yard area contained an average lead concentration if 62.1 mg/kg with the highest concentration of 270 mg/kg at sample location CLC-13. This area was subsequently excavated another 5 ft below grade as described below. Since the lead had been found to be associated with the cindery ash fill material that previously had been entirely removed, no further lead samples were collected.

Con Edison elected to remove the concrete duct banks after the remaining cinder layer was removed. An asbestos contractor abated the asbestos associated with the cable ducts prior to their removal. Subsequently, after the cable ducts were removed, Con Edison elected to remove all the remaining structures in the transformer yard (manholes, pull boxes, pedestals) and excavate the soil to a depth of six ft. The various sumps and above ground pits (EASP-01, EASP-04, EASP-05) located in this area had been removed previously. Sump EASP-02 had been backfilled in 1998 but was removed as part of this remediation work. This work was completed in 2003. Figure 5-19 of this report shows that the final PCB concentrations at the bottom of the excavation were all less than 1 mg/kg. The area was backfilled with clean certified backfill to bring it up to the original grade. Polyethylene mesh sheeting was placed on top of the backfill prior to placement of top soil. The area was planted with a field grass mix to prevent erosion.

5.1.6 **On-Site Soils on Remainder of Site**

The tunnel connecting the substation building to the office building was cleaned by pressure washing and backfilled in 1998. An asbestos patch located in the tunnel was removed prior to the tunnel being backfilled. One deep sump-like structure, labeled EASP-06, is located near the area where the northeast corner of the South Hall meets the North Hall (see Figure 5-24 for location). It was sampled in November 1996 and had 0.06 mg/kg of PCBs in the bottom. The top 2 feet of the structure was removed, and it was backfilled with clean material. It is assumed, based on the location and depth of this structure, that it was also related to the intake and discharge of water from the bay when the facility was a coal-fired electric generating plant. The sump remains on the site.

A drainpipe that runs along the bulkhead on the northwest side of the property adjacent to the mudflat area was investigated in 1999. Sediment samples were collected at various points. The results are shown on Figure 5-35, formerly Figure 7-25 from the June 2001 Remediation Report; the drainpipe was not removed. The concrete drainpipe from former CB-13 at the southeastern corner of the South Hall also remains in place (see Figure 5-26 of this report for location of the drainpipe from former CB-13).

As part of the final remediation of the site conducted in 2002 to 2003, Con Edison elected to remove the cable duct banks between the transformer yard and cable vault and between the cable

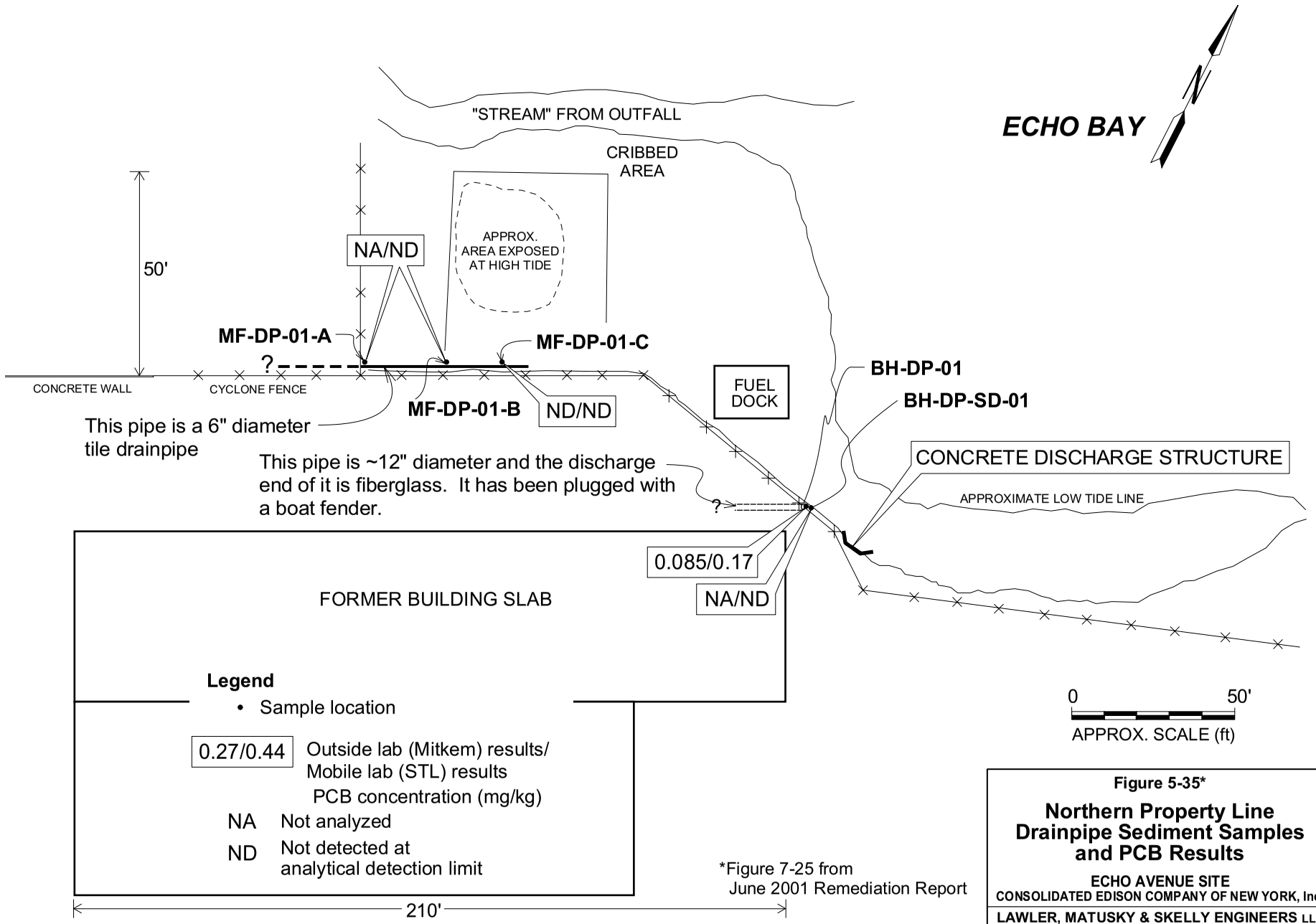


*Figure 7-25 from June 2001 Remediation Report

Figure 5-35*

Northern Property Line Drainpipe Sediment Samples and PCB Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

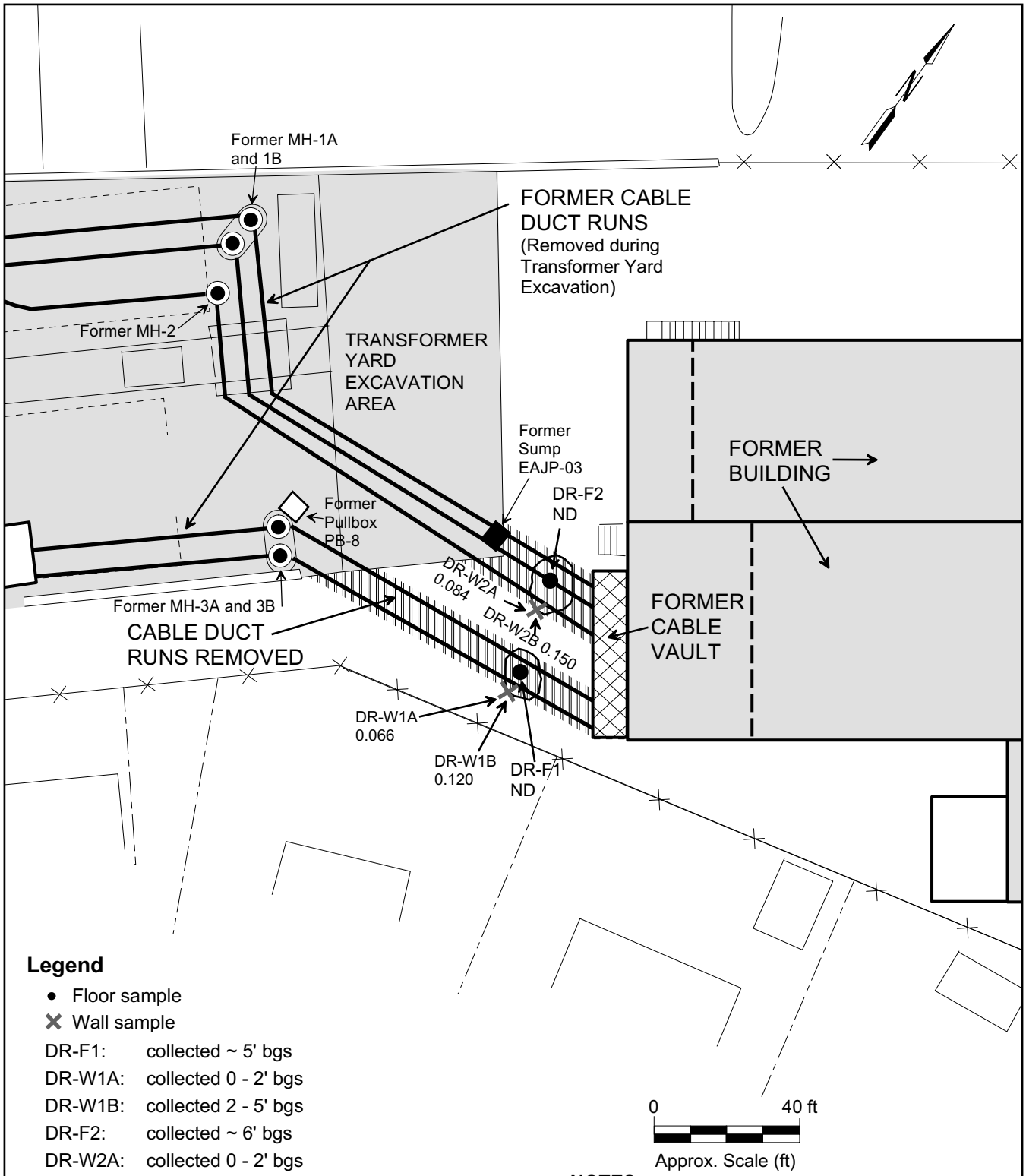
\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-35_NorthernPptyLineDrainpipeSedimentPCBresults.dsf

vault and tunnel. Sump EASP-03 which had been previously sampled and backfilled, was removed as part of this remediation plan. Figures 5-36 and 5-37, previously Figures 5-6 and 5-7 from the July 2003 Remediation Report Addendum, present the PCB results of the soil after the cable ducts were removed from the transformer yard to the cable vault and from the cable vault to the tunnel, respectively.

Two additional catch basins and their drainpipes located in the northeastern corner of the yard near Echo Bay and one catch basin located at the base of the entrance driveway were removed in 2003. The results of the soil samples collected after removal are provided in Figures 5-38 and 5-39, formerly Figures 5-9 and 5-11 from the July 2003 Remediation Report Addendum.

5.2 GROUNDWATER

Five monitoring wells were originally installed on the site in 1987 and one additional well was installed as part of the Phase II Investigation in 1992. Figures 5-40 to 5-43, formerly Figures 3-2 to 3-5 from the February 1993 Phase II Investigation report, show the water table contour maps for the various tidal phases; as can be seen there is a 6 ft difference in the water table elevation in MW-4 and MW-5. The six wells were all sampled in 1992 as part of the Phase II Investigation and analyzed for TCL organics and TAL inorganics. The results are provided on Table 5-3, formerly Table 4-19 from the 1993 Phase II investigation report and presented graphically on Figure 5-44, formerly Figure 4-21 taken from the 1993 Phase II Investigation report. Table 5-3 presents results for TCL organics that were detected in at least one sample and results for all TAL inorganics. Figure 5-44 presents results for all substances with TAGM 4046 RSCO exceedances and for PCBs. Natural ambient groundwater concentrations have been added to the table (Ref. 32, Appendix A of this Report). In 2002, NYSDEC requested that the remaining wells on the site be re-sampled for TCL organics and TAL inorganics. Only two wells, EAMW-1 and EAMW-4, could be sampled. EAMW-2 and EAMW-3 were destroyed during the transformer yard excavation, EAMW-6 was destroyed during the cable vault drainpipe investigation, and EAMW-5 was bent so severely that it was impossible to sample. The results are provided in Table 5-4, formerly Table 5-14 of the July 2003 Remediation Report Addendum, and presented graphically on Figure 5-45, previously Figure 5-13 taken from the July 2003 Remediation Report Addendum. Table 5-4 summarizes results for TCL organics by category, indicates concentrations of TCL organics, and provides results for all TAL inorganics. Figure 5-45 presents results for all substances with TAGM 4046 RSCO exceedances and for PCBs. After the sample results were received and reviewed by the NYSDEC, the NYSDEC authorized Con Edison to abandon the wells. The wells were abandoned in January 2003 in accordance with the NYSDEC Decommissioning Document (Ref. 29, Appendix A of this Report).



Legend

- Floor sample
- Wall sample

DR-F1: collected ~ 5' bgs
DR-W1A: collected 0 - 2' bgs
DR-W1B: collected 2 - 5' bgs
DR-F2: collected ~ 6' bgs
DR-W2A: collected 0 - 2' bgs
DR-W2B: collected 2 - 6' bgs
All results are in mg/kg
ND - Not Detected

NOTES:

Excavated to 5-6 bgs in both excavations looking for sample locations for removed duct runs

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\
Fig5-36_CableDuctBankAddtlSoilResults.dsf

*Figure 5-6 from July 2003 Remediation Report Addendum

Lawler, Matusky & Skelly Engineers LLP
One Blue Hill Plaza • Pearl River, New York 10965
ENVIRONMENTAL SCIENCE & ENGINEERING CONSULTANTS

Cable Duct Bank Additional Removal Soil Sample Results

Figure 5-36*

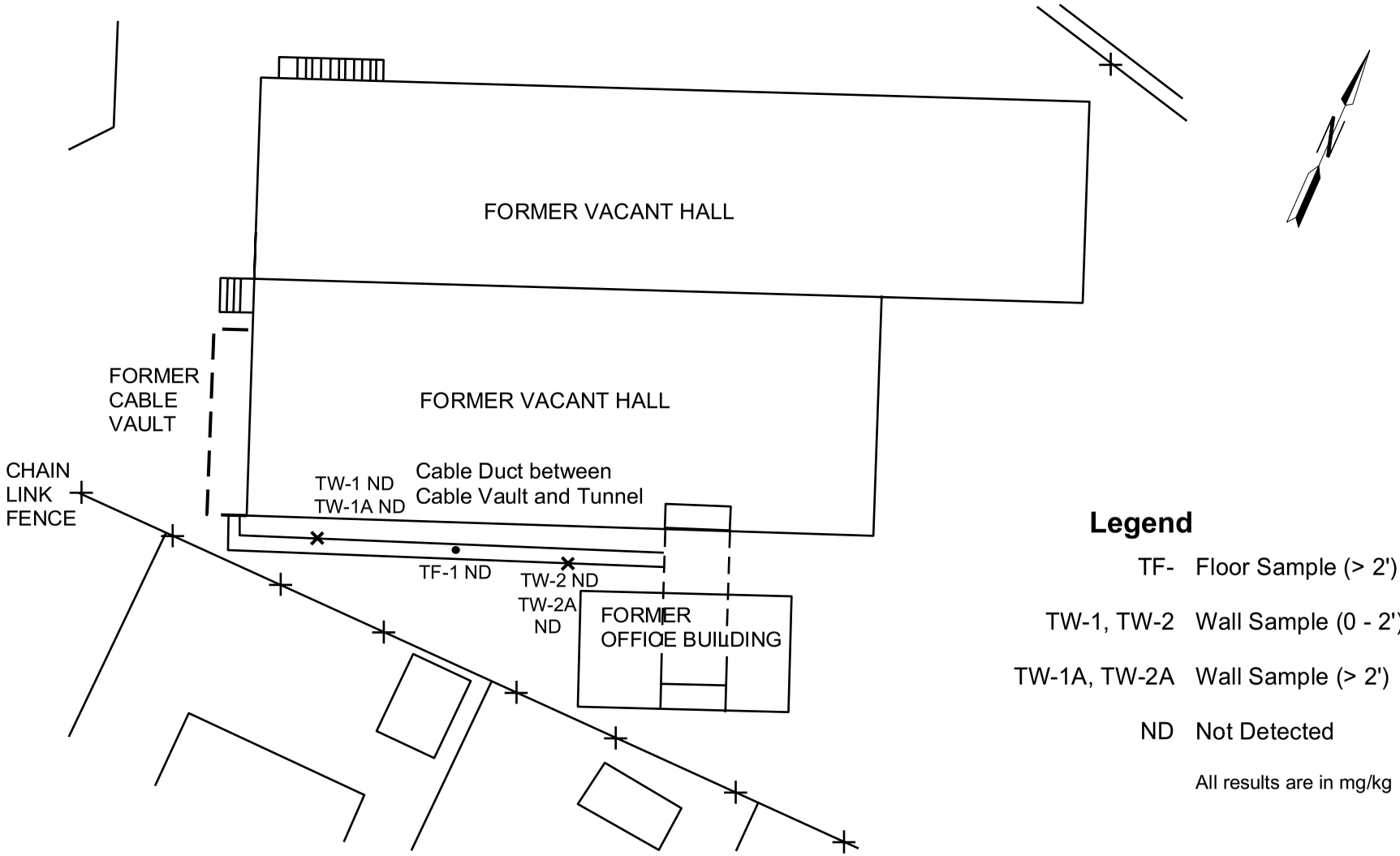


*Figure 5-7 from July 2003 Remediation Report Addendum

Figure 5-37*

Tunnel Cable Duct
Confirmatory PCB
Soil Sample Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-37_TunnelCableDuctPCBsoilResults.dsf

CB-C

Echo Bay

Northern Fenceline

Trench

4'

CB-C-W
0.046

Catch Basin

CB-C-F
0.052

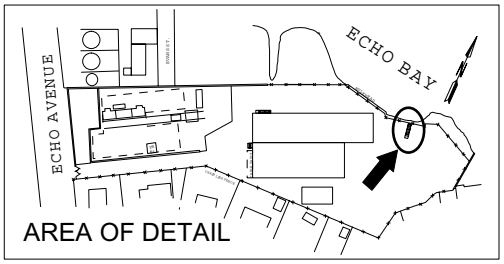
3'

3'

NOTES

Excavation
Depth of Catch Basin ≃ 3 ft.
Depth of Trench = 2 ft.
● Floor Sample (> 3 ft.)
✕ Wall Sample (0 - 2 ft.)

All results are in mg/Kg



CB-D

Chain Link Eastern Fenceline

4'

2'

CB-D-F
ND

CB-D-W
0.054

2'

NOTES

Excavation
Depth of Catch Basin = 2 ft.
Depth of Trench = 2 ft.
● Floor Sample (2 ft.)
✕ Wall Sample (0 - 2 ft.)
ND Not Detected

All results are in mg/kg

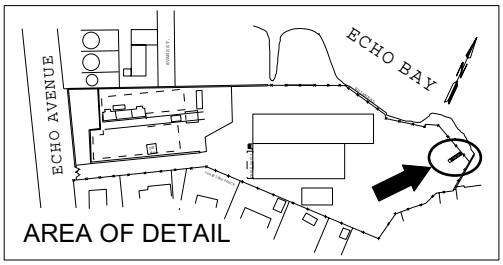


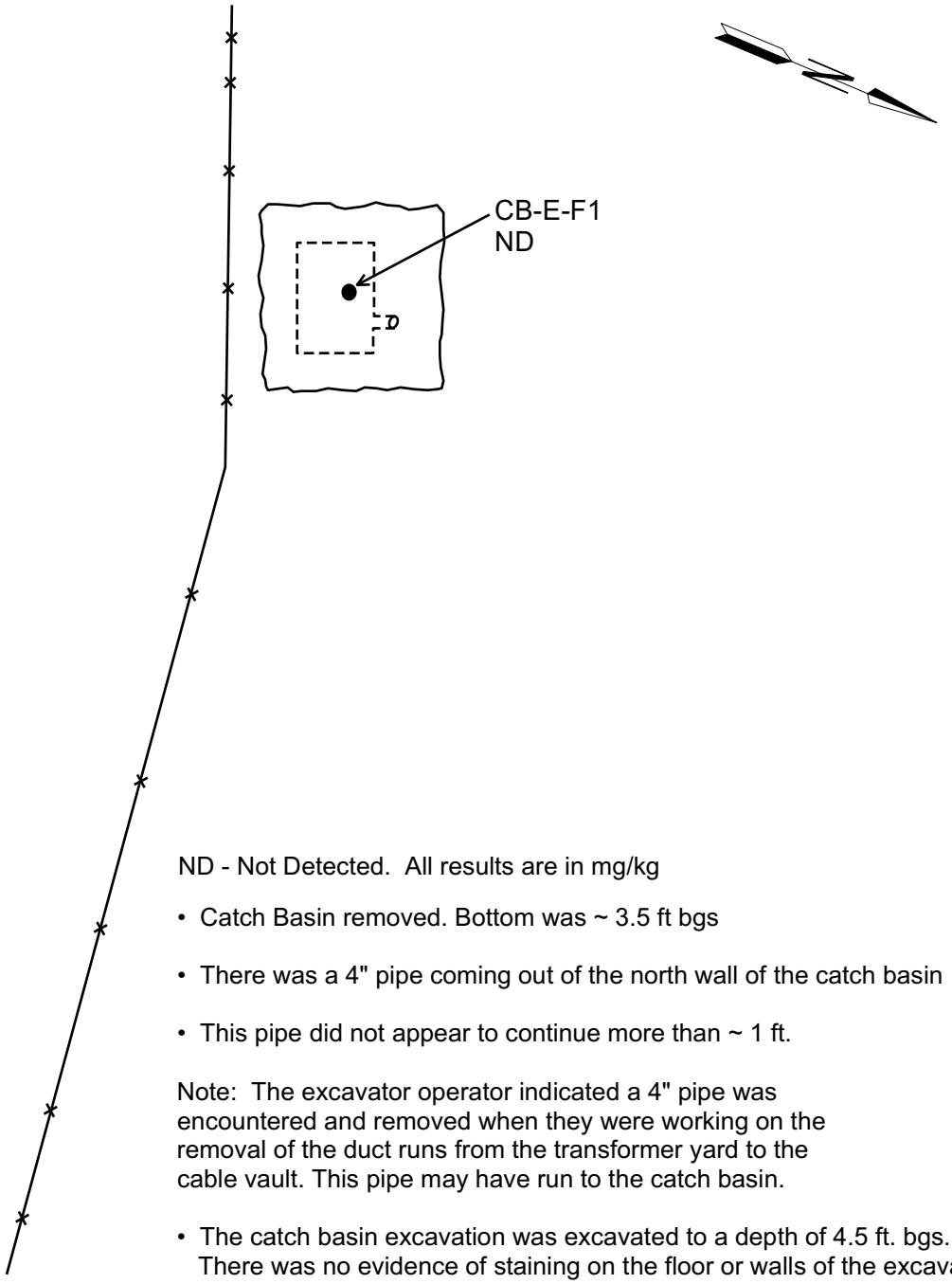
*Figure 5-9 from July 2003 Remediation Report Addendum

Figure 5-38*

CB-C and CB-D Confirmatory PCB Soil Sample Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-38_CB-CandDpcbSoilSampleResults.dsf

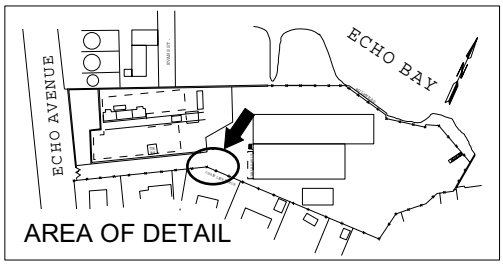


ND - Not Detected. All results are in mg/kg

- Catch Basin removed. Bottom was ~ 3.5 ft bgs
- There was a 4" pipe coming out of the north wall of the catch basin
- This pipe did not appear to continue more than ~ 1 ft.

Note: The excavator operator indicated a 4" pipe was encountered and removed when they were working on the removal of the duct runs from the transformer yard to the cable vault. This pipe may have run to the catch basin.

- The catch basin excavation was excavated to a depth of 4.5 ft. bgs. There was no evidence of staining on the floor or walls of the excavation.
- The floor sample was collected from 4.5 ft bgs



0 5 ft

SCALE
1 in. = 5 ft

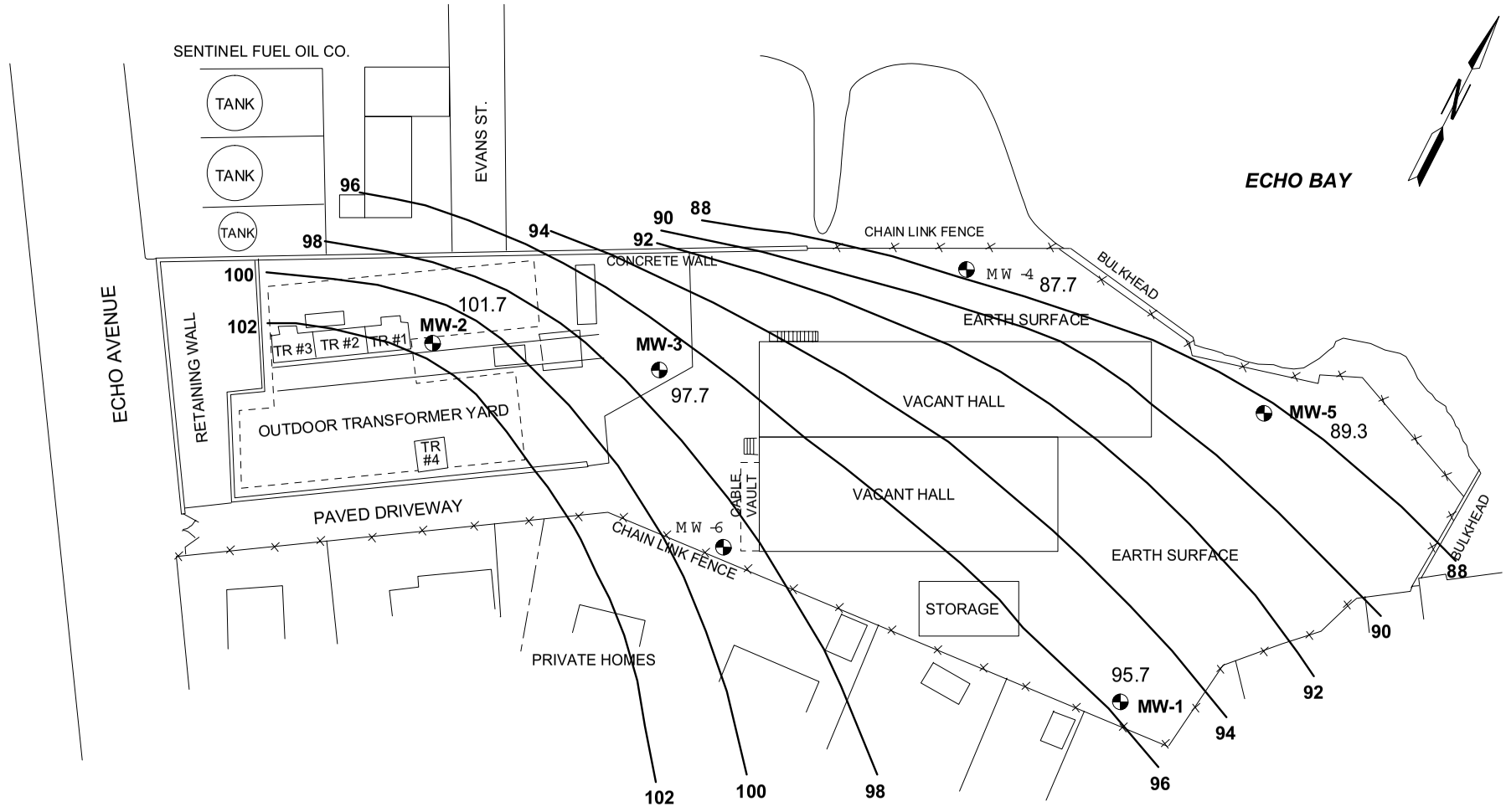
*Figure 5-11 from July 2003 Remediation Report Addendum

Figure 5-39*

CB-E Confirmatory PCB Soil Sample Result

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-39_CB-EpcbSoilSampleResult.dsf



LEGEND

- Location of monitoring well
- 101.7 Groundwater elevation
- 98 Groundwater contour
- Contour interval is 2 ft, datum is MSL

0 80 160 ft

SCALE
1 in. = 80 ft

*Figure 3-2 from 1993 Phase II Investigation Report

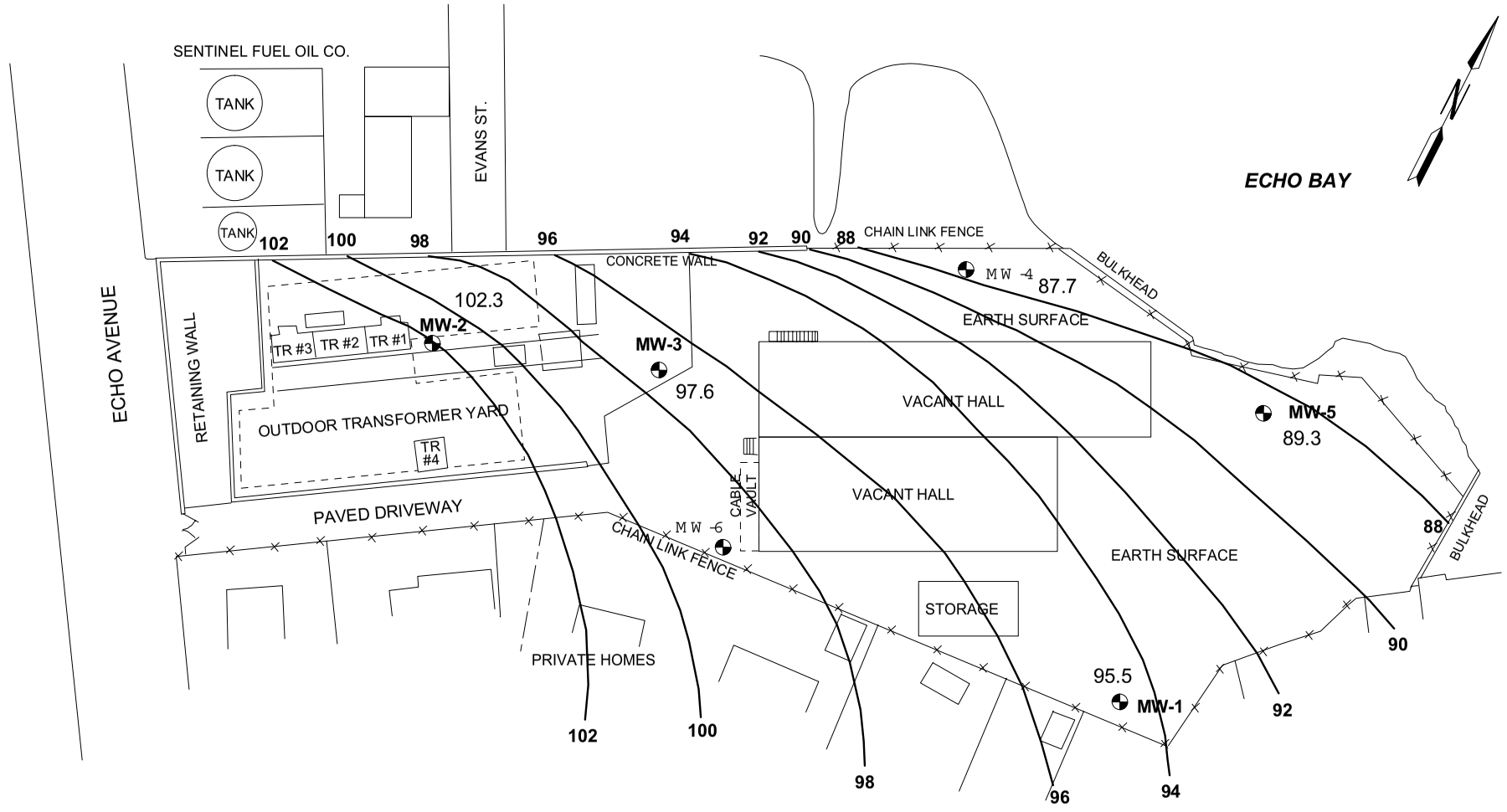
\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-40-43_WaterTableContours.dsf

Figure 5-40*

Water Table Contour Map: Falling Tide

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS
Pearl River, New York



LEGEND

- Location of monitoring well
- 101.7 Groundwater elevation
- 98 Groundwater contour
- Contour interval is 2 ft, datum is MSL

0 80 160 ft

SCALE
1 in. = 80 ft

*Figure 3-2 from 1993 Phase II Investigation Report

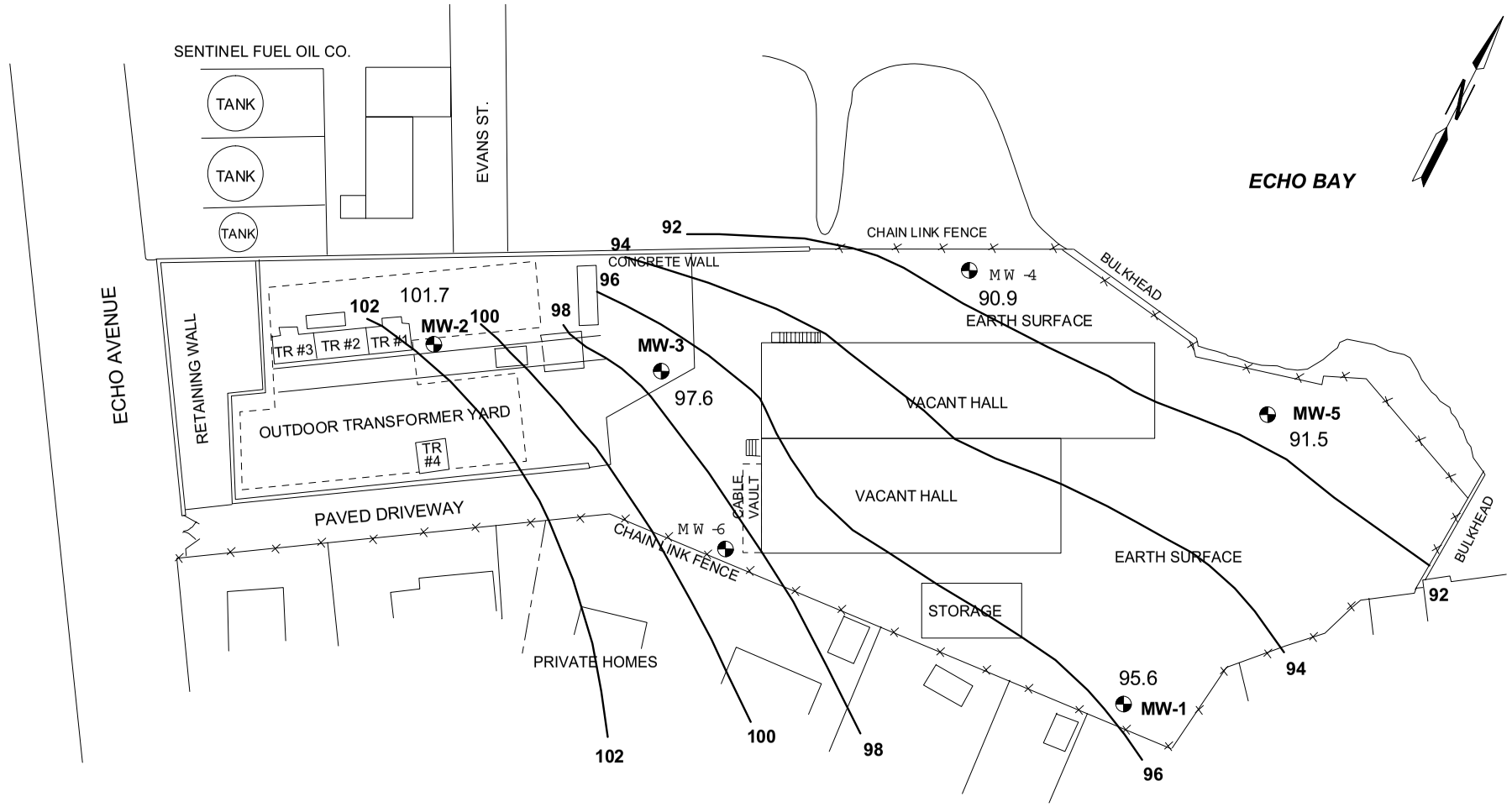
Figure 5-41*

Water Table Contour: Low Tide

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-40-43_WaterTableContours.dsf



LEGEND

- Location of monitoring well
- 101.7 Groundwater elevation
- 98 Groundwater contour
- Contour interval is 2 ft, datum is MSL

0 80 160 ft

SCALE
1 in. = 80 ft

*Figure 3-2 from 1993 Phase II Investigation Report

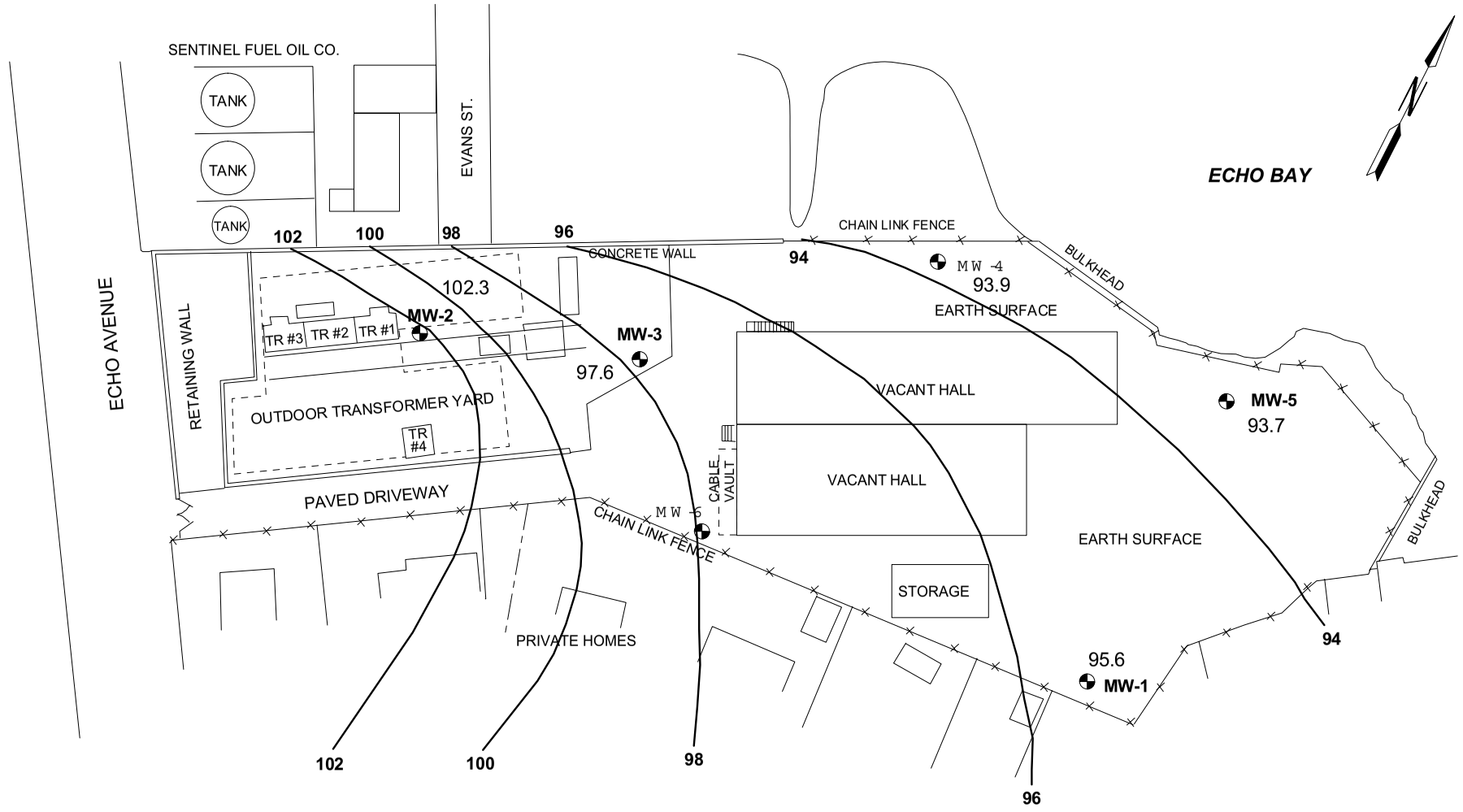
Figure 5-42*

Water Table Contour Map: Rising Tide

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-40-43_WaterTableContours.dsf



LEGEND

- Location of monitoring well
- 101.7 Groundwater elevation
- 98 Groundwater contour
- Contour interval is 2 ft, datum is MSL

0 80 160 ft

SCALE
1 in. = 80 ft

*Figure 3-2 from 1993 Phase II Investigation Report

Figure 5-43*

Water Table Contour Map: High Tide

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-40-43_WaterTableContours.dsf

TABLE 5-3 (Page 1 of 5)

Originally Table 4-19 (February 1993 Phase II Investigation Report)

GROUNDWATER DATA SUMMARY (JULY, SEPTEMBER, DECEMBER 1992)

CON EDISON - ECHO AVENUE

PARAMETER	EAMW-1 Jul-92	RE EAMW-1 Jul-92	EAMW-1 Sep 92[1,2]	EAMW-1 Dec 92[2]	EAMW-2 Jul-92	EAMW-2 Sep 92[1,2]	EAMW-2 Dec 92[2]	EAMW-3 Jul-92	RE EAMW-3 Jul-92	Filtered EAMW-3 Jul-92	EAMW-3 Sep 92[1,2]	EAMW-3 Dec 92[2]	NYSDEC CLASS GA STANDARD
VOLATILE ORGANICS (µg/L)	ND	NR	NU	ND	ND	NU	ND	ND	NR	NR	NU	ND	-
SEMIVOLATILE ORGANICS (µg/L)													
bis(2-Ethylhexyl)phthalate	2bj	6.5b	39b	NR	1.5j	15b	NR	ND	11b	NR	30b	NR	50
PESTICIDES/PCBs (µg/L)	ND	NR	ND	NR	ND	ND	NR	ND	NR	ND[3]	ND	NR	-

[1] - Pesticide/PCB samples were analyzed using low-level methods in accordance with NYSDEC CLP 12/91 protocol

[2] - 9/92 and 12/92 volatile samples were analyzed using EPA low-level method 542.2.

[3] - Sample only analyzed for PCBs

b - Found in associated blanks

j - Estimated concentration: compound present below quantitation limit

ND - Not detected at analytical detection limit

NR - Not run

NU - Data not usable due to holding time exceedance.

RE - Re-analysis

Note, Numbers in bold exceed objectives.

Originally Table 4-19 (February 1993 Phase II Investigation Report)

GROUNDWATER DATA SUMMARY (JULY, SEPTEMBER, DECEMBER 1992)

CON EDISON - ECHO AVENUE

PARAMETER	EAMW-4 Jul-92	EAMW-4 Sep 92[1,2]	EAMW-4 Dec 92[2]	EAMW-5 Jul-92	EAMW-5 Sep 92[1,2]	EAMW-5 Dec 92[2]	EAMW-6 Jul-92	EAMW-6 Sep 92[1,2]	EAMW-6 Dec 92[2]	NYSDEC CLASS GA STANDARD
VOLATILE ORGANICS (µg/L)										
Toluene	2j	NU	ND	ND	NU	ND	ND	NU	ND	5
SEMIVOLATILE ORGANICS (µg/L)										
bis(2-Ethylhexyl)phthalate	ND	25b	NR	9b	22b	NR	1.5j	13b	NR	50
PESTICIDES/PCBs (µg/L)	ND	ND	NR	ND	ND	NR	ND	ND	NR	-

[1] - Pesticide/PCB samples were analyzed using low-level methods in accordance with NYSDEC CLP 12/91 protocol.

[2] - 9/92 and 12/92 volatile samples were analyzed using EPA low-level method 542.2.

b - Found in associated blanks

j - Estimated concentration: compound present below quantitation limit

ND - Not detected at analytical detection limit

NR - Not run

NU - Data not usable due to holding time exceedance.

Note: Numbers in bold exceed objectives

Originally Table 4-19 (February 1993 Phase II Investigation Report)

GROUNDWATER DATA SUMMARY (JULY, SEPTEMBER, DECEMBER 1992)

CON EDISON - ECHO AVENUE

PARAMETER	EAMW-7 Jul-92	EAMW-7 Sep 92[1,2]	EAMW-7 Dec 92[2]	FIELD BLANK Jul-92	FIELD BLANK Sep 92[1,2]	FIELD BLANK Dec 92[2]	TRIP BLANK Jul-92	TRIP BLANK Sep 92[1,2]	TRIP BLANK Dec 92[2]	NYSDEC CLASS GA STANDARD
VOLATILE ORGANICS (µg/L)	ND	NU	ND	ND	NU	ND	ND	NU	NR	-
SEMIVOLATILE ORGANICS (µg/L)										
bis(2-Ethylhexyl)phthalate	ND	44b	NR	2j	19b	NR	NR	NR	NR	50
PESTICIDES/PCBs (µg/L)	ND	ND	NR	ND	ND	NR	ND	ND	NR	-

[1] - Pesticide/PCB samples were analyzed using low-level methods in accordance with NYSDEC CLP 12/91 protocol

[2] - 9/92 and 12/92 volatile samples were analyzed using EPA low-level method 542.2.

b - Found in associated blanks.

ND - Not detected at analytical detection limit

NR - Not run.

NU - Data not usable due to holding time exceedance.

Note: Numbers in bold exceed objectives.

Originally Table 4-19 (February 1993 Phase II Investigation Report)

GROUNDWATER DATA SUMMARY (JULY, SEPTEMBER, DECEMBER 1992)

CON EDISON - ECHO AVENUE

PARAMETER	EAMW-1 Jul-92	EAMW-1 Sep-92	EAMW-2 Jul-92	EAMW-2 Sep-92	EAMW-3 Jul-92	Filtrate EAMW-3 Jul-92	EAMW-3 Sep-92	EAMW-4 Jul-92	EAMW-4 Sep-92	NYSDEC CLASS GA STANDARDS
METALS (µg/L)										
Aluminum	919	442	10,700	2,990	94,100	ND	50,800	254	1,190	NS
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.0 GV
Arsenic	**29.8**	15.7 N	**36.2**	**26.4 N**	4.4 B	ND	3.4 BN	11.7 SA	10.8 N	25
Barium	72.5 B	43.8 B	109 B	51.4 B	810	122 B	459	70.8 B	72.1 B	1,000
Beryllium	ND	ND	ND	0.80 B	**5.6**	1.9 B	**3.6 B**	**3.3 B**	**3.6 B**	3.0 GV
Cadmium	11.0	4.4 BN	5.0	ND N	**26.3**	3.8 B	**14.5 N**	ND	ND N	10
Calcium	27,700	20,800	38,600	36,600	62,100	51,400	59,700	211,000	199,000	NS
Chromium	ND	ND	27.1	9.6 B	**200**	ND	109	ND	ND	50
Cobalt	8.8 B	ND N	ND	ND N	60.5	ND	37.9 BN	ND	ND N	NS
Copper	17.6 B	9.4 B	27.8	8.4 B	149	5.6 B	83.7	29.3	27.9	200
Iron	**26,800**	**10,700 N**	**12,300**	**4,270**	**118,000**	139	**60,400 N**	**9,170**	**2,490 N**	300 (m)
Lead	17.0 N	8.9	**27.8 N**	7.9	**88.9 N**	ND N	**58.9 SA**	18.9 N+	21.0 W	25
Magnesium	11,000	6,920	3,770 B	3,320 B	25,000	3,400 B	16,500	**64,600**	**605,000**	35,000 GV
Manganese	**1,180**	**429 EN**	225	189 EN	**1,660**	**626**	**1,110 EN**	**648**	214 EN	300 (m)
Mercury	ND N	ND	0.23 N	ND	0.44 N	ND N	0.14 B	0.39 N	0.40	2.0
Nickel	ND	15.2 BN	13.0 B	9.6 BN	158	ND	95.0 N	ND	12.9 BN	NS
Potassium	6,260	4,320 B	17,800	16,800	16,900	5,130	12,900	209,000	161,000	NS
Selenium	ND	ND NW	ND	1.2 BNW	ND W	ND W	ND NW	ND W	ND N	10
Silver	ND	ND N	ND NW	ND N	ND	ND	ND N	3.7 B	ND N	50
Sodium	**84,700**	**40,500**	**32,000**	**34,300**	**20,100**	19,300	**21,500**	**531,000**	**979,000 E**	20,000
Thallium*	ND NW	ND N	ND	ND N	1.5 B	ND N	ND NW	11.0 B	ND NW	4.0 GV
Vanadium	ND	3.7 B	ND	9.0 B	234	ND	127	ND	7.6 B	NS
Zinc	104	150	64.8	33.5	**470**	3.1 B	291	172	244	300
Cyanide	ND	ND	ND	ND	ND	NR	ND	ND	ND	100

Note: Numbers in bold exceed objectives

NR - Not analyzed

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

E - Estimated value.

N - Spiked sample recovery is not within control limits

W - Post-digestion spike out of control limits: sample absorbance is less than 50% of spike absorbance.

GV - Guidance value

ND - Not detected at analytical detection limit

NS - No standard.

SA - Value determined by the method of standard addition.

(m) - Iron and manganese not to exceed 500 µg/L

+ - Correlation coefficient for the MSA is <0.995

* - Thallium results are likely biased low due to low matrix spike recovery; actual concentrations may exceed the detection limit

Originally Table 4-19 (February 1993 Phase II Investigation Report)

GROUNDWATER DATA SUMMARY (JULY, SEPTEMBER, DECEMBER 1992)

CON EDISON - ECHO AVENUE

PARAMETER	EAMW-5 Jul-92	EAMW-5 Sep-92	EAMW-6 Jul-92	EAMW-6 Sep-92	EAMW-7 Jul-92	EAMW-7 Sep-92	FIELD BLANK Jul-92	FILED BLANK Sep-92	NYSDEC CLASS GA STANDARDS
METALS (µg/L)									
Aluminum	216	32.0 B	4,880	8,480	5,080	7,330	ND	11.1 B	NS
Antimony	ND	ND	ND	ND	ND	ND	ND	ND	3.0 GV
Arsenic	ND W	ND NW	ND	ND N	ND	ND N	ND	ND N	25
Barium	127 B	146 B	114 B	166 B	116 B	153 B	ND	ND	1,000
Beryllium	**4.1 B**	**3.9 B**	ND	1.0 B	ND	1.2 B	ND	ND	3.0 GV
Cadmium	ND	ND N	ND	ND N	3.3 B	3.0 BN	ND	ND N	10
Calcium	257,000	231,000	51,900	56,400	52,100	57,200	75.0 B	63.8 B	NS
Chromium	ND	ND	9.2 B	20.7	14.4	18.0	ND	ND	50
Cobalt	ND	ND N	ND	ND N	ND	ND N	ND	ND N	NS
Copper	15.3 B	10.7 B	19.6 B	24.0 B	18.6 B	20.9 B	ND	ND	200
Iron	**436**	83.4 BN	**7,610**	**13,000 N**	**8,110**	**11,000 N**	ND	ND N	300 (m)
Lead	ND NWR	ND W	2.2 BNR	5.1	2.8 BNR	4.5	ND NR	ND	25
Magnesium	**773,000**	**649,000**	17,800	19,900	17,700	19,900	ND	118 B	35,000 GV
Manganese	**6.0 B**	ND EN	**559**	**538 EN**	**595**	**449 EN**	ND	ND EN	300 (m)
Mercury	ND N	ND	ND N	ND	ND N	ND	ND N	ND	2.0
Nickel	ND	7.3 BN	ND	14.9 BN	18.3 B	21.2 BN	ND	ND N	NS
Potassium	252,000	189,000	7,060	9,020	7,230	8,280	ND	73.6 B	NS
Selenium	ND W	4.5 BN	ND	1.1 BN	ND	1.4 BN	ND W	ND N	10
Silver	ND	ND N	ND	ND N	ND	ND N	ND	ND N	50
Sodium	**6,300,000**	**4,990,000**	**97,400**	**102,000**	**98,000**	**101,000**	40.3 B	1,160 B	20,000
Thallium*	ND N	ND NW	ND NW	ND N	ND NW	ND N	ND N	ND N	4.0 GV
Vanadium	ND	3.4 B	ND	26.7 B	ND	23.7 B	ND	ND	NS
Zinc	46	30.8	29.1	59.9	36.9	49.7	4.7 B	7.2 B	300
Cyanide	ND	ND	ND	ND	ND	ND	ND	ND	100

Note: Numbers in bold exceed objectives.

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

E - Value estimated due to interference.

N - Spiked sample recovery is not within control limits

W - Post-digestion spike out of control limits; sample absorbance is less than 50% of spike absorbance.

GV - Guidance value

ND - Not detected at analytical detection limit

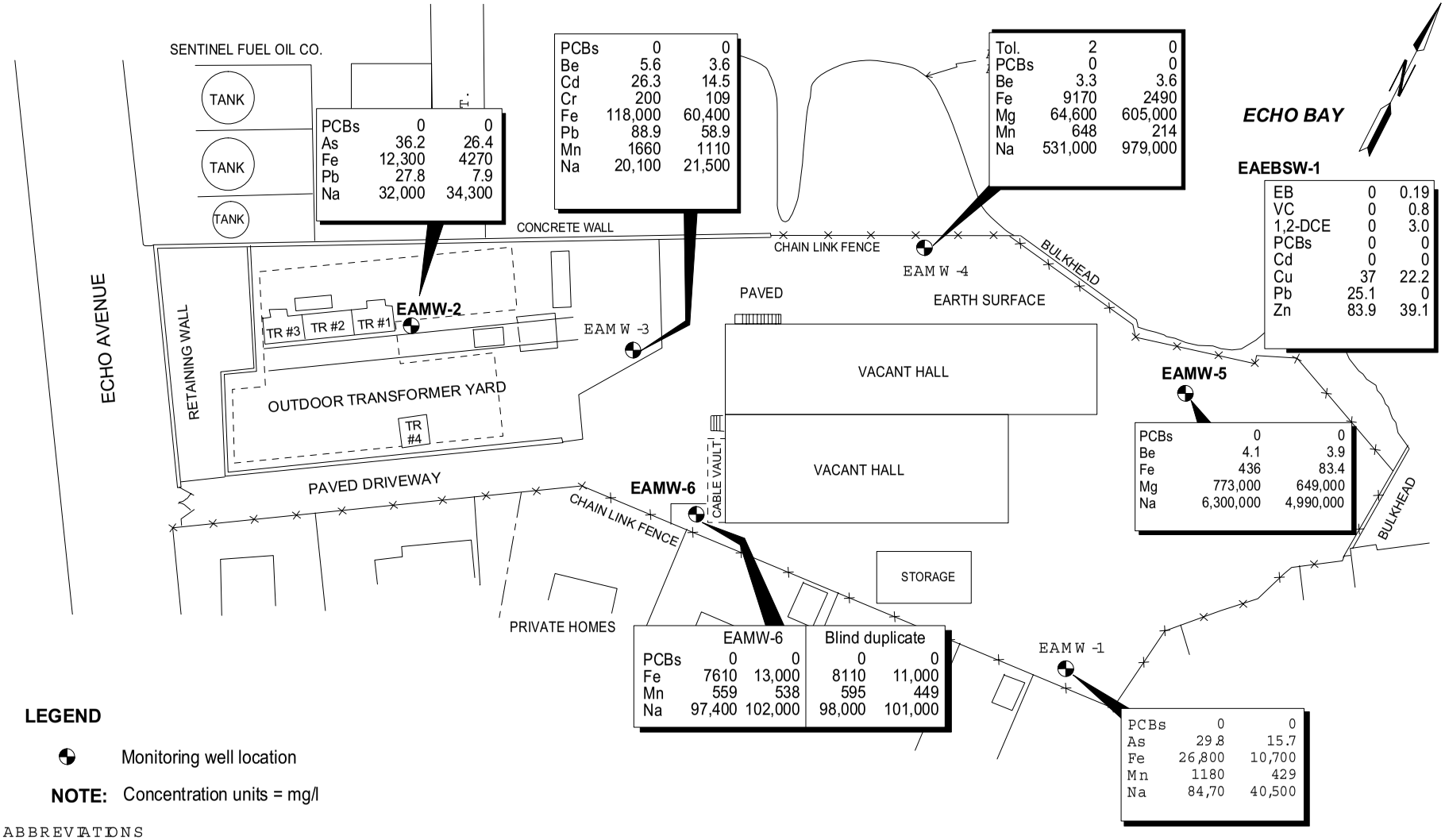
NS - No standard

SA - Value determined by the method of standard addition

(m) - Iron and manganese not to exceed 500 µg/L.

R - Duplicate analysis not within control limits.

* - Thallium results are likely biased low due to low matrix spike recovery; actual concentrations may exceed the detection limit



LEGEND

Monitoring well location

NOTE: Concentration units = mg/l

ABBREVIATIONS

As	Arsenic	Mg	Magnesium	1,2-DCE	cis-1,2-dichloroethylene
Be	Beryllium	Mn	Manganese	VC	Vinyl chloride
Cd	Cadmium	Na	Sodium	EB	Ethyl benzene
Cr	Chromium	Pb	Lead		
Cu	Copper	Tol	Toluene		
Fe	Iron	Zn	Zinc		

0 80 160 ft

SCALE

1 in. = 80 ft

NOTE: First number is from first round (July 1992), second number is from second round (Sept. 1992); volatiles (Dec. 1992).

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-44_SelectedChemicalConstituentsInGW.dsf

*Figure 4-21 from 1993 Phase II Investigation Report

Figure 5-44*

Selected Chemical Constituents in the Groundwater and Echo Bay

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP

Pearl River, New York

TABLE 5-4 (1 of 1)

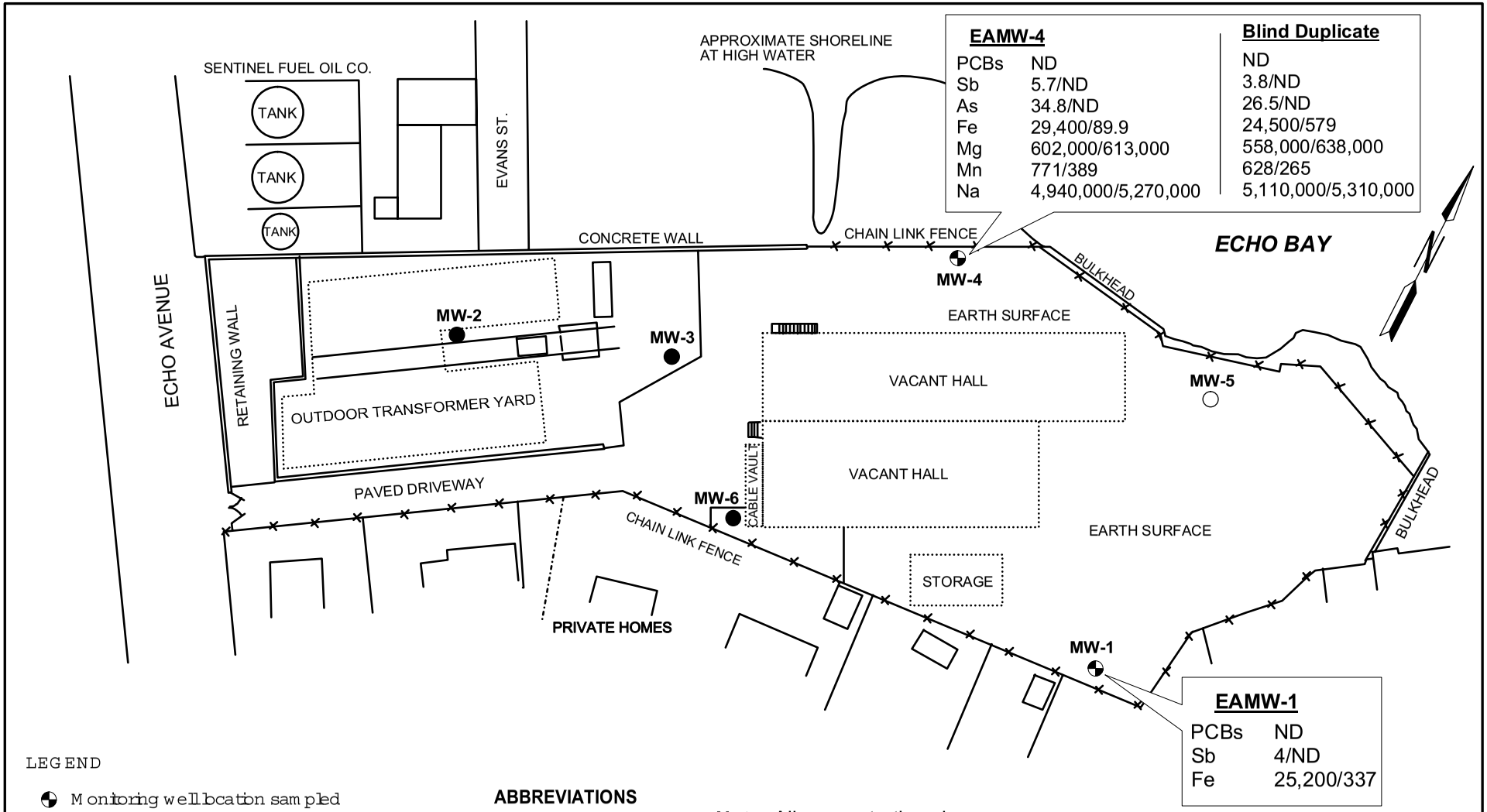
Originally Table 5-14 (July 2003 Remediation Report Addendum)

MONITORING WELL GROUNDWATER DATA SUMMARY
(August 2002)

PARAMETER	EAMW-1	EAMW-4	EAMW-8 (Blind Duplicate of EAMW-4)	Trip Blank	NYSDEC CLASS GA GROUNDWATER STANDARD[a]
VOLATILE ORGANICS (ug/L)	ND	ND	ND	ND	-
Tentatively Identified Compounds	ND	ND	ND	ND	-
SEMIVOLATILE ORGANICS (ug/L)					
bis(2-Ethylhexyl)phthalate	2 j	4 j	4 j	NR	5
Tentatively Identified Compounds					
Caprolactam	19 nj	69 nj	52 nj	NR	NS
Unknown	14 j	ND	ND	NR	NS
PESTICIDES (ug/L)	ND	ND	ND	NR	-
PCBs (ug/L)[b]	ND	ND	ND	NR	0.09
METALS (ug/L)[c]					
Aluminum	378 NJ/17.4 BNJ	115 BNJ/ND NJ	63.6 BNJ/ND NJ	NR	NS
Antimony	**4 BJ**/ND J	**5.7 BJ**/ND J	**3.8 BJ**/ND J	NR	3
Arsenic	18.6J/ND J	**34.8J**/ND J	**26.5J**/ND J	NR	25
Barium	94.5 BNJ/41.5 BNJ	113 BNJ/81.8 BNJ	105 BNJ/75 BNJ	NR	1,000
Beryllium	ND NJ/ND NJ	ND NJ/ND NJ	ND NJ/ND NJ	NR	3 GV
Cadmium	ND J/ND J	ND J/ND J	ND J/ND J	NR	5
Calcium	21,100 J/19,400 J	240,000 J/238,000 J	213,000 J/215,000 J	NR	NS
Chromium	ND NJ/ND NJ	ND NJ/ND NJ	ND NJ/ND NJ	NR	50
Cobalt	ND NJ/ND NJ	ND NJ/ND NJ	ND NJ/ND NJ	NR	NS
Copper	38 NJ/9.1 BNJ	18.3 BNJ/2.3 BNJ	16 BNJ/2.3 BNJ	NR	200
Iron	**25,200 NJ/337 NJ**	**29,400 NJ**/89.9 BNJ	**24,500 NJ/579 NJ**	NR	300[d]
Lead	19.2 NJ/ND NJ	10.4 NJ/ND NJ	5.8 BNJ/ND NJ	NR	25
Magnesium	5,730 J/5,640 J	**602,000 J/613,000 J**	**558,000 J/638,000 J**	NR	35,000 GV
Manganese	246 NJ/149 NJ	**771 NJ/389 NJ**	**628 NJ**/265 NJ	NR	300[d]
Mercury	ND J/ND J	ND J/ND J	ND J/ND J	NR	0.7
Nickel	9.7 BNJ/4.6 BNJ	3.2 BNJ/2.3 BNJ	2.4 BNJ/2.3 BNJ	NR	100
Potassium	5,630 EJ/5,000 EJ	254,000 EJ/270,000 EJ	269,000 EJ/282,000EJ	NR	NS
Selenium	ND J/ND J	9.4 BJ/ND J	ND J/ND J	NR	10
Silver	ND NJ/ND NJ	ND NJ/ND NJ	ND NJ/ND NJ	NR	50
Sodium	15,600 J/15,700 J	**4,940,000 J/5,270,000 J**	**5,110,000 J/5,310,000 J**	NR	20,000
Thallium	ND NJ/ND NJ	ND NJ/ND NJ	ND NJ/ND NJ	NR	0.5 GV
Vanadium	12.6 BNJ/ND NJ	ND NJ/ND NJ	ND NJ/ND NJ	NR	NS
Zinc	216 NJ/67.1 NJ	33.1 BNJ/ND NJ	24.2 BNJ/ND NJ	NR	2,000 GV
Cyanide	ND/NR	5.3 B/NR	ND/NR	NR	200.0

Note : Numbers in bold exceed groundwater standards or guidance values.
- All samples analyzed by Mitkem.

NR - Not analyzed.
ND - Not detected at analytical detection limit.
GV - Guidance value.
NS - No standard.
j - Estimated concentration; compound present below quantitation limit.
J - Estimated concentration due to matrix effect on recovery of target analytes.
n - presumptive evidence of a compound (used only for TICs).
B - Value is less than the contract-required detection limit but greater than the instrument detection limit.
N - Spike sample recovery is not within control limits.
E - Value estimated due to interference.
[a] - From NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitation, June 1998.
[b] - PCBs analyzed by low-level method (detection limit of 0.05 ug/L).
[c] - First value is for total metal, second value is for dissolved metal.
[d] - Iron and Manganese not to exceed 500 ug/L.



LEGEND

- Monitoring well location sampled
- ····· Demolished structure
- Monitoring well location destroyed/buried
- Monitoring well location unable to be sampled

ABBREVIATIONS

Sb	Antimony
As	Arsenic
Fe	Iron
Mg	Magnesium
Mn	Manganese
Na	Sodium
ND	Not Detected

Note: All concentrations in µg/L. First number is for total metals; second number is for dissolved metals.

0 80 160 ft

SCALE
1 in. = 80 ft

*Figure 5-13 from July 2003 Remediation Report Addendum

Figure 5-45*

Monitoring Well August 2002 Groundwater Sampling Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-45_MWaug02GWsamplingResults.dsf

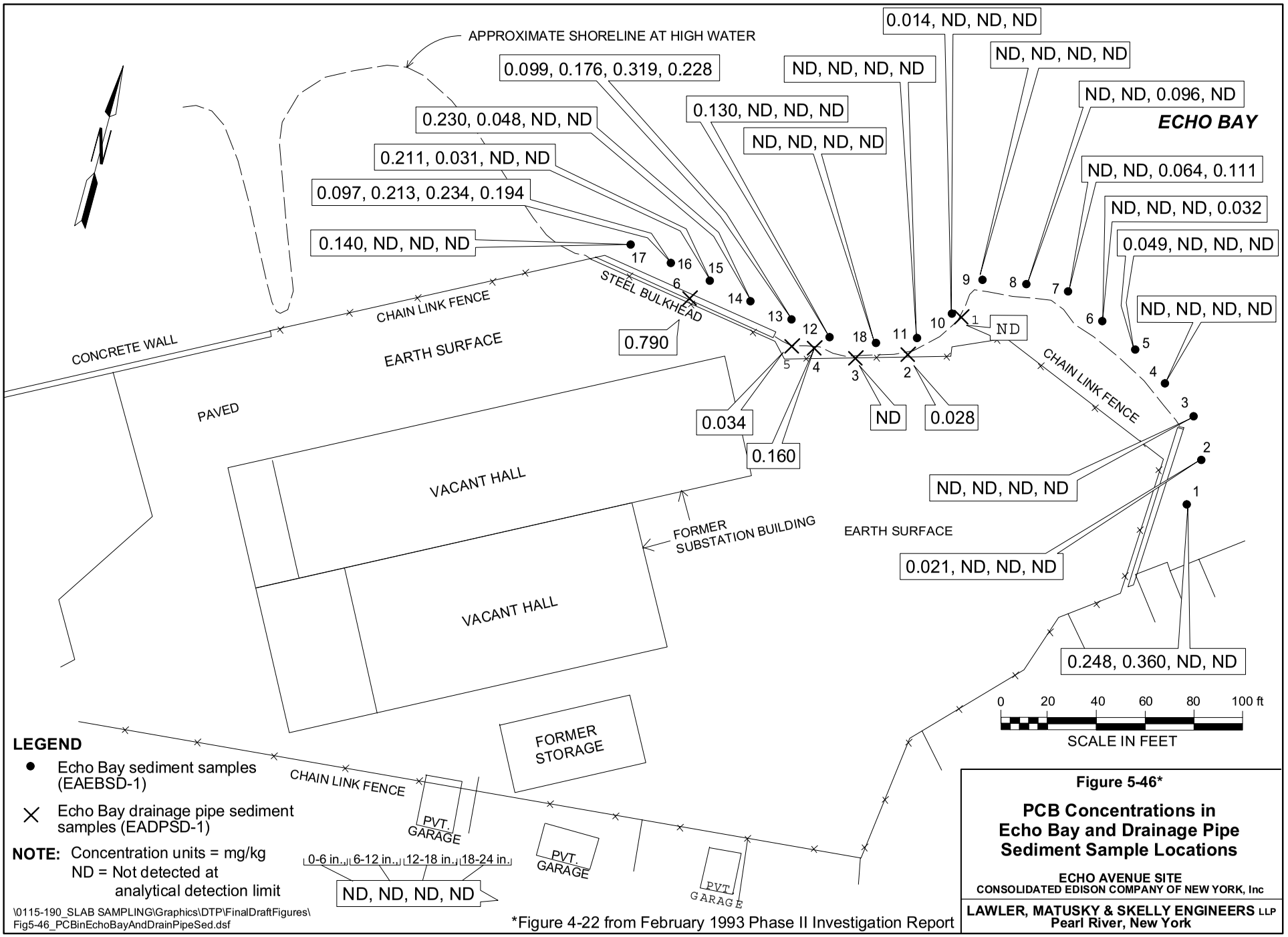
5.3 MUDFLAT SOIL AND SEDIMENT

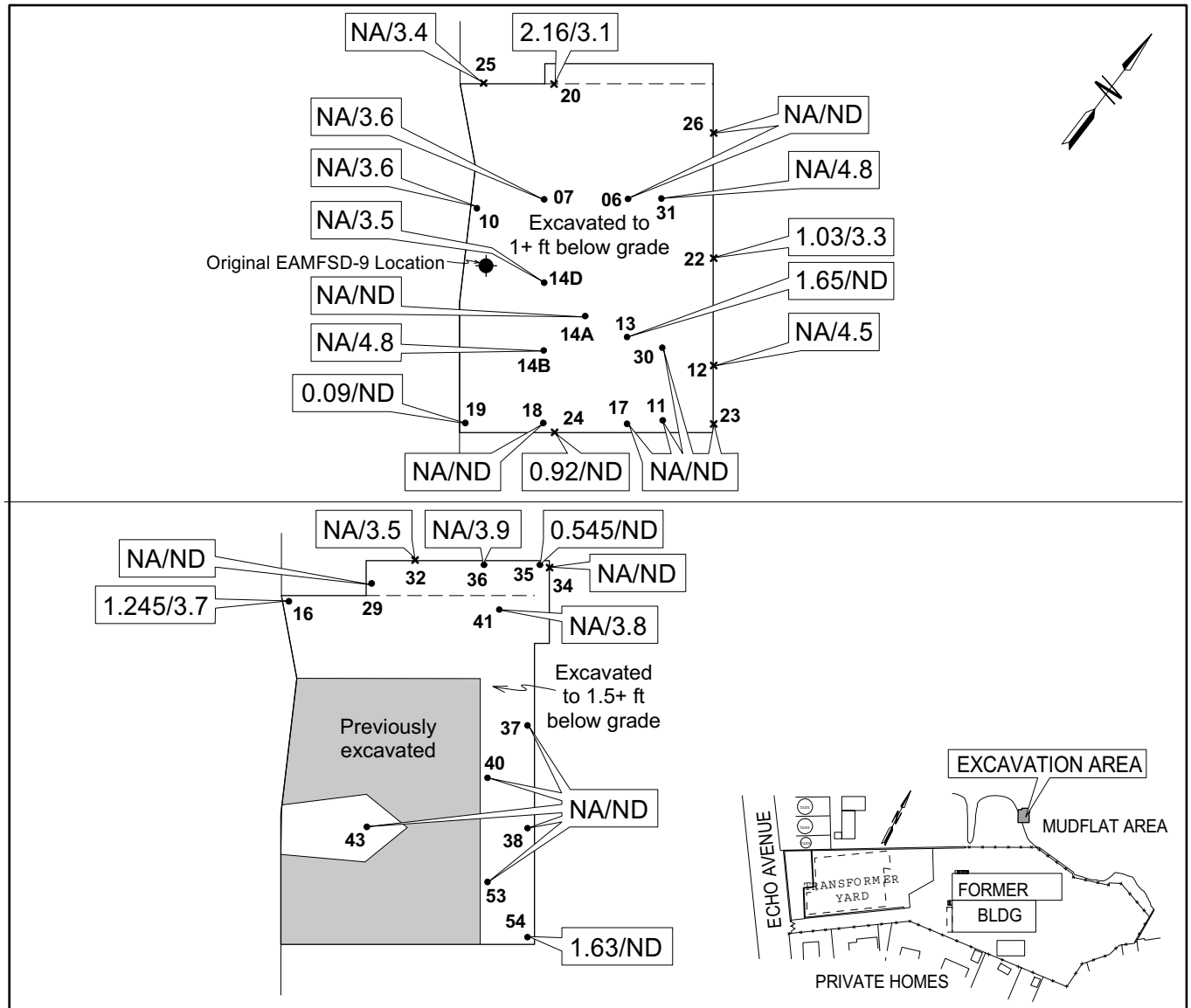
As part of the Phase II Investigation, 18 core samples were collected from the eastern edge of the property to approximately the end of the bulkhead. The two foot cores were split into four samples with each sample representing a six-inch interval. In addition, sediment samples were collected from inside the drainpipes that discharge to Echo Bay. The results from these sampling events are provided on Figure 5-46, formerly Figure 4-22 taken from HDR|LMS' 1993 Phase II Investigation report. The results show no samples above 1 mg/kg of PCBs were found. Soil and sediment samples were collected in and around the mudflat area of Echo Bay in 1995. The results were reported on in a document dated April 1996 entitled ***Report on Sampling Soil and Sediment in Mudflat Area Adjacent to Echo Avenue Site*** (the "April 1996 Mudflat Report") dated April 1996 (Ref. 9, Appendix A of this Report). One sample, EAMFSD-9 (see Figure 5-47 for location) had 232 mg/kg of PCBs. As a consequence, NYSDEC requested that all PCBs >5 mg/kg be removed from the mudflat sediment (Ref. 12, Appendix A of this Report).

In addition, NYSDEC requested that three of the core samples collected in 1992 (1, 13, and 16) be resampled and sediment cores be collected from the sediment just beneath the six drainpipes that discharge to Echo Bay. These results were reported on in the April 1996 Revised Report (Ref. 8, Appendix A of this Report). The data are shown on Figure 4-1 of this report and show three samples with PCBs greater than 1.0 mg/kg. Two of the resampled core samples, EAEBSD-13A and EAEBSD-16A, had 1.21 and 1.94 mg/kg, respectively in the 0-2 ft interval, and one sediment sample collected below the discharge point of drain pipe EADP-5 (EADPOSD-5), had 1.11 mg/kg in the 0-6 in. interval.

The remediation plan for the mudflat was described in the July 1996 Work Plan and included a pre-remediation delineation conducted in October 1996. The actual remediation was conducted by OHM in the spring of 1998 with the removal of approximately 30 yd^3 of contaminated sediment that had PCBs above 5 mg/kg. Figure 5-47, formerly Figure 7-10 from the June 2001 Remediation Report shows the remaining PCB levels in the mudflat area after the 1998 remediation was completed. Figure 5-47 also shows the location of the original high PCB sample location, EAMFSD-9. The removed sediment was placed in a rolloff, mixed with Portland cement, and transferred off-site for disposal. The excavated area was allowed to fill in naturally from tidal cycle activities.

In 2001 NYSDEC requested that Con Edison remove all sediment and soil in the mudflat area that exceeded 1 mg/kg of PCBs. This work was conducted by TRC in 2003 and 2004 as described in their RAR (Ref. 22, Appendix A of this document). The excavated soil and sediment was staged in a lined area where corn cob husk was mixed as an additive to absorb any liquids. TRC shipped a total of 1,100 tons of stabilized soil and sediment off-site. The final


APPROXIMATE SHORELINE AT HIGH WATER
0.014, ND, ND, ND
ND, ND, ND, ND
0.099, 0.176, 0.319, 0.228
ND, ND, ND, ND
ND, ND, 0.096, ND
0.130, ND, ND, ND
ECHO BAY
0.230, 0.048, ND, ND
ND, ND, ND, ND
0.211, 0.031, ND, ND
ND, ND, 0.064, 0.111
0.097, 0.213, 0.234, 0.194
ND, ND, ND, 0.032
0.140, ND, ND, ND
0.049, ND, ND, ND
ND, ND, ND, ND
CHAIN LINK FENCE
STEEL BULKHEAD
CONCRETE WALL
EARTH SURFACE
0.790
ND
CHAIN LINK FENCE
PAVED
0.034
0.160
ND
0.028
VACANT HALL
ND, ND, ND, ND
FORMER SUBSTATION BUILDING
EARTH SURFACE
0.021, ND, ND, ND
VACANT HALL
0.248, 0.360, ND, ND
0 20 40 60 80 100 ft
SCALE IN FEET
FORMER STORAGE
CHAIN LINK FENCE
PVT. GARAGE
PVT. GARAGE
PVT GARAGE
0-6 in.
6-12 in.
12-18 in.
18-24 in.
ND, ND, ND, ND
LEGEND
Echo Bay sediment samples (EAEBSD-1)
Echo Bay drainage pipe sediment samples (EADPSD-1)
NOTE: Concentration units = mg/kg
ND = Not detected at analytical detection limit
\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\
Fig5-46_PCBinEchoBayAndDrainPipeSed.dsf
*Figure 4-22 from February 1993 Phase II Investigation Report
Figure 5-46*
PCB Concentrations in Echo Bay and Drainage Pipe Sediment Sample Locations
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



Legend

- • Floor sample
- × Wall sample

1.87/2.3 Outside lab (H2M) results/ Mobile lab (STL) results PCB concentration (mg/kg)

NA Not analyzed

ND Not detected at analytical detection limit

NOTE: Additional excavation was conducted in this area by TRC (see Figure 5-48)

NOTE:

For sample ID all sample numbers are prefixed with MFE- e.g. **MFE-01**

*Figure 7-10 from June 2001 Remediation Report

Figure 5-47*

EAMFSD-9
1998 Remediation Excavation Sample Locations and PCB Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-47_EAMFSD-9PCBresults1998.dsf

confirmatory PCB results are provided in Figure 5-48, formerly Figure 3-3 taken from the RAR prepared by TRC.

As described in the Section 4.6, NYSDEC requested that a sample (DECREQ) be collected and analyzed for TCL VOCs and SVOCs from the AOC-1 area (see Figure 6-3 in the following section for location). The samples were taken near sample location EAP-PE-24 (see Figure 5-48). The results are summarized in Table 5-5 from TRC's data. Because NYSDEC did not establish sediment cleanup objectives for substances other than PCBs, these results were compared to the RSCOs in TAGM 4046. This comparison indicates that five SVOCs exceeded their RSCOs: benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, and chrysene. All other TCL VOCs and SVOCs not shown on Table 5-5 were not detected. All sediments exhibiting visual staining or a fuel oil type odor were excavated during the remediation activities.

After the remediation was completed, the excavated area was backfilled with a mixture of clean, certified top soil and sand.

As mentioned previously in Section 4.7, the remediation activities conducted in the mudflat area by TRC in 2003 and 2004 did not address three sample locations (see Figure 4-1 of this report for locations) along the shoreline that contained PCB concentrations between 1 and 2 mg/kg based on results from sediment samples collected in 1995 by HDR|LMS. These sample locations were resampled in January 2007 to determine the current concentrations of PCBs at these locations. The results (see Table 4-7 of this report) of the resampling activity indicate these locations meet the PCB criteria of <1 mg/kg. Therefore, the mudflat area requires no additional remediation activities.

6.0 SUMMARY AND CONCLUSIONS

Table 6-1 summarizes the figures and tables presented in this report that were originally included in other reports prepared for Con Edison on the Echo Avenue site. The table includes the figure/table number in this report, the report where the figure/table was originally found, the figure/table number in the previous report, the page number where the figure/table was found in the previous report, and the page number of the pdf of the electronic version of the previous reports submitted under separate cover to the NYSDEC and NYSDOH.

Figure 6-1, formerly Figure 1-3 from the July 2003 Remediation Report Addendum, summarizes the overall remediation conducted at the Echo Avenue Site and adjacent properties from 1997 to 2003. Plate 1, located in the folder in the back of this report, has been specifically developed for this summary report to show the remediation areas on the property, the approximate depth of the

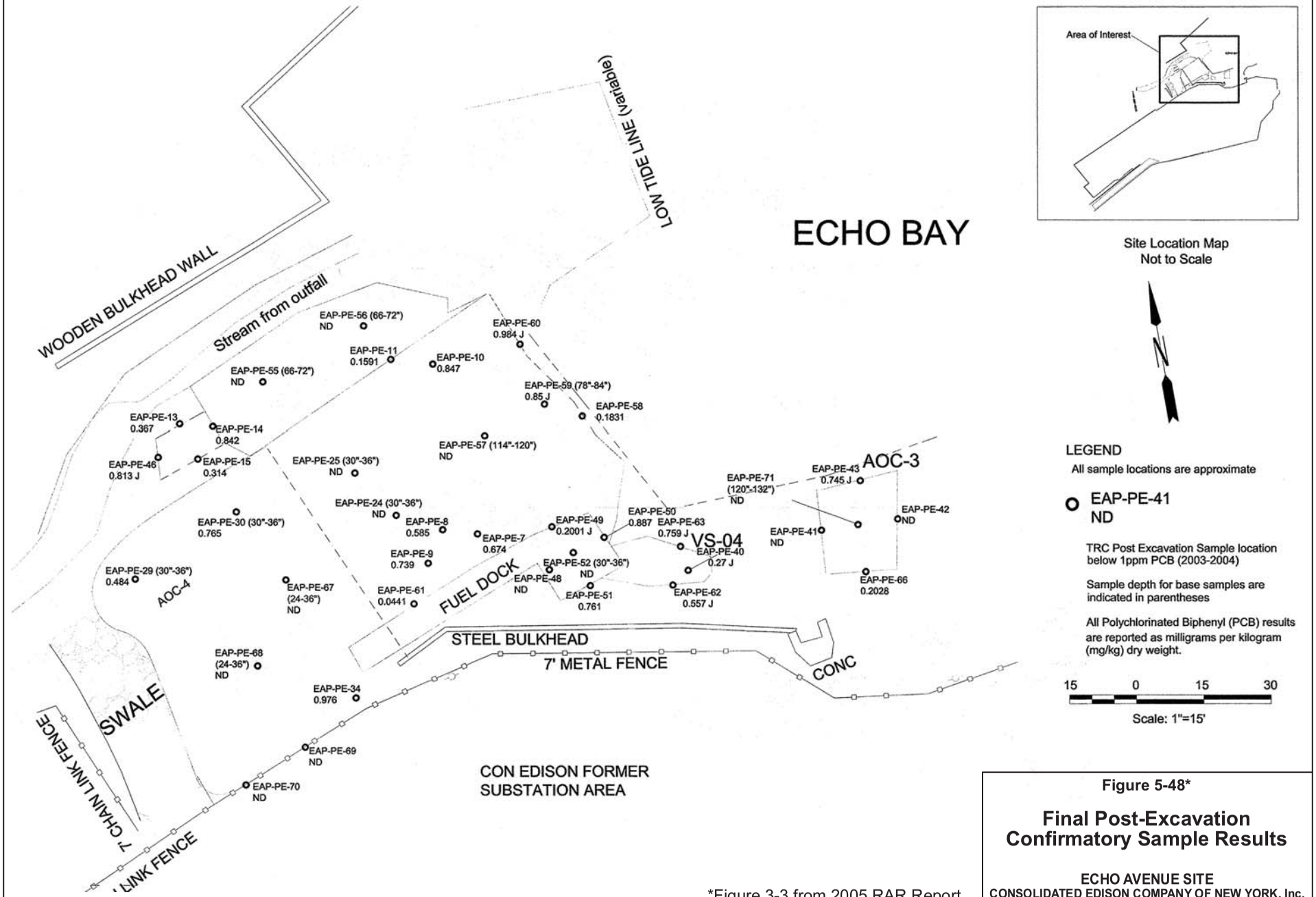


*Figure 3-3 from 2005 RAR Report

Figure 5-48*

Final Post-Excavation Confirmatory Sample Results

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig5-48_FinalPostExcavationConfirmatorySampleResultsTRC.des

TABLE 5-5
DEC REQ
SEDIMENT DATA SUMMARY

PARAMETER	DEC REQ	RECOMMENDED SOIL CLEANUP OBJECTIVE (b)
VOLATILE ORGANICS (mg/kg)		
Acetone	0.0767	0.2
Ethyl benzene	0.0042	5.5
Xylene (total)	0.013	1.2
SEMIVOLATILE ORGANICS (mg/kg)		
Acenaphthene	0.916 j	50.0 ***
Anthracene	1.79 j	50.0 ***
Fluoranthene	14.0	50.0 ***
Fluorene	1.06 j	50.0 ***
Pyrene	14.5	50.0 ***
Benzo(a)anthracene	**5.6**	0.224 or MDL
Chrysene	**7.08**	0.4
bis(2-Ethylhexyl)phthalate	12.7	50.0 ***
Benzo(b)fluoranthene	**7.83**	1.1
Benzo(k)fluoranthene	**4.71**	1.1
Benzo(a)pyrene	**5.7**	0.061 or MDL
Indeno(1,2,3-c,d)pyrene	3.13	3.2
Benzo(g,h,i)perylene	3.7	50.0 ***
Phenanthrene	6.97	50.0 ***

Note : Numbers in bold exceed objectives.
: Results from Accutest Laboratories
*** - As per TAGM #4046, Total VOCs < 10 ppm.,
total SVOCs < 500 ppm. And individual SVOCs < 50 ppm.
(b) - NYSDEC Division Technical and Administrative Guidance Memorandum (TAGM), 1/94.
j - Indicates an estimated value.

SUMMARY REPORT FIGURE & TABLE CROSS REFERENCE INFORMATION
CON EDISON - ECHO AVENUE

Remedial Cleanup Summary Report Figure No.	Previous Report Title (where Figure or Table was presented)	Previous Report Figure No.	Following Page No. [1]	Electronic File Page No. [2]	Remedial Cleanup Summary Report Figure No.	Previous Report Title (where Figure or Table was presented)	Previous Report Figure No.	Following Page No. [1]	Electronic File Page No. [2]
1-1	EAS-RR-Jun 01	1-1	1-1	21	**5-23**	EAS-RR-Jun 01	7-21a	7-24	482
1-2	EAS-RR-Jun 01	1-2	1-1	22	**5-24**	EAS-RR-Jun 01	7-23	7-27	499
1-3	EAS-RR-Jun 01	6-22	6-29	172	**5-25**	EAS-RR-Jun 01	7-21b	7-24	483
4-1	RSRRA2-Apr 96	4-5	4-3	36	**5-26**	EAS-RRA-Jul 03	5-10	5-5	91
5-1	EAS-RR-Jun 01	4-1	4-1	32	**5-27a-d**	EAS-RR-Jun 01	7-22a-d	7-25	492-495
5-2	EAS-RR-Jun 01	5-1	5-1	64	**5-28**	EAS-RR-Jun 01	7-24	7-27	501
5-3	EAS-RR-Jun 01	5-2	5-1	65	**5-29**	EAS-RR-Jun 01	7-16	7-16	448
5-4	EAS-RR-Jun 01	5-7	5-1	70	**5-30**	EAS-RR-Jun 01	7-14a	7-15	442
5-5	EAS-RR-Jun 01	5-8	5-1	71	**5-31**	EAS-RRA-Jul 03	5-8	5-5	88
5-6	EAS-RR-Jun 01	5-9	5-1	72	**5-32**	EAS-RRA-Jul 03	5-2	5-2	72
5-7	EAS-RR-Jun 01	5-10	5-1	73	**5-32**	EAS-FOSR-Aug 02	3	3	10
5-8	EAS-RR-Jun 01	7-1	7-3	341	**5-33**	EAS-RRA-Jul 03	5-3	5-2	73
5-9	EAS-RR-Jun 01	7-2	7-3	345	**5-33**	EAS-FOSR-Aug 02	3	3	11
5-10	EAS-RR-Jun 01	7-3	7-4	349	**5-34**	EAS-RRA-Jul 03	5-1	5-1	68
5-11	EAS-RR-Jun 01	7-4a-m	7-6	361-373	**5-35**	EAS-RR-Jun 01	7-25	7-28	503
5-11	EAS-RRA-Jul 03	5-12	5-6	95	**5-36**	EAS-RRA-Jul 03	5-6	5-4	83
5-12	P2I-EAS-Feb 93	4-20	4-17	133	**5-37**	EAS-RRA-Jul 03	5-7	5-4	85
5-13	P2I-EAS-Feb 93	4-18	4-14	121	**5-38**	EAS-RRA-Jul 03	5-9	5-5	90
5-14	P2I-EAS-Feb 93	4-19	4-17	132	**5-39**	EAS-RRA-Jul 03	5-11	5-6	93
5-15	EAS-RR-Jun 01	7-5a-g	7-8	387-393	**5-40**	P2I-EAS-Feb 93	3-2	3-2	24
5-16	EAS-RR-Jun 01	7-6a-e	7-9	399-403	**5-41**	P2I-EAS-Feb 93	3-3	3-2	25
5-17	EAS-RR-Jun 01	7-7	7-9	405	**5-42**	P2I-EAS-Feb 93	3-4	3-2	26
5-18	EAS-RR-Jun 01	7-8a-b	7-10	412-413	**5-43**	P2I-EAS-Feb 93	3-5	3-2	27
5-19	EAS-RRA-Jul 03	5-5	5-3	80	**5-44**	P2I-EAS-Feb 93	4-21	4-20	142
5-20	EAS-RR-Jun 01	7-9	7-11	417	**5-45**	EAS-RRA-Jul 03	5-13	5-7	102
5-21	SRSRRA2-Apr 96	4-1	4-1	15	**5-46**	P2I-EAS-Feb 93	4-22	4-26	156
5-22	EAS-RR-Jun 01	6-61	6-72	284	**5-47**	EAS-RR-Jun 01	7-10	7-12	422
5-23	EAS-RR-Jun 01	7-21a	7-24	482	**5-48**	TRC-RAP-Feb 05	3-3	5-1	52
5-24	EAS-RR-Jun 01	7-23	7-27	499	**6-1**	EAS-RRA-Jul 03	1-3	1-5	15
5-25	EAS-RR-Jun 01	7-21b	7-24	483					

EAS-RR-Jun 01 Echo Avenue Site Remediation Report - June 01
RSRRA2-Apr 96 Report on Sampling Required in Revised Addendum No. 2 - April 96
EAS-RRA-Jul 03 Echo Avenue Site Remediation Report Addendum - July 03
P2I-EAS-Feb 93 Phase II Investigation At Exho Avenue Site - February 93
SRSRRA2-Apr 96 Second Report on Sampling Required in Revised Addendum No. 2 - April 96
EAS-FOSR-Aug 02 Echo Avenue Site Fuel Oil Spill Report - August 02
TRC-RAP-Feb 05 TRC Remedial Action Report For The Echo Avenue Project - February 2005

1 - Figure or Table follows the numbered text page in the previous report (figure and table pages are not numbered).
2 - Actual Figure or Table page number(s) in electronic pdf versions provided.

SUMMARY REPORT FIGURE & TABLE CROSS REFERENCE INFORMATION
CON EDISON - ECHO AVENUE

Remedial Cleanup Summary Report Table No.	Previous Report Title (where Figure or Table was presented)	Previous Report Table No.	Following Page No. [1]	Electronic File Page No. [2]	Remedial Cleanup Summary Report Table No.	Previous Report Title (where Figure or Table was presented)	Previous Report Table No.	Following Page No. [1]	Electronic File Page No. [2]
4-1	EAS-RR-Jun 01	6-3	6-16	135	**5-1**	P2I-EAS-Feb 93	4-18	4-17	125-131
4-2	EAS-RR-Jun 01	6-4	6-25	164	**5-1a**	RSRRA2-Apr 96	4-2	4-1	30-32
4-3	EAS-RR-Jun 01	6-5	6-38	195	**5-2**	P2I-EAS-Feb 93	4-17	4-14	116-120
4-4	EAS-RR-Jun 01	6-8	6-40	208-209	**5-3**	P2I-EAS-Feb 93	4-19	4-20	137-141
4-5	EAS-RR-Jun 01	7-17	7-17	450-451	**5-4**	EAS-RRA-Jul 03	5-14	5-7	101
4-6	EAS-RR-Jun 01	6-16	6-69	275-276	**5-5**	TRC-RAP-Feb 05	-	-	-
4-7	-	-	-	-					

EAS-RR-Jun 01	Echo Avenue Site Remediation Report - June 01
RSRRA2-Apr 96	Report on Sampling Required in Revised Addendum No. 2 - April 96
EAS-RRA-Jul 03	Echo Avenue Site Remediation Report Addendum - July 03
P2I-EAS-Feb 93	Phase II Investigation At Exho Avenue Site - February 93
SRSRRA2-Apr 96	Second Report on Sampling Required in Revised Addendum No. 2 - April 96
EAS-FOSR-Aug 02	Echo Avenue Site Fuel Oil Spill Report - August 02
TRC-RAP-Feb 05	TRC Remedial Action Report For The Echo Avenue Project - February 2005

1 - Figure or Table follows the numbered text page in the previous report (figure and table pages are not numbered).

2 - Actual Figure or Table page number(s) in electronic pdf versions provided.

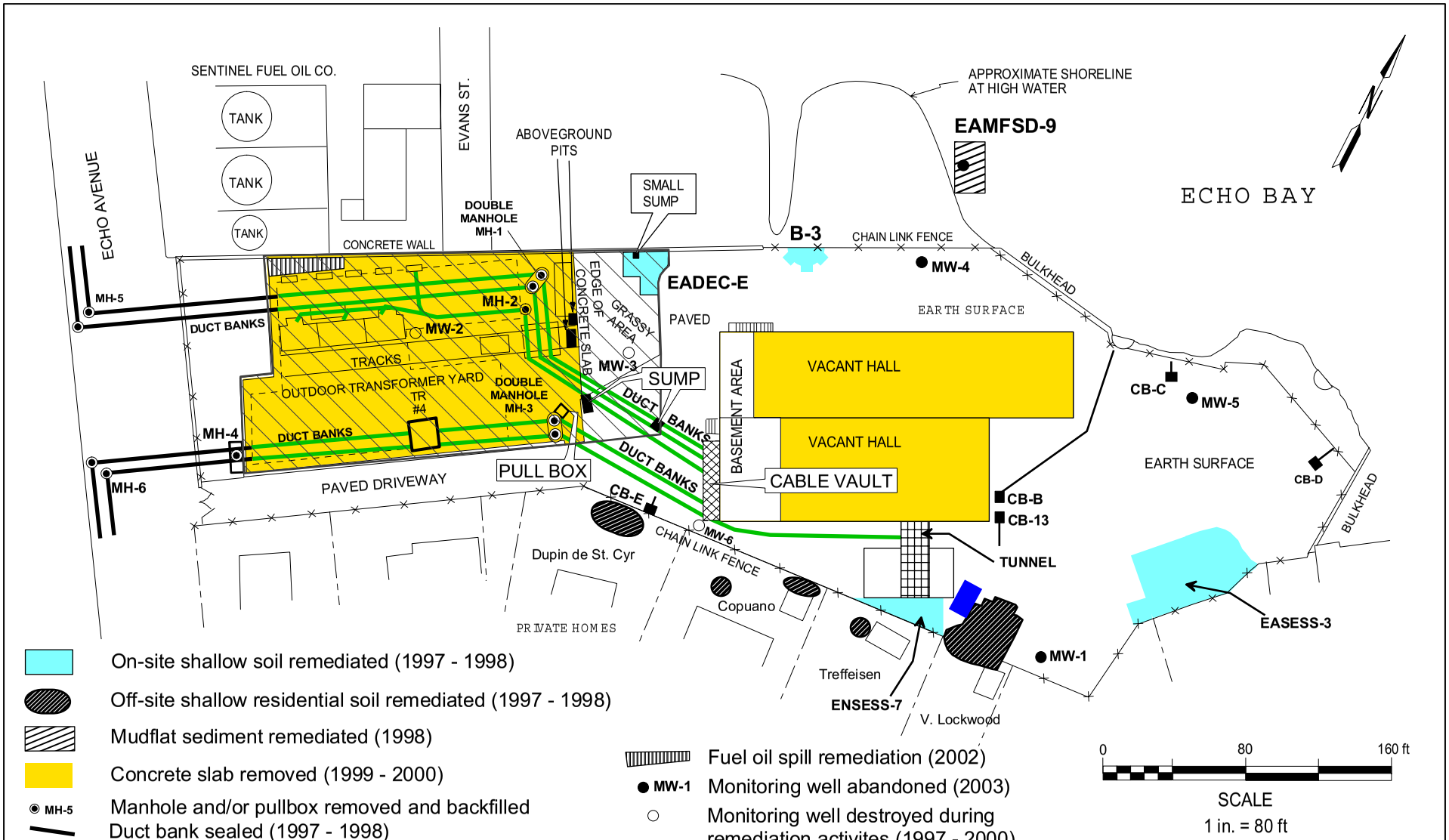


*Figure 6-1 from July 2003 Remediation Report Addendum

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig6-1_OverallRemediationConductedEAsite97-03.dsf

Figure 6-1*

Overall Remediation Conducted at Echo Avenue Site (1997 - 2003)

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

excavation areas, and the concentration of PCBs (≤1 mg/kg or ≤10 mg/kg) remaining on the site at each location and depth prior to any backfilling. References to the figures and tables from where the data were derived have been added to Plate 1. In addition, locations on residential properties where residual total PCB concentrations of <1 mg/kg were found have been identified on Plate 1. All excavations were backfilled with clean certified fill material and either covered with wood chips or top soil and seed. As can be seen from information presented in Section 5 and Plate 1, the remaining PCB concentrations meet the soil cleanup objectives established by the NYSDEC for this Site.

Figure 6-2 shows the lead concentrations remaining on the Site at locations where soil samples were collected for total lead analysis and show that the cleanup objective of 500 mg/kg is not exceeded on the Site. The tables and figures from which the data were derived are referenced on Figure 6-2.

Figure 6-3 shows the location and depth of samples analyzed for contaminants other than lead and PCBs and indicates which locations had exceedances of RSCOs in TAGM 4046, which RSCOs were exceeded, and the concentrations of substances that exceeded their RSCOs. Locations with TAGM 4046 RSCOs exceedances that were subsequently remediated are footnoted in Figure 6-3. In all cases where such other contaminants were detected above their RSCOs, NYSDEC did not require remediation, or NYSDEC approved backfill of that the area after the remediation for PCBs was completed, or all soil with a fuel-oil type odor was removed to the satisfaction of NYSDEC. The tables and figures from which the data were derived are referenced on Figure 6-3.

Figure 6-4 shows the remaining PCBs in the mudflat sediment and soil in Echo Bay. This figure shows the remediation areas in the mudflat conducted by TRC, the approximate depth of the excavation areas, and the concentration of PCBs remaining. All excavation areas in the mudflat were backfilled with a mix of clean certified fill material and sand. In addition, the locations of the sediment samples collected and analyzed for PCBs by HDR|LMS during previous investigations are also included in this figure. As can be seen, the remaining PCB concentrations meet the 1 mg/kg cleanup level established by NYSDEC in 2003. The tables and figures from which the data were derived are referenced on Figure 6-4.

Some structures remain on site as detailed below:

- Substation building basement and basement storage room. In 1995 these rooms were backfilled with construction debris and rubble from the floors above them.
- Substation building sub-slab structures. These include a tunnel in the former North Hall of the building and other structures in the building's former North and South Halls. The cindery fill material present in the North Hall tunnel was removed from the tunnel and

ECHO AVENUE

ECHO BAY

SENTINEL FUEL OIL CO.

TANK

TANK

TANK

CLC samples collected 1.5 ft bg (Concrete slab and 0.5 to 1 ft layer of cindery material removed prior to sample collection)

See **Figure 5-34** of this report for CLC- data

EVANS ST.

CONCRETE WALL

CONCRETE WALL

RETAINING WALL

See **Table 4-2** of this report for data

See **Table 5-1** of this report for data

APPROXIMATE SHORELINE AT HIGH WATER

N

EADEC-E * (0-6 in.) (2030)

(2 ft) **E-A-25** (61)

CLC-01 (28.8)

CLC-06 (57)

CLC-03 (12.9)

CHAIN LINK FENCE

BULKHEAD

PAVED

EARTH SURFACE

CLC-23 (18.2)

CLC-12 (48)

CLC-9 (14.5)

CLC-13 (270)

CLC-14 (8.6)

CLC-19 (211)

CLC-10 (97.5)

CLC-15 (22.7)

CLC-05 (165)

CLC-8 (13.8)

CLC-7 (127)

CLC-21 (21.3)

CLC-02 (31.3)

CLC-20 (60.4)

CLC-04 (260)

CLC-16 (31.1)

CLC-11 (13.6)

CLC-18 (34.3)

CLC-22 (25.2)

CLC-17 (27.7)

NORTH VACANT HALL (BUILDING & FLOOR SLAB REMOVED)

(8-9 ft) **CVDP-02** (173)

See **Table 4-5** of this report for data

CABLE VAULT REMOVED

SOUTH VACANT HALL (BUILDING & FLOOR SLAB REMOVED)

TI-02 (282) (5-6 ft)

See **Table 4-6** of this report for data

EADEC-D (0-6 in.) (279)

See **Table 5-1** of this report for data

(0-6 in.) **EADEC-B** (105)

BULKHEAD

PAVED DRIVEWAY

CHAIN LINK FENCE

EAMW-6

(8-10 ft) **EASESS-7C**** (1,550)

STORAGE BUILDING REMOVED **

(3-4 ft) **WTD-01** (60)

EAMW-6

0-2’	4-6’	8-10’	10-12’
141	9.0	5.5	5.2

See **Table 5-2** of this report for data

PRIVATE HOMES

See **Table 5-1a** of this report for data

See **Table 4-1** of this report for data

0 80

APPROX. SCALE (ft)

Legend

- Lead sample collected at this location (Results are in mg/kg)

CLC - See Figure 5-34 of this report for data

Notes

* EADEC-E was collected prior to PCB remediation of the EADEC-E/F area and the CLC-01 and CLC-06 samples were collected after the excavation activities were completed in this area. Note, no lead samples were collected at EADEC-F location. At transformer yard all soil subsequently removed to 6 ft below grade. The samples shown in this area were collected from soil just below the slab or after removal of the cindery fill material (~2 ft below slab)

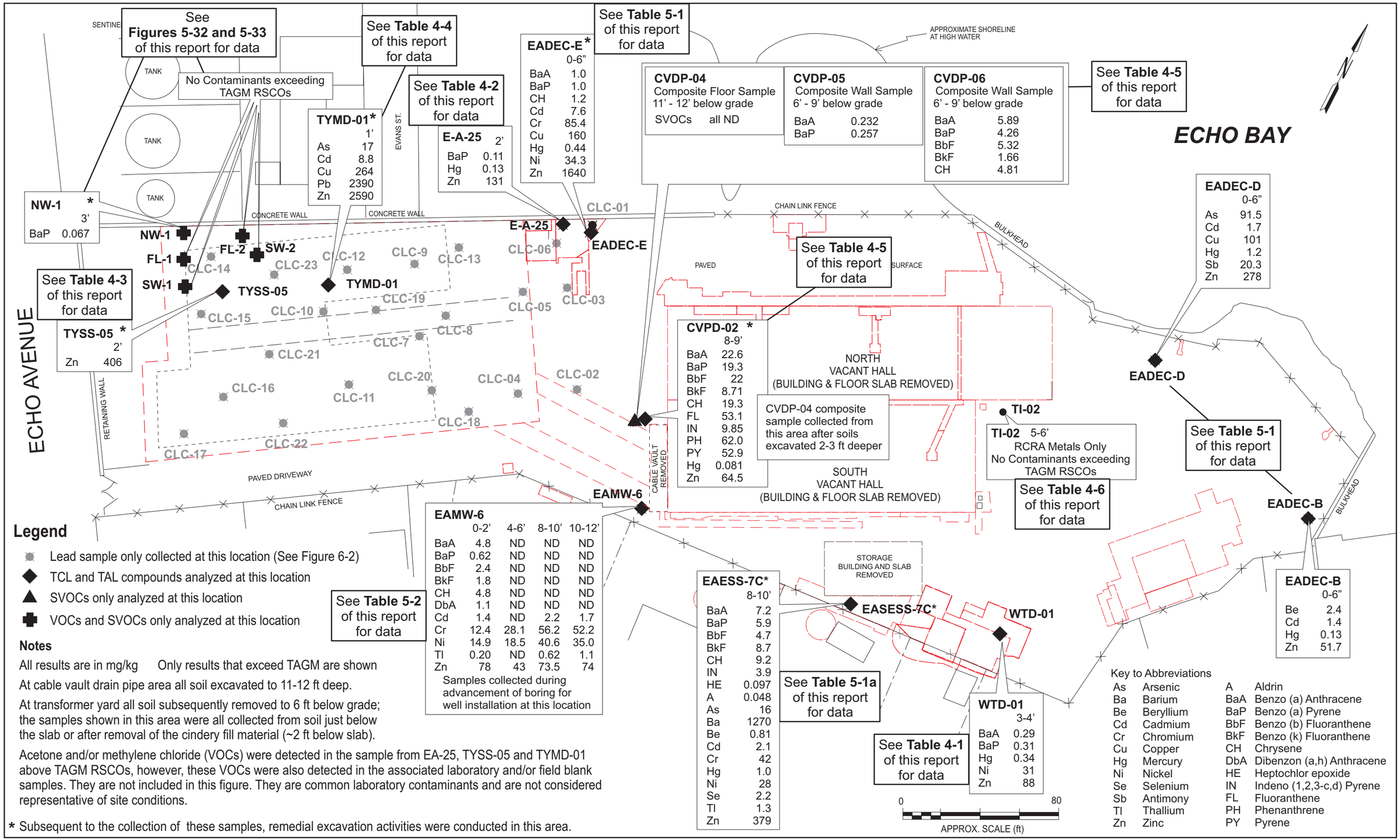
** EASESS-7C was collected at a depth of 8-10 in. below grade prior to remediation of EASESS-7 area which was excavated to a depth of 3-5 ft below grade.

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig6-2_SiteExcavationSummaryLeadDataOnly.des

HDR | LMS
Henningson, Durham & Richardson Architecture and Engineering, P.C. in association with HDR Engineering, Inc.
One Blue Hill Plaza
Pearl River, NY 10965

Site Excavation Summary
(Lead Data Only)
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

Figure 6-2



Legend

- Lead sample only collected at this location (See Figure 6-2)
- TCL and TAL compounds analyzed at this location
- SVOCs only analyzed at this location
- VOCs and SVOCs only analyzed at this location

Notes

All results are in mg/kg Only results that exceed TAGM are shown

At cable vault drain pipe area all soil excavated to 11-12 ft deep.

At transformer yard all soil subsequently removed to 6 ft below grade; the samples shown in this area were all collected from soil just below the slab or after removal of the cindery fill material (~2 ft below slab).

Acetone and/or methylene chloride (VOCs) were detected in the sample from EA-25, TYSS-05 and TYMD-01 above TAGM RSCOs, however, these VOCs were also detected in the associated laboratory and/or field blank samples. They are not included in this figure. They are common laboratory contaminants and are not considered representative of site conditions.

***** Subsequent to the collection of these samples, remedial excavation activities were conducted in this area.

Key to Abbreviations

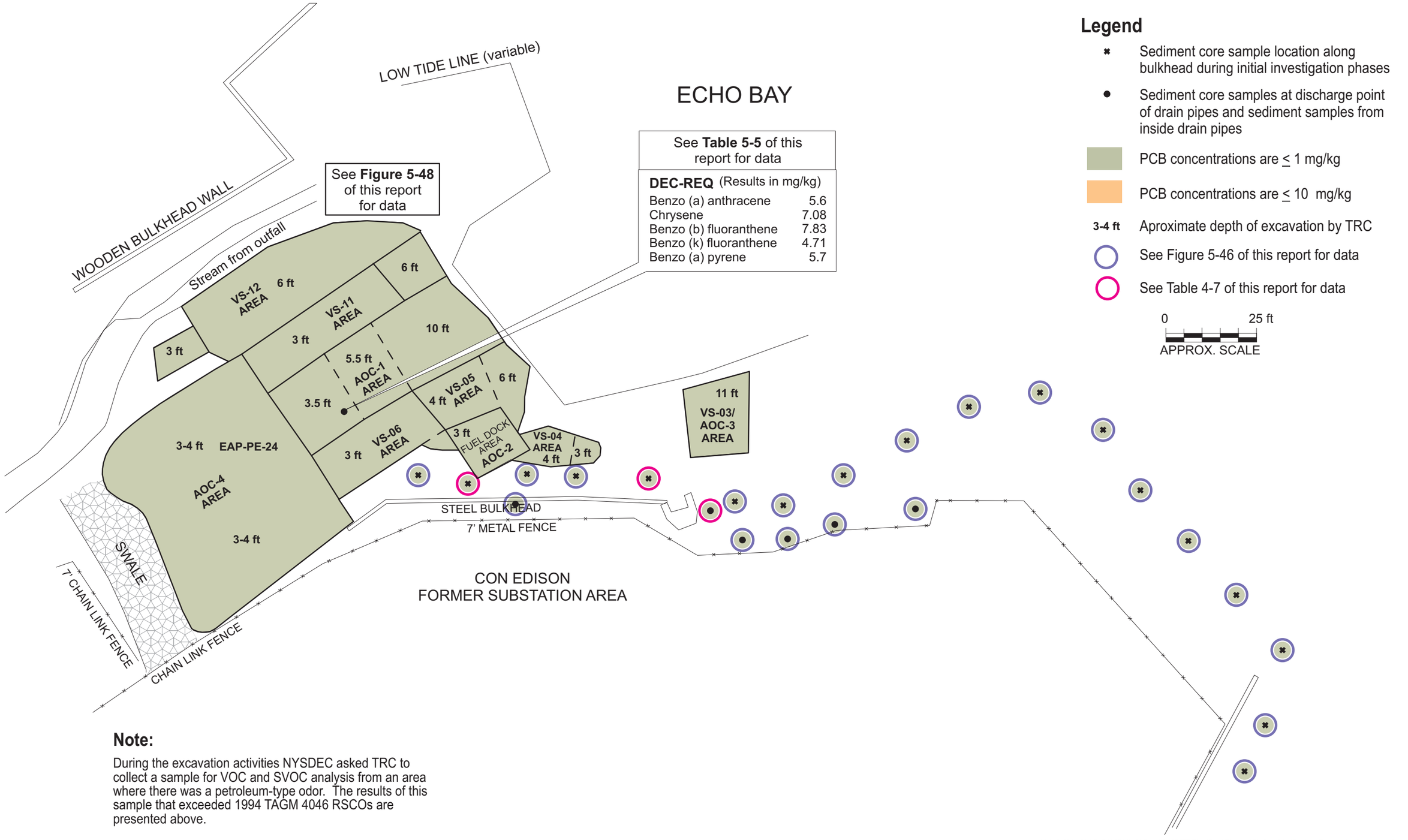
As	Arsenic	A	Aldrin
Ba	Barium	BaA	Benzo (a) Anthracene
Be	Beryllium	BaP	Benzo (a) Pyrene
Cd	Cadmium	BbF	Benzo (b) Fluoranthene
Cr	Chromium	BkF	Benzo (k) Fluoranthene
Cu	Copper	CH	Chrysene
Hg	Mercury	DbA	Dibenzon (a,h) Anthracene
Ni	Nickel	HE	Heptochlor epoxide
Se	Selenium	IN	Indeno (1,2,3-c,d) Pyrene
Sb	Antimony	FL	Fluoranthene
Tl	Thallium	PH	Phenanthrene
Zn	Zinc	PY	Pyrene

HDR | LMS
Henningson, Durham & Richardson Architecture and Engineering, P.C.
in association with HDR Engineering, Inc.
One Blue Hill Plaza
Pearl River, NY 10965

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig6-3_SiteExcavationSummaryOtherContaminants.des

Site Excavation Summary
(Concentration of Other Contaminants Remaining on Site)
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

Figure 6-3



Note:

During the excavation activities NYSDEC asked TRC to collect a sample for VOC and SVOC analysis from an area where there was a petroleum-type odor. The results of this sample that exceeded 1994 TAGM 4046 RSCOs are presented above.

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Fig6-4_MudflatAreaExcavationSummary.des

Henningson, Durham & Richardson Architecture and Engineering, P.C.
in association with HDR Engineering, Inc.
One Blue Hill Plaza
Pearl River, NY 10965

Mudflat Area Excavation and Sediment Sample Summary (PCB Data Only)
ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

Figure 6-4

the tunnel was backfilled in 2000.

- Tunnel between substation and office building. The tunnel was cleaned and backfilled in 1998.
- Office building foundation wall. The office building's foundation slab was removed in 1995, but the foundation walls were left in place. Reports for prior work conducted at the Site by Con Edison indicate that there was an extension on the western end of the office building. Consequently, the foundation walls may extend out further than shown on Con Edison's available drawings for the office building.
- EASP-06. This sump was sampled and backfilled in 1998.
- CB-04 and CB-06. Catch basin CB-04 is located in the center of the former South Hall. Catch basin CB-06 is located along the north side of the former North Hall slab in the northeast corner area. A concrete meter vault is located along the outside of the foundation wall in the northwest corner area of the North Hall. These structures were not removed during the building slab removal conducted in 1999.
- Concrete drainpipe from the former CB-13 location and the tile drainpipe along Echo Bay.
- Four concrete pedestals in the area immediately adjacent to the backyard of the neighboring V. Lockwood residential property. An old insurance map from 1931 that shows the site when it was a coal-fired generating plant indicates that a 50,000 gal water tank was at this location. This map also shows a number of other areas where there could still be some structures below grade that were not encountered during the environmental investigations and remediation activities conducted at the site. There is a possibility that some of these structures and possibly other structures still remain below grade on site.
- The duct banks between the manholes on Echo Avenue and the concrete retaining wall on the western end of the site were not removed. The duct banks were cleaned and plugged on both ends and manhole MH-4 was completely filled with concrete.

SENTINEL FUEL OIL CO.

TANK

TANK

TANK

EVANS ST.

CONCRETE WALL

CONCRETE WALL

APPROXIMATE SHORELINE AT HIGH WATER

ECHO BAY

N

ECHO AVENUE

RETAINING WALL

FORMER OUTDOOR TRANSFORMER YARD

ALL STRUCTURES REMOVED
(SOIL REMOVED DOWN TO 6 ft BELOW GRADE)

EADEC-E/F Excavation
See Figures 5-18 & 5-18a
of this report for data

B-3 Excavation
See Figures 5-20 & 5-20a
of this report for data

North Hall Drainpipe Remediation
See Figures 5-27b, 5-27b1, & 5-27c
of this report for data

CHAIN LINK FENCE

BULKHEAD

Tunnel filled with
bricks and fill at this point

North Hall Remediation
See Figures 5-24, 5-27a, & 5-27a1
of this report for data

See Figure 5-21
of this report for data

NORTH HALL
(BUILDING & FLOOR SLAB
REMOVED)

Remains of concrete stack base

CB-D Excavation
See Figure 5-35
of this report for data

CB-C Excavation
See Figure 5-38
of this report for data

See Figure 5-19
of this report for data

Cable Duct Bank Excavation
See Figure 5-36 of this report for data

BUILDING MATERIALS
COLLAPSED INTO
BASEMENT DURING
DEMOLITION
ACTIVITIES
(1995)

CABLE VAULT
REMOVED

Deep concrete structures
(Possibly related to intake and
discharge tunnel structures)

SOUTH HALL
(BUILDING & FLOOR SLAB
REMOVED)

South Hall Remediation
See Figures 5-23 & 5-23a
of this report for data

EASESS-3
See Figures 5-15 & 5-15a
of this report for data

CB-13 Excavation
See Figure 5-26
of this report for data

CB-E Excavation
See Figure 5-39
of this report for data

PAVED DRIVEWAY

CHAIN LINK FENCE - PROPERTY BOUNDARY FENCE

Dupin de St. Cyr
See Figure 5-8
of this report for data

BULKHEAD

Tunnel Cable Duct Excavation
See Figure 5-37 of this report for data

STORAGE
BUILDING AND SLAB
REMOVED

Lockwood Excavation
See Figures 5-11 & 5-11a
of this report for data

#76 Echo Avenue
Ranftel
See Figure 5-2
of this report

PRIVATE HOMES

#10 Farragut Circle
Rothchild
See Figure 5-3
of this report

Copuano Excavation
See Figure 5-9
of this report

#60 Decatur Road
Benjamin
See Figure 5-7
of this report

#14 Farragut Circle
Dupin de St. Cyr
See Figure 5-3 from
June 2001 Remediation
Report for ⊗ data

EASESS-7
See Figure 5-16 & 5-16a of this report for data

PRIVATE HOMES

Treffeisen Excavation
See Figure 5-10
of this report for data

#54 Decatur Road
Schlupp
See Figure 5-6
of this report

#22 Farragut Circle
Copuano
See Figure 5-4 from
June 2001 Remediation
Report for ⊗ data

#28 Farragut Circle
Treffeisen
See Figure 5-5 from
June 2001 Remediation
Report for ⊗ data

#34 Decatur Road
V. Lockwood
See Figure 5-6 from
June 2001 Remediation
Report for ⊗ data

#48 Decatur Road
G. Lockwood
See Figure 5-5
of this report

#40 Decatur Road
Domoto
See Figure 5-4
of this report

Excavation Area Legend

- PCB concentrations are < 1 mg/kg
- PCB concentrations are < 10 mg/kg
- Structure remaining
- Shallow adjacent residential soil sample locations during previous investigation phases (not remediated).
- R — Residential soil samples contain residual PCB concentrations < 1mg/kg
- ND — Residential soil samples with no detectable PCBs
- See Figure 5-13 of this report for data
- See Figure 5-14 of this report for data
- See Figure 5-12 of this report for data
- Sediment samples from a small tile drainpipe (See Figure 5-27c in this report for data)
- Data cross-reference

Excavation Depth Patterns

- 0-2 ft below grade
- >2-4 ft below grade
- >4-6 ft below grade
- >6 ft below grade

0 80

APPROX. SCALE (ft)

(APPROX. SCALE = 1" = 22.5)

Notes:

When the floor slab was removed from the South Hall a series of shallow brick-covered sluiceways (1-2 ft deep) were uncovered. Samples were collected from material in the bottom of the sluiceways and from material below them. The excavator was used to collapse many of these. The remains of these sluiceways still remain below the fill of the South hall. It also contains 2 deep concrete structures.

When the floor slab was removed from the North Hall a number of concrete structures were exposed. There is a deep tunnel structure running down the center of the hall. In addition, there are shallower concrete structures adjacent to the tunnel structure and the remains of a stack and another structure at the eastern end of the North Hall.

\0115-190_SLAB SAMPLING\Graphics\DTP\FinalDraftFigures\Plate1_SiteExcavationSummary.des

Plate 1

Site PCB Sample Results Summary

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

HDR | LMS

Henningson, Durham & Richardson
Architecture and Engineering, P.C.
in association with HDR Engineering, Inc.

One Blue Hill Plaza
Pearl River, NY 10965

APPENDIX A

REFERENCE DOCUMENTATION

REFERENCE DOCUMENTATION

[1] New York State Department of Environmental Conservation (NYSDEC). Order on Consent. Consolidated Edison – Echo Avenue. Site #3-60-016. 19 June 1992.

{2} Lawler, Matusky & Skelly Engineers LLP (LMS). 1992. Investigations at Echo Avenue Site Final Work Plan. Prepared for Consolidated Edison Company of New York, Inc (Con Edison).

[3] LMS. 1993. Phase II Investigation at Echo Avenue Site, Volume I - Report. Prepared for Con Edison.

[4] Letter from Hari O. Agrawal, NYSDEC, to Karel A. Konrad, Con Edison, containing comments on Echo Avenue Phase II Investigation Report. 19 October 1993.

[5] NYSDEC. Division Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels. 24 January 1994.

[6] Letter from Hari O. Agrawal, NYSDEC, to Karel A. Konrad, Con Edison, confirming discussion and clarification of results of meeting held on 15 February 1994. 28 February 1994.

[7] Letter from Karel A. Konrad, Con Edison, to Hari O. Agrawal, NYSDEC, responding to NYSDEC letter of 28 February 1994. 17 March 1994.

[8] LMS. 1996. Report on Sampling Required in Revised Addendum No. 2 Final Work Plan. Prepared for Con Edison.

[9] LMS. 1996. Report on Sampling Soil and Sediment in Mudflat Area Adjacent to Echo Avenue site. Prepared for Con Edison.

[10] LMS. 1996. Second Report on Sampling Required in Revised Addendum No. 2 Final Work Plan. Prepared for Con Edison.

[11] LMS. 1996. Report on Sampling Required in Revised Addendum No. 3 Final Work Plan. Prepared for Con Edison.

[12] Letter from Robert Smith, NYSDEC, to Karel A. Konrad, Con Edison, on Second Report on Sampling Required in Revised Addendum No. 2 and Report on Sampling Required in Addendum No. 3, and Echo Bay Mudflat/Sediment Soil Area Sampling. 18 March 1996.

[13] LMS. 1996. Phase II Investigations at Echo Avenue Site, Additional Sampling and Remediation Work Plan. Prepared for Con Edison.

[14] Letter from Troy Meyer, Con Edison, to Robert Smith, NYSDEC, describing the proposed sampling/remedial work plan for transformer yard slab and substation building slab. 20 May 1998.

[15] Letter from Troy Meyer, Con Edison, to Robert Smith, NYSDEC, describing areas of concern within the substation slab and transformer yard slab. 26 August 1999.

[16] Letter from John Olm, New York State Department of Health (NYSDOH), to Ram Pergadia, NYSDEC, discussing the 'hot spot' lead areas in the Transformer Yard. 20 December 1999.

[17] Letter from Neal R. Bedrock, Con Edison to Gianna Aiezza, New York State Department of Environmental Conservation (NYSDEC), transmitting the Additional Remediation Work Plan for the Transformer Yard. 1 June 2001.

[18] LMS. 2001. Echo Avenue Site Remediation Report. Prepared for Con Edison.

[19] Letter from Neal R. Bedrock, Con Edison to Gianna Aiezza, NYSDEC, transmitting the fuel oil impacted soil proposal. 10 October 2001.

[20] Letter from Allison Meyrowitz, Con Edison, to Gianna Aiezza, NYSDEC, transmitting the Additional On-Site Work Plan. 7 October 2002.

[21] LMS. 2003. Echo Avenue Site Remediation Report Addendum. Prepared for Con Edison.

[22] TRC Environmental Corporation (TRC). 2003. Remedial Action Work Plan for the Echo Avenue Project New Rochelle, New York. Prepared for Con Edison.

[23] TRC. 2005. Remedial Action Report for the Echo Avenue Project New Rochelle, New York. Prepared for Con Edison.

[24] NYSDEC. 2001. Recommended Soil Cleanup Objectives for Fuel Oil Contaminated Soil.

[25] LMS. 2002. Fuel Oil Spill Report. Prepared for Con Edison.

[26] Letter from Todd Ghiosay, NYSDEC, to Allison Meyrowitz, Con Edison, stating that Spill No. 9912989 is closed. 30 September 2002.

[27] NYSDEC. Spills Incident Report Database. 2003.

REFERENCE DOCUMENTATION

(Page 3 of 3)

[28] Letter from Gianna Aiezza, NYSDEC, to Allison Meyrowitz, Con Edison, approving the request to abandon the on-site monitoring wells. 17 October 2002.

[29] Malcolm Pirnie, Inc. May 1995 (Revised October 1996). Decommissioning Procedures, NPL Site Monitoring Well Decommissioning. Prepared for NYSDEC.

[30] City of New Rochelle. 2008 Tentative Assessment Roll and Map. pp. 61 to 63.

[31] Letter from Yelena Skorobogatov, Con Edison, to Ramnanand Pergadia, NYSDEC, discussing the soil sampling beneath the building substation slab. 26 January 2000.

[32] Dragun, J. 1988. The Soil Chemistry of Hazardous Materials. Silver Spring, MD: Hazardous Materials Control Research Institute. pp. 78-79.

REFERENCE 1

New York State Department Of Environmental Conservation
Division of Environmental Enforcement
202 Mamaroneck Avenue - Room 304
White Plains, N.Y. 10601-5381
Telephone: (914) 761-3575

Thomas C. Jorling
Commissioner

June 19, 1992

CERTIFIED MAIL/RRR

Robert T. Keegan, Ph.D.
Director, Water & Waste Management
Environmental Affairs
Consolidated Edison Company of New York, Inc.
4 Irving Place
New York, New York 10003

Re: ORDER ON CONSENT
Consolidate Edison - Echo Ave.
Site # 3-60-016

Dear Mr. Keegan:

Enclosed is a fully executed Order on Consent providing for a Phase II / Preliminary Site Assessment (PSA) at the Consolidated Edison - Echo Avenue Site. The Order was signed by Acting Deputy Commissioner David Markell on June 15, 1992.

Thus, June 15, 1992, the effective date of the Order, should be used to calculate the timing of all submissions and activities pursuant to this Order on Consent unless otherwise specifically stated.

Thank you for your courtesy and cooperation in this project. The Department anticipates working harmoniously with Consolidated Edison Company of New York, Inc. to implement the PSA.

Very truly yours,

Louis P. Oliva

Louis P. Oliva
Senior Attorney

Enclosure

cc: Mauricio Roma-Hernandez w/enc.
Erin O'Dell w/o enc.

LO-L&M-FEO.CEC/jhs

STATE OF NEW YORK: DEPARTMENT OF ENVIRONMENTAL CONSERVATION

In the Matter of the Development and Implementation of a Phase II Investigation Program for an Inactive Hazardous Waste Disposal Site, Under Article 27, Title 13, of the Environmental Conservation Law of the State of New York by CONSOLIDATED EDISON COMPANY OF NEW YORK, INC., Respondent.	ORDER ON CONSENT Index # W3-0531-91-02 Site # 3-60-016

WHEREAS,

1. The New York State Department of Environmental Conservation (the "Department") is responsible for enforcement of Article 27, Title 13 of the Environmental Conservation Law of the State of New York ("ECL"), entitled "Inactive Hazardous Waste Disposal Sites."

2. Consolidated Edison Company of New York, Inc., ("Respondent"), a corporation organized and existing under laws of the State of New York is doing business in the State of New York in that it has an office at 4 Irving Place, City of New York, County of New York. Additionally, Respondent owns property at Echo Avenue, City of New Rochelle, County of Westchester. (the "Site"), a map of which is appended hereto as "Appendix A."

3. Based upon available information and data, the Department suspects that hazardous wastes, as defined at ECL Section 27-1301(1), have been disposed of at the Site and has listed the Site in the Registry of Inactive Hazardous Waste

Disposal sites in New York State as Site Number 3-60-016. On or about December 15, 1987, the Department classified the Site as a "2a", a temporary classification which indicates that certain investigations are required to further define conditions at the Site and make a determination as to whether hazardous wastes at the Site constitute a significant threat to the public health or the environment.

4. In May 1989, Con Edison submitted to the Department for its review a sampling plan for the Site. The Department indicated that a Work Plan would have to be prepared and implemented pursuant to an order on consent.

5. Con Edison's consultant, Lawler, Matusky and Skelly, has prepared a plan dated November 1990 and has submitted it for the Department's review.

6. The goal of this Order is the development and implementation of a Phase II investigation at the Site by Respondent. The Phase II investigation will gather data and enable the Department to further evaluate the Site and make a determination as to whether hazardous wastes at the Site constitute a significant threat to the public health or environment necessitating remedial work.

7. Respondent, having waived any right to a hearing herein as may be provided by law, and having consented to the issuance and entry of this Order, agrees to be bound by its terms.

NOW, having considered this matter and being duly advised, **IT IS ORDERED THAT:**

I. All activities and submittals required by this Order shall be in accordance with Requisite Technology. As used in this Order, Requisite Technology means engineering and scientific principles and practices, subject to the Department's approval, which (a) are technologically feasible, and (b) will identify any present or potential significant threat to the public health or environment posed by the presence of hazardous waste at the Site.

II. Within 30 days after the effective date of this Order, Respondent shall submit to the Department all data within its possession or control regarding environmental conditions on-Site and off-Site, and other information described below, to the extent that such data have not previously been provided to the Department. The data shall include:

a. A brief history and description of the Site, including the types, quantities, physical state, location and dates of disposal of hazardous waste, as well as the names of "responsible parties". "Person responsible" or "responsible party" means any or all of the following:

(1) the current owner and operator of the Site;

(2) the owner and operator of the Site at the time or subsequent to the time any hazardous waste disposal occurred;

(3) any person who generated any hazardous waste that was disposed of at the Site;

(4) any person who transported any hazardous waste to the Site;

(5) any person who disposed of any hazardous waste at the Site;

(6) any person who by contract, agreement or otherwise arranged for the transportation of any hazardous waste to the Site or the disposal of any hazardous waste at the Site;

(7) any other person determined to be responsible according to applicable principles of statutory or common law liability; and

b. A description of the results of all previous investigations of the Site and areas in the vicinity of the Site, including copies of all available topographic and property surveys, engineering studies and aerial photographs.

III. Respondent has submitted to the Department a Work Plan outlining the nature and extent of the work to be undertaken in conducting the Phase II investigation. The Work Plan meets the requirements of the current Phase II Generic Work Plan which is incorporated by reference into this Order and includes a Health and Safety Plan for the protection of persons at and in the vicinity of the Site during the performance of the Phase II Investigation. The Health and Safety Plan was prepared in accordance with 29 C.F.R. Section 1910 by a certified health and

safety professional. A Quality Assurance/Quality Control Plan acceptable to the Department was also included in the Work Plan.

IV. The Work Plan

The Work Plan for implementation of the Phase II Investigation at the Site shall be deemed approved concurrent with the execution of this Order by the Commissioner or his designee. The Approved Work Plan shall be attached as "Appendix B" and incorporated into this Order.

V. During the Phase II Investigation, Respondent shall have on-Site, full time, a representative qualified to inspect the Phase II work. In accordance with the time schedule contained in the Approved Work Plan, Respondent shall conduct the Phase II Investigation and submit to the Department a Phase II Investigation Report (the "Report"). The Report shall include all data generated and all other information obtained during the Phase II Investigation. A fully completed Hazard Ranking System score sheet shall be included in the Report. The Report shall include a certification by Respondent's consultant that all activities that comprised the Phase II Investigation were performed in accordance with the Approved Work Plan.

VI. The Department reserves the right to require a modification and /or an amplification and expansion of the Phase II Investigation and Report by Respondent if the Department determines that further work is necessary, as a result of reviewing data generated by the Phase II Investigation or as a

result of reviewing any other data or facts.

VII. After receipt of the Report, the Department shall determine if the Phase II Investigation was conducted and the Report prepared in accordance with the Approved Work Plan and this Order. The Department shall notify Respondent in writing of its approval or disapproval of the Report.

If the Department disapproves the Report, the Department shall notify Respondent in writing of the Department's objections. Respondent shall revise the Report and/or reperform or supplement the Phase II Investigation in accordance with the Department's specific comments and shall submit a revised Report. The period of time within which the Report must be revised or the Phase II Investigation reperformed or supplemented shall be specified by the Department in its notice of disapproval.

After receipt of the revised Report, the Department shall notify the Respondent in writing of its approval or disapproval of the revised Report.

If the Department disapproves the revised Report, the Department may revise the Report and/or reperform or supplement the Phase II Investigation as deemed necessary by the Department. The Report as modified by the Department shall be deemed the Approved Report.

The Approved Report shall be attached as "Appendix C" and incorporated into this Order.

VIII. Within 30 days after the Department's approval of

the Phase II Investigation Report, or 30 days after receipt of an invoice from the Department, whichever is later, Respondent shall pay to the Department a sum of money, which shall represent reimbursement for the Department's expenses including, but not limited to, direct labor, overhead, travel, analytical costs and contractor costs incurred by the State of New York for negotiating this order, reviewing and revising submittals made pursuant to this Order, overseeing activities conducted pursuant to this Order and collecting and analyzing samples. Such payment shall be made by certified check payable to the Department of Environmental Conservation. This check will be deposited into the Hazardous Waste Remedial Fund established under § 97-b of the State Finance Law. Such payment shall be sent to:

The Bureau of Program Management
Division of Hazardous Waste Remediation
NYS Department of Environmental Conservation
50 Wolf Road - Room 208
Albany, N.Y. 12233-7010

A photocopy of the check shall be mailed to:
NYS Department of Environmental Conservation
Division of Environmental Enforcement
202 Mamaroneck Avenue - Room 304
White Plains, N.Y. 10601-5381
Attention: Alice M. McCarthy, Esq.

IX. The Department shall have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled by Respondent.

X. Respondent shall provide notice to the Department at least 10 working days in advance of any field activities to be

conducted pursuant to this Order.

XI. Respondent shall obtain whatever permits, easements, rights-of-way, rights-of-entry, approvals or authorizations are necessary to perform Respondent's obligations under this Order.

XII. Respondent shall permit any duly designated officer, employee, consultant, contractor or agent of the Department or any State agency to enter upon the Site or areas in the vicinity of the Site which may be under the control of Respondent for purposes of inspection, sampling and testing and to assure Respondent's compliance with this Order.

XIII. Respondent shall retain professional consultants, contractors and laboratories acceptable to the Department to perform the technical, engineering and analytical obligations required by this Order. The experience, capabilities and qualifications of the firms or individuals selected by Respondent shall be submitted to the Department for approval prior to the initiation of any activities for which they will be responsible.

XIV. Respondent shall not suffer any penalty under this Order, or be subject to any action or proceeding if it cannot comply with any requirements hereof because of an act of God, war, or riot. Respondent shall immediately notify the Department in writing when it obtains knowledge of any such condition and request an appropriate extension or modification of this Order.

XV. Interim Remedial Measures

Before the effective date of the ROD, Respondent may propose interim remedial measures ("IRMs") for the Site on an as-needed basis. In proposing each IRM, Respondent shall submit to the Department a work plan which includes time frames for the completion of the IRM. Upon the Department's determination that the proposal is an appropriate interim remedial measure and its approval of such work plan, the work plan shall be incorporated into and become an enforceable part of this Order. Respondent shall then carry out such IRM in accordance with the requirements of the approved Work Plan and this Order.

XVI. The failure of Respondent to comply with any term of this Order shall constitute a violation of this Order and the ECL.

XVII. Nothing contained in this Order shall be construed as barring, diminishing, adjudicating or in any way affecting:

a. the Department's right to bring any action or proceeding against anyone other than Respondent, its directors, officers, employees, servants, agents, successors and assigns;

b. the Department's right to enforce this Order against Respondent, its directors, officers, employees, servants, agents, successors and assigns in the event that Respondent shall fail to satisfy any of the terms hereof;

c. the Department's right to bring any action or proceeding against Respondent, its directors, officers,

employees, servants, agents, successors and assigns with respect to areas or resources that may have been affected or contaminated as a result of the release or threatened release of hazardous wastes or constituents at or from the Site, including, but not limited to, claims for natural resources damages; and

d. the Department's right to bring any action or proceeding against any responsible party to compel the development and implementation of an inactive hazardous waste disposal site remedial program for the Site (including but not limited to a remedial investigation/feasibility study), and to obtain recovery of its costs in connection with the site.

XVIII. This Order shall not be construed to prohibit the Commissioner or his duly authorized representative from exercising any summary abatement powers.

XIX. Respondent shall indemnify and hold the Department, the State of New York, and their representatives and employees harmless for all claims, suits, actions, damages and costs of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of the terms of this Order by Respondent, its directors, officers, employees, servants, agents, successors or assigns.

XX. The effective date of this Order shall be the date it is signed by the Commissioner or Deputy Commissioner.

XXI. If Respondent desires that any provision of this Order be changed, it shall make timely written application to the

Department for the Commissioner's consideration, setting forth reasonable grounds for the relief sought. Such written application shall be delivered or mailed pursuant to ¶XXV with a copy to the Project Manager as designated by the Department.

XXII. Within 30 days after the effective date of this Order, Respondent shall file a Declaration of Covenants and Restrictions with the Westchester County Clerk to give all parties who may acquire any interest in the Site notice of this Order.

XXIII. In the event that Respondent proposes to convey the whole or any part of its ownership interest in the Site, Respondent shall, not fewer than 60 days prior to the proposed conveyance, notify the Department in writing of the identity of the transferee and the nature and date of the proposed conveyance and shall notify the transferee in writing, with a copy to the Department, of the applicability of this Order.

XXIV. All written communications required by this Order shall be transmitted by United States Postal Service, by private courier service, or hand delivered.

XXV. All communications, correspondence and documents submitted pursuant to this Order from Respondent to the Department shall be addressed to the Department's attorney:

Louis P. Oliva, Esq.
NYS Department of Environmental Conservation
Division of Environmental Enforcement
202 Mamaroneck Avenue - Room 304
White Plains, N Y 10601-5381

with a copy to the Department's Project Manager:

Mauricio Roma-Hernandez
NYS Department of Environmental Conservation
21 South Putt Corners Road
New Paltz, NY 12561-1696

XXVI. All Work Plans, Reports and other technical documents required to be submitted under this Order shall be sent to the following:

1. Six copies to: Michael J. O'Toole, Jr., P.E.
Director, Div. of Hazardous Waste Remediation
NYS Department of Environmental Conservation
50 Wolf Road - Room 212
Albany, N.Y. 12233-7010

2. Two copies to: G. Anders Carlson, Ph.D.
Director, Bur. of Env. Exposure Investigation
NYS Department of Health
2 University Place
Albany, N.Y. 12203

3. One copy to: Louis P. Oliva, Esq.
NYS Department of Environmental Conservation
Div. of Environmental Enforcement
202 Mamaroneck Avenue - Room 304
White Plains, N.Y. 10601-5381

4. One copy to: Mauricio Roma-Hernandez
NYS Department of Environmental Conservation
21 South Putt Corners
New Paltz, New York 12561-1696

XXVII. Communication from the Department to Respondent shall be made as follows:

Robert T. Keegan, Ph.D.
Director, Water & Waste Management
Environmental Affairs
Consolidated Edison Company of New York, Inc.
4 Irving Place,
New York, New York 10003

XXVIII. Respondent, its officers, directors, agents,

servants, employees, successors and assigns shall be bound by this Order.

XXIX. The terms hereof shall constitute the complete and entire Order between Respondent and the Department concerning the Site. No terms, conditions, understandings or agreements purporting to modify or vary the terms hereof shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestions or comments by the Department regarding reports, proposals, plans, specifications, schedules or any other submittals shall be construed as relieving Respondent of its obligations to obtain such formal approvals as may be required by this Order.

DATED: Albany 6/15, New York
, 1992

David Markell
~~EDWARD O. SULLIVAN~~
Deputy Commissioner
New York State Department of
Environmental Conservation

D J Markell

TO: Robert T. Keegan, Ph.D.
Director, Water & Waste Management
Environmental Affairs
Consolidated Edison Company of New York, Inc.
4 Irving Place,
New York, New York 10003

CONSENT BY RESPONDENT

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.,

Respondent hereby consents to the issuing and entering of this Order, waives its right to a hearing herein as provided by law, and agrees to be bound by this Order.

By: _____
Raymond R. Kimmel

Title: Assistant Vice President

Date: 5/22/92

STATE OF NEW YORK)
) s.s.:
COUNTY OF NEW YORK)

On this 22nd day of MAY, 1992, before me personally came RAYMOND R KIMMEL to me known, who being duly sworn, did depose and say that he resides in NANUET, NEW YORK, that he is the ASST. VICE PRESIDENT of CONSOLIDATED EDISON, the corporation described herein and which executed the foregoing instrument; that he knew the seal of said corporation; that the seal affixed to this instrument was such corporate seal, that the seal was so affixed by the order of the Board of Directors of the corporation, and that he signed his name thereto by like order.

VINCENT DePASS
Notary Public, State of New York
No. 4850765
Qualified in Suffolk County
Commission Expires 9/30/93

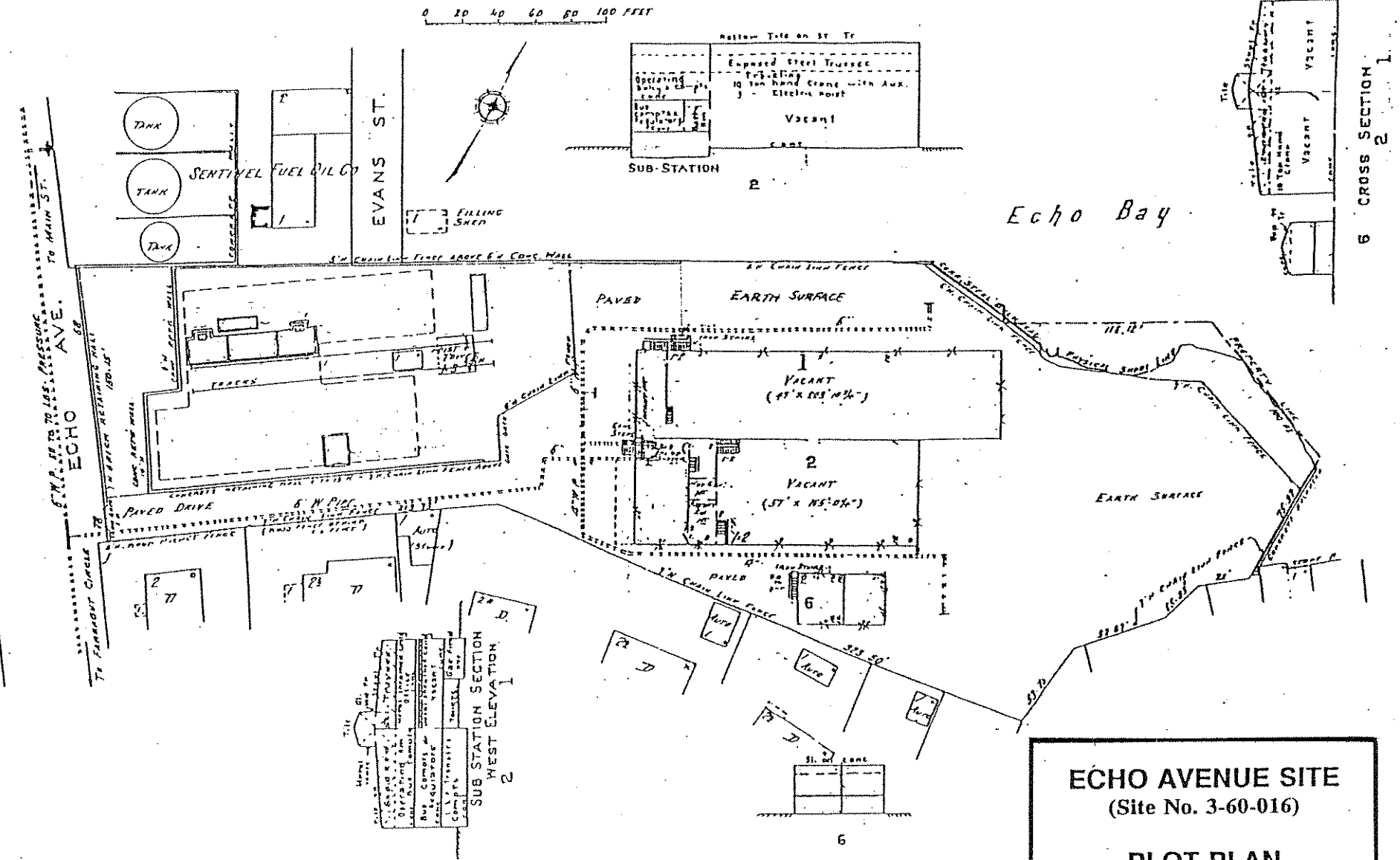
_____
Notary Public

LO-II-CONED.II/lo

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

WESTCHESTER COUNTY, N.Y.

Echo Avenue Substation
78 Echo Ave
New Rochelle.



ECHO AVENUE SITE
(Site No. 3-60-016)

PLOT PLAN

REFERENCE 2

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
New York, New York

INVESTIGATION AT ECHO AVENUE SITE

FINAL WORK PLAN

February 1992

LAWLER, MATUSKY & SKELLY ENGINEERS
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

Project No. 115-155

REFERENCE 3

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
New York, New York

PHASE II INVESTIGATION AT ECHO AVENUE SITE

Volume I - Report

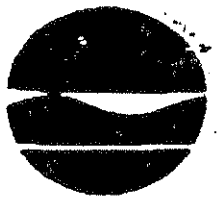
February 1993

LMS-93/0104&115/155

LAWLER, MATUSKY & SKELLY ENGINEERS
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

REFERENCE 4

New York State Department of Environmental Conservation
Region 3
21 South Putt Corners Road
New Paltz, NY 12561-1696
914-255-5453



Thomas C. Jorling
Commissioner

October 19, 1993

Dr. Karel A. Konrad, Manager
Waste Programs
Environmental Affairs
Consolidated Edison Company
4 Irving Place
New York, NY 10003

Not in 375-5

Dear Mr. Konrad:

Re: Echo Avenue Site, Code No. 360016

The New York State Department of Environmental Conservation (DEC) and the Department of Health (DOH) have completed their review of your Phase II Investigation Report dated February 1993. Pursuant to this review, the combined DEC/DOH comments are as follows:

CONTAMINATION DELINEATION AND CLEANUP CRITERIA

Considering that the site is located in a residential area and the site's potential use itself is non-industrial, DEC and DOH do not consider the proposed cleanup levels to be protective of the human health and/ or the environment.

DEC and DOH require that the PCB cleanup be done to the following criteria:

Buildings: All surfaces, indoor, outdoor, and floors be cleaned to 1.0 µg PCB/100 cm^2. of surface area.

Soils: The cleanup criteria for surface soils (defined as top 2ft) is 1 ppm expressed as 1 mg PCB/ 1 Kg. of soil/ sediment - that is after the soil removal and back filling with clean soil, the PCB concentration must not exceed 1 ppm any where in the top 2 ft of soil. The sub-surface contamination (below 2 ft.) must not exceed 10 ppm. The Phase II investigation did not show any sub-surface contamination above 1 ppm, but there were several surface soil/sediment samples and some structures which exceed the criteria of 1 ppm and 1 µg/100cm^2. All these areas should be further delineated for cleanup to these levels.

Therefore, remove from the Phase II Report all references to EPA spill cleanup standards, and substitute the above NYSDEC standards.

Sub-station Building: Most floor wipe samples exceed the required 1µg/100cm^2. These areas need to be remediated and resampled until post remediation levels are below the action level. Also, the interior building area of the North Hall not sampled due to its deteriorated condition should be double pressure washed to remove potential PCB residues.

Duct Banks: The underground duct banks leading from double man-holes MH-1, 2 and 3 located in the transformer yard to underground cable vault and the sub-station building basement are of concern to the Department as these may be serving as conduits for transporting residual soil contamination from the the transformer yard to the sub-station building. The Phase II investigation showed that sediments collected from MH-3 had 12.7 ppm of PCBs. The basement which usually gets flooded was not sampled. Con Edison should consider removing them as part of the planned IRM.

Transformer Area Stains: Transformer Moats were double pressure washed during the 1987 cleanup. Concrete core samples were required to determine the depth of PCB peneteration. The results should not be compared to soil cleanup levels which are based on multiple exposure scenarios. Wipe samples should be taken from these surfaces and compared to 1 µg/100cm^2. Alternatively, the transformer moats should be removed and disposed offsite as appropriate (which probably will have to be done any how considering the site's potential future use).

Transformer Fire: It has been pointed out to the Department that back in 1981 there was a big fire in the outside transformer yard. Include this incident in the Report where the site's history/ background is discussed. Unless otherwise indicated, the Department will assume that the fire involved transformers that contained PCBs. Since the PCBs can form Dioxins and Furans when subjected to high (fire) temperatures, some sampling will need to be done to

rule out their presence on the site. The NYSDOH requires that at least one composite sample be collected from locations of highest PCB concentrations and analyzed for polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs). The analytical detection levels must be well below the State required cleanup criteria of 1.0 µg/Kg (1.0 ppb) for 2378-TCDD equivalents.

OFFSITE SAMPLING

Adjacent homes: There are some ten homes bordering on the south side of the site. To evaluate any potential exposures, the NYSDOH recommends that a limited number of surface soil samples (top 3 inches below any vegetative cover) be collected in these residential backyards for PCB analysis. A few background soil samples should also be collected a few blocks away. An alternative to this sampling would be to obtain, evaluate, and incorporate into the Phase II report the results of PCB analysis on soil samples collected from some of the adjacent backyards by the County Health Department.

EASESS-3: This location adjacent to the fence showed 6.2 ppm of PCBs in the top 3 inches of the soil. The NYSDOH requires additional surface soil sampling on the opposite side of the fence to define the extent of PCB contamination in this area exceeding the 1 ppm cleanup criteria.

Echo Bay Sediments: The Marina property owners claim that they have found 6.2 ppm of PCBs in the sediments in wetlands between the Con Edison property and the Marina. Since this area was not sampled under the Phase II investigation, the Department wants Con Edison to sample this area and resolve this potential concern. Regarding the Phase II sediment sampling results, it does not appear that any of the samples was also tested for total organic carbon. Please ask for representative TOC analysis as well when you do additional sediment sampling. This information is needed to determine acceptable levels of PCBs in the bay sediments.

Drain Pipes: No water samples were collected from the drain pipes as the pipes were not discharging at the time. But, the pipes do discharge to the bay when the basement gets flooded. To determine if the pipes do continue to discharge PCBs into the bay, water samples from the pipes must be collected as and when possible.

IRM WORK PLAN

1. As stated above, additional sampling is required in several areas before the Department can consider the Phase II investigation complete. Based upon the results, some other areas may also need clean up.

2. Con Edison's proposed cleanup standards (10 ppm in soils and 1 $\mu g/100cm^2$. on soild surfaces) are not acceptable. Based on required clean up standards, additional areas of the site will require clean up. These areas (known and potential) requiring clean up need further sampling to delineate the extent of contamination

3. This additional sampling must be done and both the Phase II Report and the IRM Work Plan revised and approved by the Department before proceeding with any IRM.

4. The site and the associated work activities lie within a residential community and all necessary precautions must be taken to safeguard public health. The purpose of a Health And Safety Plan (HASP) is not only to protect the safety of the onsite personnel, but also to protect the surrounding community. For this reason, the NYSDOH requires that the following be added to the text summary of HASP in Chapter 4:

"The site specific health and Safety Plan (HASP) included in Appendix B has been designed to protect the health and safety of the onsite personnel as well as the surrounding community during the remedial activities and adherence to this HASP will minimize the possibility that the surrounding community will be injured or exposed to site-related contaminants during remedial activities.

The community Air Monitoring Plan (Attachment A of the HASP) requires real time air monitoring for volatile organic

compounds and particulate levels at the perimeter of each designated exclusion zone when activities are in progress. The community air monitoring plan is not intended for use in establishing action levels for respiratory protection of onsite workers. Rather, its intent is to provide a measure of protection for the downwind community from potential airborne contaminant releases as a direct result of work activities (i.e., excavation of soils). The action levels therein require work shutdown, increased monitoring, corrective actions to abate emissions, and/or emergency notifications. The plan also helps to set the negative record (i.e., that work activities did not spread contamination off-site through the air)."

5. State the following in Chapter 4:

"Prior to commencement of work activities, the local police, fire, and potential resue personnel will be notified and dvised of the remedial activities and the schedule of events."

Please call me if you have any questions on the above or would like to schedule a meeting with the Department to resolve any issue or concerns that you may have on the comments expressed in this letter. If not, please submit by November 15, 1993 a work plan and a schedule to carry out the additional sampling as described in this letter.

Sincerely,

Hari O. Agrawal, P.E.
Environmental Engineer

cc:
John Swartwout, BHSC, DHWR, Albany 7010
Jim Harrington, Technology Section, DHWR, Albany 7010
Mark VanValkenburg, NYSDOH, Albany

REFERENCE 5

New York State Department of Environmental Conservation

MEMORANDUM

TO: Regional Haz. Waste Remediation Engineers, Bureau Dirs. & Section Chiefs
FROM: Michael J. O'Toole, Jr., Director, Div. of Hazardous Waste Remediation
SUBJECT: DIVISION TECHNICAL AND ADMINISTRATIVE GUIDANCE MEMORANDUM: DETERMINATION OF SOIL CLEANUP OBJECTIVES AND CLEANUP LEVELS
DATE: JAN 24 1994

Michael J. O'Toole Jr

The cleanup goal of the Department is to restore inactive hazardous waste sites to predisposal conditions, to the extent feasible and authorized by law. However, it is recognized that restoration to prediisposal conditions will not always be feasible.

1. INTRODUCTION:

This TAGM provides a basis and procedure to determine soil cleanup levels at individual Federal Superfund, State Superfund, 1986 EQBA Title 3 and Responsible Party (RP) sites, when the Director of the DHWR determines that cleanup of a site to predisposal conditions is not possible or feasible.

The process starts with development of soil cleanup objectives by the Technology Section for the contaminants identified by the Project Managers. The Technology Section uses the procedure described in this TAGM to develop soil cleanup objectives. Attainment of these generic soil cleanup objectives will, at a minimum, eliminate all significant threats to human health and/or the environment posed by the inactive hazardous waste site. Project Managers should use these cleanup objectives in selecting alternatives in the Feasibility Study (FS). Based on the proposed selected remedial technology (outcome of FS), final site specific soil cleanup levels are established in the Record of Decision (ROD) for these sites.

It should be noted that even after soil cleanup levels are established in the ROD, these levels may prove to be unattainable when remedial construction begins. In that event, alternative remedial actions or institutional controls may be necessary to protect the environment.

2. BASIS FOR SOIL CLEANUP OBJECTIVES:

The following alternative bases are used to determine soil cleanup objectives:

(a) Human health based levels that correspond to excess lifetime

cancer risks of one in a million for Class A[1] and B[2] carcinogens, or one in 100,000 for Class C[3] carcinogens. These levels are contained in USEPA's Health Effects Assessment Summary Tables (HEASTs) which are compiled and updated quarterly by the NYSDEC's Division of Hazardous Substances Regulation;

(b) Human health based levels for systemic toxicants, calculated from Reference Doses (RfDs). RfDs are an estimate of the daily exposure an individual (including sensitive individuals) can experience without appreciable risk of health effects during a lifetime. An average scenario of exposure in which children ages one to six (who exhibit the greatest tendency to ingest soil) is assumed. An intake rate of 0.2 gram/day for a five-year exposure period for a 16-kg child is assumed. These levels are contained in USEPA's Health Effects Assessment Summary Tables (HEASTs) which are compiled and updated quarterly by the NYSDEC's Division of Hazardous Substances Regulation;

(c) Environmental concentrations which are protective of groundwater/drinking water quality; based on promulgated or proposed New York State Standards;

(d) Background values for contaminants; and

(e) Detection limits.

A recommendation on the appropriate cleanup objective is based on the criterion that produces the most stringent cleanup level using criteria a, b, and c for organic chemicals, and criteria a, b, and d for heavy metals. If criteria a and/or b are below criterion d for a contaminant, its background value should be used as the cleanup objective. However, cleanup objectives developed using this approach must be, at a minimum, above the method detection limit (MDL) and it is preferable to have the soil cleanup objectives above the Contract Required Quantitation Limit (CRQL) as defined by NYSDEC. If the cleanup objective of a compound is "non-detectable", it should mean that it is not detected at the MDL. Efforts should be made to obtain the best MDL detection possible when selecting a laboratory and analytical protocol.

The water/soil partitioning theory is used to determine soil cleanup objectives which would be protective of groundwater/drinking water quality for its best use. This theory is conservative in nature and assumes that contaminated soil and groundwater are in direct contact. This theory is based upon the ability of organic matter in soil to adsorb organic chemicals. The approach predicts the maximum amount of contamination that may remain in soil so that leachate from the contaminated soil will not violate groundwater and/or drinking water

standards.

(1) Class A are proved human carcinogens
(2) Class B are probable human carcinogens
(3) Class C are possible human carcinogens

This approach is not used for heavy metals, which do not partition appreciably into soil organic matter. For heavy metals, eastern USA or New York State soil background values may be used as soil cleanup objectives. A list of values that have been tabulated is attached. Soil background data near the site, if available, is preferable and should be used as the cleanup objective for such metals. Background samples should be free from the influences of this site and any other source of contaminants. Ideal background samples may be obtained from uncontaminated upgradient and upwind locations.

3. DETERMINATION OF SOIL CLEANUP GOALS FOR ORGANICS IN SOIL FOR PROTECTION OF WATER QUALITY

Protection of water quality from contaminated soil is a two-part problem. The first is predicting the amount of contamination that will leave the contaminated media as leachate. The second part of the problem is to determine how much of that contamination will actually contribute to a violation of groundwater standards upon reaching and dispersing into groundwater. Some of the contamination which initially leaches out of soil will be absorbed by other soil before it reaches groundwater. Some portion will be reduced through natural attenuation or other mechanism.

PART A: PARTITION THEORY MODEL

There are many test and theoretical models which are used to predict leachate quality given a known value of soil contamination. The Water-Soil Equilibrium Partition Theory is used as a basis to determine soil standard or contamination limit for protection of water quality by most of the models currently in use. It is based on the ability of organic carbon in soil to adsorb contamination. Using a water quality value which may not be exceeded in leachate and the partition coefficient method, the equilibrium concentration (Cs) will be expressed in the same units as the water standards. The following expression is used:

$$\text{Allowable Soil Concentration } Cs = f \times Koc \times Cw \quad \ldots . \quad (1)$$

Where: f = fraction of organic carbon of the natural soil medium.

Koc = partition coefficient between water and soil media. Koc can be estimated by the following equation:

log Koc = 3.64 - 0.55 log S

S = water solubility in ppm
Cw = appropriate water quality value from TOGS 1.1.1

Most Koc and S values are listed in the Exhibit A-1 of the USEPA Superfund Public Health Evaluation Manual (EPA/540/1-86/060). The Koc values listed in this manual should be used for the purpose. If the Koc value for a contaminant is not listed, it should be estimated using the above mentioned equation.

PART B: PROCEDURE FOR DETERMINATION OF SOIL CLEANUP OBJECTIVES

When the contaminated soil is in the unsaturated zone above the water table, many mechanisms are at work that prevent all of the contamination that would leave the contaminated soil from impacting groundwater. These mechanisms occur during transport and may work simultaneously. They include the following: (1) volatility, (2) sorption and desorption, (3) leaching and diffusion, (4) transformation and degradation, and (5) change in concentration of contaminants after reaching and/or mixing with the groundwater surface. To account for these mechanisms, a correction factor of 100 is used to establish soil cleanup objectives. This value of 100 for the correction is consistent with the logic used by EPA in its Dilution Attenuation Factor (DAF) approach for EP Toxicity and TCLP. (Federal Register/Vol. 55, No. 61, March 29, 1990/Pages 11826-27). Soil cleanup objectives are calculated by multiplying the allowable soil concentration by the correction factor. If the contaminated soil is very close (<3' - 5') to the groundwater table or in the groundwater, extreme caution should be exercised when using the correction factor of 100 (one hundred) as this may not give conservative cleanup objectives. For such situations the Technology Section should be consulted for site-specific cleanup objectives.

Soil cleanup objectives are limited to the following maximum values. These values are consistent with the approach promulgated by the States of Washington and Michigan.

1) Total VOCs $\leq$ 10 ppm.
2) Total Semi VOCs $\leq$ 500 ppm.
3) Individual Semi VOCs $\leq$ 50 ppm.
4) Total Pesticides $\leq$ 10 ppm.

One concern regarding the semi-volatile compounds is that some of these compounds are so insoluble that their Cs values are fairly large. Experience (Draft TOGS on Petroleum

Contaminated Soil Guidance) has shown that soil containing some of these insoluble substances at high concentrations can exhibit a distinct odor even though the substance will not leach from the soil. Hence any time a soil exhibits a discernible odor nuisance, it shall not be considered clean even if it has met the numerical criteria.

4. DETERMINATION OF FINAL CLEANUP LEVELS:

Recommended soil cleanup objectives should be utilized in the development of final cleanup levels through the Feasibility Study (FS) process. During the FS, various alternative remedial actions developed during the Remedial Investigation (RI) are initially screened and narrowed down to the list of potential alternative remedial actions that will be evaluated in detail. These alternative remedial actions are evaluated using the criteria discussed in TAGM 4030, Selection of Remedial Actions at Inactive Hazardous Waste Sites, revised May 15, 1990, and the preferred remedial action will be selected. After the detailed evaluation of the preferred remedial action, the final cleanup levels which can be actually achieved using the preferred remedial action must be established. Remedy selection, which will include final cleanup levels, is the subject of TAGM 4030.

Recommended soil cleanup objectives that have been calculated by the Technology Section are presented in Appendix A. These objectives are based on a soil organic carbon content of 1% (0.01) and should be adjusted for the actual organic carbon content if it is known. For determining soil organic carbon content, use attached USEPA method (Appendix B). Please contact the Technology Section, Bureau of Program Management for soil cleanup objectives not included in Appendix A.

Attachments

cc: T. Jorling
J. Lacey
M. Gerstman
A. DeBarbieri
E. Sullivan
T. Donovan
C. Sullivan
J. Eckl
R. Davies
R. Dana
C. Goddard
E. McCandless
P. Counterman
J. Davis
J. Kelleher
J. Colquhoun
D. Persson
A. Carlson
M. Birmingham
D. Johnson
B. Hogan
Regional Directors
Regional Engineers
Regional Solid and Haz. Waste Engrs.
Regional Citizen Participation Spec.

APPENDIX A

TABLE 1

Recommended soil cleanup objectives (mg/kg or ppm)

Volatile Organic Contaminants

Contaminant	Partition coefficient Koc	Groundwater Standards/ Criteria Cw ug/l or ppb.	a Allowable Soil conc. ppm. Cs	b ** Soil Cleanup objectives to Protect GW Quality (ppm)	USEPA Health Based (ppm) Carcinogens	Systemic Toxicants	CRQL (ppb)	*** Rec.soil Cleanup Objec (ppm)
Acetone	2.2	50	0.0011	0.11	N/A	8,000	10	0.2
Benzene	83	0.7	0.0006	0.06	24	N/A	5	0.06
Benzoic Acid	54*	50	0.027	2.7	N/A	300,000	5	2.7
2-Butanone	4.5*	50	0.003	0.3	N/A	4,000	10	0.3
Carbon Disulfide	54*	50	0.027	2.7	N/A	8,000	5	2.7
Carbon Tetrachloride	110*	5	0.006	0.6	5.4	60	5	0.6
Chlorobenzene	330	5	0.017	1.7	N/A	2,000	5	1.7
Chloroethane	37*	50	0.019	1.9	N/A	N/A	10	1.9
Chloroform	31	7	0.003	0.30	114	800	5	0.3
Dibromochloromethane	N/A	50	N/A	N/A	N/A	N/A	5	N/A
1,2-Dichlorobenzene	1,700	4.7	0.079	7.9	N/A	N/A	330	7.9
1,3-Dichlorobenzene	310 *	5	0.0155	1.55	N/A	N/A	330	1.6
1,4-Dichlorobenzene	1,700	5	0.085	8.5	N/A	N/A	330	8.5
1,1-Dichloroethane	30	5	0.002	0.2	N/A	N/A	5	0.2
1,2-Dichloroethane	14	5	0.001	0.1	7.7	N/A	5	0.1
1,1-Dichloroethene	65	5	0.004	0.4	12	700	5	0.4
1,2-Dichloroethene(trans)	59	5	0.003	0.3	N/A	2,000	5	0.3
1,3-dichloropropane	51	5	0.003	0.3	N/A	N/A	5	0.3
Ethylbenzene	1,100	5	0.055	5.5	N/A	8,000	5	5.5
113 Freon(1,1,2 Trichloro-1,2,2 Trifluoroethane)	1,230*	5	0.060	6.0	N/A	200,000	5	6.0
Methylene chloride	21	5	0.001	0.1	93	5,000	5	0.1
4-Methyl-2-Pentanone	19*	50	0.01	1.0	N/A	N/A	10	1.0
Tetrachloroethene	277	5	0.014	1.4	14	800	5	1.4
1,1,1-Trichloroethane	152	5	0.0076	0.76	N/A	7,000	5	0.8
1,1,2,2-Tetrachloroethane	118	5	0.006	0.6	35	N/A	5	0.6
1,2,3-trichloropropane	68	5	0.0034	0.34	N/A	80	5	0.4
1,2,4-Trichlorobenzene	670 *	5	0.034	3.4	N/A	N/A	330	3.4
Toluene	300	5	0.015	1.5	N/A	20,000	5	1.5
Trichloroethene	126	5	0.007	0.70	64	N/A	5	0.7
Vinyl chloride	57	2	0.0012	0.12	N/A	N/A	10	0.2
Xylenes	240	5	0.012	1.2	N/A	200,000	—	1.2

a. Allowable Soil Concentration Cs = f x Cw x Koc

b. Soil cleanup objective = Cs x Correction Factor (CF)

N/A is not available

* Partition coefficient is calculated by using the following equation:
log Koc = -0.55 log S + 3.64, where S is solubility in water in ppm.
All other Koc values are experimental values.

** Correction Factor (CF) of 100 is used as per TAGM #4046

*** As per TAGM #4046, Total VOCs < 10 ppm.

Note: Soil cleanup objectives are developed for soil organic carbon content (f) of 1% , and should be adjusted for the actual soil organic carbon content if it is known.

APPENDIX A (cont.)

TABLE 2

Recommended Soil Cleanup Objectives (mg/kg or ppm)

Semi-Volatile Organic Contaminants

Contaminant	Partition coefficient Koc	Groundwater Standards/ Criteria Cw ug/l or ppb.	a Allowable Soil conc. ppm. Cs	b ** Soil Cleanup objectives to Protect GW Quality (ppm)	USEPA Health Based (ppm) Carcinogens	Systemic Toxicants	CRQL (ppb)	Rec.soil Clnup Objct. (ppm)
Acenaphthene	4,600	20	0.9	90.0	N/A	5,000	330	50.0***
Acenaphthylene	2,056*	20	0.41	41.0	N/A	N/A	330	41.0
Aniline	13.8	5	0.001	0.1	123	N/A	330	0.1
Anthracene	14,000	50	7.00	700.0	N/A	20,000	330	50.0***
Benzo(a)anthracene	1,380,000	0.002	0.03	3.0	0.224	N/A	330	0.224 or MDL
Benzo(a)pyrene	5,500,000	0.002(ND)	0.110	11.0	0.0609	N/A	330	0.061 or MDL
Benzo(b)fluoranthene	550,000	0.002	0.011	1.1	N/A	N/A	330	1.1
Benzo(g,h,i)perylene	1,600,000	5	8.0	800	N/A	N/A	330	50.0***
Benzo(k)fluoranthene	550,000	0.002	0.011	1.1	N/A	N/A	330	1.1
bis(2-ethylhexyl)phthalate	8,706*	50	4.35	435.0	50	2,000	330	50.0***
Butylbenzylphthlate	2,430	50	1.215	122.0	N/A	20,000	330	50.0***
Chrysene	200,000	0.002	0.004	0.4	N/A	N/A	330	0.4
4-Chloroaniline	43 ****	5	0.0022	0.22	200	300	330	0.220 or MDL
4-Chloro-3-methylphenol	47	5	0.0024	0.24	N/A	N/A	330	0.240 or MDL
2-Chlorophenol	15*	50	0.008	0.8	N/A	400	330	0.8
Dibenzofuran	1,230*	5	0.062	6.2	N/A	N/A	330	6.2
Dibenzo(a,h)anthracene	33,000,000	50	1,650	165,000	0.0143	N/A	330	0.014 or MDL
3,3'-Dichlorobenzidine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dichlorophenol	380	1	0.004	0.4	N/A	200	330	0.4
2,4-Dinitrophenol	38	5	0.002	0.2	N/A	200	1,600	0.200 or MDL
2,6 Dinitrotoluene	198*	5	0.01	1.0	1.03	N/A	330	1.0
Diethylphthlate	142	50	0.071	7.1	N/A	60,000	330	7.1
Dimethylphthlate	40	50	0.020	2.0	N/A	80,000	330	2.0
Di-n-butyl phthalate	162*	50	0.081	8.1	N/A	8,000	330	8.1
Di-n-octyl phthlate	2,346*	50	1.2	120.0	N/A	2,000	330	50.0***
Fluoranthene	38,000	50	19	1900.0	N/A	3,000	330	50.0***
Fluorene	7,300	50	3.5	350.0	N/A	3,000	330	50.0***
Hexachlorobenzene	3,900	0.35	0.014	1.4	0.41	60	330	0.41
Indeno(1,2,3-cd)pyrene	1,600,000	0.002	0.032	3.2	N/A	N/A	330	3.2
Isophorone	88.31*	50	0.044	4.40	1,707	20,000	330	4.40
2-methylnaphthalene	727*	50	0.364	36.4	N/A	N/A	330	36.4
2-Methylphenol	15	5	0.001	0.1	N/A	N/A	330	0.100 or MD
4-Methylphenol	17	50	0.009	0.9	N/A	4,000	330	0.9
Naphthalene	1,300	10	0.130	13.0	N/A	300	330	13.0
Nitrobenzene	36	5	0.002	0.2	N/A	40	330	0.200 or MD
2-Nitroaniline	86	5	0.0043	0.43	N/A	N/A	1,600	0.430 or MD
2-Nitrophenol	65	5	0.0033	0.33	N/A	N/A	330	0.330 or MD
4-Nitrophenol	21	5	0.001	0.1	N/A	N/A	1,600	0.100 or MD
3-Nitroaniline	93	5	0.005	0.5	N/A	N/A	1,600	0.500 or MD
Pentachlorophenol	1,022	1	0.01	1.0	N/A	2,000	1,600	1.0 or MDL
Phenanthrene	4,365*	50	2.20	220.0	N/A	N/A	330	50.0**
Phenol	27	1	0.0003	0.03	N/A	50,000	330	0.03 or MD
Pyrene	13,295*	50	6.65	665.0	N/A	2,000	330	50.0**
2,4,5-Trichlorophenol	89*	1	0.001	0.1	N/A	8,000	330	0.1

a. Allowable Soil Concentration Cs = f x Cw x Koc
b. Soil cleanup objective = Cs x Correction Factor (CF)

N/A is not available
MDL is Method Detection Limit

* Partition coefficient is calculated by using the following equation:
log Koc = -0.55 log S + 3.64, where S is solubility in water in ppm. Other Koc values are experimental values.

** Correction Factor (CF) of 100 is used as per TAGM #4046

*** As per TAGM #4046, Total VOCs < 10 ppm., Total Semi-VOCs < 500 ppm. and Individual Semi-VOCs < 50 ppm.

**** Koc is derived from the correlation Koc = 0.63 Kow (Determining Soil Response Action Levels.....
EPA/540/2-89/057). Kow is obtained from the USEPA computer database 'MAIN'.

Note: Soil cleanup objectives are developed for soil organic carbon content (f) of 1%,
and should be adjusted for the actual soil organic carbon content if it is known.

APPENDIX A (cont.)

TABLE 3

Recommended soil cleanup objectives (mg/kg or ppm)

Organic Pesticides / Herbicides and PCBs

Contaminant	Partition coefficient Koc	Groundwater Standards/ Criteria Cw ug/l or ppb.	a Allowable Soil conc. ppm. Cs	b ** Soil Cleanup objectives to Protect GW Quality (ppm)	USEPA Health Based (ppm) Carcinogens	Systemic Toxicants	CRQL (ppb)	*** Rec.soil Clnup Objct (ppm)
Aldrin	96,000	ND(<0.01)	0.005	0.5	0.041	2	8	0.041
alpha - BHC	3,800	ND(<0.05)	0.002	0.2	0.111	N/A	8	0.11
beta - BHC	3,800	ND(<0.05)	0.002	0.2	3.89	N/A	8	0.2
delta - BHC	6,600	ND(<0.05)	0.003	0.3	N/A	N/A	8	0.3
Chlordane	21,305*	0.1	0.02	2.0	0.54	50	80	0.54
2,4-D	104*	4.4	0.005	0.5	N/A	800	800	0.5
4,4'-DDD	770,000*	ND(<0.01)	0.077	7.7	2.9	N/A	16	2.9
4,4'-DDE	440,000*	ND(<0.01)	0.0440	4.4	2.1	N/A	16	2.1
4,4'-DDT	243,000*	ND(<0.01)	0.025	2.5	2.1	40	16	2.1
Dibenzo-P-dioxins(PCDD)								
2,3,7,8 TCDD	1709800	0.000035	0.0006	0.06	N/A	N/A	N/A	N/A
Dieldrin	10,700*	ND(<0.01)	0.0010	0.1	0.044	4	16	0.044
Endosulfan I	8,168*	0.1	0.009	0.9	N/A	N/A	16	0.9
Endosulfan II	8,031*	0.1	0.009	0.9	N/A	N/A	16	0.9
Endosulfan Sulfate	10,038*	0.1	0.01	1.0	N/A	N/A	16	1.0
Endrin	9,157*	ND(<0.01)	0.001	0.1	N/A	20	8	0.10
Endrin keytone	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
gamma - BHC (Lindane)	1,080	ND(<0.05)	0.0006	0.06	5.4	20	8	0.06
gamma - chlordane	140,000	0.1	0.14	14.0	0.54	5	80	0.54
Heptachlor	12,000	ND(<0.01)	0.0010	0.1	0.16	40	8	0.10
Heptachlor epoxide	220	ND(<0.01)	0.0002	0.02	0.077	0.8	8	0.02
Methoxychlor	25,637	35.0	9.0	900	N/A	400	80	***
Mitotane	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Parathion	760	1.5	0.012	1.2	N/A	500	8	1.2
PCBs	17,510*	0.1	0.1	10.0	1.0	N/A	160	1.0(Surfac 10(sub-sur
Polychlorinated dibenzo-furans(PCDF)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silvex	2,600	0.26	0.007	0.7	N/A	600	330	0.7
2,4,5-T	53	35	0.019	1.9	N/A	200	330	1.9

a. Allowable Soil Concentration Cs = f x Cw x Koc

b. Soil cleanup objective = Cs x Correction Factor (CF)

N/A is not available

* Partition coefficient is calculated by using the following equation: log Koc = -0.55 log S + 3.64, where S is solubility in water in ppm. All other Koc values are experimental values.

** Correction Factor (CF) of 100 is used as per TAGM #4046

*** As per TAGM #4046, Total Pesticides < 10 ppm.

Note: Soil cleanup objectives are developed for soil organic carbon content (f) of 1% (5% for PCBs as per PCB guidance document), and should be adjusted for the actual soil organic Carbon content if it is known.

APPENDIX A Rev. 12/93

TABLE 4

Recommended Soil Cleanup Objectives (mg/kg or ppm) for Heavy Metals

Contaminants	Protect Water Quality ppm	Eastern USA Background ppm	* CRDL mg/kg or ppm	***** Rec.soil Clnup Objct. (ppm)
Aluminum	N/A	33,000	2.0	SB
Antimony	N/A	N/A	0.6	SB
Arsenic	N/A	3-12 **	0.1	7.5 or SB
Barium	N/A	15-600	2.0	300 or SB
Beryllium	N/A	0-1.75	0.05	0.16(HEAST) or SB
Cadmium	N/A	0.1-1	0.05	1 or SB
Calcium	N/A	130 - 35,000 **	50.0	SB
Chromium	N/A	1.5-40 **	0.1	10 or SB
Cobalt	N/A	2.5-60 **	0.5	30 or SB
Copper	N/A	1-50	0.25	25 or SB
Cyanide	N/A	N/A	0.1	***
Iron	N/A	2,000 - 550,000	1.0	2,000 or SB
Lead	N/A	****	0.03	SB****
Magnesium	N/A	100 - 5,000	50.0	SB
Manganese	N/A	50 - 5,000	0.15	SB
Mercury	N/A	0.001-0.2	0.002	0.1
Nickel	N/A	0.5-25	0.4	13 or SB
Potassium	N/A	8,500 - 43,000 **	50.0	SB
Selenium	N/A	0.1-3.9	0.05	2 or SB
Silver	N/A	N/A	0.1	SB
Sodium	N/A	6,000 - 8,000	50.0	SB
Thallium	N/A	N/A	0.1	SB
Vanadium	N/A	1-300	0.5	150 or SB
Zinc	N/A	9-50	0.2	20 or SB

Note: Some forms of metal salts such as Aluminum Phosphide, Calcium Cyanide, Potassium Cyanide, Copper cyanide, Silver cyanide, Sodium cyanide, Zinc phosphide, Thallium salts, Vanadium pentoxide, and Chromium (VI) compounds are more toxic in nature. Please refer to the USEPA HEASTs database to find cleanup objectives if such metal salts are present in soil.

SB is site background
N/A is not available

* CRDL is contract required detection limit which is approx. 10 times the CRDL for water.

** New York State backgrond

*** Some forms of Cyanide are complex and very stable while other forms are pH dependent and hence are very unstable. Site-specific form(s) of Cyanide should be taken into consideration when establishing soil cleanup objective.

**** Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or suburban areas or near highways are much higher and typically range from 200-500 ppm.

*****Recommended soil cleanup objectives are average background concentrations as reported in a 1984 survey of reference material by E. Carol McGovern, NYSDEC.

REFERENCE 6

New York State Department of Environmental Conservation
Region 3
21 South Putt Corners Road
New Paltz, NY 12561-1696
914-255-5453

Received
3/8/94 KAK

February 28, 1994

Dr. Karel A. Konrad, Manager
Waste Programs
Environmental Affairs
Consolidated Edison Company
4 Irving Place
New York, NY 10003

Dear Mr. Konrad:

Re: Echo Avenue Site, Code No. 360016

At your request, representatives from the New York State Departments of Environmental Conservation (NYSDEC) and Health (NYSDOH) met with you February 15, 1994 in New Paltz to clarify their comments on your Phase II Report.

The purpose of this letter is to confirm the discussion and further clarify NYSDEC's position on issues you raised at the meeting. As requested, I am also providing you with copies of the correspondence the NYSDEC has had with representatives of Echo Bay Marina.

1. As explained by Mark VanValkenburg of the NYSDOH at the meeting, the EPA clean up criteria (of 10 mg of PCBs/1 Kg of surface soils and 10µg of PCBs/100 cm^2 of soild surface) applied only to spills that occured prior to 1987, and is not applicable in this case. The site being located in a residential area should be cleaned to the NYSDOH specified criteria of 1mg/Kg for surface soils and 1µg/100 cm^2 for solid surfaces.

2. The building would at Con Edison's option be either cleaned to the above specified criteria of 1µg/100 cm^2 or because of its dilapidated condition demolished and the debris disposed off as necessary.

3. The potential Dioxin issue (as a result of a 1981 transformer fire) was resolved to the satisfaction of the NYSDOH on the premise that Con Edison would provide information to the fact that the transformer that was burnt contained only 77ppb of PCBs - a level considered too low to cause concern for dioxins and furans. Con Edison will

revise the Phase II Report to address this concern.

4. Con Edison agreed to clean transformer moats to 1µg/100 cm^2 or remove and dispose offsite as appropriate.

5. Con Edison agreed to do onsite sampling as specified in DEC's October 19, 1993 letter from Hari Agrawal to Karel Konrad.

6. Con Edison agreed to excavate all areas that contain greater than 1ppm of PCBs as indicated by Phase II sampling or any further sampling required herein. All excavated areas will be backfilled with 2ft of clean fill.

7. Con Edison will undertake all health and safety precautions, fugitive dust suppression, and air monitoring as specified by DEC and DOH. In this regard,, DEC TAGM HWR-89-4031 is attached as requested.

8. Sediment sampling: Based on finding of PCBs in sediments by the Marina property owners in the wetland area adjoining the Con Edison property, the NYSDEC believes that this area should be sampled and any contamination found above acceptable risk levels be removed.

While it is true that this area has in the past received several oil spills, the NYSDEC is not aware if any of these oils contained any PCBs. However, we do know that PCBs were disposed at the Con Edison site. The PCBs in sediments, therefore, likely came from the Con Edison property. Since this area was not sampled in the Phase II or any time in the past, the NYSDEC would like you to sample this area. Once the sampling is done, the NYSDEC can decide upon the acceptable level of risk and the required level of clean up.

9. Drains sampling: The NYSDEC's intent in sampling these drains, obviously, is to determine if these drains are discharging PCBs into the Echo Bay. Since this is an inactive site, it is not the violation of any particular standard alone (0.001 µg/l for surface water) that the NYSDEC is concerned about, but the overall impact of any discharge on the human health and/ or environment which in this case includes aquatic life. The drain samples should therefore be analyzed per ASP low method detection.

10. Duct Banks: The NYSDEC recommends that you consider removing these ducts completely as they likely serve as potential pathways for transporting residual soil contamination from the yard to the basement which sometimes gets flooded and can further spread the contamination.

At the meeting you proposed, due to cost considerations, plugging the drains and duct banks. These measures do not appear to be sound and adequate. Plugging the drains is likely to cause flooding and discharge problem somewhere else. Plugging the ducts instead of removing them would eventually force the contamination already trapped in them to move somewhere else.

I trust the above resolves any remaining issues you may have had. The interim remedial measures discussed above should be implemented as soon as possible. As I stated before, the NYSDEC is anxious to resolve the class 2a status of this site. Please call me if you still have any questions or concerns; if not, the Department expects you to revise the Phase II reoprt and the IRM work plan and resubmit them with a firm schedule by March 18, 1994.

Sincerely,

Hari O. Agrawal, P.E.
Environmental Engineer

cc (w/o encls.):
John Swartwout, BHSC, DHWR, Albany 7010
Mark VanValkenburg, NYSDOH, Albany
Louis Oliva, DEE, Tarrytown
Peter Doshna, Spills Mgt.

enclosures:
1. Copy of July 3, 1993 letter from Dr. Ian Weber to J.Tartaglia.
2. Fax letter dated December December 28, 1993 from John Tartaglia to "Harry Agarwal" attaching results of sediment samples collected November 1993 by Marina owner Frank Mancuso.
3. Letter dated January 31, 1994 from John Tartaglia to

"Harry Agarwal" enclosing the same sampling results as above, but also including lab certification.
4. NYSDEC's February 10, 1994 letter from Hari Agrawal to John Tartaglia.
5. February 20, 1994 letter from Ian Weber to Hari Agrawal.
6. NYSDEC TAGM HWR-89-4031

REFERENCE 7

Con Edison
Consolidated Edison Company of New York, Inc.
4 Irving Place, New York, N.Y. 10003

BY FACSIMILE AND
AND CERTIFIED MAIL

March 17, 1994

Mr. Hari O. Agrawal, P.E.
Environmental Engineer
New York State Department of
Environmental Conservation - Region 3
21 South Putt Corners Road
New Paltz, New York 12561-1696

Subject: Echo Avenue Site
Site No. 3-60-016

Dear Mr. Agrawal:

This is in response to your February 28, 1994 letter, which we received on March 9, 1994. As explained below, Con Edison cannot submit a revised Phase II report and IRM work plan with a firm schedule on March 18, 1994, as you requested. Furthermore, our records of certain conclusions of the February 15, 1994 meeting differ from those presented in your letter. The latter is summarized in Attachment 1.

The NYSDEC comments contained in your October 19, 1993 letter and discussed in the February 15, 1994 meeting require Con Edison to perform certain additional sampling and to incorporate results of that sampling into the Phase II report. Therefore, a sampling work plan first needs to be prepared, approved by NYSDEC, and then implemented before the Phase II report can be revised. Furthermore, the introduction of the new, order of magnitude lower cleanup criteria for the site by NYSDEC and NYSDOH removes, in Con Edison's view, the potential additional cleanup effort from the realm of simple IRM actions. For example, the NYSDEC/DOH comments suggest that, in lieu of cleaning concrete down to the new cleanup levels, Con Edison may consider demolition of the substation building and transformer vaults. Actions of this magnitude require a detailed planning and allocation of financial resources and cannot be decided upon within a few days or weeks. As we explained to you at the meeting, we did not even expect to have demolition cost estimates available for another 4-5 weeks; at that time we will initiate internal discussions regarding the demolition of the building.

In view of the above, we suggest that the next effort be directed towards the completion of sampling at the site, the primary subject of the Administrative Order on Consent between NYSDEC and Con Edison. While this effort proceeds, Con Edison will also continue with its evaluation of various options for additional cleanup/demolition actions and, if and when appropriate, it will propose such action(s) to NYSDEC.

In order to proceed with the next sampling effort, we have instructed Lawler, Matusky & Skelly Engineers (LMS) to prepare a draft work plan for this sampling, so that the work plan can be submitted to NYSDEC for review no later than April 8, 1994. Below, we summarize the manner in which we intend to address the additional sampling described in the NYSDEC October 19, 1993 comments and clarified by NYSDEC and NYSDOH during the February 15, 1993 meeting.

- Adjacent Homes:

  Surface (0 - 3 inches) soil samples will be collected around sampling location EASESS-3 with the objective to delineate the area that contains PCBs in excess of 1 ppm. During this sampling at least one soil sample will be collected on the private property located immediately across the property fence line.

  In addition, we will obtain, evaluate and incorporate into Phase II report results of PCB sampling conducted by the Westchester Department of Health on the private properties adjacent to the Echo Avenue Site.

- Water Samples from Drain Pipes:

  Water samples will be collected and analyzed for PCBs from those drain pipes that will be observed to discharge water during rainfall events. The sump pump that used to pump groundwater collected in the basement of the substation building is no longer operational.

- Echo Bay Sediments:

  A composite Echo Bay sediment sample will be collected from three locations approximately coinciding with the three 1992 sediment sampling locations that indicated the greatest concentrations of PCBs. This composite sample will be analyzed for total organic carbon.

  As we indicated during the February 15, 1994 meeting, Con Edison opposes to perform a sediment/soil sampling within the wetland area located north of the Echo Avenue Site property fence (the wetland area sampled for PCBs by the marina owner). The area has a history of oil spills from

the pipes extending between the dock located east of this wetland area and the oil dealer property located north of the Echo Avenue Site. Although the above-ground oil storage tanks that used to be installed on the oil dealer's property were dismantled and removed in the late 1980's, NYSDEC responded to an oil spill from the oil dealer's pipes onto the subject wetland as recently as in late May or early June 1993. To our knowledge, this spill has never been remediated, and the area still bears significant oil stains.

In comparison, there have been no signs of any oil spills on the Echo Avenue Site in the immediate vicinity of the subject wetland. In addition, groundwater monitoring well MW-4 installed on the Echo Avenue Site adjacent to the wetland has never indicated any presence of oil, and all water samples collected from this well indicated non-detectable PCBs. Thus, it is far more likely that the PCBs detected in the sediments within the wetland had originated from the heating oil contained in the oil dealer pipes rather than from Con Edison's Echo Avenue Site. Heating oil which traditionally has been a mix of virgin and waste oils used to contain PCBs.

In order to confirm that no PCBs have been and are not released from the Echo Avenue site onto the subject wetland, the work plan will include the installation of four soil borings along the property fence on the Echo Avenue Site, immediately adjacent to the wetland. The borings would be located as close to the property fence as the drilling equipment allows. At each boring location, soil samples will be collected in two-foot vertical intervals from surface down to the low water elevation (as determined by observations in well MW-4). These soil samples will be analyzed for total petroleum hydrocarbons and PCBs.

- Wipe Sampling of Transformer Motes:

  Although, the additional sampling as performed under the Consent Order with NYSDEC and reported in the Phase II report included only core samples obtained from oil-stained areas of the transformer motes, wipe samples from the moats were collected after the moats were cleaned in 1985 and 1987. The results of those wipe samples are contained in Table 2-6 of Con Edison's February 1988 report to NYSDEC. All those wipe samples indicated less than 1 ug/100 cm^2 PCBs. Thus, we conclude that no additional wipe samples need to be collected from the transformer moats at this time.

- 1981 Transformer Fire/ Sampling for Dioxin:

  The 1981 transformer fire incident will be incorporated into the site's history section of the Phase II report.

  As we explained during the February 15, 1993 meeting, we believe that the requested sampling for dioxin is not necessary. The transformer that was on fire in 1981 was the 12000 KVA transformer (Serial No. 3195692) located in Bank No. 2. As indicated in Con Edison's Astoria Laboratory report presented herein as Attachment 2, this transformer was sampled on August 20, 1979. The analytical report File No SA-747 dated September 6, 1979, indicates (Item No. 17) the PCB concentration for this transformer to be greater than 50 ppm but less than 500 ppm. In 1979, this type of reporting of PCB results for electrical equipment was customary at Con Edison. However, the Astoria Laboratory, even in 1979, determined the actual PCB concentrations in oil samples collected from electrical equipment. The actual PCB concentration (69 ppm) as it was determined by the Astoria Laboratory for the subject 12000 KVA transformer in 1979 is shown on the second page of Attachment 2. The second page contains a printout obtained during a 1984 retrieval of this information from the Astoria Laboratory data base.

The work plan that is now being prepared by LMS will, to the maximum extent possible, utilize and refer to the documents (such as the Health and Safety Plan) that were part of the already approved work plan for the original Phase II sampling conducted at the site. Similarly, to the extent possible, we plan to use the subcontractors (drilling and analytical services) previously approved by NYSDEC.

Please contact me if you have any questions regarding the subject of this letter.

Very truly yours,

Karel A. Konrad, Ph. D.
Manager, Waste Programs
Environmental Affairs

cc: R. T. Keegan (Con Edison)
J. Swartwout (NYSDEC)
J. Harrington (NYSDEC)
M. VanValkenburg (NYSDOH)
L. P. Oliva (NYSDEC)
K. A. Wright (LMS)

REFERENCE 8

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

New York, New York

PHASE II
INVESTIGATIONS AT ECHO AVENUE SITE

REPORT ON
SAMPLING REQUIRED IN
REVISED ADDENDUM No. 2
FINAL WORK PLAN

Volume I - Report
Appendices A and B

September 1995

(Revised April 1996)

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

Project No. 115-155

REFERENCE 9

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

New York, New York

REPORT ON SAMPLING SOIL AND SEDIMENT IN MUDFLAT AREA ADJACENT TO ECHO AVENUE SITE

Volume I - Report
Appendices A and B

September 1995

(Revised April 1996)

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

REFERENCE 10

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

New York, New York

PHASE II
INVESTIGATIONS AT ECHO AVENUE SITE

SECOND REPORT ON
SAMPLING REQUIRED IN
REVISED ADDENDUM No. 2
FINAL WORK PLAN

January 1996

(Revised April 1996)

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

Project No. 115-155

REFERENCE 11

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

New York, New York

PHASE II
INVESTIGATIONS AT ECHO AVENUE SITE

REPORT ON
SAMPLING REQUIRED IN
ADDENDUM No. 3
FINAL WORK PLAN

January 1996

(Revised April 1996)

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

Project No. 115-155

REFERENCE 12

New York State Department of Environmental Conservation
Region 3, Division of Hazardous Waste Remediation
21 South Putt Corners Rd., New Paltz, NY 12561-1696
Telephone: (914) 256-3000 FAX: (914) 255-4238

Michael D. Zagata
Commissioner

March 18, 1996

Dr. Karel Konrad, Acting Director
Consolidated Edison Company
30-01 20th Avenue
Building 136
Long Island City, New York 11105

RE: COMMENTS ON REVISED ADDENDUM NO. 2 AND SECOND REPORT ON ADDENDUM NO.3 DATED JANUARY 1996, AND ECHO BAY MUDFLAT/SEDIMENT/ SOIL AREA SAMPLING

Dear Dr. Konrad:

The following are the comments for the said reports:

A. Addendum No. 2

1. Page 1-2. When will the concrete chips be collected from the manholes for sampling.

2. Page 3-2. Please provide the name of the matrix that was sampled (soil, sediment or water).

3. Figure 3-2. Please label the sample locations (EADP-1, 2, etc.) as you did on page 3-2.

4. Page 4-1, section 4.2, 4th, 5th and 6th sentences. Please explain, its not clear what is being said. Who flagged this data, the lab or the consultant ?

5. Page 4-1, section 4.1. This section met prior approval in the past from the DEC. This section is acceptable.

B. Addendum No. 3

6. Page 1-2, 2nd paragraph, last sentence. Please include those "other" sampling activities (forth and fifth bullets on page 1-1), and when do you plan to execute these activities.

7. Page 4-1, section 4.1. Please state weather the sample taken from the pit was soil (if pit had no bottom) or sediment (if pit had constructed bottom, wood, concrete etc.), it cannot be both. Sample results show soil/sediment above the site clean up levels of 1 ppm for PCBs. Area requires remediation.

8. Page 4-1, section 4.2. Please use the term sediment inplace of "Dirt" for this report. Sediment requires remediation.

9. Page 4-1, section 4.3. PCBs ranged from 4.2 ppm to 46.6 ppm which is above the site clean up level for PCBs. Tunnel area requires remediation.

10. Both work plan reports should include a conclusion section that perscribes any remedial action that needs to take place for each area of concern. That way the DEC can make comments not only on the reports findings, but on anyproposed actions as well. This creates less paperwork and expidites the process. In the future please provide this type of section to any reports you submit to the DEC.

C. Mudflat/Soil (Marsh)

11. The identified mudflat is a functioning intertidal and high marsh which is protected under Article 25 of the Environmental Conservation Law (ECL). Since this area was well sampled no further sampling is required. Even though the PCB mudflat (marsh) soil concentrations approached 5 ppm, the DECs Division of Marine Resources believes that this area does not require any remediation.

The reason for this is that the PCBs are probably well-bound to the highly organic soils in the marsh, hence it is not readily bioavailable. There is a potential for some uptake of the PCBs by the marsh grasses, but the impacts (e.g., future decomposition of the marsh grasses and re-release of the PCBs or ingestion of marsh grasses by wildlife species) this may have on fish and wildlife species is unknown, but this is a minimal route for exposure. If this marsh is disturbed (removal of contaminated soil) it is unlikely that it would ever function as it did again.

D. Mudflat/Sediment (Intertidal Area)

12. With respect to the intertidal sediment samples which were collected, the greatest concern is for sample EMAFSD-9 (0"- 6") with PCBs at 232 ppm. This material must be removed as well as further delineated. At those levels, the sediments are causing toxicity to benthic organisms and are also bioavailable for uptake and further bioaccumulation up the food web.

In 1986 the Division of Marine Resources (DMR) tested eels for PCBs within 2000 feet from this intertidal area. High levels of PCBs were found in the eels. Eels stay in one harbor for most of their lives therefore the source of contamination must be in the harbor. DMR also tested the sediments in the vicinity of where the eels were collected and the PCBs in these sediments were less than 1 ppm. The PCBs in this area contributed only a minor amount of PCBs to these eels. It is believed that the PCB contaminated sediments adjacent to the Con Edison facility contributed heavily to the PCB concentration in these eels.

I would like to meet with you to discuss these comments and the plans Con Edison has for sampling, and future remedial work on this site. Please call me to set up our meeting (914/256-3153). Thank you.

Sincerely,

Robert Smith/HWR

cc: R. Pergadia
K. Wright (LMS Engineers)
A. Klauss
K. Chytalo (Division of Marine Resources)
C. Torras (WCHD)
S. Swanston (DEE)
J. Olm (NYSDOH)

REFERENCE 13

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
New York, New York

PHASE II

INVESTIGATIONS AT ECHO AVENUE SITE

ADDITIONAL SAMPLING AND REMEDIATION WORK PLAN

July 1996

LMSE-96/0340&115-155

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

REFERENCE 14

Con Edison
Consolidated Edison Company of New York, Inc.
31-01 20th Avenue, L.I.C., New York 11105-2048

May 20, 1998

By facsimile and regular mail

Robert Smith
NYSDEC - Region 3
Division of Hazardous Waste Remediation
21 South Putt Corners Road
New Paltz, NY 12561-1696

Subject: **Administrative Order of Consent, W#05131-91-02**
Echo Avenue Site (Site No. 360016)

Dear Mr. Smith:

This responds to your letter of April 2, 1998, in which you requested that Consolidated Edison Company of New York, Inc. ("Con Edison") provide the NYSDEC with a proposed sampling plan for the two slabs (transformer yard/substation building) located at the above-referenced site. You also requested that Con Edison review its available historical construction drawings for the site and provide its findings to the NYSDEC. On April 16, 1998, Con Edison and Lawler, Matusky & Skelly Engineers LLP (LMS), Con Edison's project consultant, met with you to discuss the proposed sampling/remedial approach for the above slabs and the initial results of the site drawings review. This letter provides a draft sampling/remedial work plan for the substation building and transformer yard slabs, as discussed at the meeting, and the final results of the site drawings review.

1. **Sampling/Remedial Work Plan for Transformer Yard Slab and Substation Building Slab**

Because an extensive number of underground structures (drain pipes, catch basins, electrical/grounding boxes, etc.) are present in both the transformer yard and substation building slabs, the sampling and remedial efforts for these areas of the site are fairly complex in nature, significantly more so than initially anticipated. All of these underground structures require sampling and possibly removal (if they are contaminated with PCBs above the NYSDEC's specified cleanup objectives for the site). In addition, NYSDEC has requested that core samples of the soil beneath the slabs be collected and analyzed for PCBs. Con Edison proposes the following:

- Remove both the transformer yard and substation building slabs and any associated underground structures entirely and dispose of the concrete from the slabs and underground structures in accordance with the sampling analytical data.

- Collect samples from the soil beneath the slabs at a rate of one sample for every 1000 feet^2 of surface area. These delineation samples will be collected from 0-2 inches below grade and analyzed for PCBs by the on-site mobile laboratory. Wall samples will also be collected (if possible) from the slab excavations and analyzed by the mobile laboratory. Figures 1 and 2 show the locations of these samples for the substation building and transformer yard slabs, respectively.
- If all delineation samples collected beneath the slabs contain total PCBs $\leq$ 1 mg/kg (cleanup objective for soils $\leq$ 2 feet deep), five split samples from the floor and four samples from the walls of each slab excavation will be sent to the off-site laboratory for confirmatory analyses.
- If the mobile laboratory analyses indicate that one or more of the delineation soil samples from underneath the slabs contain total PCBs above 1 mg/kg, the soil in the affected area will be excavated and post-remediation samples will be collected at a rate of one sample for every 200 feet^2 of surface area and analyzed by the mobile laboratory. Wall samples will also be collected (if possible) from the slab excavations and analyzed by the mobile laboratory at a rate of one sample for every 25 linear feet. Figures 3 and 4 show the potential locations of the post-remediation samples in the substation building and transformer yard slab areas, respectively.
- Confirmatory post-remediation samples will be analyzed by the off-site laboratory at a rate of one out of every ten samples analyzed by the mobile laboratory. At a minimum, five floor and four wall samples from each slab excavation will be sent to the off-site laboratory.
- Actual locations of delineation, post-remediation, and confirmatory samples may change depending on field conditions.
- All confirmatory samples (delineation and post-remediation) will be data validated.
- If the confirmatory samples (delineation or post-remediation) indicate that the soil beneath any of the two slabs contains total PCBs $\leq$ 1 mg/kg (in the 0-2 foot below grade interval) or $\leq$ 10 mg/kg (in the >2 foot below grade interval), the excavations will be backfilled with certified clean fill.
- If the initial delineation results for the soil beneath the substation building slab indicate total PCB levels above 1 mg/kg, Con Edison may decide to remove the soil to a depth of at least two feet below grade and take post-remediation samples as described above. If the total PCBs levels in the confirmatory post-remediation samples are $\leq$ 10 mg/kg, Con Edison will backfill the excavation with at least two feet of certified clean fill.
- Con Edison may decide to use the same remedial approach for the soil beneath the transformer yard slab. Alternatively, if the initial delineation results for the soil beneath the transformer yard slab indicate total PCBs levels $\leq$ 10 mg/kg, Con Edison may elect to place at least two feet of certified clean fill on top of the soil rather than excavate.
- Once remediation is completed, both the transformer yard and substation building slab areas will be graded so that no mounding occurs. Care will be taken to insure that in areas where a two-foot cover was placed, at least that much cover remains in

place after grading. Hay, wood chips, or seed will be spread on the excavated areas after backfilling to prevent soil erosion and dust migration.

- Any soil excavated from the slab areas will be disposed of at a permitted facility in accordance with the analytical data.

As discussed during the April 16, 1998 project meeting, prior to implementation of the above work plan, Con Edison needs to complete the following:

1. Retain a demolition contractor; and
2. Obtain a variance to remove the asbestos beneath the two catch basins in the substation building slab. (This asbestos was discovered during the remedial effort at the slab in early February and March 1998).

It is anticipated that it will take Con Edison at least three months to complete the above tasks. It is also anticipated that it will take approximately three weeks to remove the slabs and upwards of four weeks to complete the sampling. Completion of the sampling in four weeks assumes that only one soil excavation effort is needed beneath each slab to achieve the cleanup objectives.

2. Site Drawings Review Results

Con Edison has completed its review of the site drawings on file with its Property Records Department. As a result, one previously unknown subsurface structure has been identified. This structure is a well that is shown at the west corner of the transformer yard on Drawing No. B-48276, Outdoor Transformer Station Test Borings, Westchester Lighting Co., New Rochelle, NY (date unknown). A copy of the drawing is attached. The location of this well, which appeared to have been buried under the slab/retaining wall, has not been verified to date. Con Edison will investigate the existence of this well during the transformer yard slab demolition. If the well is found, a groundwater sample will be collected from the well and analyzed for the presence of PCBs using NYSDEC Analytical Services Protocol (ASP) Method 95-6. If no evidence of site impact is determined, the well will be closed pursuant to NYSDEC guidance on well abandonment.

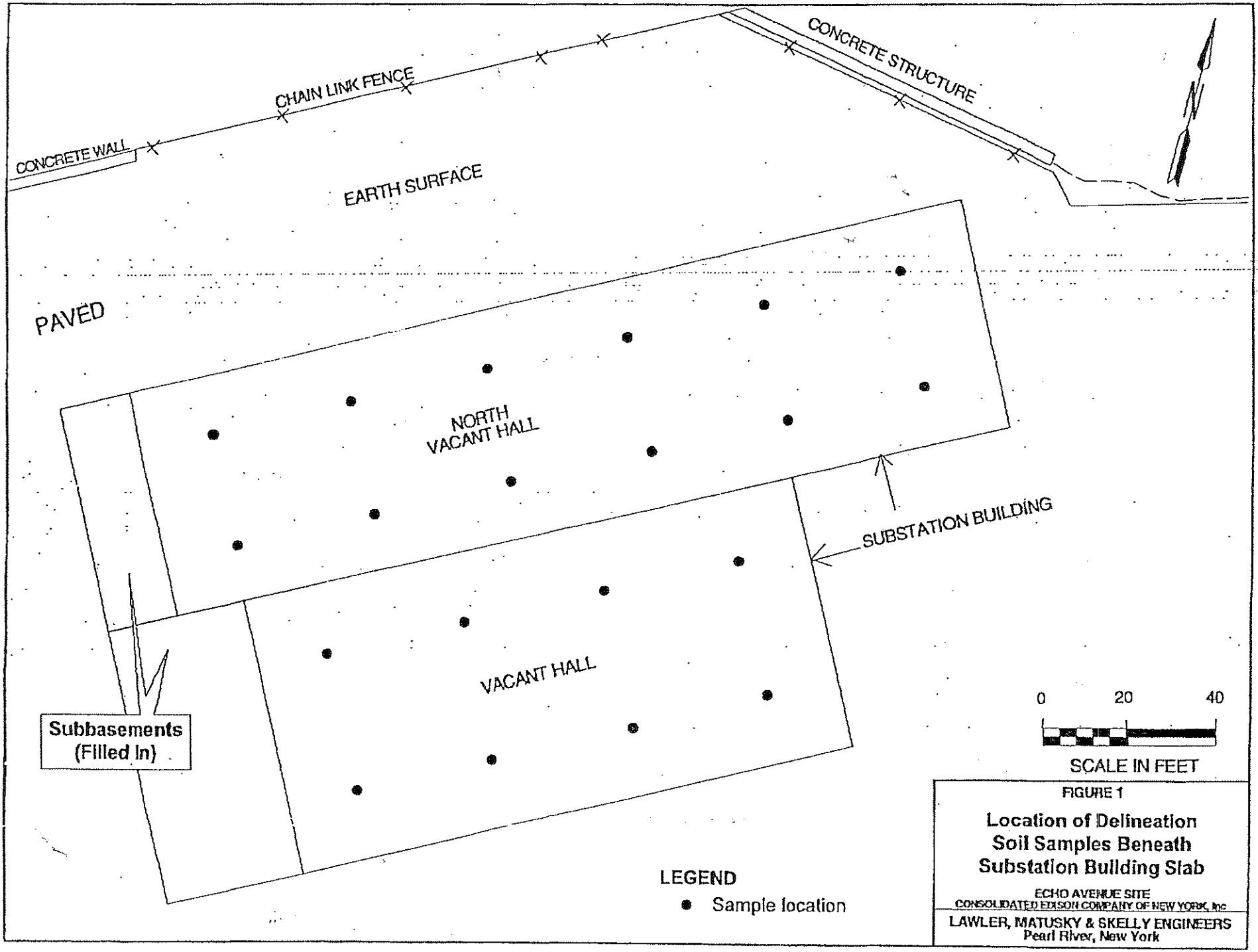
If you have any questions concerning this project, please do not hesitate to call me at (718) 204-4292 or Yelena Skorobogatov at (718) 204-4205.

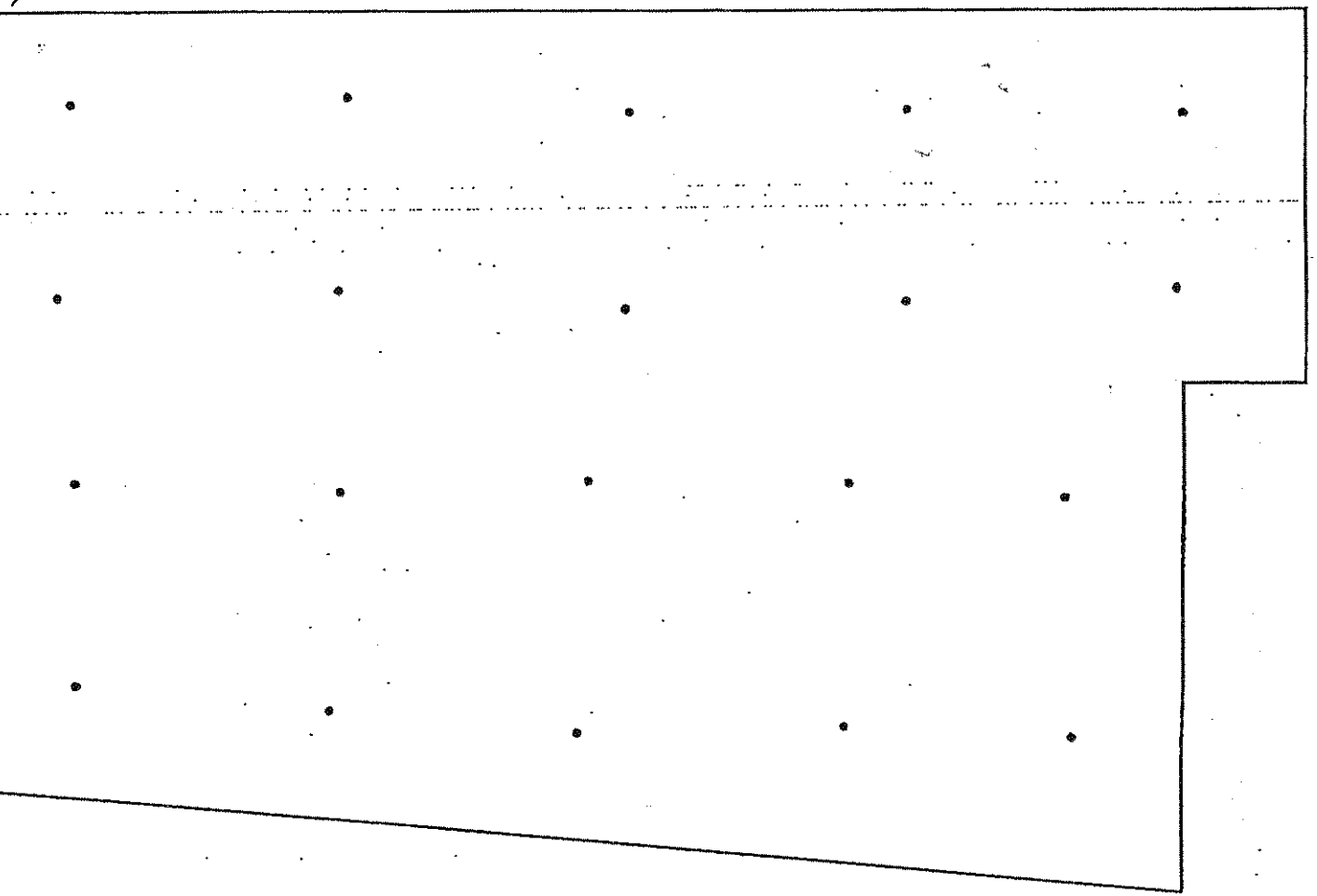
Sincerely,

Troy Meyer
Director
Remediation

Encl.

cc: Yelena Skorobogatov, Con Edison
Michael A. Wilcken, Con Edison
Karen Wright, LMS





25 ft 0 25 ft

SCALE
1 in. = 25 ft

• Sample location

/115155scans.dgf

FIGURE 2

Location of Delineation Soil Samples Beneath Transformer Yard Slab

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

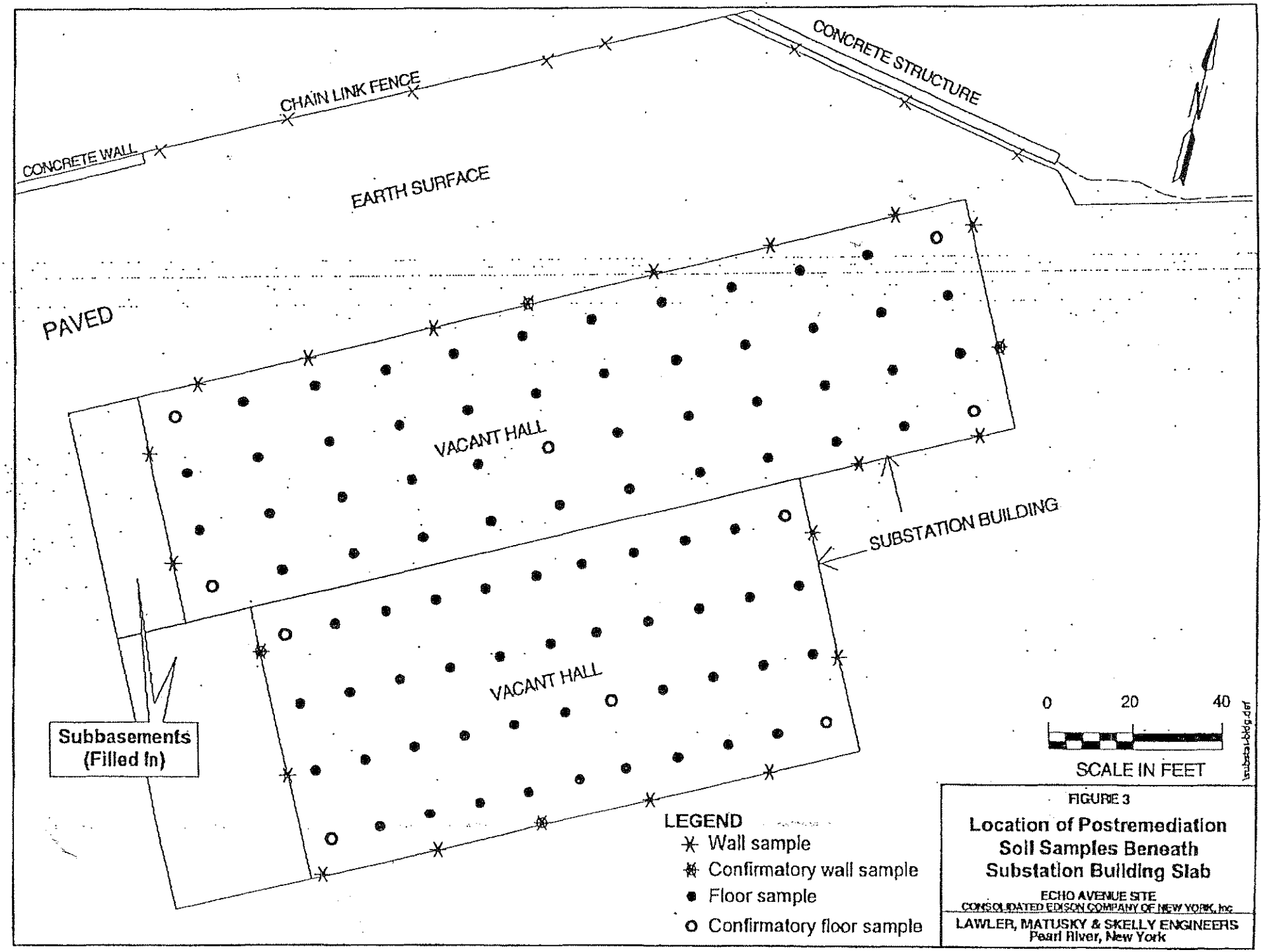
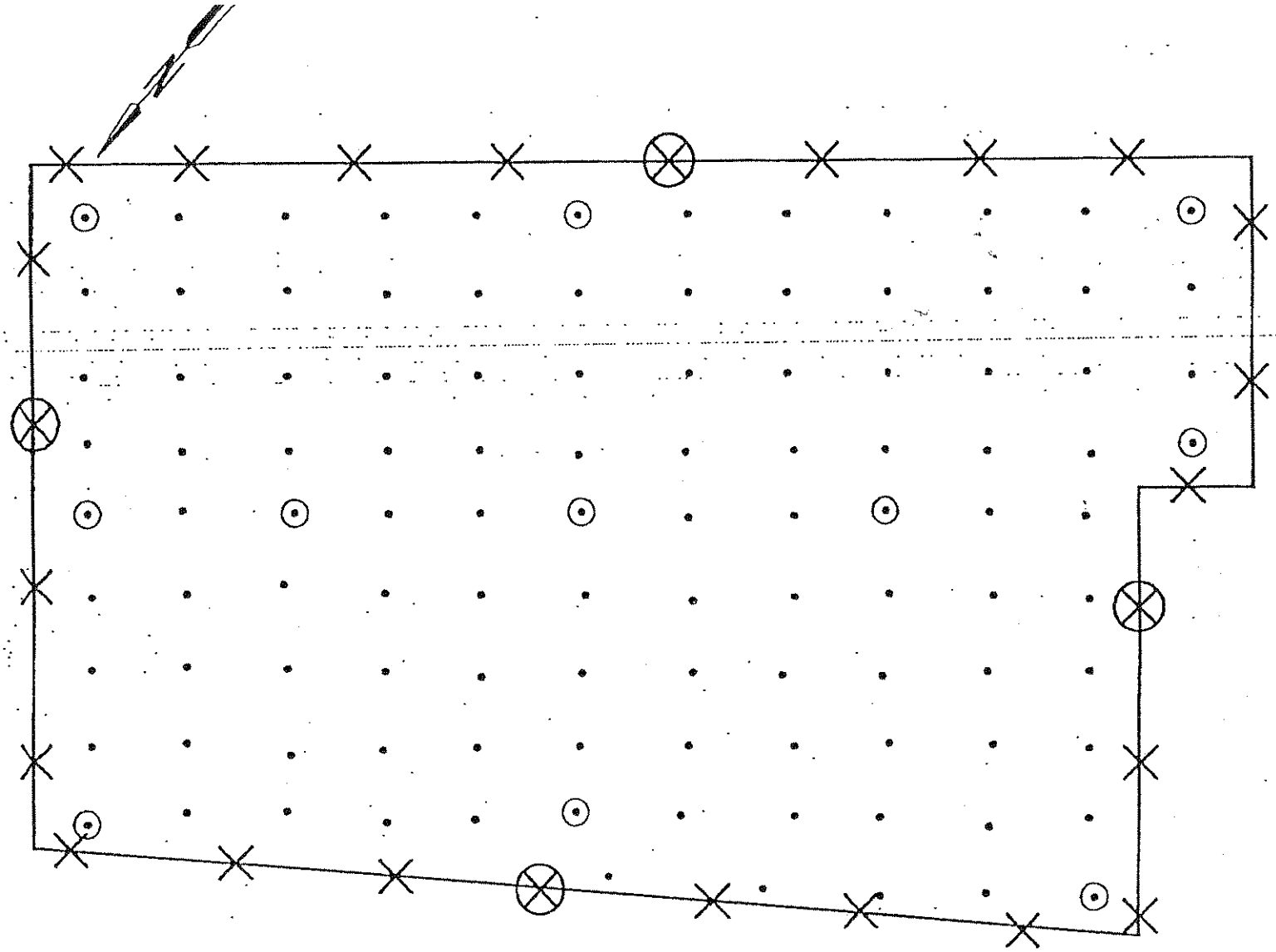


FIGURE 3

Location of Postremediation Soil Samples Beneath Substation Building Slab

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc

LAWLER, MATUSKY & SKELLY ENGINEERS
Pearl River, New York



- Floor sample
- Confirmatory floor sample
- Wall sample
- Confirmatory wall sample

(Assumes some cleanup of all soil is required.)

25 ft 0 25 ft

SCALE
1 in. = 25 ft

/116155scans.dsf

FIGURE 4

Location of Postremediation Soil Samples Beneath Transformer Yard Slab

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

REFERENCE 15

Con Edison

Consolidated Edison Company of New York, Inc.
31-01 20th Avenue, L.I.C., New York 11105-2048

August 26, 1999

By Facsimile and First Class Mail

Mr. Robert Smith
NYSDEC - Region 3
Division of Hazardous Waste Remediation
21 South Putt Corners Road
New Paltz, NY 12561-1696

Subject: **Transformer Yard Slab and Substation Building Slab**
Echo Avenue Site (Site No. 3-60-016)

Dear Mr. Smith:

On August 6, 1999, you and Yelena Skorobogatov, the Con Edison project manager, met at the Echo Ave. site to discuss certain areas within the above-referenced concrete slabs where PCBs were previously detected above the site cleanup criteria for the 0-2 foot depth interval (1 PPM). This letter summarizes the discussion and confirms your approval of the remedial methods proposed by Con Edison for these areas.

The discussed areas (see attached Figures 1 and 2) primarily consist of the concrete catch basins and steel/tile drain pipes that will be removed together with the slabs in accordance with the NYSDEC-approved May 1998 Sampling and Remedial Work Plan for the site (Work Plan). As agreed during the meeting, due to the presence of PCB levels of 1.1 to 49 PPM, these structures and any associated debris will be segregated from the rest of the concrete for further disposal as industrial solid waste. All other concrete generated during the slab demolition will be managed as construction debris.

In addition, two pipe excavations and a trough located within the slabs were discussed. It was agreed that the pipe excavation near the building slab (Figure 1) be extended out until the cleanup criteria of 1 PPM has been met on the northern wall of the excavation. The trough located along the same slab (Figure 1) will be cleaned of all black sediment and the bottom of the trough will be sampled as part of the entire slab area as described in the Work Plan.

During the 1998 site remediation, the soil in the transformer moat drain pipe excavation (Figure 2) was found to contain cadmium, copper, lead and zinc in excess of the respective Eastern USA background soil levels provided in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) of January 1994. As discussed, Con Edison will use an X-Ray Fluorescence (XRF) instrument to assist in delineation and removal of the soil with the elevated metal levels from the area. Five samples will then

be collected from the excavation (one from each of the four walls and one from the floor) and analyzed for target analyte list (TAL) inorganics to confirm compliance with the TAGM recommended cleanup objectives.

Any soil removed from the above trough and pipe excavations will be disposed of in accordance with the analytical data.

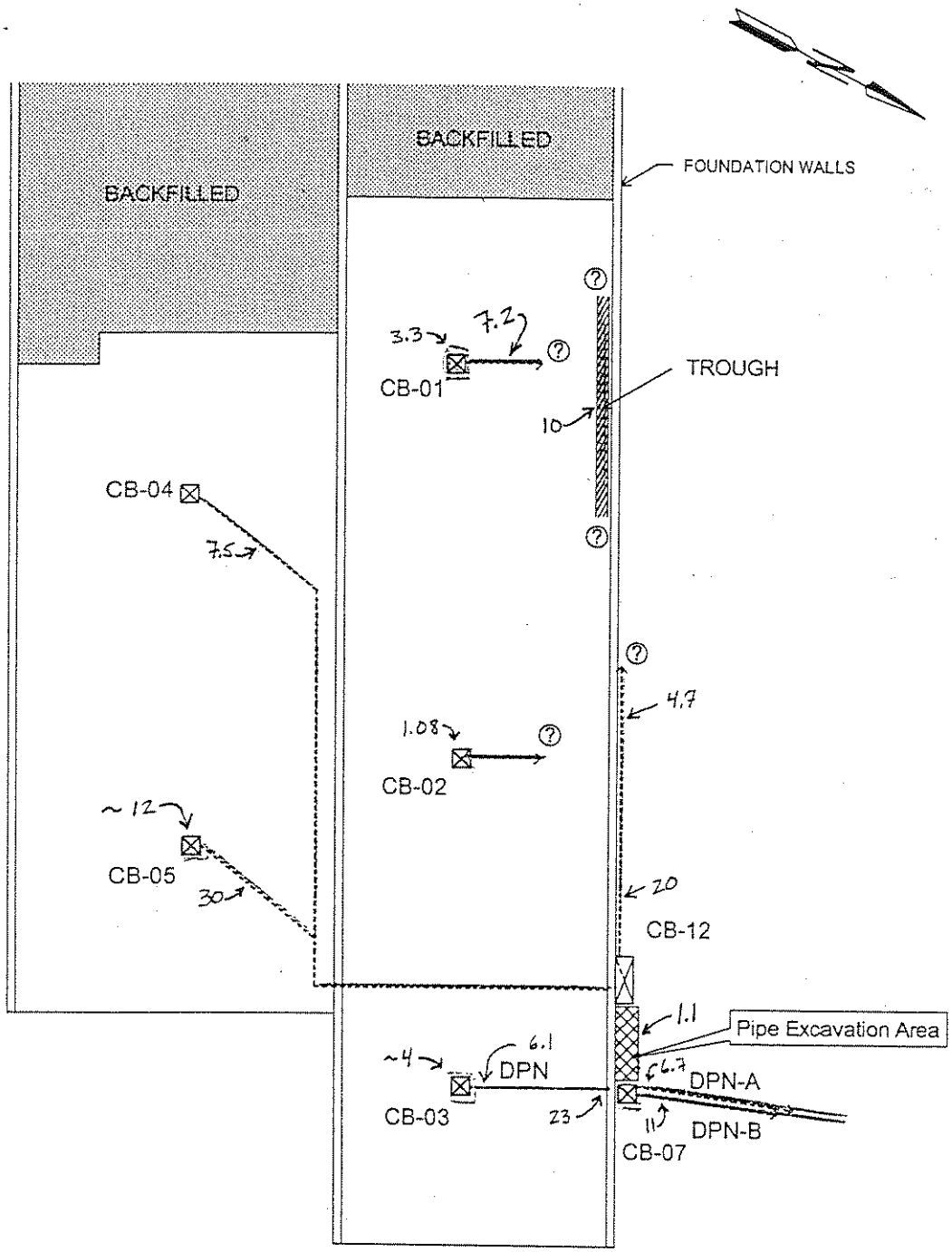
If you have any questions concerning these matters, please feel free to call me at 718/204-4292 or Yelena Skorobogatov at 718/ 204-4205.

Sincerely,

Troy Meyer
Director – Remediation
Environment, Health & Safety

Att.

cc: M. Wilcken, Con Edison
Y. Skorobogatov, Con Edison
K. Wright, LMS



Legend

- ⊠ Catch basin
- Drain pipe
- ⑦ Unknown origin/destination

0 30 ft

~SCALE 1"=30'

Figure 1

Building Slab Areas of Concern

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP

Pearl River, New York

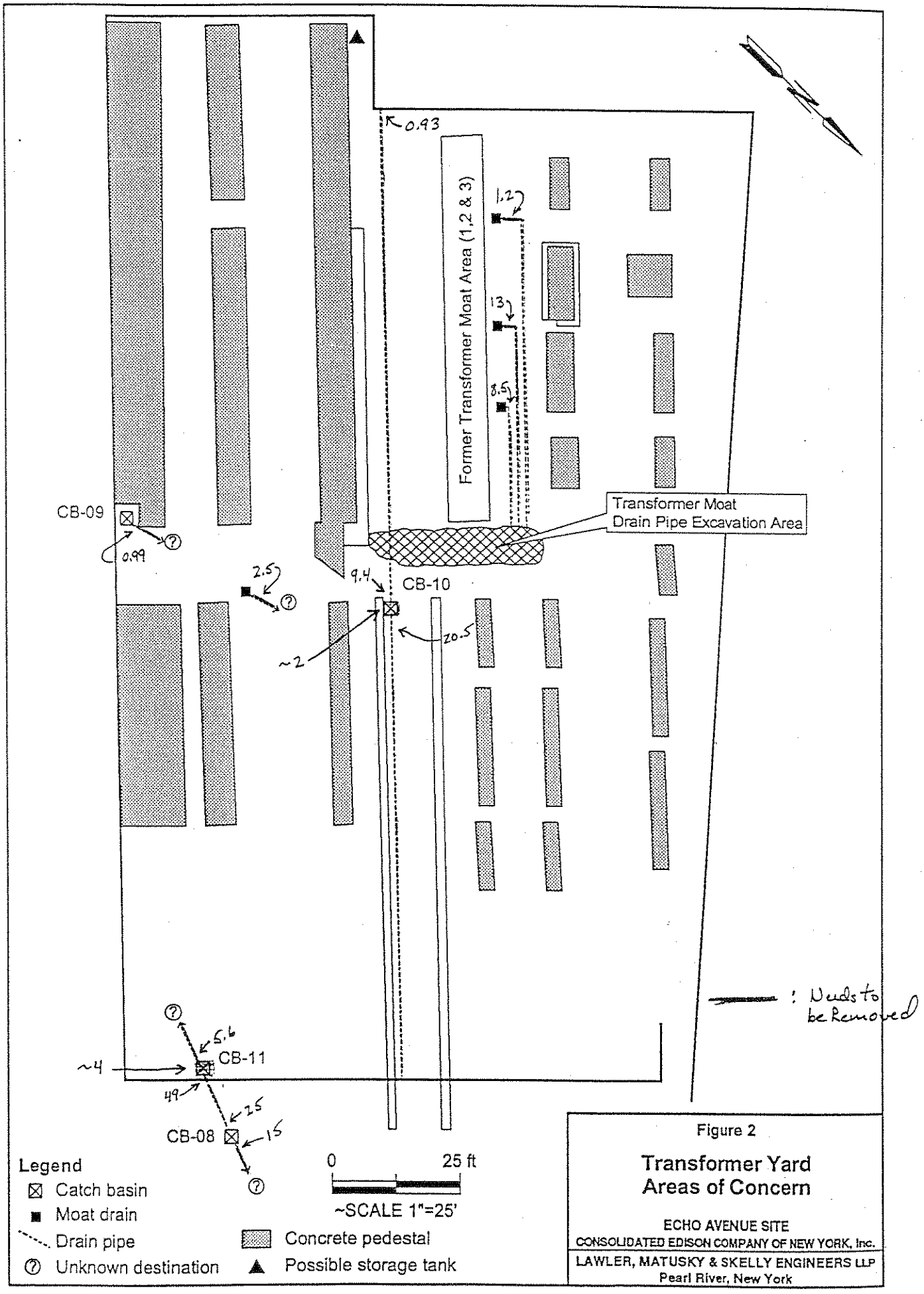


Figure 2

Transformer Yard Areas of Concern

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

REFERENCE 16

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Flanigan Square, 547 River Street, Troy, New York 12180-2216

Antonia C. Novello, M.D., M.P.H.
Commissioner

Dennis P. Whalen
Executive Deputy Commissioner

Mr. Ram Pergadia
Division of Environmental Remediation, Reg. 3
NYS Dept. of Environmental Conservation
21 South Putt Corners Road
New Paltz, New York 12561-1696

RE: **Soil Sampling Results**
Consolidated Edison – Echo Ave.
Site ID #360016
New Rochelle/Westchester County

Dear Mr. Pergadia:

I have reviewed the confirmatory soil sampling results for the transformer yard moat drain excavation area at the above referenced site. According to the mobile lab data, soils with elevated metals concentrations remain at several locations within the excavation, particularly at sampling depths of 0.5 to 1.5 feet. Of particular concern are the areas where the concentration of lead in soil exceed 500 parts per million. If left unremediated, these "hot spots" may present a future human exposure concern based on a potential for direct contact, incidental ingestion and inhalation of the contaminated soils. Without additional remediation and given the lack of information about future land use, I recommend the affected areas be paved over or covered with at least two feet of clean fill. Institutional controls, in the form of deed notification, are also recommended to identify the affected areas.

If you should have any questions, please contact me at (518) 402-7880.

Sincerely,

John M. Olm

John M. Olm
Public Health Specialist III
Bureau of Environmental Exposure
Investigation

cc: Dr. G.A. Carlson
Mr. S. Bates/File
Mr. C. Torres – WCDOH

H:\John\Letters\ConEdsoil.doc

Post-it® Fax Note 7671	Date	# of pages ▶
To Yellen	From Rama	
Co./Dept.	Co.	
Phone #	Phone #	
Fax # 914-922-2568	Fax #	

REFERENCE 17

Con Edison
Consolidated Edison Company of New York, Inc.
31-01 20th Avenue, L.I.C., New York 11105-2048

June 1, 2001

By Facsimile and Airborne Express

Ms. Gianna Aiezza
NYSDEC - Region 3Division of Hazardous Waste Remediation
21 South Putt Corners Road
New Paltz, NY 12561-1696

Subject: **Additional Remediation Activities at Transformer Yard**
Echo Avenue Site (Site No. 360016)
Administrative Order on Consent W3#05131-91-02

Dear Ms. Aiezza:

In response to the Department's letter of May 1, 2001, enclosed is a report summarizing the remediation activities that were conducted at the above-referenced site during the period from the fall of 1996 through the spring of 2000 (Remediation Report). These activities were performed in accordance with the July 1996 *Additional Sampling and Remediation Work Plan* and the May 1998 *Sampling and Remediation Work Plan for the Transformer Yard Slab and Substation Building Slab*. Both work plans were approved by the New York State Department of Environmental Conservation (NYSDEC).

Also enclosed for the Department's approval is a work plan for additional remediation activities at the former transformer yard. Specifically, the work plan addresses the elevated levels of lead in a cinder layer underlying the former transformer yard slab and the residual dielectric oil in the concrete duct banks beneath the yard. The remedial approach proposed in the work plan was discussed between Mr. Ramanand Pergadia of the NYSDEC and Yelena Skorobogatov of Con Edison during a site meeting on July 6, 2000.

If you have any questions concerning this submission, please contact Yelena Skorobogatov, Con Edison's project manager, at (718)204-4205.

Very truly yours,

Neale R. Bedrock
Director, Remediation and Support Services
Environment, Health & Safety

Enc.

ADDITIONAL REMEDIATION WORK PLAN FOR TRANSFORMER YARD OF CON EDISON'S ECHO AVENUE SITE, NEW ROCHELLE, NEW YORK

1.0 Background

During the October 1999 soil sampling at the former transformer yard area of Con Edison's Echo Avenue Site, elevated concentrations of cadmium, copper, zinc and lead were detected in the cinder layer underlying the former concrete slab. The New York State Department of Health (NYSDOH) requested that Con Edison either remove from the transformer yard cinder and soil with lead concentrations greater than 500 parts per million (ppm) or place at least two feet of cover material over the transformer yard (see NYSDOH's attached letter of December 20, 1999 to the NYSDEC). Con Edison elected to remove the cinder layer in its entirety. The cinder removal activities were initiated in February 2000. When a portion of the cinder layer was removed, oily water and oily soils were encountered in several areas of the transformer yard. The cinder removal activities were halted and during March 2000, a series of test pits were completed in the area in order to investigate the potential source(s) of the oil. A detailed description and the results of the initial cinder removal activities, and the test pit investigation, are provided in the Remediation Report being submitted to the NYSDEC along with this proposed work plan.

Visual inspection of the test pits conducted near the underground duct banks indicated that some of these structures contained residual oil or oily water. Fingerprint analyses of the soil and oil/oily water samples collected from the test pits indicated that most of them contained dielectric fluid or transformer oil. One oily water sample was found to contain PCBs at 0.0035 ppm. Two oil samples contained PCBs at 7.1 ppm and 26.8 ppm, respectively. PCB concentrations were either non-detectable or below 1 ppm in the soil samples.

Visual inspection of the test pits conducted in the northwest corner of the transformer yard indicated the presence of fuel oil contamination. The fingerprint results for the soil samples collected from the test pits confirmed the presence of a fuel oil in the soil. The impacted soil appeared to be confined to an area of approximately 50 feet long, 15 feet wide and 5 feet deep (attached Figure1). A search of the New York Spills Database revealed a record of a fuel oil spill that occurred in May 1994 on the property located just north of the site behind the retaining wall. Jonel Development Corporation now owns this property, formerly a Shoreline Oil Terminal. A copy of the spill record was faxed to Mr. Pergadia of the NYSDEC on May 2, 2000, and is attached to this work plan .

2.0 Cinder Layer Removal

Con Edison will remove the remaining cinder layer at the transformer yard. After the cinder layer has been removed, surface soil samples will be collected from the yard and submitted to an off-site laboratory for lead analysis. Attached Figure 1 shows the areas of the remaining cinders and the proposed soil sample locations. The actual sample locations will be determined in the field. The cleanup goal for lead will be 500 ppm, as requested by the NYSDOH. Excavated cinders will be staged onsite for testing prior to off-site disposal at a licensed facility.

The soil samples will be collected from a depth of 0-3 inches with clean stainless steel spoons. The samples will be homogenized in clean stainless steel bowls and then transferred directly into sample containers. The samples will be submitted under chain-of-custody protocol to Mitkem Corporation (Mitkem) of Warwick, Rhode Island for lead analyses using NYSDEC ASP Method 6010A. The analyses will be conducted with the quality assurance/quality control (QA/QC) and data deliverable requirements stipulated in NYSDEC ASP (October 1995). If field cleaning is necessary, an equipment blank will be performed on a field-cleaned spoon and bowl to document the integrity of the cleaning procedures. Water supplied by the analytical laboratory will be poured over a field-cleaned spoon and bowl and poured into a sample container for lead analysis. A spike and a duplicate sample will also be collected for QA/QC purposes.

3.0 Removal of Concrete Duct Banks

Con Edison will remove all the concrete duct banks extending from the west end of the yard to the former manholes located along the eastern end of the yard (attached Figure 2). Two of these runs are paired duct banks extending from manholes on Echo Avenue to the paired manholes MH-1A/1B and MH-3A/3B on the eastern side of the transformer yard. The third run is a single duct bank extending from the former transformer numbers 1, 2 and 3 to manhole MH-2 located along the eastern side of the transformer yard. The fourth duct bank run extends from the northwest corner of the transformer yard towards the eastern end of the yard. These duct banks are located at 0 to 3 feet below grade and are 1 to 1.5 feet wide. Con Edison will also investigate the presence of a suspected unidentified duct bank in the southwestern portion of the yard. If found, this duct bank will also be removed. As a precautionary measure, Con Edison will also investigate and remove two parallel duct bank runs located just east of the transformer yard. The duct banks extending from manholes MH-1A/1B, MH-2 and MH-3A/3B to the former cable vault located south-east of the transformer yard will be left in place. These duct banks were cleaned and sealed at both ends during a previous remedial effort (see Section 6.7 of the Remediation Report).

Con Edison will retain a remediation contractor to remove the duct banks. Lawler, Matusky & Skelly Engineers, LLP (LMS), Con Edison's environmental consultant, will provide oversight of the duct bank removal activities. To prevent oil spills, any residual oil/oily water in the exposed sections of the duct banks will be pumped out and stored on-site for testing prior to off-site treatment and/or disposal. Visually impacted soils observed in the area adjacent to the duct banks will be excavated and staged onsite for testing prior to off-site disposal. Depending on the volume, excavated soils will be contained in either a roll-off container or placed in a stockpile. The staging area, if necessary, will be bermed and lined with 20-mil plastic sheeting. The stockpile will be covered with plastic.

The soils in the transformer yard were sampled after the removal of the floor slab in September 1999, and documented to have met the required cleanup objectives for PCBs (Section 7.8.1 of the Remediation Report). However, after the duct bank removal, additional soil samples will be collected from certain excavation areas for PCB analyses to confirm compliance with the cleanup goals (1 ppm for soils $\leq$2 feet deep; 10 ppm for soils >2 feet deep). The sample locations will be biased to the areas where oily water and oily soils were encountered during the test pit investigation, or where visually impacted soils are observed during the removal of the concrete duct banks. The locations of these samples will be selected in the field with approval of the on-site NYSDEC representative. Soil samples for PCB analysis will be collected using the same general procedures as those for lead analysis described in Section 2 of the work plan. All samples will be shipped to Mitkem for PCB analyses using EPA Method 8082. The sample results will be validated.

Upon completion of the remediation activities, the excavated areas will be backfilled with certified clean fill. The entire transformer yard area will then be graded and covered with hay, wood chips, or seed to prevent soil erosion and dust migration.

The results of the additional remediation activities will be compiled in a report and submitted to the NYSDEC.

4.0 Fuel-Oil Contaminated Soil

Con Edison strongly believes that the fuel oil contamination found in the northwestern corner of the transformer yard is a result of the 1994 fuel oil spill on the Jonel Development Corporation property. Con Edison would like to meet with the Department to discuss the cleanup options for that area, if required.

5.0 Equipment Decontamination Procedures

Metals Soil Sampling

Surface soils will be collected with clean stainless steel spoons and bowls. The spoons and bowls will be laboratory-cleaned or field-cleaned as follows:

- Non-phosphate detergent and tap water wash
- Distilled or deionized water rinse
- 10% nitric rinse
- Distilled or deionized water rinse
- Air dry

The lab-cleaned spoons and bowls will be wrapped in aluminum foil.

PCB Soil Sampling

Surface soils will be collected with clean stainless steel spoons and bowls. The spoons and bowls will be laboratory-cleaned or field-cleaned as follows:

- Non-phosphate detergent and tap water wash
- Distilled or deionized water rinse
- Pesticide-grade solvent rinse (hexane)
- Distilled or deionized water rinse
- Air dry

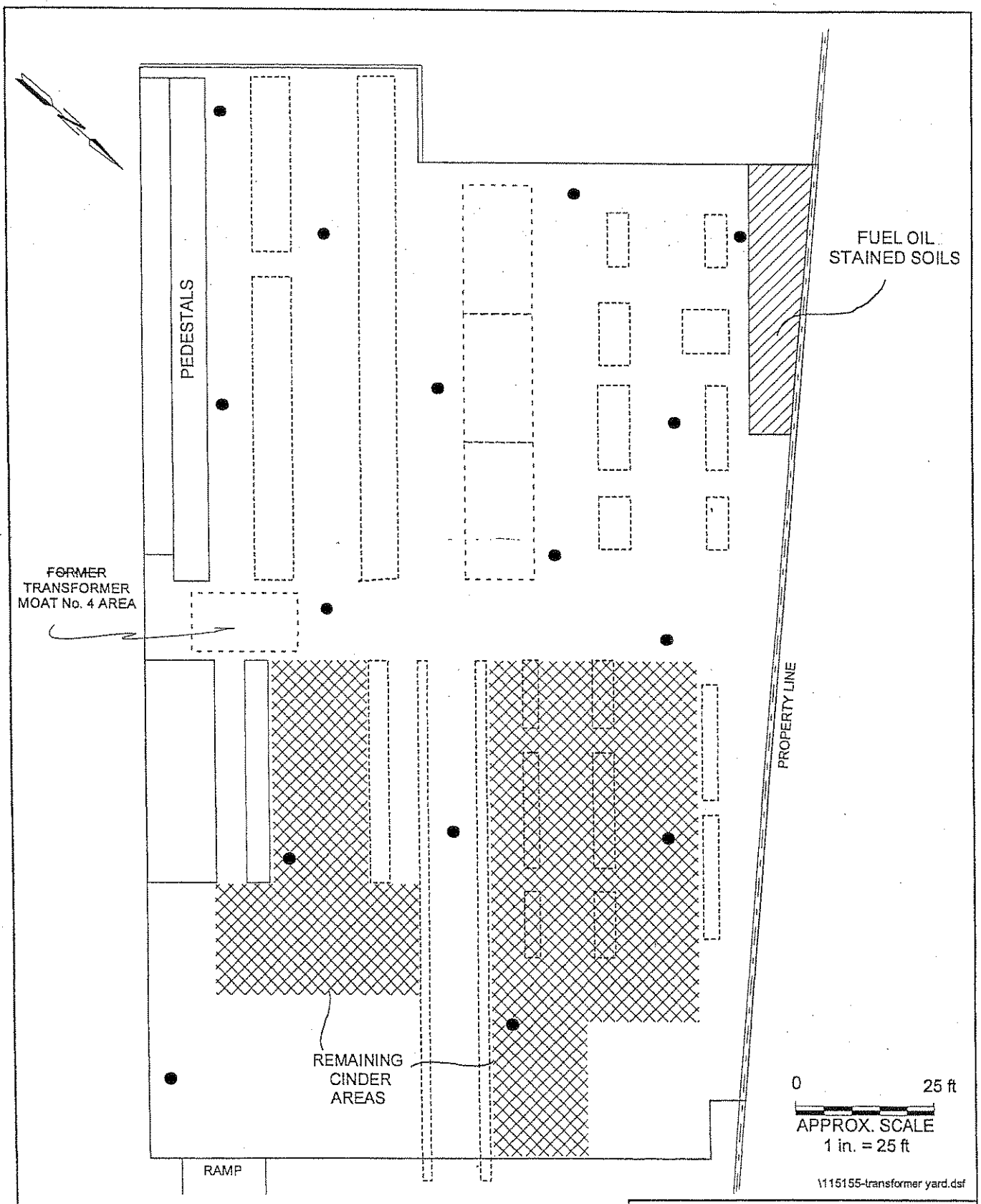
The lab-cleaned spoons and bowls will be wrapped in aluminum foil.

6.0 Implementation Schedule

Con Edison anticipates that it can proceed with the proposed remedial activities within two months of obtaining the NYSDEC approval of the work plan. A detailed project schedule will be provided to the Department after a remediation contractor has been retained.

CC#786

Bcc: Michael A. Wilcken, Esq., Con Edison (w/o enc.)
Mr. Edward Schwarz, Con Edison
Mr. Eddy Louie, Con Edison (w/o enc.)
Mr. Joe Panarelli, Con Edison (w/o enc.)
Ms. Patricia Hogan, Con Edison
Ms. Karen Wright, LMS



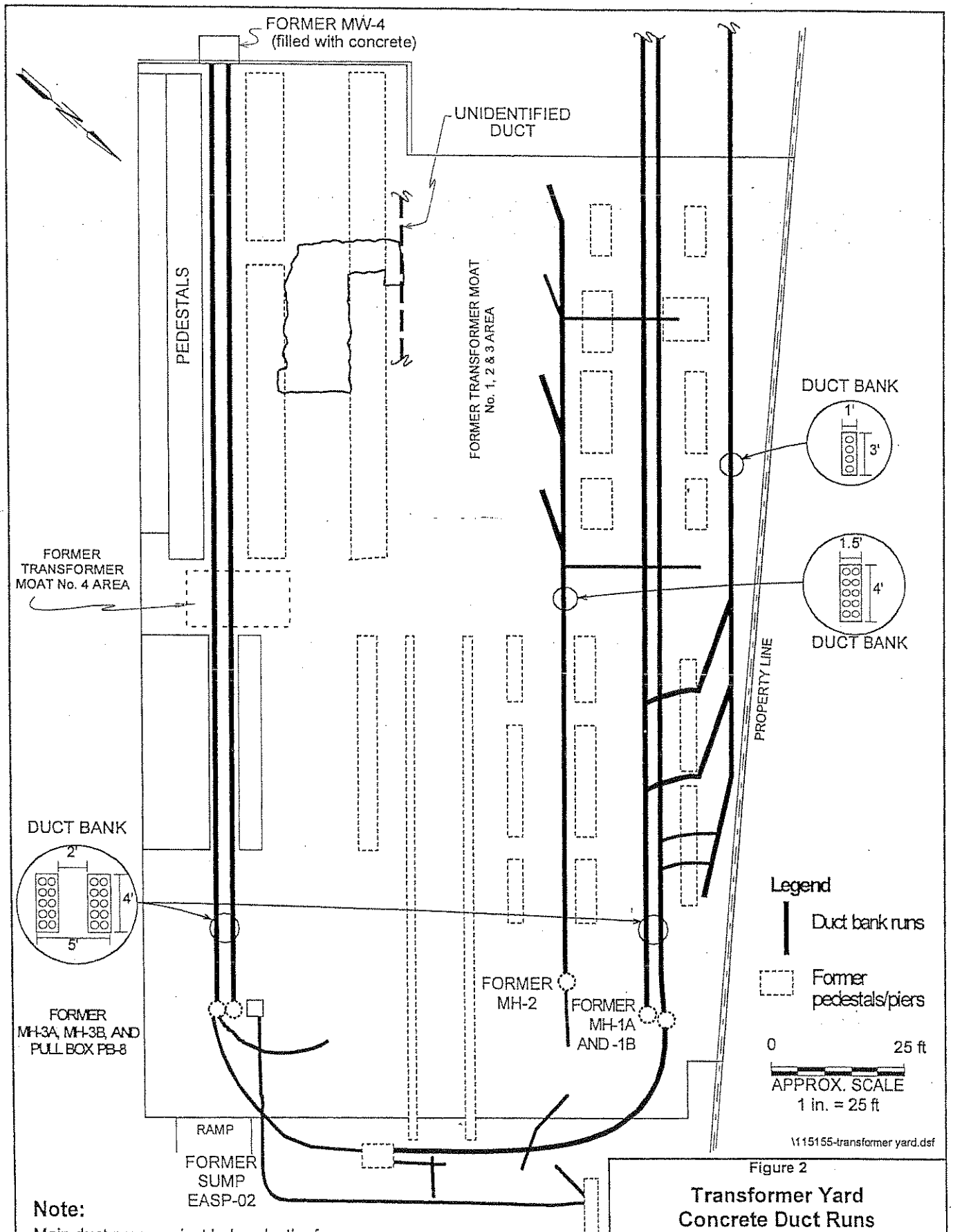
LEGEND

- Estimated area of remaining cinders
- Approximate area containing soils stained with fuel oil
- Proposed sample location

Figure 1

Remaining Cinder Removal Areas and Confirmatory Sample Locations

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York.



Note:

Main duct runs are just below depth of the former slab at the western side of the yard and 2-3 ft below the former slab at the eastern side of the yard at the manholes.

Figure 2

Transformer Yard Concrete Duct Runs to be Removed

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

MAP FINDINGS

Map ID / Direction / Distance / Distance (ft.) / Elevation	Site	Database(s)	EDR ID Number / EPA ID Number
A2 Target Property	SHORELINE OIL CO 34 EVANS ST NEW ROCHELLE, NY 10801	FINDS RCRIS-LQG	1000355577 NYD980785547

RCRIS:
Owner: Not reported
Contact: RONALD CAPOSSELA (914) 636-7074
Record Date: 01/09/1985
Classification: Large Quantity Generator
Used Oil Recyc: No
Violation Status: No violations found

A1 Target Property	JONEL DEVEL. CORP. 34 EVANS STREET NEW ROCHELLE, NY	NY Spills	S102683803 N/A

SPILLS:

Spill Number:	9401889	Region of Spill:	3
Facility Contact:	Not reported	Facility Tele:	Not reported
Investigator:	GHIOSAY	SWIS:	55
Caller Name:	TODD GHIOSAY	Caller Agency:	DEC
Caller Phone:	(914) 332-1835	Caller Extension:	Not reported
Notifier Name:	Not reported	Notifier Agency:	Not reported
Notifier Phone:	Not reported	Notifier Extension:	Not reported
Spiller Contact:	Not reported	Spiller Phone:	Not reported
Spiller:	JONEL DEVEL.		
Spiller Address:	Not reported		
Spill Class:	Known release that creates potential for fire or hazard. DEC Response. Willing Responsible Party. Corrective action taken.		
Spill Closed Dt:	06/02/1997		
Spill Cause:	Equipment Failure	Resource Affected:	Groundwater
Water Affected:	Not reported	Spill Source:	Other Commercial/Industrial
Spill Notifier:	Federal Government	PBS Number:	Not reported
Spill Date:	05/06/1994 10:00	Reported to Dept:	05/06/1994 10:00
Cleanup Ceased:	Not reported		
Last Inspection:	Not reported		
Cleanup Meets Standard:	True		
Recommended Penalty:	No Penalty		
Spiller Cleanup Date:	Not reported		
Enforcement Date:	Not reported		
Investigation Complete:	Not reported		
UST Involvement:	False		
Spill Record Last Update:	06/23/1997		
Is Updated:	False		
Corrective Action Plan Submitted:	Not reported		
Date Spill Entered In Computer Data File:	05/17/1994		
Date Region Sent Summary to Central Office:	Not reported		

Remark: USCG REPORTED THAT FUEL OIL FOUND IN SUBSURFACE BENEATH OLD PIPELINES AT A FORMER SHORELINE OIL TERMINAL CONDITIONS WERE VERIFIED DURING SITE MEE TING ON 5/9/94 EMER.ENVIR.SERV. HIRED TO INVESTIGATE

DEC Remarks: 04/28/97 LETTER SENT BASED ON WORK DONE SPILL # 9201791 CLOSED; THIS SPILL # WILL REMAIN OPEN PENDING RESULTS OF RECOVERY WEL L PUMPING. 06/02/97 LETTER SENT: NFA.

REFERENCE 18

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
New York, New York

ECHO AVENUE SITE
REMEDIATION REPORT

VOLUME I
REPORT

June 2001

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

REFERENCE 19

115 770
CC 848
cc (ECW), JMG
CF, RL

Con Edison

Consolidated Edison Company of New York, Inc.
31-01 20th Avenue, L.I.C., New York 11105-2048

October 10, 2001

AIRBORNE # 7921688681

Ms. Gianna Aiezza
NYSDEC - Region 3
Division of Hazardous Waste Remediation
21 South Putt Corners Road
New Paltz, NY 12561-1696

Subject: **Echo Avenue Site (Site No. 360016)**
Administrative Order on Consent W3#05131-91-02

Dear Ms. Aiezza:

Enclosed please find for the Department's review a *Health and Safety Plan ("HASP") and a Community Health and Safety Plan ("CHASP")* for the additional remedial activities at the transformer yard of the above referenced site. These activities are described in the *Additional Remediation Work Plan for Transformer Yard of Con Edison's Echo Avenue Site* ("Work Plan"), which was submitted to the Department on June 1, 2001. The HASP and CHASP have been prepared in response to the Department's comments on the Work Plan outlined in your letter of June 25, 2001.

In addition, as discussed during the August 16, 2001 meeting with you, Mr. Ramanand Pergadia of the Department, and Eddy Louie, Yelena Skorobogatov and Allison Meyrowitz of Con Edison, the following documents pertaining to the above-referenced site are provided for the Department's review:

1. A proposal to address the fuel-oil impacted soil in the northwestern corner of the transformer yard, and
2. Five figures showing the extent of Con Edison' soil and sediment sampling effort in the Echo Bay mudflat area adjacent to the site (Figures 1a and 1b), and locations of the samples with PCB concentrations exceeding 1 mg/kg (Figures 2a, 2b and 2c).

If you have any questions concerning this submission, please contact Yelena Skorobogatov at (718) 204-4205.

Very truly yours,

Neale R. Bedrock
Director, Remediation and Support Services
Environment, Health & Safety

Enc.
CC848

bcc: Michael A. Wilcken, Esq.
Mr. Edward Schwarz
Mr. Eddy Louie
Ms. Allison Meyrowitz
Mr. Joseph Panarelli
Ms. Patricia Hogan
Ms. Karen Wright, LMS ✓

CC#848

REMEDIATION PROPOSAL FOR FUEL-OIL CONTAMINATED SOIL IN CON EDISON'S ECHO AVENUE SITE TRANSFORMER YARD

Background

In February 2000, Con Edison initiated the removal of a cinder layer from the transformer yard of its Echo Avenue site. During this effort, oily soils were encountered in several areas of the yard. In Mach 2000, Con Edison conducted a series of test pits throughout the transformer yard to investigate the potential source(s) of the oil. The results of this investigation indicated, among other things, the presence of fuel oil in the soil located in the northwestern corner of the transformer yard. A search of the New York Spills Database revealed a record of a fuel oil spill that occurred in May 1994 on the property located immediately north of the transformer yard. This property, formerly a Shoreline Oil Terminal, is now owned by Jonel Development Corporation. A copy of the spill record has been provided to the NYSDEC. The results of the test pit investigation are described in the June 2000 *Remediation Report,* that Con Edison previously filed with the Department.

On August 16, 2001, Con Edison met with the NYSDEC to discuss the issues associated with the fuel-oil contaminated soil. At this meeting, Con Edison indicated that it is convinced that the fuel oil contamination found in the transformer yard was caused by the 1994 spill on the Jonel Development Corporation property. Con Edison also indicated that it, therefore, should not be responsible for the cleanup of the contamination. However, to expedite the cleanup of the site, Con Edison agreed to submit a proposal to address the fuel-oil impacted soil during the planned additional remediation work at the transformer yard. Con Edison's proposal for the fuel oil contamination is outlined below.

Remediation Proposal

1. Con Edison will remove the fuel-oil impacted soil from the area of the transformer yard where it was found during the test pit investigation. This area is approximately 50 feet long, 15 feet wide and 5 feet deep (see attached Figure 3). The soil impact will be determined based on visual characteristics, i.e. staining and/or odor. The excavated soil will either be stockpiled or placed in roll-off containers for testing prior to off-site disposal. Any excavation and backfilling activities will be conducted in general accordance with the procedures outlined in the June 2001 Work Plan, and the attached HASP and CHASP..

2. If the extent of the fuel-oil contamination is greater than originally anticipated, Con Edison may terminate the removal of the fuel-oil impacted soil after consulting with the NYSDEC.

3. Con Edison will not be responsible for the potential cleanup of any fuel-oil impacted soil that may be discovered in the northwestern corner, or other areas of the transformer yard after the proposed remediation activities have been completed.

REFERENCE 20

Consolidated Edison Company of New York, Inc.
31-01 20th Avenue, L.I.C., New York 11105-2048

October 7, 2002

Ms. Gianna Aiezza
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 3
21 South Putt Corners Road
New Platz, New York 12561-1696

Re: **Additional On-Site Work**
Echo Avenue Site (Site No. 360016)
Administrative Order on Consent W3#05131-91-02

Dear Ms. Aiezza:

In response to the Department's request at our meeting on 29 August 2002, Consolidated Edison Company of New York, Inc. (Con Edison) is transmitting for NYSDEC's approval a work plan for additional remediation activities at the Site.

The following remediation activities have been conducted in accordance with the June 2001 Additional Remediation Activities Work Plan. To date, the cinder layer has been completely removed and confirmatory samples collected and analyzed for lead, with the results showing no samples with lead concentrations greater than the NYSDOH cleanup level of 500 mg/kg. The fuel oil spill area in the northwestern corner of the transformer yard has been excavated, sampled, and the results transmitted to NYSDEC in September 2002. The duct banks in the transformer yard have been removed and confirmatory samples for PCB analysis collected with results indicating total PCBs less than 1 mg/kg in all samples.

During these remediation activities, additional subsurface structures that contain oil were encountered. These structures include duct banks, steel encased paper insulated lead cable (PILC), pull boxes, manholes, catch basins, stained transformer pedestals, etc. To deal with these structures and ensure that the Site is adequately remediated, Con Edison will excavate the Echo Avenue Transformer Yard to six feet below the original grade in order to remove these newly identified structures. In addition to the items identified in the Transformer Yard, Con Edison will also remove the following: three duct banks which run from Manholes MH1A, MH1B, and MH2 (93, 94, and 92, respectively) in the transformer Yard to the Cable Vault in the former Maintenance Shop; two duct banks which run from Manholes MH3A and MH3B (90 and 91, respectively) to the Cable Vault and one duct bank which runs from the Cable Vault to the tunnel; three duct banks which run north and south across the transformer yard beginning at a depth of six feet below grade.

Enclosed is the work plan to address this additional remediation to be done on the Site. Once this remediation and the additional mudflat remediation (work plan to be sent under separate cover) is completed, in accordance with discussions at the meeting, the NYSDEC should be able to delist the Site from the New York State Registry of Inactive Hazardous Waste Disposal Areas.

If you have any questions concerning this submission, please contact me at (718) 204-4295.

Very truly yours,

Allison Meyrowitz
Engineer
Remediation - Environment, Health & Safety

arm/ARM

Enclosure

Cc Eddy Louie – Con Edison
Michael Wilcken – Con Edison
Karen Wright – LMS

ADDITIONAL REMEDIATION WORK PLAN FOR CON EDISON'S ECHO AVENUE SITE, NEW ROCHELLE, NEW YORK

1.0 Background

Con Edison initiated remediation of the transformer yard in April 2002 in accordance with the New York State Department of Environmental Conservation (NYSDEC) approved work plan prepared by Con Edison in June 2001 and subsequently modified. The work plan included the removal of the cinder layer from the transformer yard with confirmatory sampling to show that no lead remained in the soil at concentrations greater than the New York State Department of Health (NYSDOH) guideline of 500 mg/kg. The work plan also included the removal of the concrete encased duct banks that ran through the transformer yard. Once removed, confirmatory samples for PCB analysis would be collected to show that the NYSDEC cleanup levels for PCBs of 1 mg/kg for soils $\leq$ 2 ft deep and 10 mg/kg for soils > than 2 ft deep were met. The fuel oil spill area located in the northwest corner of the transformer yard would be excavated until all visually contaminated soil was removed and samples were collected for volatile organic compound (VOC) and semi-volatile organic compound (SVOC) analysis. As of August 2002 these tasks have all been completed.

2.0 Removal of Additional Transformer Yard Structures

During the remediation activities, additional contamination was observed during the tipping and/or removal of several concrete pedestals/piers located in the transformer yard. Additional subsurface structures including duct banks, steel encased paper insulated lead cable (PILC), pull boxes, manholes, catch basins were also identified. In some areas, oil was observed underneath and/or inside some of these structures. To ensure that the Site is adequately remediated, Con Edison will remove all structures in the transformer yard to six feet below the original grade in order to remove these newly identified structures and contamination. These structures and any stained or oily soils that are removed will be properly disposed of off-site. In addition to the items identified in the Transformer yard, Con Edison will also remove the following: three duct banks which run from Manholes MH1A, MH1B, and MH2 (93, 94, and 92, respectively) in the transformer Yard to the Cable Vault in the former Maintenance Shop; two duct banks which run from Manholes MH3A and MH3B (90 and 91, respectively) to the Cable Vault and one duct bank which runs from the Cable Vault to the tunnel; three duct banks which run north and south across the transformer yard beginning at a depth of six feet below grade. Any additional structures identified at a depth greater than 6 feet below grade that have the potential to further contaminate the Site will also be removed as a part of this work plan.

After the structures are removed from the transformer yard, soil samples will be collected for PCB analysis from the floor and walls of the excavation to document that the cleanup objectives for PCBs have been met. If required, the excavation will be dewatered prior to sample collection. Any water removed from the excavation will be stored on site, tested, and properly disposed of off-site.

Since it is not expected that any contamination will remain in place, Con Edison proposes to collect floor samples at a rate of 1/1000 yd^2 and to collect wall samples every 100 linear feet. Where possible wall samples will be collected from 0-2 ft below grade and over 2 ft below grade to cover the two cleanup objectives for depth. Sample locations will be skewed to areas where structures were removed (manholes, pull boxes, pedestals, piers, etc.).

If analytical results indicate that additional excavation is required to meet cleanup objectives, Con Edison will collect confirmatory samples at a rate of 1/200 yd^2 and one every 25 linear ft after the excavation is completed. This is the same rate used in the original building and transformer yard slab removal excavations.

The soil samples will be collected from a depth of 0-3 inches with clean stainless steel spoons. The samples will be homogenized in clean stainless steel bowls and then transferred directly into sample containers. The samples will be submitted under chain-of-custody protocol to Mitkem Corporation (Mitkem) of Warwick, Rhode Island for PCB analysis using EPA Method 8082 using a 48-hr turnaround time. Field blanks, matrix spike and matrix spike duplicate (MS/MSD) samples will be collected in accordance with NYSDEC Analytical Services Protocol (ASP). Since all sample analyses will be validated, data packages will all be Category B deliverables.

3.0 Additional Remediation Outside the Transformer Yard

Con Edison will remove all cable duct runs located between the transformer yard and the cable vault and between the cable vault and the tunnel. These ducts were previously cleaned out and plugged. The cable vault will also be excavated and removed including its contents as well as any catch basins that remain on the Site. Any PILC cable will be excavated and removed. Any stained or oily soils will also be removed. All structures removed as well as any contaminated soil that is excavated will be properly disposed of off site.

Additional samples for PCB analysis will be collected from the excavation of the duct banks, cable vault, PILC cable, and catch basins at the same rate as for the transformer yard excavation. Samples will be collected in the same way as described under section 2.0.

Upon completion of the remediation activities in the transformer yard and in the area outside the transformer yard, the excavated areas will be backfilled with certified clean fill back to the original grade. If necessary to facilitate mobility around the Site, some areas may be backfilled upon receipt of analytical data indicating that the clean up objectives have been met. The entire Site will then be graded and covered with hay, wood chips, or seeded to prevent soil erosion and dust migration.

The results of the remediation included in the June 2001 work plan and described in this work plan will be compiled in a report and submitted to NYSDEC.

4.0 Monitoring Well Sampling and Abandonment

At the request of NYSDEC, the on-Site monitoring wells that still existed and were able to be sampled were sampled on August 7, 2002. Only three wells remain on the Site and of the three only two, MW-1 and MW-4 could be sampled. MW-5 has an obstruction that prevented any sampling equipment from entering the well. The wells were purged in accordance with standard protocol and allowed to recover before sampling. Due to the tidal influence of Echo Bay, MW-4 was purged and sampled on a falling tide. Samples were collected with dedicated, disposable Teflon bailers and analyzed for VOCs, SVOCs, pesticides, low-level PCBs, metals, filtered metals, and cyanide. Samples were submitted under chain-of-custody protocol and analyzed by Mitkem. Sample results will be validated be an independent data validator. A trip blank, blind duplicate, and a MS/MSD were collected for QA/QC purposes.

Preliminary results of the monitoring well sampling indicate neither sample had any VOCs, SVOCs, or pesticides concentrations above groundwater standards. PCBs were analyzed using a detection limit of 0.05 µg/L, considerably below the groundwater standard of 0.09 µg/L; PCBs were not detected in either sample. Some metals were found above the groundwater standard in the total sample but not in the filtered sample indicating that the metals are associated with the soil and not the groundwater. EAMW-4 had high calcium, magnesium, potassium, and sodium levels as a result of the tidal influence of Echo Bay. Overall the metals results were similar to the results of the 1992 sampling of the same wells. The final validation report has not yet been received.

Con Edison plans on abandoning the wells in accordance with NYSDEC protocol after the final data are received, validated, results are transmitted to NYSDEC, and approval obtained from NYSDEC to proceed with abandonment.

5.0 Equipment Decontamination Procedures

Soil samples will be collected with clean stainless steel spoons and bowls. The spoons and bowls will be laboratory-cleaned or field-cleaned as follows:

- Non-phosphate detergent and tap water wash
- Distilled or deionized water rinse
- Pesticide-grade solvent rinse (hexane)
- Distilled or deionized water rinse
- Air dry

The laboratory-cleaned spoons and bowls will be wrapped in aluminum foil. All liquid and other materials used in the field for decontamination will be containerized for sampling and proper disposal. If dewatering of the excavation is required, the decontamination liquids and materials will be added to the water generated from the dewatering operations for proper disposal.

6.0 Community Health and Safety Plan (CHASP)

The CHASP prepared by Con Edison prior to initiation of work, described in the June 2001 work plan, will be implemented during this additional work.

7.0 Implementation Schedule

Since a responsible remediation contractor and environmental consultant was already on Site to provide a cost-effective response to the work outlined above, Con Edison elected to initiate this work in August 2002 after the work described in the June 2001 work plan was completed. The work is expected to take ten weeks to complete. The remediation report will be submitted within four (4) months after all remediation and sampling activities are finished and data validation is complete.

REFERENCE 21

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
New York, New York

ECHO AVENUE SITE
REMEDIATION REPORT ADDENDUM

VOLUME I
REPORT

July 2003

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

REFERENCE 22

Remedial Action Work Plan
For the
Echo Avenue Project
New Rochelle, New York

Prepared for:
Consolidated Edison Company of New York, Inc.
31-01 20th Avenue
Astoria, NY 11105

Prepared by:
TRC Environmental Corporation
1200 Wall Street West
Lyndhurst, New Jersey 07071

May 2003

REFERENCE 23

Remedial Action Report
For the
Echo Avenue Project
New Rochelle, New York
Consent Order W3-05131-91-02

Volume I

Prepared for:
Consolidated Edison Company of New York, Inc.
31-01 20th Avenue
Astoria, NY 11105

Prepared by:
TRC Environmental Corporation
1200 Wall Street West
Lyndhurst, New Jersey 07071

February 2005

REFERENCE 24

Recommended Soil Cleanup Objectives for Fuel Oil Contaminated Soil

Contaminant	CAS Registry Number	Partition coefficient Koc	Recommended EPA Method	Groundwater Standards/ Criteria Cw ug/l or ppb.	Allowable Soil Concentration Cs[1] (ppm)	Soil Cleanup objectives to Protect GW Quality (ppm)	USEPA Health Based (HEAST) (ppm)		Detection Limit Solid (ppb)	Rec.soil Cleanup Objective (ppm)
							Carcinogens	Systemic Toxicants		
Benzene	71-43-2	83	8021/8260	0.7	0.0006	0.06	24	N/A	2	0.06 or MDL
Ethylbenzene	100-41-4	1,100	8021/8260	5	0.055	5.5	N/A	8,000	2	5.5
Toluene	108-88-3	300	8021/8260	5	0.015	1.5	N/A	20,000	2	1.5
Mixed Xylenes	N/A	240	8021/8260	5	0.012	1.2	N/A	200,000	2	1.2
Isopropylbenzene	98-82-8	454	8021/8260	5	0.023	2.3	N/A	3,100	1	2.3
n-Propylbenzene	103-65-1	741	8021/8260	5	0.037	3.7	N/A	N/A	1	3.7
p-Isopropyltoluene	99-87-6	2,114	8021/8260	5	0.11	11.0	N/A	N/A	1	10.0*
1,2,4 - Trimethylbenzene	95-63-6	2,590	8021/8260	5	0.13	13.0	N/A	N/A	1	10.0*
1,3,5 - Trimethylbenzene	108-67-8	661	8021/8260	5	0.033	3.3	N/A	N/A	1	3.3
n-Butyl-Benzene	104-51-8	2,455	8021/8260	5	0.12	12.0	N/A	N/A	1	10.0*
sec-Butyl-Benzene	135-98-8	2,200	8021/8260	5	0.11	11.0	N/A	N/A	1	10.0*
Tert-Butyl-Benzene	98-06-6	2,200	8021/8260	5	0.11	11.0	N/A	N/A	1	10.0*
Naphthalene	91-20-3	1,300	8021/8260/8270	10	0.13	13.0	N/A	300	1(330)	13.0
Anthracene	120-12-7	14,000	8270	50	7.00	700.0	N/A	20,000	330	50.0**
Acenaphthene	83-32-9	4,600	8270	20	0.92	92.0	N/A	5,000	330	50.0**
Acenaphthylene	208-96-8	2,056	8270	50	1.03	103.0	N/A	N/A	330	50.0**
Benz(a)anthracene	56-55-3	1,380,000	8270	0.002	0.028	2.8	0.224	N/A	330	0.224 or MDL
Benzo(b)fluoranthene	205-99-2	550,000	8270	0.002	0.011	1.1	0.220	N/A	330	0.220 or MDL
Benzo(k)fluoranthene	207-8-9	550,000	8270	0.002	0.011	1.1	0.220	N/A	330	0.220 or MDL
Benzo(g,h,i)perylene	191-24-2	1,600,000	8270	5	80.00	8,000.0	N/A	N/A	330	50.0**
Benzo(a)pyrene	50-32-8	5,500,000	8270	0.002	0.11	11.0	0.061	N/A	330	0.061 or MDL
Chrysene	218-01-9	200,000	8270	0.002	0.004	0.40	N/A	N/A	330	0.4
Dibenzo(a,h)anthracene	53-70-3	3,300,000	8270	50	1,650.00	165,000.0	0.0143	N/A	330	0.0143 or MDL
Fluoranthene	206-44-0	38,000	8270	50	19.00	1,900.0	N/A	3,000	330	50.0**
Fluorene	86-73-7	7,300	8270	50	3.65	365.0	N/A	3,000	330	50.0**
Indeno(1,2,3-cd)pyrene	193-39-5	1,600,000	8270	0.002	0.032	3.2	N/A	N/A	330	3.2
Phenanthrene	85-01-5	4,365	8270	50	2.18	218.0	N/A	N/A	330	50.0**
Pyrene	129-00-0	13,295	8270	50	6.65	665.0	N/A	2,000	330	50.0**

N/A- Not Applicable
MDL - Method Detection Limit

1 - Allowable concentration with no Dilution Attenuation Factor - see TAGM 4046

*As per TAGM 4046 individual and the sum of VOCs not listed (Tentatively Identified Compounds(TICs))≤ 10 ppm

**As per TAGM 4046 individual non-carcinogenic semivolatiles ≤ 50 ppm and total semivolatiles not listed (Tentatively Identified Compounds(TICs))≤ 500ppm

Note: Soil cleanup objectives are developed for soil organic carbon content (f) of 1%, and should be adjusted for the actual soil organic carbon if it is known.

REFERENCE 25

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
New York, New York

ECHO AVENUE SITE
FUEL OIL SPILL REPORT

August 2002

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Environmental Science & Engineering Consultants
One Blue Hill Plaza
Pearl River, New York 10965

REFERENCE 26

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 3
200 White Plains Road – 5th Floor, Tarrytown, New York 10591-5805
Phone: (914) 332-1835 ext. 361 • **FAX:** (914) 332-4670
e-mail: tdghiosa@gw.dec.state.ny.us
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

September 30, 2002

Allison Meyrowitz
Consolidated Edison
30-01 20th Avenue L.I.C.
New York, NY 11105-2048

SPILL NUMBER: 99-12989

SPILL LOCATION: Con Ed Echo Ave. Substation

COUNTY: Westchester

SPILL REPORTED: Feb. 15, 2000

SPILL CLOSURE DATE: Sept. 30, 2002

Dear Ms. Meyrowitz;

The Lawler, Matusky & Skelly Engineers Fuel Oil Spill Report submitted for the site referenced above has been reviewed. Based on the information contained in that Report, no further action is required at this time. This spill report is now listed as closed in files maintained by this Department.

Sincerely,

Todd Ghiosay
Bureau of Spill Response
And Remediation

cc: Gianna Aeizza

REFERENCE 27

Spill Information

New Search Return to Spills Database Home Page

Region:3 **Spill Number:**9912989

Spill Date:02/15/2000 **Spill Time:**09:32 AM

Call Received Date:02/15/2000 **Time of Call Received:**10:05 AM

Material Spilled	Spilled	Units
#2 FUEL OIL	Unknown	Gal.
#2 FUEL OIL	Unknown	Gal.

Spill Name:RETIRED ECHO AV SUB STAT
Address:78 ECHO AVE
City:NEW ROCHELLE
County: Westchester
View Map

Cause: Unknown **Source:**Unknown
Resource: On Land
Waterbody:

Region Close Date:09/30/2002

New Search Return to Spills Database Home Page

REFERENCE 28

New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 3
21 South Putt Corners Road, New Paltz, New York 12561-1696
Phone: (845) 256-3153 • **FAX:** (845) 255-3414
Website: www.dec.state.ny.us

Erin M. Crotty
Commissioner

October 17, 2002

Allison Meyrowitz
Consolidated Edison
30-01 20th Avenue L.I.C.
New York, NY 11105-2048

Re: Monitoring Well Abandonment
~~Consolidated Edison Echo Avenue~~
Inactive Hazardous Waste Disposal Site No. 3-60-016

Dear Ms. Meyrowitz:

The NYSDEC and NYSDOH have reviewed your request to abandon on site monitoring wells, and your request is approved. Abandon monitoring wells in accordance with the NYSDEC Groundwater Monitoring Well Decommissioning Procedures (May 1995).

If you have any questions, please feel free to contact me at (845) 256-3153.

Sincerely,

Gianna Aiezza
Project Manager

cc: R. Pergadia
A. Tamuno
J. Olm, NYSDOH
N. Bedrock, Con Ed
Y. Skorobogatov, Con Ed

REFERENCE 29

Groundwater Monitoring Well Decommissing Procedures.
October 1996

DECOMMISSIONING PROCEDURES

NYS SUPERFUND STANDBY CONTRACT
WORK ASSIGNMENT D002852-10

NPL SITE MONITORING WELL DECOMMISSIONING

Prepared for NYSDEC
Division of Environmental Remediation
NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION

MAY 1995
Revised October 1996

Prepared By: Malcolm Pernie, Inc.

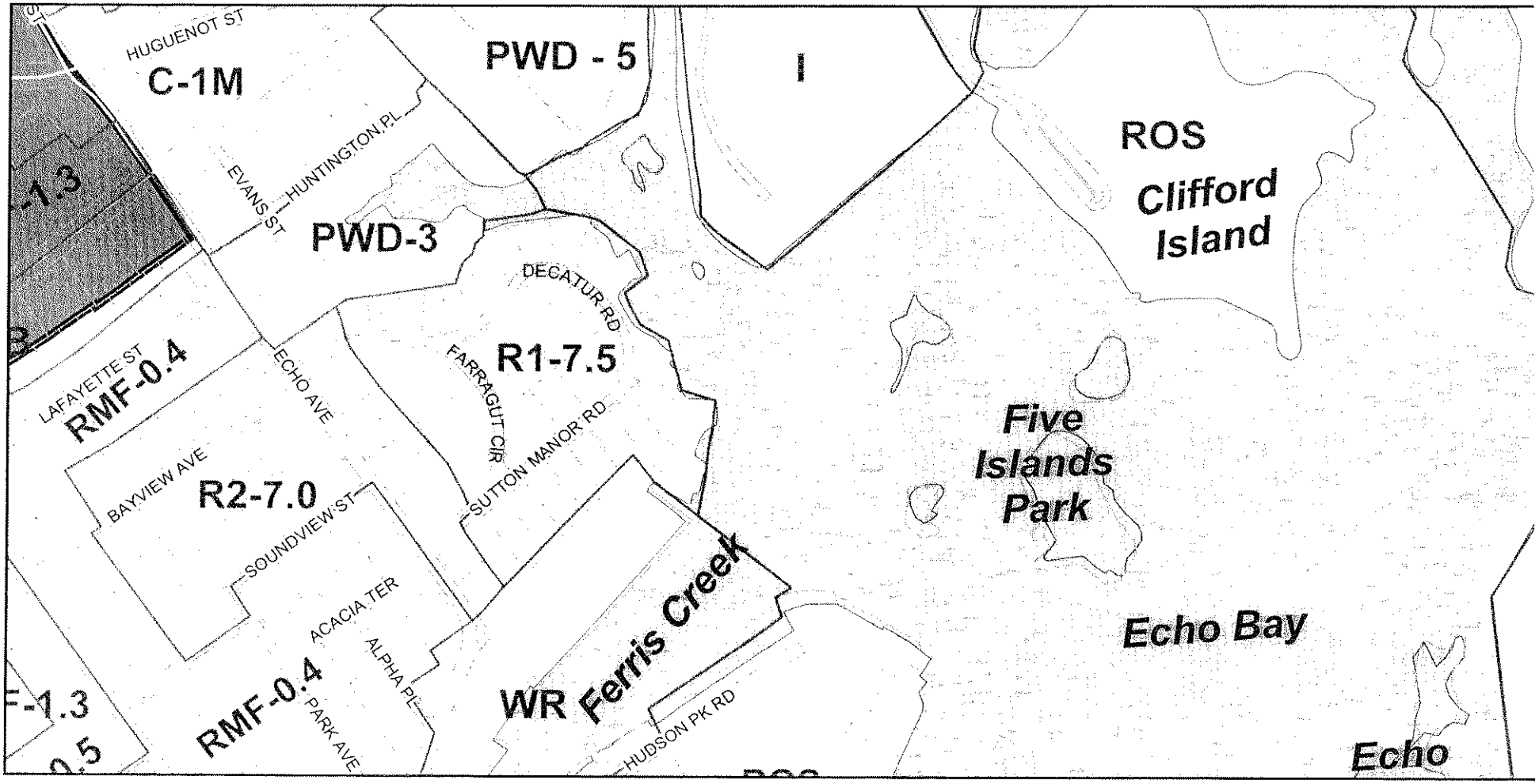
0266-317-002

REFERENCE 30

TAX MAP PARCEL NUMBER / CURRENT OWNERS NAME / CURRENT OWNERS ADDRESS	PROPERTY LOCATION & CLASS / SCHOOL DISTRICT / PARCEL SIZE/GRID COORD	ASSESSMENT / LAND / TOTAL	EXEMPTION CODE / TAX DESCRIPTION / SPECIAL DISTRICTS	TAXABLE VALUE	COUNTY	CITY	SCHOOL
							ACCOUNT NO.
1-96-0026	58 Decatur Rd 210 1 Family Res NEW ROCHELLE CS 551000 Built: 1914; Zone: ACRES 0.38 EAST-0693615 NRTH-0757890 DEED BOOK 45180 PG-428 FULL MARKET VALUE	28,700 1176,230	RES STAR 41854 COUNTY TAXABLE VALUE CITY TAXABLE VALUE SCHOOL TAXABLE VALUE CS000 COUNTY SEWER NR DIST CR001 COUNTY REFUSE #1 RRF01 RES REFUSE FEE 1	0 28,700 28,700 25,680 28,700 TO C 28,700 TO .00 FE	0		3,020
1-96-0026.0	72 Decatur Rd 210 1 Family Res NEW ROCHELLE CS 551000 Built: 1912; Zone: ACRES 0.27 EAST-0693502 NRTH-0757880 DEED BOOK 11212 PG-243 FULL MARKET VALUE	4,300 22,050 903,689	RES STAR 41854 COUNTY TAXABLE VALUE CITY TAXABLE VALUE SCHOOL TAXABLE VALUE CS000 COUNTY SEWER NR DIST CR001 COUNTY REFUSE #1 RRF01 RES REFUSE FEE 1	0 22,050 22,050 19,030 22,050 TO C 22,050 TO .00 FE	0		3,020
1-96-0027	66 Decatur Rd 210 1 Family Res NEW ROCHELLE CS 551000 Built: 1912; Zone: ACRES 0.22 EAST-0693415 NRTH-0757968 DEED BOOK 40095 PG-0641 FULL MARKET VALUE	3,850 17,300 709,016	RES STAR 41854 COUNTY TAXABLE VALUE CITY TAXABLE VALUE SCHOOL TAXABLE VALUE CS000 COUNTY SEWER NR DIST CR001 COUNTY REFUSE #1 RRF01 RES REFUSE FEE 1	0 17,300 17,300 14,280 17,300 TO C 17,300 TO .00 FE	0		3,020
1-96-0028	60 Decatur Rd 210 1 Family Res NEW ROCHELLE CS 551000 Built: 1912; Zone: ACRES 0.24 EAST-0693418 NRTH-0757940 FULL MARKET VALUE	3,900 16,000 655,738	RES STAR 41854 COUNTY TAXABLE VALUE CITY TAXABLE VALUE SCHOOL TAXABLE VALUE CS000 COUNTY SEWER NR DIST CR001 COUNTY REFUSE #1 RRF01 RES REFUSE FEE 1	0 16,000 16,000 12,980 16,000 TO C 16,000 TO .00 FE	0		3,020
1-96-0029	54 Decatur Rd 210 1 Family Res NEW ROCHELLE CS 551000	3,600	SR STAR 41834 COUNTY TAXABLE VALUE	0 15,900	0		C,020

TAX MAP PARCEL NUMBER / CURRENT OWNERS NAME / CURRENT OWNERS ADDRESS	PROPERTY LOCATION & CLASS / SCHOOL DISTRICT / PARCEL SIZE/GRID COORD	ASSESSMENT / LAND / TOTAL	EXEMPTION CODE / TAX DESCRIPTION / SPECIAL DISTRICTS	TAXABLE VALUE	COUNTY	CITY	SCHOOL
	48 Decatur Rd						ACCOUNT NO.
1-96-0030	210 1 Family Res		RES STAR 41854	0		0	3,020
Martinez Charles M	NEW ROCHELLE CS 551000	2,750	COUNTY TAXABLE VALUE	12,850			
48 Decatur Rd	Built: 1916; Zone:	12,850	CITY TAXABLE VALUE	12,850			
New Rochelle, NY 10801	ACRES 0.18		SCHOOL TAXABLE VALUE	9,830			
	EAST-0693230 NRTH-0757811		CS000 COUNTY SEWER NR DIST	12,850 TO C			
	DEED BOOK 15116 PG-58		CR001 COUNTY REFUSE #1	12,850 TO			
	FULL MARKET VALUE	526,639	RRF01 RES REFUSE FEE 1	.00 FE			
	46 Decatur Rd						1-96-0031
1-96-0031	210 1 Family Res		RES STAR 41854	0		0	3,020
Mines Susan	NEW ROCHELLE CS 551000	2,400	COUNTY TAXABLE VALUE	11,050			
46 Decatur Rd	Built: 1912; Zone:	11,050	CITY TAXABLE VALUE	11,050			
New Rochelle, NY 10801	ACRES 0.14		SCHOOL TAXABLE VALUE	8,030			
	EAST-0693135 NRTH-0757775		CS000 COUNTY SEWER NR DIST	11,050 TO C			
	DEED BOOK 44029 PG-544		CR001 COUNTY REFUSE #1	11,050 TO			
	FULL MARKET VALUE	452,869	RRF01 RES REFUSE FEE 1	.00 FE			
	44 Decatur Rd						1-96-0031.A
1-96-0031.A	210 1 Family Res		RES STAR 41854	0		0	3,020
Lockwood Frederick	NEW ROCHELLE CS 551000	2,900	COUNTY TAXABLE VALUE	13,900			
Lockwood Virginia	Built: 1913; Zone:	13,900	CITY TAXABLE VALUE	13,900			
34 Decatur Rd	ACRES 0.19		SCHOOL TAXABLE VALUE	10,880			
New Rochelle, NY 10805	EAST-0693139 NRTH-0757761		CS000 COUNTY SEWER NR DIST	13,900 TO C			
	FULL MARKET VALUE	569,672	CR001 COUNTY REFUSE #1	13,900 TO			
			RRF01 RES REFUSE FEE 1	.00 FE			
	38 Farragut Cir.						1-96-0032
1-96-0032	210 1 Family Res		RES STAR 41854	0		0	3,020
Pfefferman F	NEW ROCHELLE CS 551000	2,800	COUNTY TAXABLE VALUE	15,300			
Pfefferman Lynn A	Built: 1909; Zone:	15,300	CITY TAXABLE VALUE	15,300			
38 Farragut Cir	ACRES 0.19		SCHOOL TAXABLE VALUE	12,280			
New Rochelle, NY 10804	EAST-0693063 NRTH-0757764		CS000 COUNTY SEWER NR DIST	15,300 TO C			
	FULL MARKET VALUE	627,049	CR001 COUNTY REFUSE #1	15,300 TO			
			RRF01 RES REFUSE FEE 1	.00 FE			
	42 Farragut Cir.						1-96-0033
1-96-0033	210 1 Family Res		RES STAR 41854	0		0	3,020
Papadopoulos Christos	NEW ROCHELLE CS 551000	2,850	COUNTY TAXABLE VALUE	15,150			

TAX MAP PARCEL NUMBER / CURRENT OWNERS NAME / CURRENT OWNERS ADDRESS	PROPERTY LOCATION & CLASS / SCHOOL DISTRICT / PARCEL SIZE/GRID COORD	ASSESSMENT LAND / TOTAL	EXEMPTION CODE / TAX DESCRIPTION / SPECIAL DISTRICTS	COUNTY / CITY / SCHOOL TAXABLE VALUE	ACCOUNT NO.
	14 Farragut Cir.			1-96-8038	
1-96-8038	210 1 Family Res		COUNTY TAXABLE VALUE	19,000	
Dupin de Saint Cyr B	NEW ROCHELLE CS 551000	2,800	CITY TAXABLE VALUE	19,000	
14 Farragut Cir	Built: 1961; Zone:	19,000	SCHOOL TAXABLE VALUE	19,000	
New Rochelle, NY 10805	ACRES 0.17		CS000 COUNTY SEWER NR DIST	19,000 TO C	
	EAST-0632896 NRTH-0757747		CR001 COUNTY REFUSE #1	19,000 TO	
	DEED BOOK 10154 PG-296		RRF01 RES REFUSE FEE 1	.00 FE	
	FULL MARKET VALUE	778,689			
	10 Farragut Cir.			1-96-8041	
1-96-8041	210 1 Family Res		COUNTY TAXABLE VALUE	18,800	
Deutsche Bank National Tr. Co.	NEW ROCHELLE CS 551000	2,800	CITY TAXABLE VALUE	18,800	
10 Farragut Cir.	Built: 1912; Zone:	18,800	SCHOOL TAXABLE VALUE	18,800	
New Rochelle, NY 10801	ACRES 0.17		CS000 COUNTY SEWER NR DIST	18,800 TO C	
	EAST-0632812 NRTH-0757708		CR001 COUNTY REFUSE #1	18,800 TO	
	DEED BOOK 47126 PG-502		RRF01 RES REFUSE FEE 1	.00 FE	
	FULL MARKET VALUE	778,492			
	76 Echo Ave			1-96-8043	
1-96-8043	210 1 Family Res		COUNTY TAXABLE VALUE	12,150	
Mullings, Dionne Cheryl	NEW ROCHELLE CS 551000	2,550	CITY TAXABLE VALUE	12,150	
Mullings, Donald Carlys	Built: 1960; Zone:	12,150	SCHOOL TAXABLE VALUE	12,150	
76 Echo Ave	FRNT 69.00 DPTH 81.00		CS000 COUNTY SEWER NR DIST	12,150 TO C	
New Rochelle, NY 10805	ACRES 0.13		CR001 COUNTY REFUSE #1	12,150 TO	
	EAST-0632739 NRTH-0757663		RRF01 RES REFUSE FEE 1	.00 FE	
	DEED BOOK 45321 PG-557				
	FULL MARKET VALUE	497,951			
	Echo Bay			1-96-8200	
1-96-8200	311 Res vac land		COUNTY TAXABLE VALUE	150	
DeGut Kenneth F	NEW ROCHELLE CS 551000	150	CITY TAXABLE VALUE	150	
Blackwell Christine E	Built: 0000; Zone:	150	SCHOOL TAXABLE VALUE	150	
76 Decatur Rd	ACRES 0.21		CS000 COUNTY SEWER NR DIST	150 TO C	
New Rochelle, NY 10805	EAST-0633000 NRTH-0757830		CR001 COUNTY REFUSE #1	150 TO	
	DEED BOOK 45180 PG-428				
	FULL MARKET VALUE	6,148			
	Hudson Park Rd			1-99-8000	
1-99-8000	557 Outdr sport		COUNTY TAXABLE VALUE	25,000	


HUGUENOT ST
C-1M
PWD - 5
I
ROS
Clifford Island
HUNTINGTON PL
EVANS ST
PWD-3
DECATUR RD
R1-7.5
FARRAGUT CIR
SUTTON MANOR RD
LAFAYETTE ST
RMF-0.4
ECHO AVE
Five Islands Park
BAYVIEW AVE
R2-7.0
SOUNDVIEW ST
ACACIA TER
ALPHA PL
WR Ferris Creek
Echo Bay
RMF-0.4
PARK AVE
HUDSON PK RD
Echo

REFERENCE 31

CC KAW, JG
DL, CF

Con Edison
Consolidated Edison Company of New York, Inc.
31-01 20th Avenue, L.I.C., New York 11105-2048

January 26, 2000

By facsimile and regular mail

Ramanand Pergadia
NYSDEC - Region 3
Division of Hazardous Waste Remediation
21 South Putt Corners Road
New Paltz, NY 12561-1696

Subject: **Administrative Order of Consent, W#05131-91-02**
Echo Avenue Site (Site No. 360016)

Dear Mr. Pergadia:

This confirms our telephone discussions on December 16, 1999 and January 6, 2000 regarding the status of the remediation at the above-referenced site and your approval to backfill the entire building slab excavation.

On September 24th, you approved backfilling of the South Hall slab excavation. Since then, several previously unknown concrete structures were uncovered within both the South and North Hall slab excavations. These structures (Figure 1) were discussed with you on October 13th, and it was agreed that Con Edison complete the following tasks prior to backfilling of the excavated area:

1. Sampling and PCB analyses of the sediment from the bottom of each deep structure found in the North Hall area and at least one structure (closest to the Echo Bay) - in the South Hall area;
2. Test pits to locate the east terminus of a concrete trench discovered in the North Hall area;
3. Removal and proper disposal of water and sediment from the bottom of the concrete trench and subsequent pressure wash of the structure;
4. Uncovering of all shallow voids found in the excavated area.

Con Edison has completed all of the above tasks. A total of 12 sediment samples were collected from the deep structures and analyzed for PCBs by the on-site mobile laboratory. Five of these samples were split and sent to the off-site laboratory for confirmatory analysis. The sample locations and depths are shown on Figure 1, with the analytical results presented in Table 1. No PCBs were detected in the sediment samples.

The concrete trench was traced to the east end of the building slab until a curved concrete wall that appears to be the terminus of the structure was encountered. On December 8th, Con Edison removed the water and sediment contained in the trench up to the point where it was previously backfilled with brick and fill. The exposed section of the trench was then pressure washed. All waste generated during the trench cleaning was disposed of at properly permitted waste management facilities.

Con Edison also exposed all shallow voids encountered in the excavation area. Keith Browne of the NYSDEC was onsite to witness the completion of each of the above tasks.

During a telephone conversation on October 25th, we agreed that any rubble removed from the concrete structures or generated while uncovering the voids could be placed back provided that composite samples collected from each pile of this rubble contain PCBs at ≤ 1 ppm. Con Edison collected a total of 10 composite samples for PCB analysis by the on-site mobile laboratory (Figure 2). One of the samples was split for confirmatory analysis by the off-site laboratory. None of the samples was found to contain PCBs (Table 2). As a result, the rubble was placed back in the structures.

In addition, Con Edison removed PCB-impacted soil from several locations within and adjacent to the North Hall slab area, as identified by the delineation samples. The analytical data for the samples collected after the soil removal met the cleanup criteria for PCBs (1 ppm for 0-2 feet and 10 ppm for >2 feet). The sample locations and depths are shown on Figure 3, with the analytical results presented in Table 3.

All of the above was discussed with you on December 16th, and you provided your approval to backfill the entire building slab excavation with certified clean fill. On January 3, 2000, I faxed you a letter from Hampton Sand Corp. indicating that their backfill material is virgin and free of contaminants. That same day, you provided your approval to use this material for the site excavations.

On January 5th, I advised you that a final report from the on-site mobile laboratory, Severn Trent Labs, which was received on January 3rd, contained revised analytical data for several samples from the building slab area. Based on the revised data, two samples collected in the South Hall area at 0 – 2 feet depth contained PCBs above 1 ppm. Specifically, PCBs were detected at 1.6 ppm in sample SH-08W (0.5-2.5 feet) and were measured at 1.3 ppm in sample SH-14B. (1.75 feet, Figure 4 and Table 4). The original laboratory data for these two samples were "non-detected" and 0.69 ppm, respectively (Table 4). During our telephone conversation on January 6th, you indicated that the exceedances are negligible and no additional remediation or sampling is warranted in the areas where the samples were collected.

If you have any questions concerning this matter, please do not hesitate to call me at (718) 204-4205.

Sincerely,

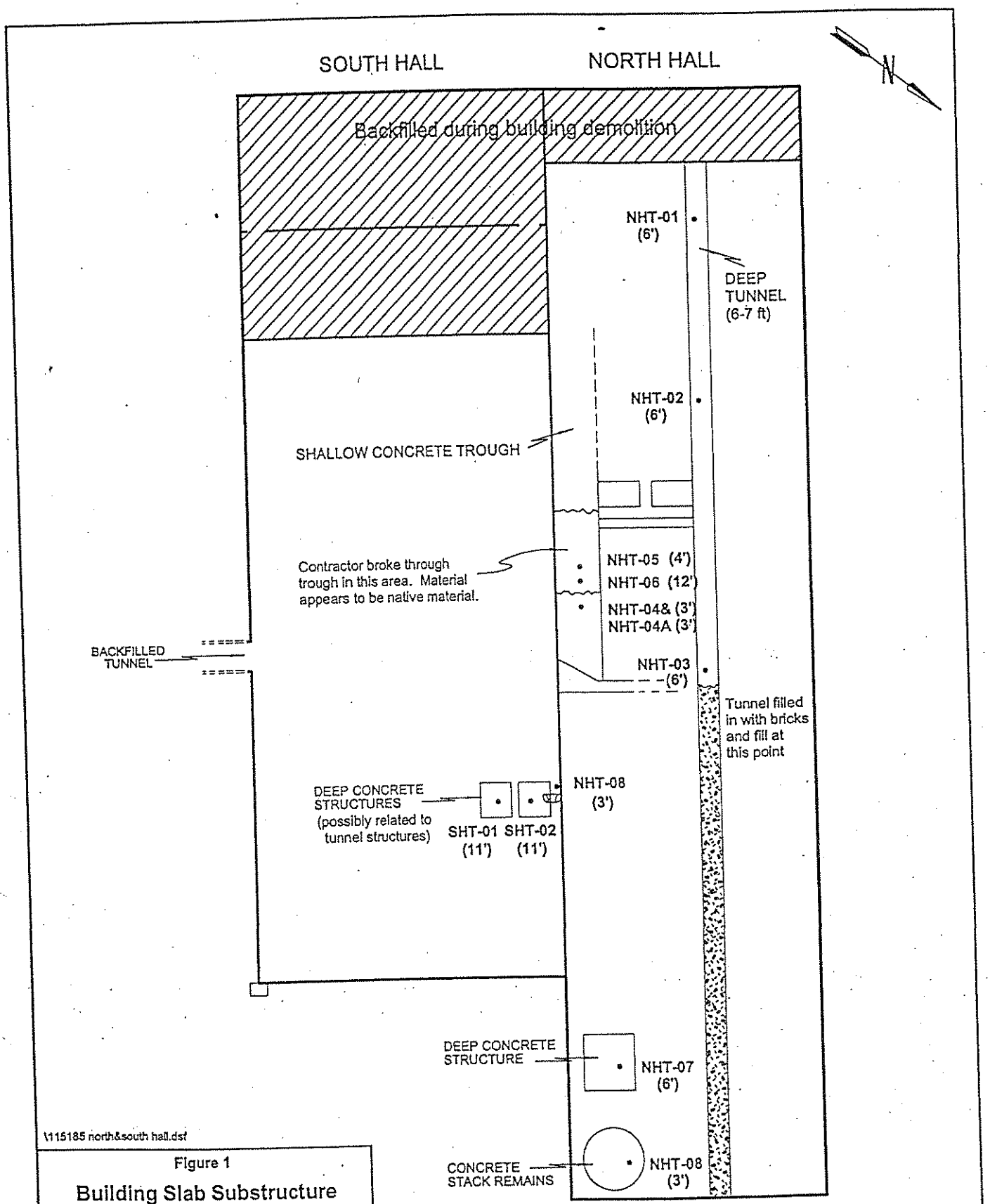
Y. Skorobogatov

Yelena Skorobogatov

Remediation

Enc.

Cc: Troy Meyer, Con Edison
Michael A. Wilcken, Con Edison
Karen Wright, LMS



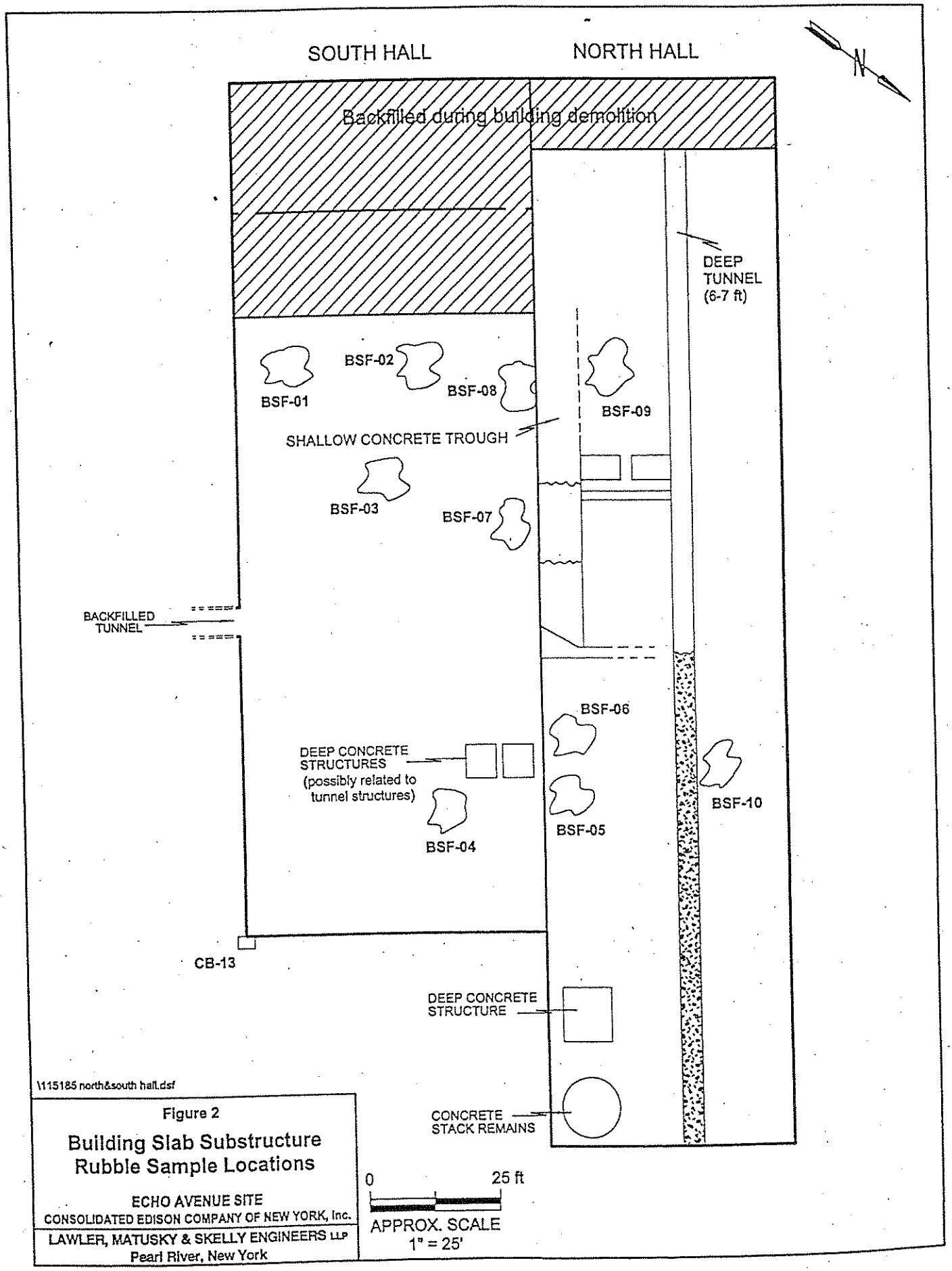
\115185 north&south hall.dsf

Figure 1

Building Slab Substructure Sample Locations

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



\\115185 north&south hall.dsf

Figure 2

Building Slab Substructure Rubble Sample Locations

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

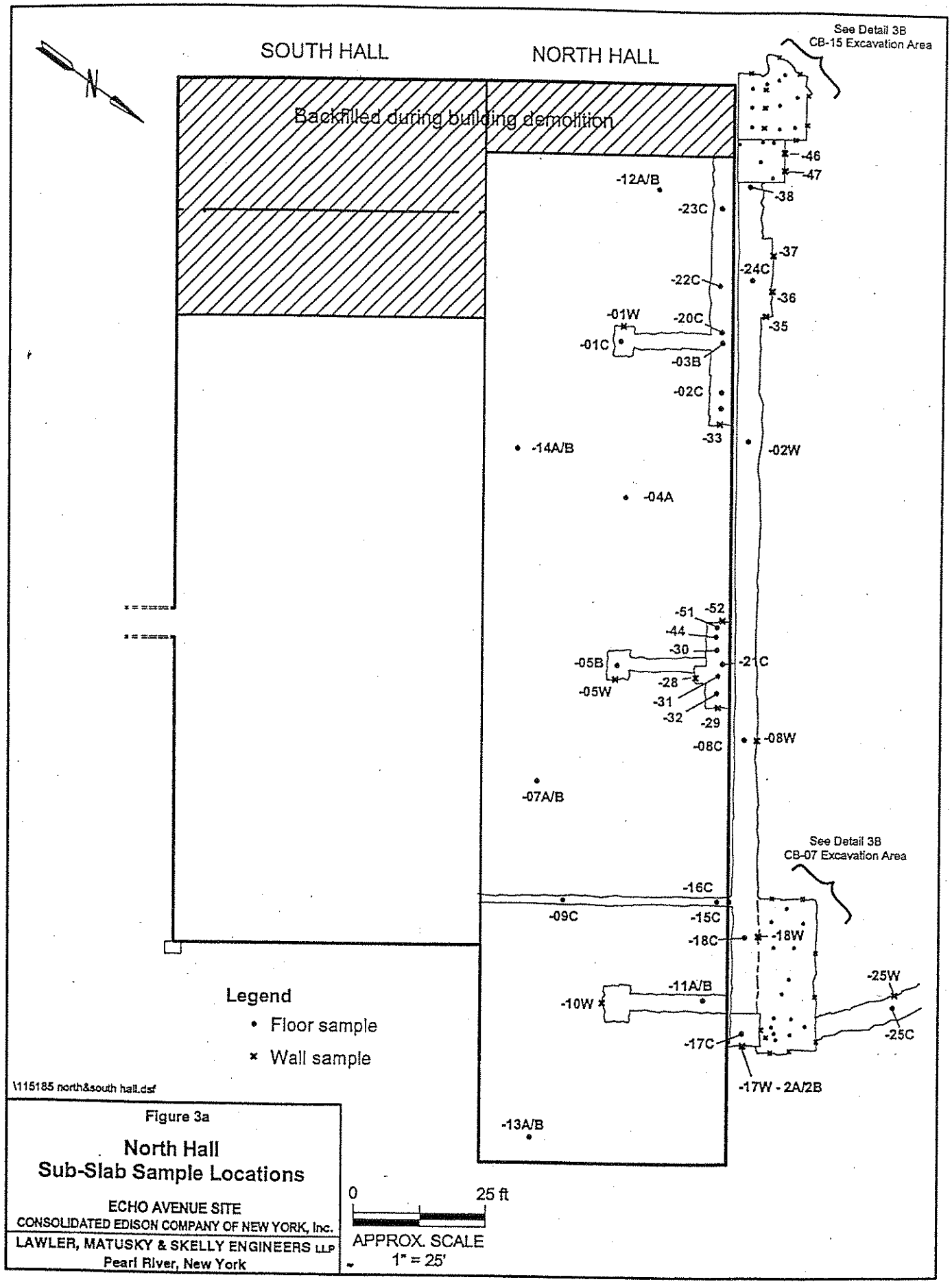
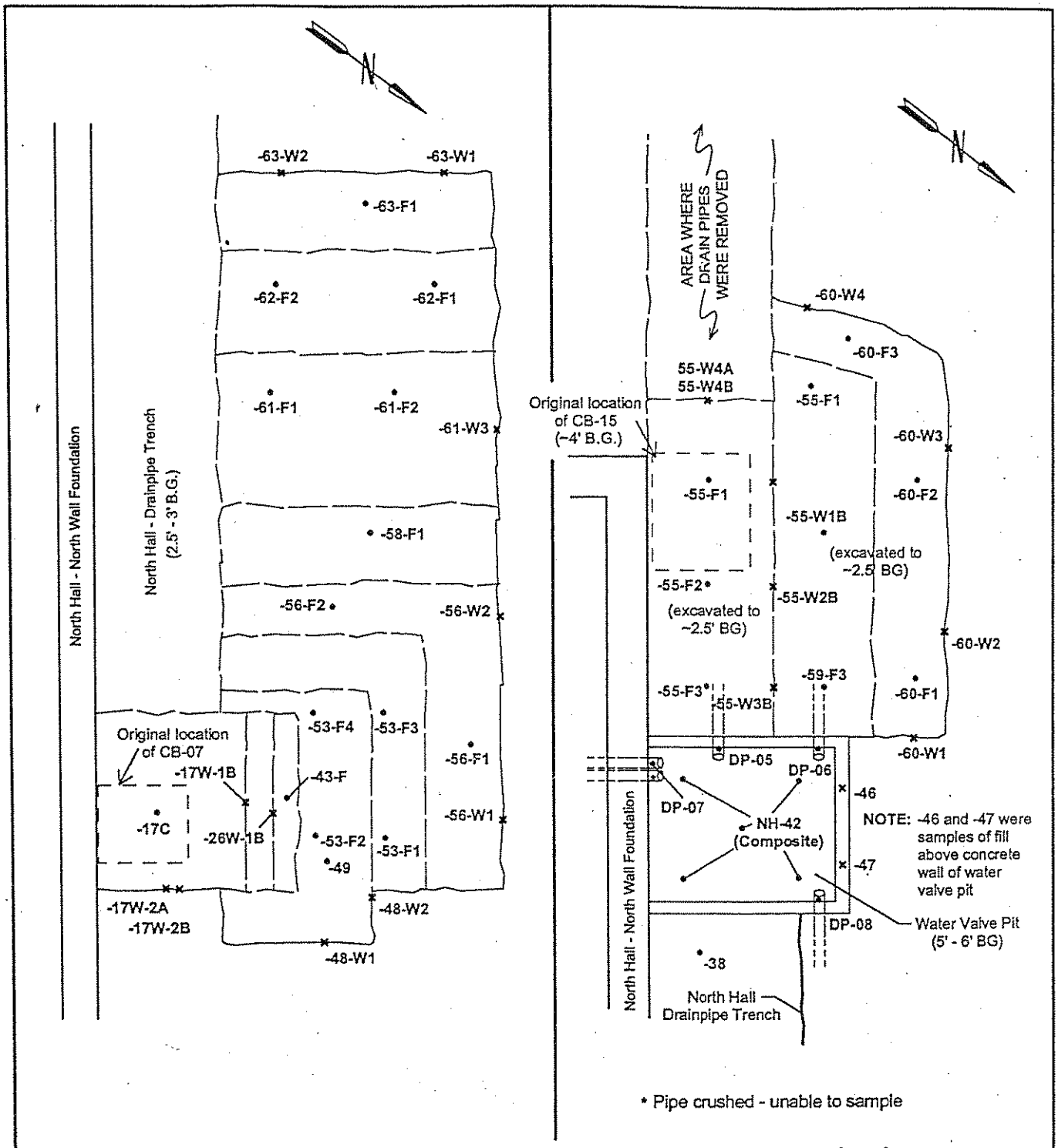


Figure 3a

North Hall
Sub-Slab Sample Locations

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York



\\115185 details north hall.dsf

Figure 3b

Expanded Drawing of North Hall Drainpipe Trench Samples

ECHO AVENUE SITE

CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.

LAWLER, MATUSKY & SKELLY ENGINEERS LLP

Pearl River, New York

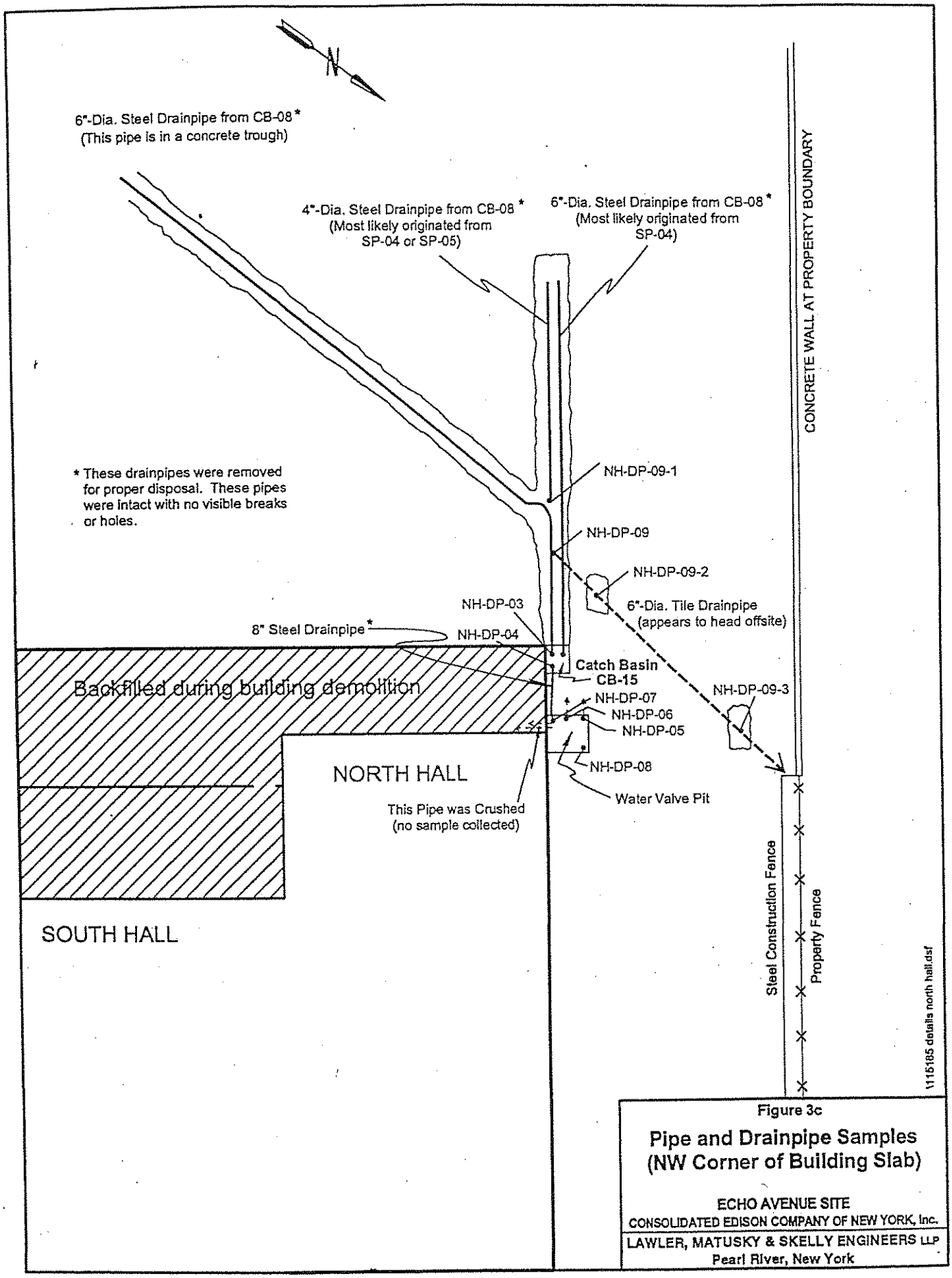


Figure 3c

Pipe and Drainpipe Samples (NW Corner of Building Slab)

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

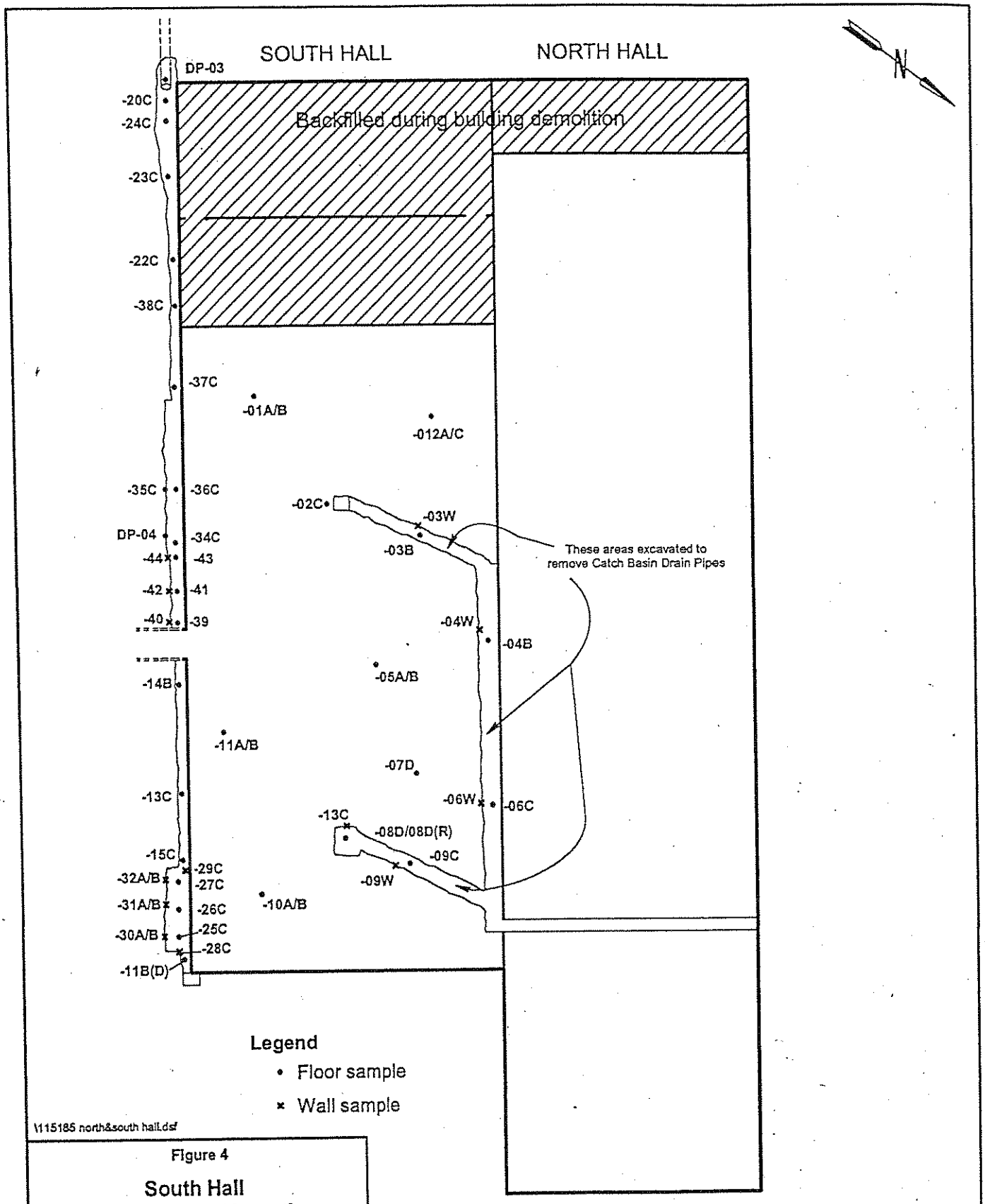


Figure 4

South Hall
Sub-Slab Sample Locations

ECHO AVENUE SITE
CONSOLIDATED EDISON COMPANY OF NEW YORK, Inc.
LAWLER, MATUSKY & SKELLY ENGINEERS LLP
Pearl River, New York

TABLE 1

BUILDING SLAB SUBSTRUCTURE SEDIMENT DATA SUMMARY

(October 1999)

PARAMETER	NHT-01		NHT-02		NHT-03		NHT-04		NHT-04A		NHT-05	
	Mitkem	STL	Mitkem	STL	Mitkem	STL	Mitkem	STL	Mitkem	STL	Mitkem	STL
PCBs (mg/kg)												
Aroclor 1254	ND	ND	♦	ND	ND	ND	♦	ND	♦	ND	ND	ND
Aroclor 1260	ND	ND	♦	ND	ND	ND	♦	ND	♦	ND	ND	ND
Total PCBs	ND	ND	♦	ND	ND	ND	♦	ND	♦	ND	ND	ND
Sample Depth	3'		6'		6'		3'		3'		4'	
NYSDEC Clean-up Criteria (mg/kg)	≤ 10		≤ 10		≤ 10		≤ 10		≤ 10		≤ 10	

PARAMETER	NHT-06		NHT-07		NHT-08		NHT-09		SHT-01		SHT-02	
	Mitkem	STL	Mitkem	STL	Mitkem	STL	Mitkem	STL	Mitkem	STL	Mitkem	STL
PCBs (mg/kg)												
Aroclor 1254	♦	ND	ND	ND	♦	ND	♦	ND	♦	ND	ND	ND
Aroclor 1260	♦	ND	ND	ND	♦	ND	♦	ND	♦	ND	ND	ND
Total PCBs	♦	ND	ND	ND	♦	ND	♦	ND	♦	ND	ND	ND
Sample Depth	12'		6'		3'		2'		11'		11'	
NYSDEC Clean-up Criteria (mg/kg)	≤ 10		≤ 10		≤ 10		≤ 1		≤ 10		≤ 10	

ND - Not detected at analytical detection limit.
♦ - Not analyzed
Mitkem - Off-site laboratory.
STL - On-site mobile laboratory.

+Disk No.: \\Lms-svr1\data\HazWaste\JOBS\100\115-155\Postremdata.xls/Table 7-2/17/002:32 PM

TABLE 2

BUILDING SLAB SUBSTRUCTURE RUBBLE DATA SUMMARY

(October 1999)

PARAMETER	BSF-01		BSF-02		BSF-03		BSF-04		BSF-05	
	Mitkem	STL	Mitkem	STL	Mitkem	STL	Mitkem	STL	Mitkem	STL
PCBs (mg/kg)										
Aroclor 1254	♦	ND	♦	ND	♦	ND	ND	ND	♦	ND
Aroclor 1260	♦	ND	♦	ND	♦	ND	ND	ND	♦	ND
Total PCBs	♦	ND	♦	ND	♦	ND	ND	ND	♦	ND
Sample Depth	~0.5-3'		~0.5-3'		~0.5-3'		~0.5-5'		~0.5-3'	
NYSDEC Clean-up Criteria (mg/kg)	≤ 1		≤ 1		≤ 1		≤ 1		≤ 1	

PARAMETER	BSF-06		BSF-07		BSF-08		BSF-09		BSF-10	
	Mitkem	STL	Mitkem	STL	Mitkem	STL	Mitkem	STL	Mitkem	STL
PCBs (mg/kg)										
Aroclor 1254	♦	ND	♦	ND	♦	ND	♦	ND	♦	ND
Aroclor 1260	♦	ND	♦	ND	♦	ND	♦	ND	♦	ND
Total PCBs	♦	ND	♦	ND	♦	ND	♦	ND	♦	ND
Sample Depth	~0.5-3'		~0.5-3'		~0.5-3'		~0.5-3'		~5-7'	
NYSDEC Clean-up Criteria (mg/kg)	≤ 1		≤ 1		≤ 1		≤ 1		≤ 1	

ND - Not detected at analytical detection limit.
♦ - Not analyzed
Mitkem - Off-site laboratory.
STL - On-site mobile laboratory.

NORTH HALL
SUB-SLAB SOIL AND SEDIMENT
DATA SUMMARY
(September - November 1999)

Sample Identification	Sample Depth (ft)	STL Results (Mobile Lab) Total PCBs (ppm)	STL Result Changes (Mobile Lab) Total PCBs (ppm)	MITKEM Results (Outside Lab) Total PCBs (ppm)
NH-01C	2.5	0.2	*	0.160
NH-01W	0.5-2	ND	0.6	-
NH-02C	2.25	ND	*	-
NH-02W	0-2	ND	*	0.140
NH-03B	2	ND	*	-
NH-04A	0.5-1	0.8	*	-
NH-05B	1.5	ND	*	-
NH-05W	0.5-1.5	ND	*	-
NH-07A	0.5-1	ND	*	-
NH-07B	1-2	ND	*	ND
NH-08C	2.25	0.94	*	-
NH-08W	0-2	ND	*	-
NH-09C	3.5	ND	*	-
NH-10W	1-2	ND	*	-
NH-11A	0.5-1	ND	*	-
NH-11B	1-2	ND	*	-
NH-12A	0.5-1	0.2	*	-
NH-12B	1-2	ND	*	ND
NH-13A	0.5-1	ND	*	-
NH-13B	1-2	ND	*	ND
NH-14A	0.5-1	ND	*	-
NH-14B	1-2	ND	*	-
NH-15C	3.5	0.81	*	-
NH-16C	3.5	ND	*	-
NH-17C	4.0	ND	*	0.059
NH-17W-1A[1]	0-2	2.1	*	0.94 [1]
NH-17W-1B	2-4	0.86	*	-
NH-17W-2A	0-2	ND	*	-
NH-17W-2B	2-4	ND	*	-
NH-18C	3	0.17	*	-
NH-18W	0-3	0.91	*	0.430
NH-19C	3	2.6	*	-
NH-20C	3	0.84	*	0.640
NH-21W-2[1]	0.5-2.5	3.2	*	1.2 [1]
NH-21C[1]	3	4.3	*	2.8 [1]
NH-22C	2.5	0.89	*	-
NH-23C[1]	2.5	3.1	*	0.63 [1]
NH-24C	2.25	0.71	*	-
NH-25C	3	0.16	*	0.086
NH-25W	0-3	0.41	*	-
NH-26W-1B	2-4	0.5	*	-

NORTH HALL
SUB-SLAB SOIL AND SEDIMENT
DATA SUMMARY
(September - November 1999)

Sample Identification	Sample Depth (ft)	STL Results (Mobile Lab) Total PCBs (ppm)	STL Result Changes (Mobile Lab) Total PCBs (ppm)	MITKEM Results (Outside Lab) Total PCBs (ppm)
NH-28	0.5-2	0.27	*	-
NH-29	0.5-2	ND	*	-
NH-30	3	2.0	*	-
NH-31	3	2.3	*	-
NH-32	2.5	0.79	1.89	-
NH-33	0.5-2.0	0.87	*	0.500
NH-34	2.25	2.1	4.9	-
NH-35	0-2	ND	*	-
NH-36	0-2	0.68	*	-
NH-37	0-2	ND	*	0.260
NH-38	2.25	0.1	*	-
NH-42	5-6	0.37	*	0.130
NH-43-F	2.5	0.77	*	-
NH-44	2.5	0.92	*	-
NH-46	0-2	0.42	*	-
NH-47	0-2	0.49	*	0.180
NH-48-W1	0-2	0.81	*	-
NH-48-W2	0-2	0.7	*	-
NH-49	2.5	ND	*	-
NH-51	2.25	0.68	*	-
NH-52	0.5-2	0.37	*	0.120
NH-53-F1	0-2.5	0.15	*	-
NH-53-F2	0-2.5	0.27	*	-
NH-53-F3	0-2.5	0.63	*	-
NH-53-F4	0-2.5	0.18	*	-
NH-55-F1	6.5	ND	*	-
NH-55-F2	6	ND	*	-
NH-55-F3	6	ND	*	-
NH-55-FC	Composite	ND	*	ND
NH-55-W1B	2-5	ND	*	-
NH-55-W2B	2-5	ND	*	-
NH-55-W3B	2-5	ND	*	-
NH-55-W4A	1-2	ND	*	-
NH-55-W4B	2-5	ND	*	-
NH-56-F1	2.5	0.11	*	-
NH-56-F2	2.5	0.97	*	-
NH-56-W1	0-2	ND	*	-
NH-56-W2	0-2	0.3	*	-
NH-58-F1	2.5	2.1	*	-
NH-59-F1	2.5	ND	*	-
NH-59-F2	2.5	0.13	*	-
NH-59-F3	2.5	0.14	*	-

NORTH HALL
SUB-SLAB SOIL AND SEDIMENT
DATA SUMMARY
(September - November 1999)

Sample Identification	Sample Depth (ft)	STL Results (Mobile Lab) Total PCBs (ppm)	STL Result Changes (Mobile Lab) Total PCBs (ppm)	MITKEM Results (Outside Lab) Total PCBs (ppm)
NH-60-F1	2.5	ND	*	-
NH-60-F2	2.5	ND	*	-
NH-60-F3	2.5	ND	*	-
NH-60-W1	0-2	0.43	*	-
NH-60-W2	0-2	ND	*	-
NH-60-W3	0-2	ND	*	-
NH-60-W4	0-2	0.43	*	-
NH-60-W5	0-2	ND	*	-
NH-60-W-C	Composite	ND	*	0.250
NH-61-F1	2.5	ND	*	-
NH-61-F2	2.5	ND	*	-
NH-61-W3	0-2	0.23	0.25	-
NH-62-F1	2.5	ND	*	-
NH-62-F2	2.5	1.1	*	-
NH-63-F1	2.5	ND	*	-
NH-63-W1	0-2	ND	*	-
NH-63-W2	0-2	0.14	*	0.390
NH-DP-05	3.5	ND	*	-
NH-DP-06	5	0.68	*	-
NH-DP-07	5	ND	*	-
NH-DP-08	5	ND	*	-
NH-DP-09	2.5	1.2	*	-
NH-DP-09-2	2.5	3.2	*	-
NH-DP-09-3	2.5	3.1	*	0.900

Note: These samples were inadvertently analyzed by Mitkem. This data were not validated.
The areas where NH-17-W-1A and NH-21W-2 were located were subsequently removed with further excavation.

Table 4

Con Edison - Echo Ave. Site
South Hall PCB Data Summary (1999)

Sample Identification	Sample Depth (ft)	STL Results (Mobile Lab) Total PCBs (ppm)	STL Result Changes (Mobile Lab) Total PCBs (ppm)	MITKEM Results (Outside Lab) Total PCBs (ppm)
SH-01A	0.5-1	ND	*	-
SH-01B	1-2	ND	*	-
SH-02C	2-2.5	ND	*	-
SH-03B	2.25	ND	*	ND
SH-03W	1-2	ND	*	-
SH-04B	2.25	ND	*	ND
SH-04W	0.5-2	ND	*	-
SH-05A	0.5-1	ND	*	-
SH-05B	1-2	ND	*	-
SH-06C	2.5	ND	0.3	-
SH-06W	0-2.5	ND	*	-
SH-07D	3.5	ND	*	ND
SH-08D	3.5	4.0	3.1	-
SH-08D (R)	3.5	-	*	1.0
SH-08W	**0.5-2.5**	**ND**	**1.6**	-
SH-09C	2-2.5	ND	*	-
SH-09W	0.5-2	ND	*	-
SH-10A	0.5-1	ND	*	ND
SH-10B	1-2	ND	*	-
SH-11A	0.5-1	ND	*	-
SH-11B	1-2	ND	*	-
SH-11B (D)	1.75	ND	*	-
SH-12A	0.5-1	ND	*	
SH-12C	3	ND	*	-
SH-13C	2.5	0.26	*	-
SH-14B	**1.75**	**0.69**	**1.3**	-
SH-15C	2.5	1.6	*	
SH-20C	2.5	0.92	*	-
SH-22C	2.25	0.42	*	-
SH-23C	2.5	ND	*	-
SH-24C	2.75	1.6	*	-
SH-25C	3.5	ND	*	-
SH-26C	3.5	ND	*	-
SH-27C	3.5	ND	*	-
SH-28C	2.5-3.5	1.00	*	-
SH-29C	2.5-3.5	ND	*	-
SH-30A	0.2	ND	*	-
SH-30B	2-3.5	ND	*	-
SH-31A	0-2	ND	*	-
SH-31B	2-3.5	ND	*	ND
SH-32A	0-2	ND	*	-

Table 4

Con Edison - Echo Ave. Site
South Hall PCB Data Summary (1999)

Sample Identification	Sample Depth (ft)	STL Results (Mobile Lab) Total PCBs (ppm)	STL Result Changes (Mobile Lab) Total PCBs (ppm)	MITKEM Results (Outside Lab) Total PCBs (ppm)
SH-32B	2-3.5	ND	*	-
SH-34C	2.25	ND	*	-
SH-35C	3	ND	*	-
SH-36C	3	ND	*	-
SH-37C	2.25	1.2	*	-
SH-38C	2.25	1.5	*	-
SH-39	3	0.67	*	-
SH-40	2-3	ND	*	-
SH-41	3	ND	*	-
SH-42	2-3	ND	*	-
SH-43	3	ND	*	-
SH-44	2-3	ND	*	-
SH-DP-03	2.25	2.5	*	-
SH-DP-04	2.25	ND	*	-

Legend
ND: Not Detected
- : Not Run
*** : No Change**

A. The samples collected from the CB-05 excavation area were SH-08D, SH-08D(R), and SH-08W Samples SH-09C, and SH-09W were collected from the excavation trench where the drainpipe from CB-05 was removed.

B. The samples collected from the drainpipe excavation trench where SH-14B was collected include the following : SH-13C, -15C, -29C, -27C, -26C, -25C,-28C, -11B(D), -30A, -30B, -31A, -31B, -32A, and -32B.

REFERENCE 32

THE SOIL CHEMISTRY OF HAZARDOUS MATERIALS

James Dragun, Ph.D.

Hazardous Materials Control Research Institute
Silver Spring, Maryland

- Leaching of mobilized elements such as calcium, boron, lithium, iron, magnesium, manganese, selenium, or sodium (a) out of the soil profile, or (b) into zones of accumulation.
- Translocation, in the course of soil-forming processes such as podzolization, of trace elements together with iron and aluminum.
- Mobilization of trace elements through breakdown of soil minerals as a result of alternate wetting and drying.
- Mechanical translocation of clay, which increases trace element concentrations in those soil horizons having higher amounts of clay particles.
- Surface accumulation of relatively soluble elements such as boron, calcium, and sodium in arid regions.
- Mobilization or fixation arising from chemical and/or microbiological activity.
- Surface enrichment due to trace element uptake by plants.

Second, analytical data derived from the chemical analysis of the total element content of a soil (i.e. C_{Total}) relays no information regarding C_{Fixed}, $C_{Adsorbed}$, and C_{Water} other than the magnitude of their combined concentrations. In other words, if a laboratory report states that a soil contains 125 ppm total Cu, this datum cannot reveal if 0.1 percent is potentially mobile (i.e. $C_{Adsorbed} + C_{Water}$) or if 99 percent is potentially mobile. At background concentrations, the relative magnitudes of the parameters listed in Equation 3.1 for cations generally are:

$$C_{Fixed} >> C_{Adsorbed} > C_{Water}$$

The greater part of C_{Total} exists as C_{Fixed} and is immobile. However, this relative ranking may or may not change as C_{Total} increases above the background concentration.

Third, the background concentrations listed in Table 3.1 represent the total concentration of an element present after the soil was formed and weathered. This concentration gives no information on the element-loading capacity of a soil. The element-loading capacity can be defined as the maximum amount of an element that can be added to soil which does not cause water migrating through this soil to contain a harmful concentration of that element. In other words, knowing that a soil contains 125 ppm total background Cu will not reveal if soil will or will not completely convert an additional loading of 500 ppm Cu into C_{Fixed}.

Soil cleanup standards that specify the excavation or treatment of soil containing concentrations of an element over a background concentration are usually based on an incorrect premise that the background concentration of an element in soil represents a maximum concentration of an element which the soil can immobilize. The background concentration represents total concentration present after soil was formed under

TABLE 3.2 Natural Concentrations of Various Elements in Groundwater.[a]

Element	Concentration: Typical Value	Concentration: Extreme Value
	Major Elements (ppm)	
Ca	1.0 - 350[b]	95,000[c]
	< 500[d]	
Cl	1.0 - 70[b]	200,000[c]
	< 3000[d]	
F	0.1 - 5.0	70
		1600[c]
Fe	0.01 - 10	> 1000[c,e]
K	1.0 - 30	25,000[c]
Mg	1.0 - 50[b]	52,000[c]
	< 400[d]	
Na	0.5 - 120[b]	120,000[c]
	< 1000[d]	
NO_3	0.2 - 20	70
SiO_2	5.0 - 100	4,000[c]
SO_4	3.0 - 150[b]	200,000[c]
	< 2000[d]	
Sr	0.1 - 4.0	50
	Trace Elements (ppb)	
Ag	< 5.0	
Al	< 5.0 - 1000	
As	< 1.0 - 30	4,000
B	20 - 1000	5,000
Ba	10 - 500	
Br	< 100 - 2000	
Be	< 10	
Bi	< 20	
Cd	< 1.0	
Co	< 10	
Cr	< 1.0 - 5.0	
Cu	< 1.0 - 30	
Ga	< 2.0	
Ge	< 20 - 50	
Hg	< 1.0	
I	< 1.0 - 1000	48,000[c]
Li	1.0 - 150	
Mn	< 1.0 - 1000	10,000[c]
Mo	< 1.0 - 30	10,000
Ni	< 10 - 50	
PO_4	< 100 - 1000	
Pb	< 15	
Ra	< 0.1 - 4.0[f]	7200[f]
Rb	< 1.0	
Se	< 1.0 - 10	
Sn	< 200	
Ti	< 1.0 - 150	
U	0.1 - 40	
V	< 1.0 - 10	70
Zn	< 10 - 2000	
Zr	< 25	

[a] based on an analysis of data presented in references 7,8, and 9.
[b] in relatively humid regions.
[c] in brine.
[d] in relatively dry regions.

APPENDIX B

SUMMARY OF QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

APPENDIX B

SUMMARY OF QUALITY ASSURANCE/QUALITY CONTROL PROCEDURES

B.1 Introduction

The Quality Assurance Plan (QAP) for the remediation work conducted at the Echo Avenue site by HDR|LMS is contained in Chapter 4 of the July 1996 Work Plan (Ref. 13, Appendix A of this Report). The following paragraphs summarize the important aspects of the QAP. Definitions are as follows:

- ***Quality Assurance (QA)*** – The total integrated program for assuring reliability of monitoring and measurement data.
- ***Quality Control (QC)*** – The routine application of procedures for obtaining prescribed standards of performance in the monitoring and measurement process.

QA/QC elements required for the analytical work conducted during the remediation process for this project are as follows:

- ***Initial Instrument Calibration*** – Calibration curves were developed for each of the compounds on the target compound list (TCL), including PCBs by the analytical laboratory. Five standard concentrations and a blank were used to produce the initial curves. Initial calibration response factors must have been greater than 3 and the difference between each concentration's response factor must have been less than 30% relative standard deviation (RSD). The mobile laboratory developed calibration curves for PCBs. A five-point initial calibration curve was run at the start of the project and as necessitated by QC results. The correlation coefficient (r) from the linear regression was calculated and must have been 0.99 or greater, otherwise correction action was taken and recalibration performed until passing results were achieved.

- ***Continuing Instrument Calibration*** – The initial calibration curve was verified by the analytical and mobile laboratory every 12 hours by analyzing one target compound standard. The standard concentration was the midpoint concentration of the initial calibration curve. The calibration check must have come within 25% relative percent difference (RPD) of the average response factor obtained during initial calibration.

- ***Method Blanks*** – A method blank is a volume of deionized, distilled laboratory water for water samples, or a purified solid matrix for soil/sediment samples carried through the entire analytical scheme. A method blank analysis was

performed by the analytical laboratory once for each 12-hr period during the analysis of samples for volatiles, once for each batch or 20 samples (whichever was more frequent) for semi-volatiles and pesticide/PCB analyses. A method blank analysis was performed by the mobile laboratory at the start of the day, after every 10 samples, and after high level samples to determine that the system was contaminant free. The method blanks must not contain specific compounds for each fraction greater than five times the method detection limit (MDL). The method blank was used to demonstrate the possibility of sample contamination from laboratory equipment and reagents used during preparation and analysis.

- ***Field Blanks*** – A field blank consists of two sets of identical, laboratory-cleaned sample containers. The first set is filled at the laboratory with deionized laboratory-grade water. The water used is from the same source as that used for the laboratory method blank. In the field this water is passed through the field sampling equipment into an additional set of containers, which are then taken back to the laboratory to be analyzed for the parameters of interest. The purpose of a field blank is to determine whether the field sampling equipment is contaminating samples.

- ***Lab Duplicates*** – Lab duplicates are two or more portions of the same sample or extract identically processed throughout the analytical procedure. Duplicates are used to assess the precision of measurements. One laboratory duplicate was run for every 20 samples processed by the analytical laboratories or with each sample delivery group, whichever was more frequent.

- ***Surrogate Spike (SS) Analysis*** – Surrogate standard determinations are performed on all samples and blanks analyzed by the analytical and mobile laboratories. All samples and blanks were spiked with surrogate compounds during purging or extraction in order to monitor preparation and analyses of samples.

- ***Matrix Spike/Matrix Spike Duplicate (MS/MSD) analysis*** – MS/MSD analyses were performed by the analytical and mobile laboratories to evaluate the matrix effect of the sample upon the analytical methodology. Soil and sediment samples were spiked with a known Aroclor to evaluate the matrix effect on the PCB analyses. The RPD was calculated from the difference between the recoveries of the MS and MSD.

- ***Matrix Spike Blank Analysis*** – An aliquot of reagent water fortified (spiked) with known quantities of specific compounds and subjected to the entire analytical procedure in order to indicate the appropriateness of the spiking solution used for the MS/MSDs.

Additional parameters used in QA/QC are accuracy and precision. They are defined as follows:

- ***Accuracy*** – The nearness of a real or the mean(x) of a set of results to the true value. Accuracy is assessed by means of reference samples and percent recoveries. Accuracy includes both precision and recovery and is expressed as percent recovery (%REC). The MS sample was used to determine %REC. These results were used to assess the effect of matrix interference on the laboratory's ability to detect environmental contaminants. The MS %REC was calculated by the following equation:

$$\%REC = \frac{SSR-SR}{SA} \times 100$$

where:

SSR = Spike sample results
SR = Sample results
SA = Spike added from spiking mix

- ***Precision*** – The measurement of agreement of a set of replicate results among themselves without assumption of any prior information as to the true result. Precision is assessed by means of duplicate/replicate sample analyses. The laboratory ran duplicate and replicate analyses, i.e., MS/MSDs, calculated the RPD, and summarized these results in the data report. These results were used to assess the laboratory's ability to obtain duplicate results from replicate analyses. Analytical precision is expressed in terms of RPD which is calculated using the following formula:

$$RPD = \frac{D_1 - D_2}{(D_1 + D_2)/2} \times 100$$

where:

RPD = Relative percent difference
D_1 = First sample value
D_2 = Second sample value (duplicate)

B.2 Sampling and Analyses

B.2.1 1996 to 2003

Attached Table B-1, originally Table 4-2 from the July 1996 Work Plan, summarized the QA/QC samples taken during all phases of the remediation from 1996 to 2003. The table has been modified to show the extra work scope items and eliminates those work scope items that were not done. The actual data can be found in Appendix C of the June 2001 Remediation Report and the July 2003 Remediation Report Addendum.

B.2.2 2003 to 2004

The QA/QC samples, consisting of three duplicate samples, (VS-09D, VS-12D, and VS-13D) from the 2003 pre-design investigation were summarized with all of the other pre-design samples in Table 2-1 of the February 2005 Remedial Action Report for the Echo Avenue Project. The QA/QC samples, consisting of four blind duplicate samples, (EAP-PE-5, EAP-PE-23, EAP-PE-47, and EAP-PE-64) collected during remedial activities in 2003 and 2004 were summarized with other post-excavation samples in Tables 3-1 and 3-2 of the same report.

B.3 Analytical Methods and Detection Limits

B.3.1 1996 to 2003

Table B-2, originally Table 4-3 from the July 1996 Work Plan, provides the analytical methods and required detection limits for the samples analyzed during the 1996 to 2003 remediation program at the Echo Avenue site.

B.3.2 2003 to 2004

Tables B-3 and B-4, originally Tables 1 and 2, respectively, from the May 2003 Quality Assurance/Quality Control Plan for the Echo Avenue Project, provide the quantitation limits, data quality levels, and analytical methods used during this phase of the project.

TABLE B-1 (Page 1 of 2)
Originally Table 4-2 (July 1996 Work Plan)
QA/QC SAMPLES
Echo Avenue Site

WORK SCOPE ITEM	MATRIX	Analysis	NO. OF SAMPLES	QA/QC SAMPLES
HDR|LMS WORK				
OFF-SITE LABORATORY (H2M OR MITKEM)				
ADDITIONAL PRE-REMEDIATION INVESTIGATIONS (1996)				
Residential Shallow Soil	Soil	PCBs	111	One Field Blank plus 6 MS/MSDs
Sediment near EAMFSD-9	Sediment	PCBs	62	One Field Blank plus 3 MS/MSDs
Transformer Moat Drains	Sediment	PCBs	8	One Field Blank plus 1 MS/MSD
Wood Chip	Wood	PCBs	1	One Field Blank
REMEDIATION ACTIVITIES AND CONFIRMATORY SAMPLES (1997-2000)				
EASESS-3	Soil	PCBs	15	
EASESS-7	Soil	PCBs	15	One Field Blank plus 1 MS/MSD
EADEC-E	Soil	PCBs	9	
B-3	Soil	PCBs	9	
Dupin de St. Cyr	Soil	PCBs	9	
Copuano	Soil	PCBs	18	Two Field Blanks plus 3 MS/MSDs
Treffeisen	Soil	PCBs	10	
V. Lockwood	Soil	PCBs	13	
E-A-25	Soil	TCL Organics/ TAL Inorganics	1	
WTD-01	Soil	TCL Organics/ TAL Inorganics	1	One Field Blank
TYSS-05	Soil	TCL Organics/ TAL Inorganics	1	
TYMD-01	Soil	TCL Organics/ TAL Inorganics	1	
CVDP-02	Soil	TCL Organics/ TAL Inorganics	1	
Mudflat Sediment around EAMFSD-9	Sediment	PCBs	9	One Field Blank plus 1 MS/MSD
Building Slab	Wipe	PCBs	31	One Field Blank plus 1 MS/MSD
Soil Beneath Building Slab	Soil	PCBs	34	One Field Blank plus 2 MS/MSDs
Building Sub-Structure Rubble	Soil	PCBs	1	1 MS/MSD
Building Catch Basins	Concrete	PCBs	6	
Cable Vault	Concrete	PCBs	14	Two Field Blanks plus 7 MS/MSDs
Transformer Yard Manholes	Concrete	PCBs	33	
Transformer Yard Electrical Boxes/Catch Basins	Concrete	PCBs	11	
Transformer Yard Soil	Soil	PCBs	45	2 MS/MSDs
Transformer Yard Sub-Slab Soil	Soil	PCBs	14	1 MS/MSD

TABLE B-1 (Page 2 of 2)
Originally Table 4-2 (July 1996 Work Plan)
QA/QC SAMPLES
Echo Avenue Site

WORK SCOPE ITEM	MATRIX	Analysis	NO. OF SAMPLES	QA/QC SAMPLES
REMEDIATION ACTIVITIES AND CONFIRMATORY SAMPLES (2001-2003)				
Transformer Yard Cinder Layer Removal	Soil	Lead	23	One Field Blank plus 2 spike/duplicate
Fuel Oil Spil Area	Soil	VOCs/SVOCs	5	One Field Blank, 1 Trip Blank (VOCs only) plus 1 MS/MSD
Transformer Yard Soil after Excavated to Six Feet	Soil	PCBs	41	1 MS/MSD
Cable Vault Excavation	Soil	PCBs	8	1 MS/MSD
Building Catch Basins	Soil	PCBs	17	1 MS/MSD
Groundwater from Monitoring Wells	Water	TCL Organics/ TAL Inorganics	2	1 Trip Blank (VOCs only), 1 MS/MSD plus 1 blind duplicate
MOBILE LABORATORY (STL)				
	Soil/Sediment	PCBs	1794	1 MS/MSD for every 20 samples; 1 Method Blank after every 10 samples and after high level results
	Soil/Sediment	Metals	46	1 Duplicate for every 20 samples
TRC WORK				
PRE-DESIGN SAMPLES (2003)				
Echo Bay Sediment	Sediment	PCBs	38	3 blind duplicates
REMEDIATION ACTIVITIES AND CONFIRMATORY SAMPLES (2003-2004)				
Phase 1 Echo Bay Sediment	Sediment	PCBs	15	1 blind duplicate
Phase 2 Echo Bay Sediment	Sediment	PCBs	34	2 blind duplicates
Phase 3 Echo Bay Sediment	Sediment	PCBs	16	1 blind duplicate

TABLE B-2 (Page 1 of 1)
Orginally Table 4-3 (July 1996 Work Plan)
ANALYTICAL METHODS AND DETECTION LIMITS
Echo Avenue Site

MATRIX	ANALYSES	METHODS[a]	DETECTION LIMITS			HOLDING TIME[c] (Days)	PRESERVATION METHOD
			mg/kg	µg/kg or µg/L	µg/wipe		
Off-Site Laboratory (1996 - 2003)							
Soil	PCBs	EPA Method 8081/ 8082		33 (67)[b]		5/40[d]	4° C
Sediment	PCBs	EPA Method 8082		33 (67)[b]		5/40[d]	4° C
Concrete Cores	PCBs	NYSDEC ASP Mod. 95-3		33 (67)[b]		5/40[d]	4° C
Wipes	PCBs	NYSDEC ASP Mod. 95-3			0.2 (0.4)[b]	5/40[d]	4° C
Soil	VOCs	1995 NYSDEC ASP Method SW846 8260B	Refer to ASP[e]			7	4° C
	SVOCs	1995 NYSDEC ASP Method 95-2/8270/8250/625	Refer to ASP[e]			5/40[d]	4° C
	Pesticides	1995 NYSDEC ASP Method 8081	Refer to ASP[e]			5/40[d]	4° C
	Metals	1995 NYSDEC ASP Method SW846 6010/7470	Refer to ASP[e]			180, Hg:28	4° C
	Cyanide	Method 335.2	0.5[f]			12	4° C
Water	VOCs	1995 NYSDEC ASP Method SW846 8260B		Refer to ASP[e]		7	4° C
	SVOCs	1995 NYSDEC ASP Method SW846 8270C		Refer to ASP[e]		5/40[d]	4° C
	Pesticides	1995 NYSDEC ASP Method SW846 8081A		Refer to ASP[e]		5/40[d]	4° C
	PCBs	1995 NYSDEC ASP Method SW846 8082		Refer to ASP[e]		5/40[d]	4° C
	Metals	1995 NYSDEC ASP Method SW846 6010B/7471A		Refer to ASP[e]		180, Hg:28	HNO_3 to pH<2
	Cyanide	1995 NYSDEC ASP Method SW846 9012A/EPA 335.2		10		12	4° C, NaOH to pH>12
Off-Site Laboratory (2003 - 2004)							
Sediment	PCBs					5/40[d]	4° C
	VOCs	SW846 8260B				7	4° C
	SVOCs	SW846 8270C				5/40[d]	4° C
Mobile Laboratory:							
Soil/ Sediment	PCBs	SW-846 Mod. 8080	0.5			5/40[d]	4° C
	Metals	EPA Method 6200 (XRF Analyzer)				180	4° C

[a] - All methods must conform to QA/QC and data deliverable requirements stputlated in NYSDEC ASP.

[b] - Aroclor 1221

[c] - Time after Verified Time of Sample Receipt (VTSR) until extraction.

[d] - Time after extraction for analysis.

[e] - See NYSDEC ASP, 1995.

[f] - Achieved by H2M Laboratories, Inc.

Table B-3

Chemical Parameters, Quantitation Limits and Data Quality Levels for Soil and Sediment Samples (2003 to 2004)

Con Edison Echo Avenue Project

Parameter	QL	DQL[1]
PCBs (µg/kg)		
Aroclor 1016	16.7	1,000 µg/kg [2]
Aroclor 1221	16.7	1,000 µg/kg [2]
Aroclor 1232	16.7	1,000 µg/kg [2]
Aroclor 1242	16.7	1,000 µg/kg [2]
Aroclor 1248	16.7	1,000 µg/kg [2]
Aroclor 1254	33.3	1,000 µg/kg [2]
Aroclor 1260	33.3	1,000 µg/kg [2]

[1] DQL based on a New York State Department of Environmental Conservation (NYSDEC) site-specific cleanup criterion.

[2] DQL listed is for total PCBs

QL=Quantitation Limit

DQL=Data Quality Level

Table B-4
Analytical Parameters, Methods, Preservation and Container Requirements (2003 to 2004)
Con Edison Echo Avenue Project

Sample Matrix	Analytical Parameter	Sample Type[1]	No. of Samples[(2)]	EPA Analytical Method	Sample Preservation	Holding Time[(3)]	Sample Container[4,5]
Sediment	PCBs	Grab	30	SW-846 Method 8082	Cool to 4^{0} C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar
Soil	PCBs	Grab	30	SW-846 Method 8082	Cool to4^{0} C	14 days to extraction; 40 days from extraction to analysis	(1) 300 mL amber glass jar

(1) Soil and sediment samples will be collected in discrete, one-foot sampling intervals and individually homogenized during the pre-design investigation sampling efforts. For post-excavation sampling efforts, a six-inch sampling interval into the base of excavation or sidewall is the proposed sample interval.

(2) Actual number of samples may vary depending on field conditions, sample material availability, and field observations

(3) From date of sample collection

(4) I-Chem Series 300 bottles, or equivalent

(5) MS/MSDs require duplicate volume for all parameters for solid matrices

B.4 Sampling Procedures

B.4.1 1996 to 2003

General sampling procedures were described in Chapter 3 of the July 1996 Work Plan. Where deviations from these procedures occurred, a description was provided in the Remediation Report or Remediation Report Addendum. The following summarizes the general sampling procedures:

- ***Shallow Soil*** – The initial delineation samples were collected in the following matter. The surface of the sampling location was first cleared of debris. For the surface sample the hole was excavated using a dedicated laboratory-cleaned stainless steel spoon and then the hole was cleaned of all loose soil. The sample was collected by scraping the side of the hole at the requisite depth, collecting the soil in the bottom of the hole, where it was homogenized and transferred into the sample analysis container. Deeper samples were collected by first excavating the hole using a field-decontaminated shovel. The same procedure was then used to collect lower depth samples as the surface samples.

  Remediation and confirmatory soil samples from the floor of the excavation were collected from 0-3in. depth using a dedicated stainless steel spoon. The dug up soil was homogenized in a dedicated stainless steel bowl and transferred to the sample container. Wall samples from the excavation were collect by scraping the side of the exposed wall with a dedicated stainless-steel spoon into a dedicated stainless-steel bowl. If the excavation was greater than two feet deep, two samples were collected – one from 0 – 2 ft and one from 2 ft to the bottom of the excavation.

- ***Sediment in Echo Bay*** – The initial delineation samples were collected with dedicated stainless steel core tubes. The core tubes were pushed into the sediment by hand to about 2 ft. Once removed the cores were extruded onto dedicated aluminum foil and the core divided into the appropriate sample interval, homogenized using a dedicated stainless steel spoon, and placed into the sample container.

  Remediation and confirmatory sediment samples from the floor of the Echo Bay excavation were collected from a depth of ~0-3 in. The sediment was dug up with a dedicated stainless-steel spoon and homogenized in a dedicated stainless steel bowl prior to transfer to the sample containers. The wall sample was collected by scraping the wall of excavation with a dedicated stainless-steel spoon into a dedicated stainless steel bowl, homogenizing the sample, and then transferring it to the sample container.

- ***Concrete Samples*** – Concrete samples from manholes, cable vault, catch basins, electrical boxes, etc. were collected by using a hammer drill to pulverize the material from a depth of 0-1 in. The drill bit was field decontaminated between sample locations. Floor concrete samples were scooped with a stain-steel spoon and placed in a stainless-steel bowl lined with autoclaved aluminum foil for homogenization prior to placing it into the sample container. Wall samples were collected with a foil-lined pan held under the sample location to retrieve the pulverized concrete.

- ***Wipe Samples*** – Wipe samples were collected from an area of 100 cm^2 utilizing a laboratory-cleaned aluminum template. Each sample was collected using a sterile 3 in. by 3 in. sterile gauze pad soaked with pesticide-grade hexane by wiping the template twice in the horizontal direction and twice in the vertical direction. The wipe was immediately placed in a properly labeled glass container.

- ***Groundwater*** - Water was collected from the existing monitoring wells using dedicated, disposable Teflon bailers. Prior to sample collection the well was purged based on the volume of water in the well using a small diameter submersible pump and dedicated polyethylene tubing or by hand-bailing with a dedicated bailer. The well was allowed to recover prior to sampling.

All samples were handled submitted to both the off-site laboratory and mobile laboratory with a chain-of-custody (COC) form.

B.4.2 **2003 to 2004**

TRC used the following sampling techniques during the 2003 to 2004 remediation of a portion of Echo Bay:

Sediment and Surface Soil – A total of sixty (60) sediment samples were collected from fifteen (15) sample locations on July23 and July 24, 2003. These pre-design delineation samples were collected using a boat-mounted Vibracore sampling apparatus and were surveyed using global positioning survey (GPS) equipment (Trimble Pro XRS differential GPD). Vibracore sediment samples were collected in four (4) ft cores, were logged, and then separated into one (1) ft intervals for chemical analysis. Initially, the top one ft sample was analyzed; subsequent sample intervals were only analyzed if the previous interval exceeded the clean-up level of 1 mg/kg. Of the 60 sediment samples collected, 41 were selected for chemical analysis (PCBs) during the pre-design sampling effort based upon the analytical results of the upper sample interval. Three (3) additional quality assurance/quality control samples were also collected and analyzed. In

accordance with the NYSDEC requirements, three (3) surface soil (SS) samples were collected using hand augers.

Con Edison conducted the remediation efforts in the project area in three phases from October 27, 2003 to April22, 2004. All post-excavation (PE) samples were collected with hand trowels, hand augers, or other hand tools. During Phase 1 (October 27, 2003 to November 5, 2003), post-excavation samples EAP-PE-1 through EAP-PE-16 were collected from the sidewalls and bases of excavation areas. One of these sixteen samples was a blind duplicate. Of the remaining fifteen sample results, seven exceeded the total PCB limit of 1 mg/kg. The blind duplicate sample also exceeded the remediation criterion, consistent with the corresponding sample. Consequently, additional excavation was required. During Phase 2 (December 15, 2003 to December 23, 2003), post-excavation samples EAP-PE-17 through EAP-PE-52 were collected from the sidewalls and bases of excavation areas. Two of these 36 samples were duplicates. Both blind duplicate samples confirmed the corresponding sample PCB results. Of the remaining 34 sample results, 19 exceeded the total PCB limit of 1 mg/kg. Consequently, additional excavation was required from select areas. During Phase 3 (March 8, 2004 to April 22, 2004), post-excavation samples EAP-PE-55 through EAP-PE-71 were collected. Of these 17 samples, one was a blind duplicate sample. Of the remaining 16 samples, one sample result (EAP-PE-65 from VS-03/AOC-3) was greater than 1 mg/kg for total PCBs. The total PCB exceedance resulted in the additional excavation of the VS-03/AOC-3 area to a depth of approximately 10 feet. EAP-PE-71 was collected at this depth and no PCBs were detected in this sample.

Confirmatory samples were collected by TRC and were analyzed by Accutest Laboratories.

B.5 Data Validation and Data Usability Summary Report

Data validation is the systematic process by which data quality is determined with respect to data quality criteria that are defined in project and laboratory QC programs and in referenced analytical methods. The data validation process consists of an assessment of the acceptability or validity of project data with respect to stated project goals and requirements for data usability. Data validation consists of data editing, screening, checking, auditing, certification, review, and interpretation. The purpose of data validation is to define and document analytical data quality and determine whether the

data quality is sufficient for the intended use(s) of the data. Data validation covers both field and laboratory data.

Data collected and/or reduced in the field were validated initially for correctness of format, calculation, and completeness by the crew chief. These checks included: checking that the chain of custody is completed correctly, checking sample volumes and preservatives, verifying that the QC samples were collected, and checking 10% of all field calculations.

Laboratory data was validated by an approved data validator that was required to perform three tasks: determine data completeness - checking that all required information was contained in the data deliverable package, determine data compliance – checking that the samples were run in accordance with accepted protocols and calibration requirements, and prepare data review report – a report was prepared that documented the results of the data review process. The validation report included a spreadsheet listing all the samples and a protocol reference for any compliancy violations.

Once the data validation report was received, a data usability summary report (DUSR) was prepared by the quality assurance officer (QAO). Taking into account protocols for samplings, transport, analysis, reduction, and reporting, the QAO used this information and his/her own experience to establish whether the results of each analysis could be used for the purpose intended. It was determined whether the final results could be used as reported, qualified to indicate limitations, or rejected outright.

B.5.1 **1996 to 2003**

All confirmatory samples analyzed by the off-site laboratory (H2M or Mitkem) were sent to Data Validation Services (DVS) for data validation. HDR|LMS' QAO prepared a DUSR for all the confirmatory samples analyzed by the off-site laboratory. The DUSR's are contained in Appendix D of the June 2001 Remediation Report.

B.5.2 **2003 to 2004**

All confirmatory samples analyzed by the laboratories (Severn Trent Laboratories of Newburgh, New York for pre-design samples, and Accutest Laboratories of Dayton, New Jersey for post-excavation samples) were validated by TRC personnel. Data Usability Summary Reports and Modified Form I's were included as Appendices B-1 (Pre-Design

Samples) and B-2 (Post-Excavation Samples) to the February 2005 Remedial Action Report for the Echo Avenue Project.

APPENDIX C

SAMPLING LOGS

Date: 2/12/07

Crew: JMG VC

Site: Con Ed - Echo Ave

HDR|LMS

FIELD DATA SHEET FOR SOIL & SEDIMENT

Job #: 147-47903-

Oper: Sediment Sampling

Therm. #: —

STATION ID	TIME (HHMM)	SAMPLE DEPTH (ft)	SAMPLE METHOD	DESCRIPTION	ODOR	SAMPLE BOTTLES		COMMENTS
						SAMPLE PARAMETERS	Bot.#s	
EADP05D-5-R	1145	0-2 ft	hole dug with shovel + then sample collected w/ s/s spoon from sides of hole. Sediment placed in s/s bowl + homogenized	0-1 ft silty sandy sediment w/ bricks brick pieces gravel + stone blk-brn 1-2 ft less brick + stone, more silt + sand A few small lenses of blk organic silty material	Sl. Sulfury odor	PCBs	1	Sample collected from area where EADP-5 drained to. It was originally sampled in 1995 ** Initially tried to collect sample w/ coring device but sample recovery was poor (lg pieces of bricks etc. probably pushed in front of sampler.)
** Blind Duplicate sample collected for her (EADP05D-5-R-D)						PCBs (Blind Dup)	1	
EAEBSD-16A-R	1215	0-2 ft	See Above	0-0.5 ft Cindery silty sandy blk mix, little brick + brick pcs + rocks. 0.5-1 ft less cinders a few sm lenses of peat-like material w/ a few shells. (very blk) 1-2 ft More silty and denser less brick pieces w/ depth	Sl. Sulfury odor	PCBs	1	Sample collected from same location as EAEBSD-16A in 1995 Sample collected near lg hunk of concrete by hole in bulkhead.
EAEBSD-13A-R	1300	0-2 ft	See Above	0-2 ft much less rocks stones than other samples "Creamy" blk silty material (silt w/ little f-sand, more dense with depth. Some rootlets + decayed plant matter in occasional lenses	Sl. Sulfury odor	PCBs	1	Sample collected from same location as EAEBSD-13A sample in 1995
						PCBs (MS/MSD material)	2	

* A field rinseate blank (FB-01) was performed on the sampling equipment prior to collection of EAEBSD-13A-R

APPENDIX D

ANALYTICAL DATA SUMMARY SHEETS

MITKEM CORPORATION

"Environmental Testing For The New Millennium"

March 13, 2007

HDR/LMS
One Blue Hill Plaza
P. O. Box 1509
Pearl River, NY 10965
Attn: Mr. John Guzewich

RECEIVED
MAR 15 2007
FINANCE

RE: Client Project: ConEd – Echo Ave.
Lab Project #: F0179

Dear Mr. Guzewich:

Enclosed please find the data report for the analyses of samples associated with the above referenced project.

If you have any questions, please do not hesitate to call me.

We appreciate your business.

Sincerely,

Agnes R. Ng
CLP Project Manager

175 Metro Center Boulevard • Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499 • www.mitkem.com

Mitkem Corporation

New York State Department of Environmental Conservation
Sample Identification and Analytical Requirements Summary

Project Name : ConEd Echo Ave. **SDG :** F0179

Customer Sample ID	Laboratory Sample ID	Analytical Requirements				
		MSVOA Method #	MSSEMI Method #	GC* Method #	ME	Other
)POSD5R	F0179-01			SW8082_S		
)POSD5RD	F0179-02			SW8082_S		
:BSD16AR	F0179-03			SW8082_S		
:BSD13AR	F0179-04			SW8082_S		
:B-01	F0179-05			SW8082_W		

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to HDR/LMS's ConEd – Echo Ave. project. Under this deliverable, analysis results are presented for one aqueous and four soil/sediment samples that were received on February 13, 2007. Analyses were performed per specifications in the project's contract and the chain of custody. Following the narrative is a copy of the Mitkem sample login sheet for cross-referencing client sample ID with laboratory sample ID.

The analyses were performed according to NYSDEC ASP protocols (2000 update) and reported per NYSDEC ASP requirement for Category A deliverable.

The following observation and/or deviations are observed for the following analyses:

1. PCB Analysis:

Surrogate recovery: recoveries were within the QC limits.

Lab control sample: spike recoveries were within the QC limits.

Matrix spike/matrix spike duplicate: duplicate matrix spikes were performed on sample EBSD13AR. Spike recoveries and replicate RPDs were not within the QC limits. Please note that the matrix spike and matrix spike duplicate were analyzed at 10x dilution.

Sample analysis: please note that all the samples with the exception of sample FB-01 were analyzed at 10x dilution. No other unusual observation was made for the analysis.

All pages in this report have been numbered consecutively, starting with the title page and ending with a page saying only "Last Page of Data Report".

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this

Analytical Data Package for HDR/LMS

Client Project: ConEd – Echo Ave.

SDG# MF0179

Mitkem Work Order ID: F0179

March 13, 2007

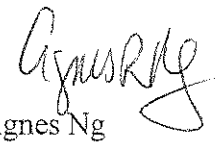
Prepared For:

HDR/LMS
One Blue Hill Plaza
P. O. Box 1509
Pearl River, NY 10965
Attn: Mr. John Guzewich

Prepared By:

Mitkem Corporation
175 Metro Center Boulevard
Warwick, RI 02886
(401) 732-3400

hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.



Agnes Ng
CLP Project Manager
03/13/07

Mitkem Corporation

15/Feb/07 12:36

WorkOrder: F0179

Client ID: HDR-LMS
Project: ConEd Echo Ave.
Location:
Comments: N/A

Case:
SDG:
PO: 147-47903-001

Report Level: ASP-A
EDD:
HC Due: 03/13/07
Fax Due:

Sample ID	HS Client Sample ID	Collection Date	Date Recv'd	Matrix	Test Code	Lab Test Comments	Hold	MS	SEL	Storage
F0179-01A	DPOSD5R	02/12/2007 11:45	02/13/2007	Sediment	PMoist		☐	☐	☐	H3
					SW8082_S		☐	☐	☐	H3
F0179-02A	DPOSD5RD	02/12/2007 11:45	02/13/2007	Sediment	PMoist		☐	☐	☐	H3
					SW8082_S		☐	☐	☐	H3
F0179-03A	EBSD16AR	02/12/2007 12:15	02/13/2007	Sediment	PMoist		☐	☐	☐	H3
					SW8082_S		☐	☐	☐	H3
F0179-04A	EBSD13AR	02/15/2007 13:00	02/13/2007	Sediment	PMoist		☐	☐	☐	H3
					SW8082_S		☐	☑	☐	H3
F0179-05A	FB-01	02/12/2007 12:35	02/13/2007	Aqueous	SW8082_W		☐	☐	☐	H3

Client Rep: Agnes R Ng

Mitkem Corporation

New York State Department of Environmental Conservation
Sample Preparation and Analysis Summary GC*

Project Name : ConEd Echo Ave.

SDG : F0179

Laboratory Sample ID	Matrix	Date Collected	Date Received By Lab	Date Extracted	Date Analyzed
SW8082_S					
F0179-01A	SL	02/12/2007	02/13/2007	02/20/2007	03/01/2007
F0179-02A	SL	02/12/2007	02/13/2007	02/20/2007	03/01/2007
F0179-03A	SL	02/12/2007	02/13/2007	02/20/2007	03/01/2007
F0179-04A	SL	02/15/2007	02/13/2007	02/20/2007	03/01/2007
F0179-04AMS	SL	02/15/2007	02/13/2007	02/20/2007	03/01/2007
F0179-04AMSD	SL	02/15/2007	02/13/2007	02/20/2007	03/01/2007
SW8082_W					
F0179-05A	AQ	02/12/2007	02/13/2007	02/14/2007	02/27/2007

Mitkem Corporation

New York State Department of Environmental Conservation
Sample Preparation and Analysis Summary GC*

Project Name : ConEd Echo Ave. **SDG :** F0179

Laboratory Sample ID	Matrix	Analytical Protocol	Extraction Method	Auxiliary Cleanup	Dil/Conc Factor
SW8082_S					
F0179-01A	SL	SW8082_S	SW8082_S	Acid/Sulfur	10
F0179-02A	SL	SW8082_S	SW8082_S	Acid/Sulfur	10
F0179-03A	SL	SW8082_S	SW8082_S	Acid/Sulfur	10
F0179-04A	SL	SW8082_S	SW8082_S	Acid/Sulfur	10
F0179-04AMS	SL	SW8082_S	SW8082_S	Acid/Sulfur	10
F0179-04AMSD	SL	SW8082_S	SW8082_S	Acid/Sulfur	10
SW8082_W					
F0179-05A	AQ	SW8082_W	SW8082_W	Acid/Sulfur	1

Sample Transmittal Documentation

MITKEM CORPORATION
175 Metro Center Boulevard
Warwick, Rhode Island 02886-1755
(401) 732-3400 • Fax (401) 732-3499
email: mitkem@mitkem.com

CHAIN-OF-CUSTODY RECORD

REPORT TO		INVOICE TO		
COMPANY HDR/LMS	PHONE 845 735 8300	COMPANY Same	PHONE 845 735 8300	LAB PROJECT #:
NAME John Guzewich	FAX 845 735-7466	NAME Attn. Finance Dept	FAX 845 735 7466	
ADDRESS 1 Blue Hill Plaza PO 1509		ADDRESS		TURNAROUND TIME: 10 Day TAT
CITY/ST/ZIP Pearl River, NY 10965		CITY/ST/ZIP		

CLIENT PROJECT NAME: Con Ed - Echo Ave

CLIENT PROJECT #: 147-47903-001

CLIENT P.O.#:

SAMPLE IDENTIFICATION	DATE/TIME SAMPLED	COMPOSITE	GRAB	WATER	SOIL	OTHER Sediment	LAB ID	# OF CONTAINERS	PCBs (sediment)	PCBs (water)	COMMENTS
EADPOSD-5-R	2/12/07 1145	X				X	01	1	X		
EADPOSD-5-R-D	2/12/07 1145	X				X	02	1	X		
EAEBSD-16A-R	2/12/07 1215	X				X	03	1	X		
EAEBSD-13A-R	2/12/07 1300	X				X	04	1	X		
EAEBSD-13A-R (MS/MSD)	2/12/07 1300	X				X	04	1	X		MS/MSD Material
	/										
FB-01	2/12/07 1235		X	X			05	2		X	Field Blank Sample
	/										
	/										
	/										
	/										
	/										
	/										

REQUESTED ANALYSES

TSP#	RELINQUISHED BY	DATE/TIME	ACCEPTED BY	DATE/TIME	ADDITIONAL REMARKS:	COOLER TEMP:
	John M Guzewich	2/12/07 1445	James J Healy	2/13/07 11:00	john.guzewich@hdrinc.com	4°C
		/		/		
	2	/		/		
	3					
	4					

WHITE: LABORATORY COPY YELLOW: REPORT COPY PINK: CLIENT'S COPY

MITKEM CORPORATION

Sample Condition Form

Received By: (illegible) Reviewed By: KP Date 2.13.07 MITKEM Workorder #: F0179

Client Project: Client:

1) Cooler Sealed (Yes) / No

2) Custody Seal(s) (Present) / Absent
~~Coolers~~ / Bottles
(Intact) / Broken

3) Custody Seal Number(s) N/A

4) Chain-of-Custody (Present) / Absent

5) Cooler Temperature 4°C
Coolant Condition

6) Airbill(s) (Present) / Absent
Airbill Number(s) UPS 1Z R34 A7 22 1000 8047

7) Sample Bottles (Intact)/Broken/Leaking

8) Date Received 2.13.07

9) Time Received 11:00

Preservative Name/Lot No:

Lab Sample ID		Preservation (pH) HNO_3	Preservation (pH) H_2SO_4	Preservation (pH) HCl	Preservation (pH) NaOH	VOA Matrix	Soil Headspace or Air Bubbles ≥ 1/4"
F0179	01						
	02						
	03						
	04						
F0179	05						

2.13.07 (initials illegible)

VOA Matrix Key:

US = Unpreserved Soil	**A** = Air
UA = Unpreserved Aqu.	**H** = HCl
M= MeOH	**E** = Encore
N = $NaHSO_4$	**F** = Freeze

See Sample Condition Notification/Corrective Action Form yes / no

Rad OK yes/ no

MITKEM CORPORATION

* PCB Organics*

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

A2RLCS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix: (soil/water) SOIL Lab Sample ID: LCS-28437

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E2G0067F

% Moisture: 0 decanted: (Y/N) N Date Received: _____

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/20/07

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/01/07

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	270	
11104-28-2	Aroclor-1221	33	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	260	

FORM 2
WATER PCB SURROGATE RECOVERY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

GC Column(1): CLPPEST ID: 0.53 (mm) GC Column(2): CLPPESTII ID: 0.53 (mm)

	CLIENT SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	ABLK2F	74	70	93	87			0
02	A2FLCS	86	80	99	95			0
03	FB-01	84	80	84	78			0
04								
05								
06								
07								
08								
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

ADVISORY
QC LIMITS

S1 (TCX) = Tetrachloro-m-xylene (29-158)
S2 (DCB) = Decachlorobiphenyl (30-164)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

FORM 2
SOIL PCB SURROGATE RECOVERY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

GC Column(1): CLPPEST ID: 0.53 (mm) GC Column(2): CLPPESTII ID: 0.53 (mm)

	CLIENT SAMPLE NO.	TCX 1 %REC #	TCX 2 %REC #	DCB 1 %REC #	DCB 2 %REC #	OTHER (1)	OTHER (2)	TOT OUT
01	ABLK2R	74	75	92	92			0
02	A2RLCS	77	82	91	90			0
03	DPOSD5R	62	75	60	73			0
04	DPOSD5RD	69	84	95	81			0
05	EBSD16AR	72	71	74	79			0
06	EBSD13AR	57	52	47	58			0
07	EBSD13ARMS	72	66	57	70			0
08	EBSD13ARMSD	71	71	59	86			0
09								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

ADVISORY
QC LIMITS

S1 (TCX) = Tetrachloro-m-xylene (42-147)
S2 (DCB) = Decachlorobiphenyl (29-155)

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogate diluted out

FORM 3
SOIL PCB MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix Spike - Sample No.: EBSD13AR

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	MS CONCENTRATION (ug/Kg)	MS % REC #	QC. LIMITS REC.
Aroclor-1016	520	0.00	0.00	0*	62-155
Aroclor-1260	520	0.00	0.00	0*	56-173

COMPOUND	SPIKE ADDED (ug/Kg)	MSD CONCENTRATION (ug/Kg)	MSD % REC #	% RPD #	QC LIMITS RPD	QC LIMITS REC.
Aroclor-1016	530	0.00	0*		40	62-155
Aroclor-1260	530	0.00	0*		40	56-173

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 2 outside limits
Spike Recovery: 4 out of 4 outside limits

COMMENTS: _____

_____

FORM 3
WATER PCB LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix Spike - Sample No.: A2FLCS

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	LCS CONCENTRATION (ug/L)	LCS % REC #	QC. LIMITS REC.
Aroclor-1016	10		8.6	86	25-143
Aroclor-1260	10		8.4	84	23-152

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS: _____

FORM 3
SOIL PCB LAB CONTROL SAMPLE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix Spike - Sample No.: A2RLCS

COMPOUND	SPIKE ADDED (ug/Kg)	SAMPLE CONCENTRATION (ug/Kg)	LCS CONCENTRATION (ug/Kg)	LCS % REC #	QC. LIMITS REC.
Aroclor-1016	330		270	82	69-117
Aroclor-1260	330		260	79	68-126

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 0 outside limits
Spike Recovery: 0 out of 2 outside limits

COMMENTS: _____

_____

FORM 4
PCB METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

ABLK2F

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Lab Sample ID: MB-28326 Lab File ID: E2F9961F

Matrix (soil/water) WATER Extraction: (SepF/Cont/Sonc) SEPF

Sulfur Cleanup (Y/N) Y Date Extracted: 02/14/07

Date Analyzed (1): 02/27/07 Date Analyzed (2): 02/27/07

Time Analyzed (1): 0917 Time Analyzed (2): 0917

Instrument ID (1): E2 Instrument ID (2): E2

GC Column (1): CLPPEST ID: 0.53(mm) GC Column (2): CLPPESTII ID: 0.53(mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	A2FLCS	LCS-28330	02/27/07	02/27/07
02	FB-01	F0179-05A	02/27/07	02/27/07
03				
04				
05				
06				
07				
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

COMMENTS: _____

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ABLK2F

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix: (soil/water) WATER Lab Sample ID: MB-28326

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E2F9961F

% Moisture: _____ decanted: (Y/N)___ Date Received: _____

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:02/14/07

Concentrated Extract Volume: 10000(uL) Date Analyzed: 02/27/07

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

FORM 4
PCB METHOD BLANK SUMMARY

CLIENT SAMPLE NO.

ABLK2R

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Lab Sample ID: MB-28437 Lab File ID: E2G0066F

Matrix (soil/water) SOIL Extraction: (SepF/Cont/Sonc) SONC

Sulfur Cleanup (Y/N) Y Date Extracted: 02/20/07

Date Analyzed (1): 03/01/07 Date Analyzed (2): 03/01/07

Time Analyzed (1): 1733 Time Analyzed (2): 1733

Instrument ID (1): E2 Instrument ID (2): E2

GC Column (1): CLPPEST ID: 0.53 (mm) GC Column (2): CLPPESTII ID: 0.53 (mm)

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS and MSD:

	SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED 1	DATE ANALYZED 2
01	A2RLCS	LCS-28437	03/01/07	03/01/07
02	DPOSD5R	F0179-01A	03/01/07	03/01/07
03	DPOSD5RD	F0179-02A	03/01/07	03/01/07
04	EBSD16AR	F0179-03A	03/01/07	03/01/07
05	EBSD13AR	F0179-04A	03/01/07	03/01/07
06	EBSD13ARMS	F0179-04AMS	03/01/07	03/01/07
07	EBSD13ARMSD	F0179-04AMSD	03/01/07	03/01/07
08				
09				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				

COMMENTS: _____

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

ABLK2R

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix: (soil/water) SOIL Lab Sample ID: MB-28437

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E2G0066F

% Moisture: 0 decanted: (Y/N) N Date Received: _____

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/20/07

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/01/07

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	33	U
11104-28-2	Aroclor-1221	33	U
11141-16-5	Aroclor-1232	33	U
53469-21-9	Aroclor-1242	33	U
12672-29-6	Aroclor-1248	33	U
11097-69-1	Aroclor-1254	33	U
11096-82-5	Aroclor-1260	33	U

FORM 6
PCB INITIAL CALIBRATION DATA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date(s): 02/22/07 02/23/07

Column: CLPPEST ID: 0.53 (mm) Calibration Time(s): 1703 0223

LAB FILE ID: RF0.1: E2F9827F RF0.2: E2F9828F RF0.4: E2F9829F
RF0.8: E2F9830F RF1.6: E2F9831F

COMPOUND	RF0.1	RF0.2	RF0.4	RF0.8	RF1.6
Aroclor-1016	18280.000	17580.000	16605.000	16446.250	15821.875
(2)	35660.000	34600.000	32562.500	30553.750	27994.375
(3)	26430.000	23800.000	26262.500	26090.000	24978.125
Aroclor-1221			5487.500		
(2)			10482.500		
(3)			24932.500		
Aroclor-1232			7190.000		
(2)			7680.000		
(3)			10447.500		
Aroclor-1242	29600.000	29150.000	27405.000	26001.250	23280.625
(2)	34760.000	37645.000	37185.000	36876.250	34429.375
(3)	12630.000	15130.000	15062.500	15117.500	14129.375
Aroclor-1248	39080.000	37430.000	37250.000	34690.000	32080.000
(2)	23770.000	23625.000	24217.500	23256.250	22258.750
(3)	30790.000	32150.000	32952.500	31645.000	29870.625
Aroclor-1254	71640.000	70835.000	66200.000	61867.500	57420.000
(2)	60650.000	59125.000	54202.500	49981.250	45380.625
(3)	67570.000	66285.000	61482.500	57408.750	52830.000
Aroclor-1260	73690.000	67040.000	61797.500	56738.750	52067.500
(2)	161710.00	150820.00	142722.50	131026.25	122162.50
(3)	76850.000	72225.000	68695.000	63691.250	60138.750
Tetrachloro-m-xylene	1264800.0	1213500.0	1140200.0	1101250.0	1026325.0
Decachlorobiphenyl	1612700.0	1477100.0	1372950.0	1210137.5	1095262.5

FORM 6
PCB INITIAL CALIBRATION DATA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date(s): 02/22/07 02/23/07

Column: CLPPEST ID: 0.53 (mm) Calibration Time(s): 1703 0223

COMPOUND	CURVE	COEFFICENT A1	%RSD OR R^2
Aroclor-1016	AVRG	16946.6250	5.8
(2)	AVRG	32274.1250	9.6
(3)	AVRG	25512.1250	4.4
Aroclor-1221	AVRG	5487.50000	0.0
(2)	AVRG	10482.5000	0.0
(3)	AVRG	24932.5000	0.0
Aroclor-1232	AVRG	7190.00000	0.0
(2)	AVRG	7680.00000	0.0
(3)	AVRG	10447.5000	0.0
Aroclor-1242	AVRG	27087.3750	9.5
(2)	AVRG	36179.1250	4.1
(3)	AVRG	14413.8750	7.5
Aroclor-1248	AVRG	36106.0000	7.6
(2)	AVRG	23425.5000	3.1
(3)	AVRG	31481.6250	3.8
Aroclor-1254	AVRG	65592.5000	9.2
(2)	AVRG	53867.8750	11.8
(3)	AVRG	61115.2500	10.0
Aroclor-1260	AVRG	62266.7500	13.6
(2)	AVRG	141688.250	11.0
(3)	AVRG	68320.0000	9.7
Tetrachloro-m-xylene	AVRG	1149215.00	8.1
Decachlorobiphenyl	AVRG	1353630.00	15.2

FORM 6
PCB INITIAL CALIBRATION DATA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date(s): 02/22/07 02/23/07

Column: CLPPESTII ID: 0.53 (mm) Calibration Time(s): 1703 0223

LAB FILE ID: RF0.1: E2F9827R RF0.2: E2F9828R RF0.4: E2F9829R
RF0.8: E2F9830R RF1.6: E2F9831R

COMPOUND	RF0.1	RF0.2	RF0.4	RF0.8	RF1.6
Aroclor-1016	9620.000	9725.000	9672.500	9787.500	9671.875
(2)	18130.000	17820.000	17030.000	16805.000	15961.250
(3)	32830.000	33105.000	32722.500	32615.000	31745.000
Aroclor-1221			2910.000		
(2)			5940.000		
(3)			13900.000		
Aroclor-1232			3990.000		
(2)			7332.500		
(3)			6230.000		
Aroclor-1242	26980.000	27515.000	27390.000	27462.500	25706.875
(2)	13710.000	13975.000	13860.000	14021.250	13241.875
(3)	10030.000	9580.000	9417.500	9247.500	8591.250
Aroclor-1248	23530.000	22915.000	23235.000	21991.250	20963.750
(2)	20280.000	20050.000	20547.500	20031.250	19294.375
(3)	14490.000	14255.000	14907.500	14562.500	14006.250
Aroclor-1254	41140.000	41575.000	39437.500	38033.750	36235.625
(2)	28530.000	29000.000	27305.000	26078.750	24432.500
(3)	43170.000	43490.000	41292.500	39297.500	36961.250
Aroclor-1260	43900.000	42335.000	40782.500	39183.750	36593.125
(2)	102860.00	100515.00	97220.000	92800.000	88661.250
(3)	60940.000	59355.000	57825.000	55648.750	52737.500
Tetrachloro-m-xylene	686200.00	676700.00	654700.00	658200.00	640012.50
Decachlorobiphenyl	856600.00	818200.00	787475.00	715825.00	662156.25

FORM 6
PCB INITIAL CALIBRATION DATA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date(s): 02/22/07 02/23/07

Column: CLPPESTII ID: 0.53 (mm) Calibration Time(s): 1703 0223

COMPOUND	CURVE	COEFFICENT A1	%RSD OR R^2
Aroclor-1016	AVRG	9695.37500	0.6
(2)	AVRG	17149.2500	5.0
(3)	AVRG	32603.5000	1.6
Aroclor-1221	AVRG	2910.00000	0.0
(2)	AVRG	5940.00000	0.0
(3)	AVRG	13900.0000	0.0
Aroclor-1232	AVRG	3990.00000	0.0
(2)	AVRG	7332.50000	0.0
(3)	AVRG	6230.00000	0.0
Aroclor-1242	AVRG	27010.8750	2.8
(2)	AVRG	13761.6250	2.3
(3)	AVRG	9373.25000	5.6
Aroclor-1248	AVRG	22527.0000	4.6
(2)	AVRG	20040.6250	2.3
(3)	AVRG	14444.2500	2.3
Aroclor-1254	AVRG	39284.3750	5.6
(2)	AVRG	27069.2500	6.9
(3)	AVRG	40842.2500	6.7
Aroclor-1260	AVRG	40558.8750	7.0
(2)	AVRG	96411.2500	6.0
(3)	AVRG	57301.2500	5.6
Tetrachloro-m-xylene	AVRG	663162.500	2.8
Decachlorobiphenyl	AVRG	768051.250	10.2

FORM 6
PCB INITIAL CALIBRATION DATA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date(s): 02/22/07 02/23/07

Column: CLPPEST ID: 0.53 (mm) Calibration Time(s): 1703 0223

LAB FILE ID: RT1: E2F9827F RT2: E2F9828F RT3: E2F9829F
RT4: E2F9830F RT5: E2F9831F

COMPOUND	RT1	RT2	RT3	RT4	RT5
Aroclor-1016	5.530	5.530	5.530	5.530	5.530
(2)	6.340	6.340	6.340	6.340	6.340
(3)	7.690	7.690	7.690	7.690	7.690
Aroclor-1221			3.540		
(2)			5.100		
(3)			5.530		
Aroclor-1232			5.100		
(2)			6.790		
(3)			8.580		
Aroclor-1242	6.340	6.340	6.340	6.340	6.340
(2)	7.400	7.400	7.400	7.390	7.390
(3)	7.830	7.820	7.820	7.820	7.820
Aroclor-1248	8.580	8.590	8.590	8.590	8.580
(2)	8.770	8.770	8.770	8.770	8.770
(3)	9.980	9.980	9.980	9.980	9.970
Aroclor-1254	10.810	10.800	10.800	10.800	10.800
(2)	11.780	11.780	11.780	11.780	11.780
(3)	12.350	12.350	12.350	12.350	12.350
Aroclor-1260	13.090	13.090	13.090	13.090	13.090
(2)	13.740	13.740	13.740	13.740	13.740
(3)	14.310	14.310	14.310	14.310	14.310
Tetrachloro-m-xylene	4.640	4.650	4.640	4.650	4.650
Decachlorobiphenyl	16.540	16.540	16.550	16.540	16.550

FORM 6
PCB INITIAL CALIBRATION DATA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date(s): 02/22/07 02/23/07

Column: CLPPEST ID: 0.53 (mm) Calibration Time(s): 1703 0223

COMPOUND	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Aroclor-1016	5.530	5.458	5.598
(2)	6.340	6.270	6.410
(3)	7.690	7.615	7.755
Aroclor-1221	3.540	3.470	3.610
(2)	5.100	5.030	5.170
(3)	5.530	5.460	5.600
Aroclor-1232	5.100	5.028	5.168
(2)	6.790	6.718	6.858
(3)	8.580	8.513	8.653
Aroclor-1242	6.340	6.268	6.408
(2)	7.396	7.322	7.462
(3)	7.822	7.748	7.888
Aroclor-1248	8.586	8.513	8.653
(2)	8.770	8.698	8.838
(3)	9.978	9.905	10.045
Aroclor-1254	10.802	10.732	10.872
(2)	11.780	11.707	11.847
(3)	12.350	12.280	12.420
Aroclor-1260	13.090	13.022	13.162
(2)	13.740	13.668	13.808
(3)	14.310	14.237	14.377
Tetrachloro-m-xylene	4.646	4.597	4.697
Decachlorobiphenyl	16.544	16.445	16.645

FORM 6
PCB INITIAL CALIBRATION DATA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date(s): 02/22/07 02/23/07

Column: CLPPESTII ID: 0.53 (mm) Calibration Time(s): 1703 0223

LAB FILE ID: RT1: E2F9827R RT2: E2F9828R RT3: E2F9829R
RT4: E2F9830R RT5: E2F9831R

COMPOUND	RT1	RT2	RT3	RT4	RT5
Aroclor-1016	7.340	7.340	7.330	7.330	7.330
(2)	8.320	8.320	8.320	8.310	8.320
(3)	9.380	9.380	9.380	9.380	9.380
Aroclor-1221			4.930		
(2)			6.840		
(3)			7.340		
Aroclor-1232			6.840		
(2)			9.690		
(3)			11.580		
Aroclor-1242	9.380	9.380	9.380	9.380	9.380
(2)	9.690	9.690	9.680	9.680	9.680
(3)	10.150	10.150	10.150	10.150	10.150
Aroclor-1248	10.730	10.730	10.730	10.730	10.730
(2)	11.000	11.000	11.000	11.000	11.000
(3)	13.050	13.050	13.050	13.050	13.050
Aroclor-1254	13.540	13.540	13.540	13.540	13.540
(2)	13.920	13.920	13.910	13.910	13.910
(3)	14.660	14.660	14.660	14.660	14.660
Aroclor-1260	15.460	15.460	15.460	15.460	15.460
(2)	15.990	15.990	15.990	15.990	15.990
(3)	16.740	16.740	16.740	16.740	16.740
Tetrachloro-m-xylene	6.050	6.060	6.050	6.060	6.060
Decachlorobiphenyl	19.150	19.150	19.150	19.150	19.150

FORM 6
PCB INITIAL CALIBRATION DATA

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date(s): 02/22/07 02/23/07

Column: CLPPESTII ID: 0.53 (mm) Calibration Time(s): 1703 0223

COMPOUND	MEAN RT	RT WINDOW FROM	RT WINDOW TO
Aroclor-1016	7.334	7.263	7.403
(2)	8.318	8.245	8.385
(3)	9.380	9.310	9.450
Aroclor-1221	4.930	4.857	4.997
(2)	6.840	6.770	6.910
(3)	7.340	7.265	7.405
Aroclor-1232	6.840	6.772	6.912
(2)	9.690	9.615	9.755
(3)	11.580	11.507	11.647
Aroclor-1242	9.380	9.308	9.448
(2)	9.684	9.610	9.750
(3)	10.150	10.078	10.218
Aroclor-1248	10.730	10.662	10.802
(2)	11.000	10.930	11.070
(3)	13.050	12.978	13.118
Aroclor-1254	13.540	13.465	13.605
(2)	13.914	13.843	13.983
(3)	14.660	14.587	14.727
Aroclor-1260	15.460	15.388	15.528
(2)	15.990	15.917	16.057
(3)	16.740	16.668	16.808
Tetrachloro-m-xylene	6.056	6.005	6.105
Decachlorobiphenyl	19.150	19.050	19.250

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 02/26/07 Time: 2349

Lab File ID: E2F9959F Init. Calib. Date(s): 02/23/07 02/23/07

Init. Calib. Times: 0036 0223

GC Column: CLPPEST ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1016	16946.625	17830.000	0.01	5.2	15.0
(2)	32274.125	34230.000	0.01	6.1	15.0
(3)	25512.125	27770.000	0.01	8.8	15.0
Aroclor-1260	62266.750	63677.500	0.01	2.3	15.0
(2)	141688.25	145310.00	0.01	2.6	15.0
(3)	68320.000	70777.500	0.01	3.6	15.0
Tetrachloro-m-xylene	1149215.0	1192500.0	0.01	3.8	15.0
Decachlorobiphenyl	1353630.0	1383900.0	0.01	2.2	15.0

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 02/26/07 Time: 2349

Lab File ID: E2F9959R Init. Calib. Date(s): 02/23/07 02/23/07

Init. Calib. Times: 0036 0223

GC Column: CLPPESTII ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1016	9695.375	10117.500	0.01	4.4	15.0
(2)	17149.250	17917.500	0.01	4.5	15.0
(3)	32603.500	33897.500	0.01	4.0	15.0
Aroclor-1260	40558.875	40250.000	0.01	0.8	15.0
(2)	96411.250	95830.000	0.01	0.6	15.0
(3)	57301.250	56657.500	0.01	1.1	15.0
Tetrachloro-m-xylene	663162.50	672500.00	0.01	1.4	15.0
Decachlorobiphenyl	768051.25	745325.00	0.01	3.0	15.0

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 02/27/07 Time: 1437

Lab File ID: E2F9973F Init. Calib. Date(s): 02/23/07 02/23/07

Init. Calib. Times: 0036 0223

GC Column: CLPPEST ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1016	16946.625	17642.500	0.01	4.1	15.0
(2)	32274.125	34377.500	0.01	6.5	15.0
(3)	25512.125	27340.000	0.01	7.2	15.0
Aroclor-1260	62266.750	63847.500	0.01	2.5	15.0
(2)	141688.25	144227.50	0.01	1.8	15.0
(3)	68320.000	70120.000	0.01	2.6	15.0
Tetrachloro-m-xylene	1149215.0	1201150.0	0.01	4.5	15.0
Decachlorobiphenyl	1353630.0	1372100.0	0.01	1.4	15.0

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 02/27/07 Time: 1437

Lab File ID: E2F9973R Init. Calib. Date(s): 02/23/07 02/23/07

Init. Calib. Times: 0036 0223

GC Column: CLPPESTII ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1016	9695.375	10112.500	0.01	4.3	15.0
(2)	17149.250	18310.000	0.01	6.8	15.0
(3)	32603.500	34075.000	0.01	4.5	15.0
Aroclor-1260	40558.875	41287.500	0.01	1.8	15.0
(2)	96411.250	96510.000	0.01	0.1	15.0
(3)	57301.250	57580.000	0.01	0.5	15.0
Tetrachloro-m-xylene	663162.50	675050.00	0.01	1.8	15.0
Decachlorobiphenyl	768051.25	746050.00	0.01	2.9	15.0

FORM VII PCB

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 03/01/07 Time: 1640

Lab File ID: E2G0064F Init. Calib. Date(s): 02/22/07 02/23/07

Init. Calib. Times: 2223 0010

GC Column: CLPPEST ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1254	65592.500	64987.500	0.01	0.9	15.0
(2)	53867.875	54675.000	0.01	1.5	15.0
(3)	61115.250	60095.000	0.01	1.7	15.0
Tetrachloro-m-xylene	1149215.0	1140400.0	0.01	0.8	15.0
Decachlorobiphenyl	1353630.0	1348225.0	0.01	0.4	15.0

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 03/01/07 Time: 1640

Lab File ID: E2G0064R Init. Calib. Date(s): 02/22/07 02/23/07

Init. Calib. Times: 2223 0010

GC Column: CLPPESTII ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1254	39284.375	39370.000	0.01	0.2	15.0
(2)	27069.250	28510.000	0.01	5.3	15.0
(3)	40842.250	42237.500	0.01	3.4	15.0
Tetrachloro-m-xylene	663162.50	666550.00	0.01	0.5	15.0
Decachlorobiphenyl	768051.25	769400.00	0.01	0.2	15.0

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 03/01/07 Time: 1706

Lab File ID: E2G0065F Init. Calib. Date(s): 02/23/07 02/23/07

Init. Calib. Times: 0036 0223

GC Column: CLPPEST ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1016	16946.625	16567.500	0.01	2.2	15.0
(2)	32274.125	33770.000	0.01	4.6	15.0
(3)	25512.125	23102.500	0.01	9.4	15.0
Aroclor-1260	62266.750	63697.500	0.01	2.3	15.0
(2)	141688.25	139587.50	0.01	1.5	15.0
(3)	68320.000	67085.000	0.01	1.8	15.0
Tetrachloro-m-xylene	1149215.0	1165450.0	0.01	1.4	15.0
Decachlorobiphenyl	1353630.0	1373475.0	0.01	1.5	15.0

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 03/01/07 Time: 1706

Lab File ID: E2G0065R Init. Calib. Date(s): 02/23/07 02/23/07

Init. Calib. Times: 0036 0223

GC Column: CLPPESTII ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1016	9695.375	9847.500	0.01	1.6	15.0
(2)	17149.250	18395.000	0.01	7.3	15.0
(3)	32603.500	33227.500	0.01	1.9	15.0
Aroclor-1260	40558.875	41795.000	0.01	3.0	15.0
(2)	96411.250	97495.000	0.01	1.1	15.0
(3)	57301.250	57567.500	0.01	0.5	15.0
Tetrachloro-m-xylene	663162.50	670350.00	0.01	1.1	15.0
Decachlorobiphenyl	768051.25	784675.00	0.01	2.2	15.0

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 03/01/07 Time: 2319

Lab File ID: E2G0079F Init. Calib. Date(s): 02/22/07 02/23/07

Init. Calib. Times: 2223 0010

GC Column: CLPPEST ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1254	65592.500	65482.500	0.01	0.2	15.0
(2)	53867.875	55395.000	0.01	2.8	15.0
(3)	61115.250	61270.000	0.01	0.2	15.0
Tetrachloro-m-xylene	1149215.0	1139000.0	0.01	0.9	15.0
Decachlorobiphenyl	1353630.0	1369775.0	0.01	1.2	15.0

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 03/01/07 Time: 2319

Lab File ID: E2G0079R Init. Calib. Date(s): 02/22/07 02/23/07

Init. Calib. Times: 2223 0010

GC Column: CLPPESTII ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1254	39284.375	39477.500	0.01	0.5	15.0
(2)	27069.250	28820.000	0.01	6.5	15.0
(3)	40842.250	42365.000	0.01	3.7	15.0
Tetrachloro-m-xylene	663162.50	667250.00	0.01	0.6	15.0
Decachlorobiphenyl	768051.25	769200.00	0.01	0.1	15.0

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 03/01/07 Time: 2346

Lab File ID: E2G0080F Init. Calib. Date(s): 02/23/07 02/23/07

Init. Calib. Times: 0036 0223

GC Column: CLPPEST ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1016	16946.625	16682.500	0.01	1.6	15.0
(2)	32274.125	34292.500	0.01	6.2	15.0
(3)	25512.125	23240.000	0.01	8.9	15.0
Aroclor-1260	62266.750	62790.000	0.01	0.8	15.0
(2)	141688.25	138845.00	0.01	2.0	15.0
(3)	68320.000	66902.500	0.01	2.1	15.0
Tetrachloro-m-xylene	1149215.0	1164100.0	0.01	1.3	15.0
Decachlorobiphenyl	1353630.0	1389775.0	0.01	2.7	15.0

FORM 7
PCB CONTINUING CALIBRATION CHECK

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Instrument ID: E2 Calibration Date: 03/01/07 Time: 2346

Lab File ID: E2G0080R Init. Calib. Date(s): 02/23/07 02/23/07

Init. Calib. Times: 0036 0223

GC Column: CLPPESTII ID: 0.53 (mm)

COMPOUND	$\overline{RRF}$	RRF0.4	MIN RRF	%D	MAX %D
Aroclor-1016	9695.375	10095.000	0.01	4.1	15.0
(2)	17149.250	19040.000	0.01	11.0	15.0
(3)	32603.500	33852.500	0.01	3.8	15.0
Aroclor-1260	40558.875	42697.500	0.01	5.3	15.0
(2)	96411.250	96967.500	0.01	0.6	15.0
(3)	57301.250	58675.000	0.01	2.4	15.0
Tetrachloro-m-xylene	663162.50	677000.00	0.01	2.1	15.0
Decachlorobiphenyl	768051.25	783225.00	0.01	2.0	15.0

FORM 8
PCB ANALYTICAL SEQUENCE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

GC Column: CLPPEST ID: 0.53 (mm) Init. Calib. Date(s): 02/22/07 02/23/07

Instrument ID: E2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 4.65 DCB: 16.55

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01	AR12213X2	AR12213X2	02/22/07	1703	4.65	16.54
02	AR12323X2	AR12323X2	02/22/07	1730	4.64	16.54
03	AR12421X2	AR12421X2	02/22/07	1756	4.65	16.54
04	AR12422X2	AR12422X2	02/22/07	1823	4.65	16.54
05	AR12423X2	AR12423X2	02/22/07	1850	4.64	16.54
06	AR12424X2	AR12424X2	02/22/07	1917	4.64	16.54
07	AR12425X2	AR12425X2	02/22/07	1943	4.64	16.54
08	AR12481X2	AR12481X2	02/22/07	2010	4.64	16.54
09	AR12482X2	AR12482X2	02/22/07	2037	4.65	16.54
10	AR12483X2	AR12483X2	02/22/07	2103	4.65	16.54
11	AR12484X2	AR12484X2	02/22/07	2130	4.65	16.55
12	AR12485X2	AR12485X2	02/22/07	2157	4.65	16.55
13	AR12541X2	AR12541X2	02/22/07	2223	4.64	16.54
14	AR12542X2	AR12542X2	02/22/07	2250	4.64	16.54
15	AR12543X2	AR12543X2	02/22/07	2317	4.65	16.54
16	AR12544X2	AR12544X2	02/22/07	2343	4.65	16.54
17	AR12545X2	AR12545X2	02/23/07	0010	4.64	16.54
18	AR16601X2	AR16601X2	02/23/07	0036	4.64	16.54
19	AR16602X2	AR16602X2	02/23/07	0103	4.65	16.54
20	AR16603X2	AR16603X2	02/23/07	0130	4.64	16.55
21	AR16604X2	AR16604X2	02/23/07	0156	4.65	16.54
22	AR16605X2	AR16605X2	02/23/07	0223	4.65	16.55
23	AR16603XJ	AR16603XJ	02/26/07	2349	4.65	16.54
24	ABLK2F	MB-28326	02/27/07	0917	4.67	16.56
25	A2FLCS	LCS-28330	02/27/07	0944	4.65	16.54
26	FB-01	F0179-05A	02/27/07	1037	4.65	16.54
27	AR16603XK	AR16603XK	02/27/07	1437	4.64	16.54
28	AR12543XQ	AR12543XQ	03/01/07	1640	4.65	16.54
29	AR16603XQ	AR16603XQ	03/01/07	1706	4.65	16.54
30	ABLK2R	MB-28437	03/01/07	1733	4.65	16.54
31	A2RLCS	LCS-28437	03/01/07	1800	4.65	16.54
32	DPOSD5R	F0179-01A	03/01/07	1853	4.65	16.53

QC LIMITS

TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.10 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

FORM VIII PCB

FORM 8
PCB ANALYTICAL SEQUENCE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

GC Column: CLPPEST ID: 0.53 (mm) Init. Calib. Date(s): 02/22/07 02/23/07

Instrument ID: E2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 4.65 DCB: 16.55

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01	DPOSD5RD	F0179-02A	03/01/07	1920	4.65	16.53
02	EBSD16AR	F0179-03A	03/01/07	1946	4.65	16.54
03	EBSD13AR	F0179-04A	03/01/07	2013	4.65	16.54
04	EBSD13ARMS	F0179-04AMS	03/01/07	2039	4.65	16.54
05	EBSD13ARMSD	F0179-04AMSD	03/01/07	2106	4.65	16.54
06	AR12543XR	AR12543XR	03/01/07	2319	4.65	16.54
07	AR16603XR	AR16603XR	03/01/07	2346	4.65	16.54
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

QC LIMITS

TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.10 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

FORM VIII PCB

FORM 8
PCB ANALYTICAL SEQUENCE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

GC Column: CLPPESTII ID: 0.53 (mm) Init. Calib. Date(s): 02/22/07 02/23/07

Instrument ID: E2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 6.06 DCB: 19.15

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01	AR12213X2	AR12213X2	02/22/07	1703	6.06	19.15
02	AR12323X2	AR12323X2	02/22/07	1730	6.05	19.15
03	AR12421X2	AR12421X2	02/22/07	1756	6.06	19.15
04	AR12422X2	AR12422X2	02/22/07	1823	6.06	19.15
05	AR12423X2	AR12423X2	02/22/07	1850	6.05	19.15
06	AR12424X2	AR12424X2	02/22/07	1917	6.05	19.15
07	AR12425X2	AR12425X2	02/22/07	1943	6.05	19.15
08	AR12481X2	AR12481X2	02/22/07	2010	6.05	19.15
09	AR12482X2	AR12482X2	02/22/07	2037	6.06	19.15
10	AR12483X2	AR12483X2	02/22/07	2103	6.06	19.15
11	AR12484X2	AR12484X2	02/22/07	2130	6.06	19.15
12	AR12485X2	AR12485X2	02/22/07	2157	6.06	19.15
13	AR12541X2	AR12541X2	02/22/07	2223	6.06	19.15
14	AR12542X2	AR12542X2	02/22/07	2250	6.05	19.15
15	AR12543X2	AR12543X2	02/22/07	2317	6.06	19.15
16	AR12544X2	AR12544X2	02/22/07	2343	6.06	19.15
17	AR12545X2	AR12545X2	02/23/07	0010	6.05	19.15
18	AR16601X2	AR16601X2	02/23/07	0036	6.05	19.15
19	AR16602X2	AR16602X2	02/23/07	0103	6.06	19.15
20	AR16603X2	AR16603X2	02/23/07	0130	6.05	19.15
21	AR16604X2	AR16604X2	02/23/07	0156	6.06	19.15
22	AR16605X2	AR16605X2	02/23/07	0223	6.06	19.15
23	AR16603XJ	AR16603XJ	02/26/07	2349	6.06	19.15
24	ABLK2F	MB-28326	02/27/07	0917	6.07	19.16
25	A2FLCS	LCS-28330	02/27/07	0944	6.06	19.15
26	FB-01	F0179-05A	02/27/07	1037	6.06	19.15
27	AR16603XK	AR16603XK	02/27/07	1437	6.05	19.15
28	AR12543XQ	AR12543XQ	03/01/07	1640	6.06	19.15
29	AR16603XQ	AR16603XQ	03/01/07	1706	6.06	19.15
30	ABLK2R	MB-28437	03/01/07	1733	6.06	19.15
31	A2RLCS	LCS-28437	03/01/07	1800	6.06	19.15
32	DPOSD5R	F0179-01A	03/01/07	1853	6.06	19.15

QC LIMITS

TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.10 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

FORM VIII PCB

FORM 8
PCB ANALYTICAL SEQUENCE

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

GC Column: CLPPESTII ID: 0.53 (mm) Init. Calib. Date(s): 02/22/07 02/23/07

Instrument ID: E2

THE ANALYTICAL SEQUENCE OF PERFORMANCE EVALUATION MIXTURES, BLANKS, SAMPLES, AND STANDARDS IS GIVEN BELOW:

MEAN SURROGATE RT FROM INITIAL CALIBRATION
TCX: 6.06 DCB: 19.15

	CLIENT SAMPLE NO.	LAB SAMPLE ID	DATE ANALYZED	TIME ANALYZED	TCX RT #	DCB RT #
01	DPOSD5RD	F0179-02A	03/01/07	1920	6.06	19.15
02	EBSD16AR	F0179-03A	03/01/07	1946	6.06	19.15
03	EBSD13AR	F0179-04A	03/01/07	2013	6.06	19.15
04	EBSD13ARMS	F0179-04AMS	03/01/07	2039	6.06	19.15
05	EBSD13ARMSD	F0179-04AMSD	03/01/07	2106	6.06	19.15
06	AR12543XR	AR12543XR	03/01/07	2319	6.06	19.15
07	AR16603XR	AR16603XR	03/01/07	2346	6.06	19.15
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						

QC LIMITS

TCX = Tetrachloro-m-xylene (+/- 0.05 MINUTES)
DCB = Decachlorobiphenyl (+/- 0.10 MINUTES)

Column used to flag retention time values with an asterisk.
* Values outside of QC limits.

FORM VIII PCB

FORM 10
PCB IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

A2FLCS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Lab Sample ID: LCS-28330 Date(s) Analyzed: 02/27/07 02/27/07

Instrument ID (1): E2 Instrument ID (2): E2

GC Column(1): CLPPEST ID: 0.53(mm) GC Column(2): CLPPESTII ID: 0.53(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
	1	5.53	5.46	5.60	8.4		
Aroclor-1016	2	6.34	6.27	6.41	8.2		
	3	7.69	7.62	7.76	9.2		
COLUMN 1	4						
	5					8.6	
	1	7.34	7.26	7.40	8.8		
	2	8.32	8.25	8.38	8.6		
	3	9.38	9.31	9.45	8.9		
COLUMN 2	4						
	5					8.8	2.3
	1	13.09	13.02	13.16	8.2		
Aroclor-1260	2	13.74	13.67	13.81	8.4		
	3	14.31	14.24	14.38	8.5		
COLUMN 1	4						
	5					8.4	
	1	15.46	15.39	15.53	8.6		
	2	15.99	15.92	16.06	8.6		
	3	16.74	16.67	16.81	8.6		
COLUMN 2	4						
	5					8.6	2.4
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes.

FORM 10
PCB IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

A2RLCS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Lab Sample ID: LCS-28437 Date(s) Analyzed: 03/01/07 03/01/07

Instrument ID (1): E2 Instrument ID (2): E2

GC Column(1): CLPPEST ID: 0.53(mm) GC Column(2): CLPPESTII ID: 0.53(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
	1	5.53	5.46	5.60	260		
Aroclor-1016	2	6.34	6.27	6.41	260		
	3	7.69	7.62	7.76	280		
COLUMN 1	4						
	5					270	
	1	7.34	7.26	7.40	280		
	2	8.32	8.25	8.38	280		
	3	9.38	9.31	9.45	280		
COLUMN 2	4						
	5					280	3.6
	1	13.09	13.02	13.16	260		
Aroclor-1260	2	13.74	13.67	13.81	260		
	3	14.31	14.24	14.38	260		
COLUMN 1	4						
	5					260	
	1	15.46	15.39	15.53	270		
	2	15.99	15.92	16.06	270		
	3	16.74	16.67	16.81	270		
COLUMN 2	4						
	5					270	3.8
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes.

FORM 10
PCB IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

EBSD13AR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Lab Sample ID: F0179-04A Date(s) Analyzed: 03/01/07 03/01/07

Instrument ID (1): E2 Instrument ID (2): E2

GC Column(1): CLPPEST ID: 0.53(mm) GC Column(2): CLPPESTII ID: 0.53(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
	1	10.80	10.73	10.87	730		
Aroclor-1254	2	11.78	11.71	11.85	1000		
	3	12.35	12.28	12.42	910		
COLUMN 1	4						
	5					880	
	1	13.54	13.47	13.61	720		
	2	13.91	13.84	13.98	1100		
	3	14.66	14.59	14.73	850		
COLUMN 2	4						
	5					900	2.2
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes.

FORM 10
PCB IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

EBSD13ARMS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Lab Sample ID: F0179-04AMS Date(s) Analyzed: 03/01/07 03/01/07

Instrument ID (1): E2 Instrument ID (2): E2

GC Column(1): CLPPEST ID: 0.53(mm) GC Column(2): CLPPESTII ID: 0.53(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
	1	10.80	10.73	10.87	770		
Aroclor-1254	2	11.78	11.71	11.85	990		
	3	12.35	12.28	12.42	960		
COLUMN 1	4						
	5					910	
	1	13.54	13.47	13.61	760		
	2	13.91	13.84	13.98	1100		
	3	14.66	14.59	14.73	910		
COLUMN 2	4						
	5					940	3.2
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes.

FORM 10
PCB IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

EBSD13ARMSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Lab Sample ID: F0179-04AMSD Date(s) Analyzed: 03/01/07 03/01/07

Instrument ID (1): E2 Instrument ID (2): E2

GC Column(1): CLPPEST ID: 0.53(mm) GC Column(2): CLPPESTII ID: 0.53(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
	1	10.80	10.73	10.87	780		
Aroclor-1254	2	11.78	11.71	11.85	1100		
	3	12.35	12.28	12.42	980		
COLUMN 1	4						
	5					940	
	1	13.54	13.47	13.61	680		
	2	13.91	13.84	13.98	1000		
	3	14.66	14.59	14.73	830		
COLUMN 2	4						
	5					850	10.0
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes.

FORM 10
PCB IDENTIFICATION SUMMARY
FOR MULTICOMPONENT ANALYTES

CLIENT SAMPLE NO.

EBSD16AR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Lab Sample ID: F0179-03A Date(s) Analyzed: 03/01/07 03/01/07

Instrument ID (1): E2 Instrument ID (2): E2

GC Column(1): CLPPEST ID: 0.53(mm) GC Column(2): CLPPESTII ID: 0.53(mm)

ANALYTE	PEAK	RT	RT WINDOW FROM	RT WINDOW TO	CONCENTRATION	MEAN CONCENTRATION	%D
	1	10.80	10.73	10.87	390		
Aroclor-1254	2	11.78	11.71	11.85	780		
	3	12.35	12.28	12.42	680		
COLUMN 1	4						
	5					610	
	1	13.54	13.47	13.61	330		
	2	13.91	13.84	13.98	760		
	3	14.66	14.59	14.73	530		
COLUMN 2	4						
	5					540	12.2
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						
	1						
	2						
	3						
COLUMN 1	4						
	5						
	1						
	2						
	3						
COLUMN 2	4						
	5						

At least 3 peaks are required for identification of multicomponent analytes.

Last Page of Data Report

APPENDIX E

DATA VALIDATION

Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, N. Y. 12853
Phone 518-251-4429
Facsimile 518-251-4428

April 3, 2007

John Guzewich
HDR/LMS
One Blue Hill Plaza
Pearl River, NY 10965

RE: Validation of Echo Avenue Site Data Package
Mitkem Labs SDG No. F0179

Dear Mr. Guzewich:

Review has been completed for the data package generated by Mitkem Laboratories that pertains to samples collected 2/12/07 at the Con Edison Echo Avenue Site. Four sediment samples were processed for TLC PCBs by USEPA SW846 method 8082. Sample matrix spikes and a field blank were also analyzed.

Data validation was performed in accordance with the NYSDEC RI/FS Validation Scope of Work, with guidance from the most current editions of the USEPA CLP National Functional Guidelines for Organic Data Review and the EPA Region 2 Validation SOPs HW-23B and HW-6. The requirements of the ASP, project QAPP, and professional judgment are included in the data evaluation. The following items were reviewed:

* Data Completeness
* Case Narrative Discussion
* Custody Documentation
* Holding Times
* Surrogate Standard Recoveries
* Matrix Spike Recoveries and Duplicate Correlations
* Control Standards
* Preparation Blanks
* Calibration Standards
* Method Compliance
* Sample Result Verification

Those items showing deficiencies are discussed in the following sections of this report. All others were found to be acceptable as outlined in the above-mentioned validation procedures, and as applicable for the methodology. Unless noted specifically in the following text, reported results are substantiated by the raw data, and generated in compliance with protocol requirements.

In summary, the sample was primarily processed in compliance with protocol and requirements, and results are usable as reported, or usable with minor qualification (of one result) as estimated in value.

Copies of the laboratory analytical requirements summary form and case narrative are attached to this text and should be reviewed in conjunction with this report. Also attached are copies of the report forms with qualifiers applied in red ink.

Data Completeness

No resubmissions were required of the laboratory.

The integration raw data

TCL PCB Analyses by EPA 8082

Sample matrix spikes of Aroclor 1016 and 1260 were processed on EBSD13-AR, and analyzed at a tenfold dilution. Accuracy and precision determinations show acceptable recoveries on one analytical column, and low recoveries on the second. The evaluations are considered acceptable for the tenfold dilution, which resulted in a spike level at the reporting limit.

The detected result for Aroclor 1254 in EBSD16-AR is to be qualified as estimated ("J"), and may have a high quantitative bias, due to over-integration of the congener responses.

Holding times and surrogate standard recoveries were within protocol requirements. Blanks show no contamination, and calibration standard responses are within validation guidelines. Dual column quantitative correlation values are acceptable.

The raw data integration output provided in the data package does not include retention times and area counts for all sample responses, and has been edited to reflect the analyst characterization of the PCB mixtures. Therefore, independent confirmation is not possible in all cases. Data deliverables do not specify comprehensive laboratory deliverables for GC analyses.

Samples were analyzed at tenfold dilution.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

Judy Harry

VALIDATION QUALIFIER DEFINITIONS

DATA QUALIFIER DEFINITIONS

The following definitions provide brief explanations of the national qualifiers assigned to results in the data review process. If the Regions choose to use additional qualifiers, a complete explanation of those qualifiers should accompany the data review.

U - **The analyte was analyzed for, but was not detected above the reported sample quantitation limit.**

J - **The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.**

N - **The analysis indicates the present of an analyte for which there is presumptive evidence to make a "tentative identification."**

NJ - **The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.**

UJ - **The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.**

R - **The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.**

LABORATORY SAMPLE IDs AND CASE NARRATIVES

Mitkem Corporation

New York State Department of Environmental Conservation
Sample Identification and Analytical Requirements Summary

Project Name : ConEd Echo Ave. **SDG :** F0179

Customer Sample ID	Laboratory Sample ID	Analytical Requirements				
		MSVOA Method #	MSSEMI Method #	GC* Method #	ME	Other
)POSD5R	F0179-01			SW8082_S		
)POSD5RD	F0179-02			SW8082_S		
EBSD16AR	F0179-03			SW8082_S		
EBSD13AR	F0179-04			SW8082_S		
FB-01	F0179-05			SW8082_W		

SDG Narrative

Mitkem Corporation submits the enclosed data package in response to HDR/LMS's ConEd – Echo Ave. project. Under this deliverable, analysis results are presented for one aqueous and four soil/sediment samples that were received on February 13, 2007. Analyses were performed per specifications in the project's contract and the chain of custody. Following the narrative is a copy of the Mitkem sample login sheet for cross-referencing client sample ID with laboratory sample ID.

The analyses were performed according to NYSDEC ASP protocols (2000 update) and reported per NYSDEC ASP requirement for Category A deliverable.

The following observation and/or deviations are observed for the following analyses:

1. PCB Analysis:

Surrogate recovery: recoveries were within the QC limits.

Lab control sample: spike recoveries were within the QC limits.

Matrix spike/matrix spike duplicate: duplicate matrix spikes were performed on sample EBSD13AR. Spike recoveries and replicate RPDs were not within the QC limits. Please note that the matrix spike and matrix spike duplicate were analyzed at 10x dilution.

Sample analysis: please note that all the samples with the exception of sample FB-01 were analyzed at 10x dilution. No other unusual observation was made for the analysis.

All pages in this report have been numbered consecutively, starting with the title page and ending with a page saying only "Last Page of Data Report".

I certify that this data package is in compliance, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this

hardcopy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Agnes Ng
CLP Project Manager
03/13/07

QUALIFIED REPORT FORMS

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DPOSD5R

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix: (soil/water) SOIL Lab Sample ID: F0179-01A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E2G0069F

% Moisture: 33 decanted: (Y/N) N Date Received: 02/13/07

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:02/20/07

Concentrated Extract Volume: 10000(uL) Date Analyzed: 03/01/07

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	490	U
11104-28-2	Aroclor-1221	490	U
11141-16-5	Aroclor-1232	490	U
53469-21-9	Aroclor-1242	490	U
12672-29-6	Aroclor-1248	490	U
11097-69-1	Aroclor-1254	490	U
11096-82-5	Aroclor-1260	490	U

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

DPOSD5RD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix: (soil/water) SOIL Lab Sample ID: F0179-02A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E2G0070F

% Moisture: 34 decanted: (Y/N) N Date Received: 02/13/07

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/20/07

Concentrated Extract Volume: 10000(uL) Date Analyzed: 03/01/07

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	500	U
11104-28-2	Aroclor-1221	500	U
11141-16-5	Aroclor-1232	500	U
53469-21-9	Aroclor-1242	500	U
12672-29-6	Aroclor-1248	500	U
11097-69-1	Aroclor-1254	500	U
11096-82-5	Aroclor-1260	500	U

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EBSD13AR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix: (soil/water) SOIL Lab Sample ID: F0179-04A

Sample wt/vol: 30.3 (g/mL) G Lab File ID: E2G0072F

% Moisture: 37 decanted: (Y/N) N Date Received: 02/13/07

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:02/20/07

Concentrated Extract Volume: 10000(uL) Date Analyzed: 03/01/07

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	520	U
11104-28-2	Aroclor-1221	520	U
11141-16-5	Aroclor-1232	520	U
53469-21-9	Aroclor-1242	520	U
12672-29-6	Aroclor-1248	520	U
11097-69-1	Aroclor-1254	880	
11096-82-5	Aroclor-1260	520	U

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EBSD13ARMS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix: (soil/water) SOIL Lab Sample ID: F0179-04AMS

Sample wt/vol: 30.2 (g/mL) G Lab File ID: E2G0073F

% Moisture: 37 decanted: (Y/N) N Date Received: 02/13/07

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/20/07

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/01/07

Injection Volume: 1.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	520	U
11104-28-2	Aroclor-1221	520	U
11141-16-5	Aroclor-1232	520	U
53469-21-9	Aroclor-1242	520	U
12672-29-6	Aroclor-1248	520	U
11097-69-1	Aroclor-1254	910	
11096-82-5	Aroclor-1260	520	U

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EBSD13ARMSD

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix: (soil/water) SOIL Lab Sample ID: F0179-04AMSD

Sample wt/vol: 30.1 (g/mL) G Lab File ID: E2G0074F

% Moisture: 37 decanted: (Y/N) N Date Received: 02/13/07

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:02/20/07

Concentrated Extract Volume: 10000(uL) Date Analyzed: 03/01/07

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	520	U
11104-28-2	Aroclor-1221	520	U
11141-16-5	Aroclor-1232	520	U
53469-21-9	Aroclor-1242	520	U
12672-29-6	Aroclor-1248	520	U
11097-69-1	Aroclor-1254	850	
11096-82-5	Aroclor-1260	520	U

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EBSD16AR

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix: (soil/water) SOIL Lab Sample ID: F0179-03A

Sample wt/vol: 30.2 (g/mL) G Lab File ID: E2G0071F

% Moisture: 37 decanted: (Y/N) N Date Received: 02/13/07

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/20/07

Concentrated Extract Volume: 10000 (uL) Date Analyzed: 03/01/07

Injection Volume: 1.0 (uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	520	U
11104-28-2	Aroclor-1221	520	U
11141-16-5	Aroclor-1232	520	U
53469-21-9	Aroclor-1242	520	U
12672-29-6	Aroclor-1248	520	U
11097-69-1	Aroclor-1254	540	J
11096-82-5	Aroclor-1260	520	U

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

FB-01

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix: (soil/water) WATER Lab Sample ID: F0179-05A

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E2F9964F

% Moisture: _____ decanted: (Y/N)___ Date Received: 02/13/07

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:02/14/07

Concentrated Extract Volume: 10000(uL) Date Analyzed: 02/27/07

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

FORM 1
PCB ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

A2FLCS

Lab Name: MITKEM CORPORATION Contract:

Lab Code: MITKEM Case No.: SAS No.: SDG No.: MF0179

Matrix: (soil/water) WATER Lab Sample ID: LCS-28330

Sample wt/vol: 1000 (g/ml) ML Lab File ID: E2F9962F

% Moisture: _____ decanted: (Y/N)___ Date Received: _____

Extraction: (SepF/Cont/Sonc) SEPF Date Extracted:02/14/07

Concentrated Extract Volume: 10000(uL) Date Analyzed: 02/27/07

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2	Aroclor-1016	8.6	
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	8.4	