September 24, 2009

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Sunnyside Yard
Queens, New York

Prepared for:

NATIONAL RAILROAD PASSENGER CORPORATION
Washington, D.C. 20002

Remedial Engineering, P.C.
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and ROUX ASSOCIATES, INC.

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FINAL REMEDIAL ACTION WORK PLAN

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CERTIFICATION

I, Charles J. McGuckin, am currently a registered professional engineer licensed by the State of New York. I have primary direct responsibility for implementation of the remedial program for the OU-4 at the Sunnyside Yard Site (NYSDEC Site No. 241006).

I certify that the Site description presented in this RAWP is identical to the Site descriptions presented in the Record of Decision for Amtrak Sunnyside Yard – OU-4 and related amendments.

I certify that this plan includes proposed use restrictions, Institutional Controls, Engineering Controls, and plans for all operation and maintenance requirements applicable to the Site and provision for development of an Environmental Easement to be created and recorded pursuant to ECL 71-3605 [if Track 1 is not achieved]. This RAWP requires that all affected local governments, as defined in ECL 71-3603, will be notified that such Easement has been recorded. This RAWP requires that a Site Management Plan must be submitted by the Amtrak for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, for approval by the Department [if Track 1 is not achieved].

I certify that this RAWP has a plan for transport and disposal of all soil, fill, fluids and other material removed from the property under this Plan, and that all transport and disposal will be performed in accordance with all local, State and Federal laws and requirements. All exported material will be taken to facilities licensed to accept this material in full compliance with all Federal, State and local laws.

I certify that this RAWP has a plan for import of soils and other material from off-Site and that all activities of this type will be in accordance with all local, State and Federal laws and requirements.

I certify that this RAWP has a plan for nuisance control during the remediation and all invasive development work, including a dust, odor and vector suppression plan and that such plan is sufficient to control dust and odors and will prevent nuisances from occurring.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

069509		
NYS Professional Engineer #	Date	Signature

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

LIST OF ACRONYMS

Acronym	Definition
ASP	Analytical Services Protocol
AMTRAK	National Railroad Passenger Corporation
bls	Below land surface
C&D	Construction and Demolition
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
COCs	Compounds of Concern
Conrail	Consolidated Rail Corporation
cPAHs	Seven specific PAHs that the NYSDEC considers carcinogenic
CPP	Community Participation Plan
CQAP	Construction Quality Assurance Plan
CRZ	Contamination Reduction Zone
CY	Cubic Yards
DER	Division of Environmental Remediation
DSHM	Division of Solid and Hazardous Materials
EC	Engineering Control
EZ	Exclusion Zone
FER	Final Engineering Report
FS	Feasibility Study
GRA	General Response Action
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operation Worker
HDPE	High Density Polyethylene
HSTF	High Speed Trainset Facility
IHWDS	Inactive Hazardous Waste Disposal Site
IC	Institutional Control
IRM	Interim remedial measures
LIRR	Long Island Rail Road
mg/kg	Milligrams per kilogram, equal to 1,000 µg/kg
µg/kg	Micrograms per kilogram, equal to 0.001 mg/kg
MTA	Metropolitan Transit Authority
NJTC	New Jersey Transit Corporation
NYCDEP	New York City Department of Environmental Protection
NYCRR	New York Code of Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
OOC	Order On Consent
OM&M	Operation, Maintenance and Monitoring

Acronym	Definition
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PAHs	Polycyclic aromatic hydrocarbons
PCBs	Polychlorinated biphenyls
PID	Photoionization detector
PPE	Personal protection equipment
ppm	Parts per million, equivalent to mg/kg
QAPP	Quality Assurance Project Plan
RAOs	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
ROD	Record of Decision
RSCOs	Recommended Soil Cleanup Objectives
SCGs	Standards, Criteria and Guidance
SCOs	Soil Cleanup Objective
SF	Square feet
SMP	Site Management Plan
SoMP	Soil Management Plan
SPH	Separate-Phase Petroleum Hydrocarbon
STARS	Spill Technology and Remediation Series
SVOCs	Semivolatile Organic Compounds
SWPPP	Stormwater Pollution Prevention Plan
SZ	Support Zone
TAL	Target Analyte List
TAGM	Technical and Administrative Guidance Memorandum
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbons
TSCA	Toxic Substance Control Act
USEPA	United States Environmental Protection Agency
VOCs	Volatile Organic Compounds
Yard	Sunnyside Yard, Queens, New York

EXECUTIVE SUMMARY

The National Railroad Passenger Corporation (Amtrak) and the New Jersey Transit Corporation (NJTC) entered into an Order on Consent (OOC) Index #W2-0081-87-06, with the New York State Department of Environmental Conservation (NYSDEC) in September 1989, to investigate Sunnyside Yard (Yard), 39-29 Honeywell Street in Queens, New York. Sunnyside Yard is listed as a Class II Site in the NYSDEC's Registry of Inactive Hazardous Waste Disposal Sites. Continued usage as a railroad maintenance and storage facility is planned for the property.

This Remedial Action Work Plan (RAWP) for Operable Unit 4 (OU-4) summarizes the nature and extent of contamination as determined from data gathered during the remedial investigations (RIs) performed between October 1990 and August 2007. OU-4 is a portion of the Yard representing only the soil existing above the water table (unsaturated zone). The remedy described in this document is consistent with the procedures defined in DER-10 and complies with all applicable standards, criteria, and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements. The NYSDEC and New York State Department of Health (NYSDOH) have determined that OU-4 poses a current or potential significant threat to human health and the environment, if not addressed by implementing the response action selected in the Record of Decision. The OU-4 RI did not identify fish and wildlife resources.

Site Description/Physical Setting/Site History

The Yard is located in the County of Queens, Sunnyside, New York and is identified as Block 214 and Lots 1 and 68 on the New York City Tax Map. A United States Geological Survey (USGS) topographical quadrangle map (Figure 1) shows the Yard location. The Yard is situated on an approximately 133-acre area bounded by the Metropolitan Transportation Authority (MTA)/Long Island Rail Road (LIRR) property to the north, Skillman Avenue to the south, light industrial and commercial properties and 42nd Place to the east, and Thompson Avenue to the west (Figure 2).

The Yard originally operated as a storage and maintenance facility for railroad rolling stock. The Yard currently functions as a maintenance facility for electric and diesel locomotives and railroad cars for Amtrak and a train layover storage yard for NJTC.

Past releases of PCBs are likely attributable to losses from and maintenance of train-mounted transformers over time. Transformers were also mounted on the Honeywell Street Bridge. Specific locations, dates, or quantities of PCB releases are not known. Usage of PCB-containing equipment was significantly more predominant by predecessor railroads than by Amtrak. In the past, coal fired locomotives, coal fired boilers, and onsite incinerators were widely used for railroad operations. These activities generated significant amounts of cinders and coal ash as a waste byproduct. Prior to Amtrak's ownership of the Yard, these cinders and ash were used from time to time as fill material throughout OU-4 and are still present at the Yard today. Cinders and ash are known to contain high levels of lead and semivolatile organic compounds (SVOCs). In addition to fill activities, the presence of lead is attributed to the peeling of lead-based paint from the four New York City Department of Transportation (NYCDOT) bridges that span the Yard.

Summary of the Remedial Investigation

Soil:

Several investigations in OU-4 were specifically performed to characterize soil for immediate maintenance or replacement of track and switches or in anticipation of new construction. A total of 1,560 soil samples were collected from 1,105 soil boring locations. Fifty-one samples exceed the Yard soil cleanup level for PCBs. One sample exceeds the Yard soil cleanup level for lead. There are no exceedances of the Yard soil cleanup level for total SVOCs.

Subsurface Structures:

The Track 4 Maintenance Pit is a concrete subsurface structure within OU-4. Sampling of sediment in the Track 4 Maintenance Pit identified PCBs above the Yard soil cleanup level. Additional investigation of this structure will be performed, when track access is permitted, to determine if any PCB impacts to soil were caused by historical use of this structure.

Qualitative Human Health Exposure Assessment

An Exposure Assessment was conducted to evaluate the potential for exposure to chemicals that remain in soil in OU-4. Exposure Assessments describe the type and magnitude of exposures to chemicals of potential concern present at a site.

Receptors may come into contact with contaminated soil within OU-4 while performing routine job-related activities. During the course of contacting the soil on their skin, persons may under some circumstances accidentally ingest the soil. Inhalation of vapors from VOCs volatilizing from soils into the ambient air during soil moving activities is not considered a viable exposure pathway because the number of VOCs detected in OU-4 soil are limited and concentrations are sufficiently low (maximum concentrations below 0.5 parts per million [ppm]) that ambient air levels could not rise to a level of concern. While exposure to fugitive dust may occur on a very limited basis, the primary exposure routes for onsite receptors to chemicals present in soil is dermal absorption and incidental ingestion.

Summary of the Remedy

The components of the selected remedy are as follows:

1. A remedial design program to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program, which includes pre-excavation soil characterization.

2. Excavation and offsite disposal of soil classified as PCB hazardous waste.

3. Excavation and offsite disposal of soil exceeding the Yard soil cleanup levels for PCBs, SVOCs, and lead.

4. Removal of the Track 4 Maintenance Pit, characterization of soil surrounding the inspection pit, and excavation of surrounding soil with concentrations exceeding the Yard soil cleanup levels, if required.

5. All excavations will be backfilled with clean fill from offsite sources. Imported material will meet the more stringent requirements for Protection of Public Health for commercial use or Protection of Groundwater as defined in 6 NYCRR Part 375-6.7(d).

6. Existing surface covers in the active rail yard will be maintained. A one foot thick clean cover consisting of clean fill, as referenced above or ballast will be established and/or maintained over areas that are known to contain cPAHs at concentrations greater than 25 mg/kg and are not presently covered by buildings, tracks, or pavement.

7. Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the NYSDEC a periodic certification of institutional and engineering controls.

8. Development of a site management plan which will include the following institutional and engineering controls: (a) address residual contaminated soils that may be excavated onsite during future maintenance or redevelopment. The plan will require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations; (b) continued evaluation of the potential for vapor intrusion for any buildings developed in OU-4, including provision for mitigation of any impacts identified; (c) identification of any use restriction on OU-4; (d) fencing to control site access; (e) maintenance of soil covers in areas with cPAH concentrations exceeding 25 mg/kg.

The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the NYSDEC, until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with NYSDEC-approved modifications; (b) allow the NYSDEC access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the NYSDEC.

1.0 INTRODUCTION

National Railroad Passenger Corporation (Amtrak) and the New Jersey Transit Corporation (NJTC) entered into Order on Consent (OOC) Index #W2-0081-87-06 with the New York State Department of Environmental Conservation (NYSDEC) in September 1989, to investigate and remediate the 133-acre Sunnyside Yard located at 39-29 Honeywell Street in Queens, New York (Yard). Sunnyside Yard is listed as a Class II Site in the NYSDEC's Registry of Inactive Hazardous Waste Disposal Sites. Continued usage as a railroad maintenance and storage facility is expected for the property.

This Remedial Action Work Plan (RAWP) for Operable Unit 4 (OU-4) summarizes the nature and extent of contamination as determined from data gathered during the Remedial Investigation (RI), performed between October 1990 and August 2007. It provides a description of the remedy selected by the NYSDEC in the Record of Decision (ROD). As further discussed below, OU-4 is a portion of the Yard representing only the soil existing above the water table (unsaturated soil). The remedy described in this document is consistent with the procedures defined in DER-10 and complies with all applicable standards, criteria, and guidance. The remedy described in this document also complies with all applicable Federal, State and local laws, regulations and requirements. The NYSDEC and New York State Department of Health (NYSDOH) have determined that OU-4 poses a potential significant threat to human health and the environment, if not addressed by implementing the response action selected in the ROD. The RI for OU-4 did not identify fish and wildlife resources.

A formal Remedial Design document in the form of a construction bid document with plans and specifications will not be prepared. Remedial zone-specific work plans and specifications will be prepared as the work progresses.

1.1 Operable Units of Sunnyside Yard

An Operable Unit (OU) represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release, or exposure pathway resulting from the site contamination.

OU-4 consists of the soil above the water table (unsaturated zone) at the Yard, excluding the areas defined as OU-1, OU-2, and OU-3. OU-4 comprises 120 of the total 133 acres of the Yard. The portion of the sewer and groundwater that lies within the OU-4 boundary will be addressed as part of OU-5 and OU-6, respectively at a later date.

The remaining operable units for the Yard are:

- OU-1: Soil above the water table within the footprint of the High Speed Trainset Facility Service and Inspection (HSTF S&I) Building. A ROD was issued for OU-1 in August 1997, and the remedial work was completed in April 1998.
- OU-2: Soil above the water table within the footprint of the HSTF S&I Building ancillary structures. A No Further Action ROD was issued for OU-2 in November 1997.
- OU-3: Soil and separate phase petroleum hydrocarbon accumulation above the water table and soil below the water table within 8 acres in the north central portion of the Yard. The northern boundary of OU-3 extends onto MTA/LIRR property. A ROD was issued for OU-3 in March 2007.
- OU-5: Sewer system (water and sediment) beneath the Yard.
- OU-6: Saturated soil and the groundwater beneath the Yard.

1.2 Yard Location and Description

The Yard is located in the County of Queens, Sunnyside, New York and is identified as Block 214 and Lots 1 and 68 on the New York City Tax Map. A United States Geological Survey (USGS) topographical quadrangle map (Figure 1) shows the Yard location. The Yard is situated on a 133-acre area bounded by the Metropolitan Transportation Authority (MTA)/Long Island Rail Road (LIRR) property to the north, Skillman Avenue to the south, light industrial and commercial properties and 42nd Place to the east, and Thompson Avenue to the west (Figure 2). OU-4 encompasses 120 of the 133 acres of the Yard.

1.3 Contemplated Redevelopment Plan

The Remedial Action to be performed under the RAWP is intended to make the site protective of human health and the environment consistent with the contemplated end use. The planned end use is described here to provide the basis for this assessment. However, the Remedial Action contemplated under this RAWP may be implemented independent of proposed redevelopment plans.

Continued usage as a railroad maintenance and storage facility is proposed for OU-4. Specific plans for redevelopment within OU-4 include the ongoing construction of the East Side Access project by the MTA.

1.4 Description of Surrounding Property

The land use surrounding the Yard is a combination of commercial, light industrial and residential areas. The MTA/LIRR currently owns a portion along the northern boundary and maintains rights of way through the Yard.

The East River is located approximately one mile to the west while Newtown Creek, which defines the border between Queens and Kings Counties, is located less than 0.5 mile south of the western portion of the Yard.

Sensitive receptors, including schools, daycare facilities, and hospitals, are not located on adjoining properties.

2.0 DESCRIPTION OF REMEDIAL INVESTIGATION FINDINGS

Investigations in OU-4 have included the Phase I RI, Phase II RI, and numerous track maintenance, utility installation, and construction related sampling activities. The investigations were conducted between October 1990 and April 2009. The RI report was submitted to NYSDEC on October 2, 2008 (Roux Associates, 2008) and approved by NYSDEC on February 27, 2009.

2.1 Summary Remedial Investigations Performed

The Phase I RI was a comprehensive, facility-wide investigation to identify and determine the nature and extent of contamination at the Yard. Seventeen areas of concern were identified at that time as possible sources of contamination. The prime objectives of the Phase II RI in relation to OU-4 were to provide further delineation of contaminated areas and confirm analytical results of samples collected during the Phase I RI. Subsequent to the Phase I and Phase II RIs, numerous soil sampling investigations were associated with soil characterization to accommodate track maintenance, utility installation, and construction performed on behalf of Amtrak and NJTC. Independent investigations have also been performed by MTA for the East Side Access Project.

In summary, 1560 soil samples were collected from 1105 sampling locations within OU-4 on behalf of Amtrak and NJTC (Figure 3). The field activities and findings of the numerous investigations were described in the RI report. The Yard-specific compounds of concern (COCs) are polychlorinated biphenyls (PCBs), semivolatile organic compounds (SVOCs), carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and lead. The soil cleanup levels for the Yard were re-established in the OU-4 ROD and are as follows:

- Total PCBs – 25 mg/kg;
- Total SVOCs – 500 mg/kg; and
- Lead – 3,900 mg/kg.

Analytical results for soil sampling performed in OU-4 for the COCs that exceed the Yard soil cleanup levels are shown on Figures 4 through 7. Soil sampling performed after the October 2008 submittal of the OU-4 RI was performed for delineation of known exceedances of the Yard soil cleanup levels. Data for post-RI samples is provided in Tables 1 through 3.

Data collected for the MTA ESA project was provided to Amtrak after the OU-4 RI report submittal. Of the data received, samples that exceed the current and former Yard soil cleanup levels have been incorporated into the OU-4 database. These samples consist of two samples that exceed the total PCB Yard soil cleanup level and three samples with cPAH concentrations greater than 25 mg/kg (previous Yard soil cleanup level). Analytical data for ESA samples that exceed the Yard soil cleanup levels are included in Tables 1 through 3.

2.2 Significant Threat

The NYSDEC and NYSDOH have determined that OU-4 poses a potential significant threat to human health and the environment, if not addressed by implementing the response action selected in the ROD. Notice of that determination was issued in the Proposed Remedial Action Plan (PRAP) for OU-4 and has been provided for public review (NYSDEC, 2009a).

2.3 Yard History

The Pennsylvania Tunnel and Terminal Company, a subsidiary of the Pennsylvania Railroad, later known as the Penn Central Transportation Company, originally constructed Sunnyside Yard in the early 1900's. The Yard officially opened on November 27, 1910. On April 1, 1976, the Consolidated Rail Corporation (Conrail) acquired the Yard, and the same day conveyed it to Amtrak. The MTA/LIRR currently owns a portion of the Yard along the northern boundary (including a portion of OU-3) and maintains rights of way through the Yard. The Yard originally operated as a storage and maintenance facility for railroad rolling stock.

2.4 Geological Conditions

The Yard is underlain by the following geologic units (in order of increasing depth): fill (including ballast, cinders/ash), Holocene deposits (where present), Upper Pleistocene glacial deposits, and crystalline bedrock. Fill activities, which were part of major topographic changes engineered at the Yard, occurred during construction in the early 1900's.

The fill is predominantly comprised of reworked glacial deposits (unstratified sand, silt, clay, and gravel) and railroad ballast, with lesser amounts of ash, cinders, and construction debris. With the exception of paved areas and land occupied by buildings, railroad ballast is ubiquitous at land surface throughout the Yard.

Groundwater beneath the Yard occurs under water-table (unconfined) conditions in fill deposits, or the Upper Pleistocene glacial deposits. With the exception of the LIRR mainline, the water table exists between 1 and 15 feet below land surface (bls) throughout the Yard. The saturated Upper Pleistocene deposits comprise the Upper Glacial aquifer. Beneath the Yard, the saturated fill deposits (excluding ballast, ash/cinders, and construction debris) and the shallow Upper Glacial aquifer were not always distinguishable, and are, therefore, collectively referred to as shallow deposits (that contain the water table). Brackish groundwater is present throughout the southwest half of the Yard, and along the north side of the Yard where it correlates with a buried channel (i.e., cobble zone) that trends east-west through the Yard, connecting the buried Dutch Kills Creek and saline groundwater lens with the buried northeast wetland.

Shallow groundwater beneath OU-4 flows predominantly west. However, between Queens Boulevard and Honeywell Street, groundwater flows northerly and northwesterly toward the East River and the buried flow path of Dutch Kills Creek that was filled in the early 1900s. Based on data obtained from monitoring wells screened deeper in the aquifer, deeper groundwater predominantly flows west across the Yard. The average horizontal flow gradients for the shallow and deeper deposits at the Yard are 0.004 and 0.003 feet/foot, respectively. These values are indicative of a relatively flat water-table surface. Upward groundwater flow reduces or prevents the downward migration of contaminants within the aquifer, if present.

2.5 Contamination Conditions

2.5.1 Conceptual Model of Site Contamination

Past releases of PCBs are likely attributable to losses from and maintenance of train-mounted transformers over time. Transformers were also mounted on the Honeywell Street Bridge. Specific locations, dates, or quantities of PCB releases are not known. Usage of PCB-containing equipment was significantly more predominant by predecessor railroads than by Amtrak. In the past, coal fired locomotives, coal fired boilers, and onsite incinerators were widely used for railroad operations. These activities generated significant amounts of cinders and coal ash as a waste byproduct. Prior to Amtrak's ownership of the Yard, these cinders and ash were used from time to time as fill material throughout OU-4 and are still present at the Yard today. Cinders and ash are known to contain high levels of lead and SVOCs, specifically cPAHs. In

addition to fill activities, the presence of lead is attributed to the peeling of lead-based paint from the four New York City Department of Transportation (NYCDOT) bridges that span the Yard.

2.5.2 Identification of Standards, Criteria and Guidance

As discussed above, the NYSDEC identified PCBs, lead, and SVOCs as COCs for soil in the OU-4 and re-established the Yard soil cleanup levels in the OU-4 ROD. The Yard soil cleanup levels are:

- Total PCBs – 25 mg/kg;
- Total SVOCs – 500 mg/kg; and
- Lead – 3,900 mg/kg.

Standards, criteria, and guidance (SCGs) that were identified in the OU-4 ROD include the following:

- Soil SCGs are based on the NYSDEC's Cleanup Objectives:
  - Technical and Administrative Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Cleanup Levels
  - 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives
- Groundwater, drinking water, and surface water SCGs are based on NYSDEC's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

2.5.3 Soil/Fill Contamination

Several investigations in OU-4 were specifically performed to characterize soil for immediate maintenance or replacement of track and switches or in anticipation of new construction. A total of 1,560 soil samples were collected from 1,105 soil boring locations. The following provides a summary of the findings from remedial investigations performed in OU-4:

COC	Number of Samples Analyzed	Number of Samples Exceeding the Yard Soil Cleanup Level	Sample Concentration Range Exceeding the Yard Soil Cleanup Level
Total PCB	1331	51	26 mg/kg (PC-10) – 25,000 mg/kg (SB-68)
Total SVOC	872	0	–
Lead	882	1	7,020 mg/kg (LLS-15)

Two exceedances of the total PCB soil cleanup level were identified by sampling performed by the MTA for the ESA project (samples GE-40-7-6DL and GE-40-7-7DL2). Data collected after the submittal of the RI report in October 2008 and the PCB exceedances identified by the MTA are provided in Tables 1 through 3. Figures 4 through 7 are data maps that show the sampling locations for exceedances of the Yard soil cleanup levels.

2.5.3.1 Detailed Discussion of COC Exceedances

As tabulated above, 51 samples exceed the Yard soil cleanup level of PCBs and 1 sample exceeds the Yard soil cleanup level for lead. These exceedances are located within 13 distinct areas of OU-4. For ease of reference, these areas have been designated remedial zones PCB-1 through PCB-12 and LEAD-20 and are shown on Plate 1. The following sections discuss the extent of contamination in each remedial zone.

Remedial Zone PCB-1

Area 4 is a fuel oil tank area that contains a 20,000-gallon underground storage tank (UST) used to store fuel oil for the Boiler House. Sample CS-47 (2-4), collected near the UST during the Phase I RI, exceeded the total PCB soil cleanup level with a concentration of 49 mg/kg (Figure 8). Samples GE-40-7-6DL (0-6) and GE-40-7-7DL2 (0-6) were collected for the MTA ESA project and exceed the total PCB soil cleanup level with concentrations of 27 mg/kg and 85 mg/kg, respectively. The three PCB exceedances have not been horizontally or vertically delineated.

Remedial Zone PCB-2

Sample Pit-4 is a sediment sample that was collected from within the Track 4 Maintenance Pit (Figure 9). This sample exceeded the total PCB soil cleanup level with a concentration of 470 mg/kg. The Track 4 Maintenance Pit is constructed of concrete and measures approximately 50 feet long, 6 feet wide, and 2 feet deep. This subsurface structure will be removed in its entirety. Following the subsurface structure removal, soil characterization samples will be performed to determine if any PCB impacts to soil were caused by historical use of this structure.

Remedial Zone PCB-3

This remedial zone (formerly called Area 8A in previous remedial investigation reports) is located in a former PCB transformer area alongside Track 15 and under the Honeywell Street Bridge. Samples S-53 (0-2) and S-114 (0-2), collected during the Phase I RI, exceeded the total PCB soil cleanup level with concentrations of 71.16 mg/kg and 90 mg/kg, respectively (Figure 10). Sample CS-53 (0-2) was collected as a confirmatory sample for S-53 and also exceeded the total PCB soil cleanup level with a concentration of 88 mg/kg.

In October 1999, soil samples were collected from borings along Track 15 to characterize soil for the Honeywell Street Bridge Rehabilitation Program. Three samples at location HB-17 contained total PCB concentrations exceeding the Yard soil cleanup level: HB-17 (0-1) at 4148.58 mg/kg; HB-17 (1-2) at 3532.48 mg/kg; and HB-17 (2-3) at 1034.23 mg/kg. Additional samples were collected to horizontally delineate the PCB exceedances at location HB-17. Delineation sample HB-17+20 (0-1) exceeded the total PCB soil cleanup level with a concentration of 29.09 mg/kg.

With the exception of location HB-17, PCB exceedances in soil samples collected in Remedial Zone PCB-3 were identified in the first sampling interval (i.e., 0 to 1 ft bls, 0 to 2 ft bls). Samples HB-14 (0-1), SB-4 (0-2), and HB-16 (0-1) delineated the horizontal extent of PCB impacts to the north, east, and south, respectively. Horizontal delineation to the west of S-114 was not completed. Vertical delineation was achieved at sample S-53 (3.5 to 5.5). Given the elevated concentrations in the deepest sample HB-17 (2-3), soil to a depth of 5.5 ft bls within Remedial Zone PCB-3 will need to be addressed.

Remedial Zone PCB-4

Remedial Zone PCB-4 (formerly called Area 8C in previous remedial investigation reports) is also a former trackside PCB transformer area located at Track 26 and under the Honeywell Street Bridge. Samples S-104 (0-2) and S-105 (0-2), and S-106 (0-2) were collected during the Phase I RI and exceeded the total PCB soil cleanup level with concentrations of 860 mg/kg, 15,000 mg/kg, and 20,000 mg/kg, respectively (Figure 11). Delineation samples were collected in August 1994. Five of the delineation samples, SB-16 (6-7), SB-18 (0-1), SB-67 (0-1), SB-68

(0-1), and SB-71 (0-1), exceeded the total PCB soil cleanup level with concentrations ranging from 380 mg/kg in sample SB-16 (6-7) to 25,000 mg/kg in sample SB-68 (0-1).

During the October 1999 soil investigation for the Honeywell Street Bridge Rehabilitation Program, four samples contained total PCB concentrations exceeding the soil cleanup level: HB-22 (0-1) at 77.66 mg/kg; HB-23 (0-1) at 525.6 mg/kg; HB-23 (1-2) 866.94 mg/kg; and HB-23 (2-3) at 806.91 mg/kg. Additional samples were collected at distances 20 and 40 feet from the original sample to horizontally delineate these total PCB exceedances. Four of the delineation samples exceeded the Yard soil cleanup level for total PCBs with concentrations ranging from 40 mg/kg at HB-23+40 (0-1) to 2572.29 mg/kg at HB-23+20 (0-1). Horizontal and vertical delineation of samples HB-22 and HB-23 was not achieved.

In summary, the portion of Remedial Zone PCB-4 located west of the Honeywell Street Bridge was characterized by HB-22-40, HB-22-20, HB-22, and S-104 with PCB exceedances in the first sampling interval (i.e., 0 to 1 ft bls, 0 to 2 ft bls). Concentrations in the 4 to 5 ft bls sampling interval at SB-15 were below the PCB soil cleanup level and indicate PCB contaminated soil may extend to an estimated 4 ft bls. Delineation sampling to determine the western boundary of this excavation will be completed prior to the remedy.

Under the Honeywell Street Bridge, exceedance of the PCB soil cleanup level was identified in the 6 to 7 ft bls sampling interval at SB-16, indicating PCB contamination may extend to an estimated 8 ft bls. It is estimated that soil excavation to 8 ft bls will be required for the extent of this track that is under the Honeywell Street Bridge.

Sampling in the eastern portion of Remedial Zone PCB-4 located to the east of the Honeywell Street Bridge identified exceedance of the PnCB soil cleanup level in the 2 to 3 ft bls sampling interval at HB-23, indicating PCB contamination may extend to an estimated 4 ft bls. Delineation sampling to determine the eastern boundary of this excavation will be completed prior to the remedy.

Remedial Zone PCB-5

In April 1997, soil samples were collected from borings performed to characterize soil in the proposed fumigation track construction area. Sample FT-2 (0-2) exceeded the Yard soil cleanup level for total PCBs with a concentration of 73 mg/kg (Figure 12). The exceedance was horizontally and vertically delineated in June 2005 by collecting samples from the 2 to 3 feet bls sampling interval at the original boring location and consecutive 1 foot sampling intervals to a depth of 3 feet bls located radially around the original boring location. The delineation samples did not exceed the PCB soil cleanup levels, confirming that the exceedance at FT-2 was limited to the 0 to 2 feet bls sampling interval.

Remedial Zone PCB-6

In June 2005, soil samples were collected from borings performed in the area of the proposed Material Storage Building and Welfare Building. The total PCB soil cleanup level was exceeded in sample PC-6 (2-3) with a concentration of 37 mg/kg (Figure 13). The total PCB exceedance was horizontally delineated by samples PC-6N, PC-6E, PC-6S, and PC-6W and vertically delineated by PC-6 (3-4) and PC-6 (4-5). The delineation samples did not exceed the PCB soil cleanup level and confirmed the PCB contaminated soil is limited to 3 ft bls.

Remedial Zone PCB-7

During the June 2005 soil investigation for the proposed Material Storage Building and Welfare Building construction, the PCB soil cleanup level was exceeded in sample PC-10 (1-2) with a concentration of 26 mg/kg (Figure 14). The PCB exceedance was partially horizontally delineated by samples PC-10N, PC-10S, and PC-10W and vertically delineated by PC-10 (2-3). The delineation samples did not exceed the PCB soil cleanup level and confirmed the PCB contaminated soil extends to 2 ft bls.

Remedial Zone PCB-8

Area 17 is an area of the Yard that was used to store maintenance equipment and for staging of materials. One exceedance of the total PCB soil cleanup level was identified in sample 925-3 (0-0.67) with a concentration of 264 mg/kg (Figure 14).

In June 2005, Roux Associates collected delineation sample 925-3S (0-1) during the soil investigation for the proposed Material Storage Building and Welfare Building construction project. The delineation sample exceeded the total PCB soil cleanup level with a concentration of 54 mg/kg. In May 2007, additional delineation samples were collected at 1 foot intervals at boring locations 925-3S, 925-3SS, 925-3E, 925-3N, and 925-3W. The delineation samples did not exceed the total PCB soil cleanup levels, completing delineation in this area and confirming the PCB contaminated soil is limited to 1 ft bls.

Remedial Zone PCB-9

Sample S-101 (0-2) was collected in Area 17 during the Phase I RI and was identified as an exceedance of the total PCB soil cleanup level with a concentration of 71 mg/kg (Figure 14). In June 2005, the PCB exceedance was horizontally delineated by samples S-101N, S-101E, S-101S, and S-101W. The PCB exceedance was vertically delineated by S-101A (2-3), confirming PCB contaminated soil extends 2 ft bls.

Remedial Zone PCB-10

As a follow-up to the Phase I and Phase II RIs, sampling was performed in March 1994 to further investigate Area 17. SB-45 (0-1) exceeded the total PCB soil cleanup level with a concentration of 790 mg/kg (Figure 15). In May and September 2007, delineation samples were collected near SB-45 during the soil investigation for the proposed Material Storage Building and Welfare Building construction project. Nine delineation samples exceeded the total PCB soil cleanup level with concentrations ranging from 29 mg/kg in sample SB45-D1 (0-1) to 1,200 mg/kg in sample SB-45EE (0-1).

The vertical extent of contamination was achieved in some sample locations. Typically, the extent of PCB exceedances was identified within the 0 to 1 ft bls sampling interval. However, two locations (SB-45EE and SB45-D3) exhibited exceedances of the total PCB soil cleanup level within the 1 to 2 ft bls sampling intervals. Sample SB-45EE was vertically delineated and confirmed to be limited to 2 ft bls. Sample SB45-D3 was not further delineated and is estimated to extend to 3 ft bls.

In April 2009, seven delineation borings (SB-45D5, SB-45D6, W-3, W-3S, W-4, W-5, and W-6) were performed to delineate PCB exceedances to the north and east. Samples SB-45D6 (0-1) and SB-45D6 (1-2) exceeded the total PCB soil cleanup level with concentrations of 38 mg/kg and 28 mg/kg, respectively. Sample W-3 (0-1) and W-3 (1-2) exceeded the total PCB soil cleanup level with concentrations of 40 mg/kg and 51 mg/kg, respectively. Sampling data is provided in Table 1.

Remedial Zone PCB-11

During the August 2001 Limited Phase II Environmental Site Assessment for the Leveraged Lease Area, the total PCB soil cleanup level was exceeded at LLS-11A (1-2) with a concentration of 92.2 mg/kg (Figure 16). In May 2007, delineation samples LLS-11N and LLS-11S were collected to horizontally delineate the exceedance. Delineation sample LLS-11A (2-3) was collected to vertically delineate the exceedance. The delineation samples did not exceed the total PCB soil cleanup level and confirmed the PCB contaminated soil extends to 2 ft bls.

Remedial Zone PCB-12

The PCB exceedance of the soil cleanup level in ballast sample LP2-3 (0-1) was identified during the July 1997 soil investigation of the Loop Track 2 (Figure 17). PCBs were detected at 68 mg/kg in this sample. This exceedance was vertically delineated by the LP2-3 (1-2) sample. During the August 2001 Leveraged Lease Area soil investigation, sample LLS-21 (0-1) was collected adjacent to sample location LP2-3. Sample LLS-21 (0-1) exceeded the total PCB soil cleanup level with a concentration of 38.9 mg/kg. In May 2007, the LLS-21 (0-1) exceedance was vertically delineated by LLS-21A (1-2). Both exceedances were horizontally delineated by samples LP2-3W and LLS-21E, collected to the west and east of the exceedances and within the track. PCB contaminated soil is limited to 1 ft bls in this area.

Remedial Zone Lead-20

The soil cleanup level for lead was exceeded at LLS-15 (0-1) with a concentration of 7,020 mg/kg (Figure 16). This sample was collected during the August 2001 Limited Phase II Environmental Site Assessment for the Leveraged Lease Area. In April 2009, samples were collected 20 feet and 40 feet north and south of LLS-15 and within Loop Track 1 in an effort to

delineate the lead exceedance. Each of the samples was below the soil cleanup level for lead and confirmed that the lead contaminated soil is limited to 1 ft bls. Sampling data is provided in Table 3.

2.5.4 Onsite and Offsite Groundwater Contamination

Groundwater contamination beneath OU-4 will be addressed in the OU-6 RI.

2.5.5 Onsite and Offsite Soil Vapor Contamination

Since groundwater contamination will be addressed in the OU-6 RI, any potential soil vapor impacts will also be addressed in the OU-6 RI.

2.5.6 Subsurface Structure

As discussed in Section 2.5.3 (Remedial Zone PCB-2), the Track 4 Maintenance Pit is constructed of concrete and measures approximately 50 feet long, 6 feet wide, and 2 feet deep. Sample PIT-4 is a sediment sample that was collected from within the track inspection pit. The sample was submitted for PCB analysis and exceeded the total PCB soil cleanup level with a concentration of 470 mg/kg. Currently, the inspection pit is covered with metal plates. The interior of the inspection pit and surrounding soil requires additional investigation.

There is a potential for unknown subsurface structures associated with utilities or former tracks to be present in OU-4. Any subsurface structure identified during field work will be addressed as outlined in the Contingency Plan discussed in Section 4.2.7.

2.6 Environmental and Public Health Assessments

The following sections discuss the human health exposure pathway assessment and fish and wildlife exposure pathway assessment for OU-4.

2.6.1 Qualitative Human Health Exposure Assessment

An exposure assessment was conducted to evaluate the potential for exposure to chemicals that remain in soil in OU-4. Exposure assessments describe the type and magnitude of exposures to chemicals of potential concern present at a site.

Soil:

Receptors may come into contact with contaminated soil within OU-4 while performing routine job-related activities. During the course of contacting the soil on their skin, persons may under some circumstances accidentally ingest the soil.

Inhalation of vapors from volatile organic compounds (VOCs) volatilizing from soils into the ambient air during soil moving activities is not considered a viable exposure pathway because the number of VOCs detected in OU-4 soil are limited and concentrations are sufficiently low (maximum concentrations below 0.5 mg/kg) that ambient air levels could not rise to a level of concern.

Inhalation of dust is not considered a viable exposure pathway because the 120-acre area of OU-4 is 96% covered by surface cover and lies in a basin-like area with ground elevations that range from 10 to 25 feet below the surrounding land surface. The surface cover consists of: railroad track (54%); asphalt/concrete pavement and buildings (25%); and brush/vegetation (17%).

While exposure to fugitive dust may occur on a very limited basis, the primary exposure routes for onsite receptors to chemicals present in soil is dermal absorption and incidental ingestion.

Groundwater:

Ingestion or dermal contact with contaminated groundwater by railroad employees is not expected because the area is served by public water and no supply wells have been identified in the vicinity of the Yard. Construction workers conducting subsurface activities are not expected to intersect the groundwater during remediation of OU-4. In the event groundwater is encountered, workers could be exposed to COCs via dermal contact and/or incidental ingestion. Inhalation of vapors from VOCs volatilizing from the soil into the ambient air during soil moving activities is not considered a likely exposure pathway since the number of VOCs detected in OU-4 soil are limited and sufficiently low that ambient levels would not rise to a level of concern. The potential exposure to contaminants in groundwater and soil vapor will be fully evaluated and addressed in the OU-6 RI.

2.6.2 Fish & Wildlife Remedial Impact Analysis

Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands. Past releases associated with maintenance activities, train-mounted transformers, and lead-based paint have resulted in the disposal of hazardous wastes including PCBs, SVOCs, and lead. There are no wetlands or other exposure pathways to fish and wildlife receptors in OU-4. Offsite related impacts to groundwater will be addressed as part of OU-6 at a later date.

2.7 Interim Remedial Action

Several of the remedial investigation activities that were performed for track maintenance, construction, and bridge rehabilitation identified soil samples with concentrations exceeding the Yard soil cleanup levels for the COCs. As part of the Yard maintenance activities, the identified COC exceedances were often excavated so the maintenance/construction activities could be completed and consequently served as an interim remedial measure (IRM). In summary, 29 PCB exceedances, 28 cPAH exceedances (previous Yard soil cleanup level of 10 mg/kg and 25 mg/kg), and 15 lead exceedances (previous Yard soil cleanup level of 1,000 mg/kg) were removed by soil IRMs, totaling 7,200 cubic yards of soil. Additionally, IRMs associated with the removal and abandonment of several USTs were performed.

2.8 Remedial Action Objectives

Based on the results of the Remedial Investigation, the following Remedial Action Objectives (RAOs) have been identified for OU-4. The remediation goals for OU-4 are to eliminate or reduce to the extent practicable:

- exposures of persons at or around OU-4 to PCBs, cPAHs, SVOCs, and lead in soil and subsurface structures; and
- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards.

Further, the remediation goals include attaining to the extent practicable:

- The Yard soil cleanup levels for PCBs, lead, and total SVOCs;
- TAGM 4046 and 6 NYCRR Subpart 375-6 – Remedial Program Soil Cleanup Objectives (SCOs); and
- PCB cleanup requirements in 40 CFR Section 761.61 (pertaining to PCB remediation waste).

3.0 DESCRIPTION OF REMEDIAL ACTION PLAN

Remedial alternatives to address COC impacted soil were evaluated in the OU-4 Feasibility Study (FS), submitted to the NYSDEC on January 30, 2009 (Roux Associates, 2009). The OU-4 FS technology screening determined that soil excavation was the most suitable remedy for COC-impacted soil. The OU-4 FS utilized soil excavation as the presumptive remedy and evaluated various Yard-specific soil cleanup levels against the seven evaluation criteria.

Subsequently, the Proposed Remedial Action Plan (PRAP) was developed by the NYSDEC and issued to the public for comment in February 2009 (NYSDEC, 2009a). Upon review of all received comments, the NYSDEC incorporated the comments into a Responsiveness Summary and developed the Record of Decision (ROD) for OU-4 (NYSDEC, 2009b). The ROD presented the selected remedy and soil cleanup levels for OU-4.

The components of the selected remedy are as follows:

1. A remedial design program to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program, which includes pre-excavation soil characterization.

2. Excavation and offsite disposal of soil classified as PCB hazardous waste.

3. Excavation and offsite disposal of soil exceeding the Yard soil cleanup levels for PCBs, SVOCs, and lead.

4. Removal of the Track 4 Maintenance Pit, characterization of soil surrounding the inspection pit, and excavation of surrounding soil with concentrations exceeding the Yard soil cleanup levels, if required.

5. All excavations will be backfilled with clean fill from offsite sources. Imported material will meet the more stringent requirements for Protection of Public Health for commercial use or Protection of Groundwater as defined in 6 NYCRR Part 375-6.7(d).

6. Existing surface covers in the active rail yard will be maintained. A one foot thick clean cover consisting of clean fill, as referenced above or ballast will be established and/or maintained over areas that are known to contain cPAHs at concentrations greater than 25 mg/kg and are not presently covered by buildings, tracks, or pavement.

7. Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the site to industrial use; (b) compliance with an approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the NYSDEC a periodic certification of institutional and engineering controls.

8. Development of a site management plan which will include the following institutional and engineering controls: (a) address residual contaminated soils that may be excavated onsite during future redevelopment. The plan will require soil characterization and, where applicable, disposal/reuse in accordance with NYSDEC regulations; (b) continued evaluation of the potential for vapor intrusion for any buildings developed in OU-4, including provision for mitigation of any impacts identified; (c) identification of any use restriction on OU-4; (d) fencing to control site access; (e) maintenance of soil covers in areas with cPAH concentrations exceeding 25 mg/kg.

9. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the NYSDEC, until the NYSDEC notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with NYSDEC-approved modifications; (b) allow the NYSDEC access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the NYSDEC.

Remedial activities will be performed in OU-4 in accordance with this NYSDEC-approved RAWP. All deviations from the RAWP will be promptly reported to NYSDEC for approval and fully explained in the Final Engineering Report (FER).

4.0 REMEDIAL ACTION PROGRAM

The following section provides a summary of each of the governing project plans developed for implementing the selected remedial action, a description of generalized construction information, as well as an explanation of the required site preparation activities. Based on the simplified scope of the selected remedial action, formal project plans for several of those listed below are not necessary and the details of those plans are provided in this RAWP.

4.1 Governing Documents

The following project plans are discussed in the sections below:

- Site Specific Health and Safety Plan (HASP)
- Quality Assurance Project Plan (QAPP)
- Construction Quality Assurance Plan (CQAP)
- Soil/Materials Management Plan (SoMP)
- Stormwater Pollution Prevention Plan (SWPPP)
- Community Air Monitoring Plan (CAMP)
- Community Participation Plan (CPP)

4.1.1 Site Specific Health & Safety Plan

All remedial work performed under this plan will be in full compliance with governmental requirements, including site and worker safety requirements mandated by Federal Occupational Safety and Health Administration (OSHA). As defined in the HASP, all workers conducting activities in the exclusion zone will be required to have 40-hour Hazardous Waste Operation Worker (HAZWOPER) training in accordance with the referenced regulations and complete Amtrak's Roadway Worker Protection training.

Amtrak and associated parties preparing the remedial documents submitted to the State and those performing the construction work, are completely responsible for the preparation of an appropriate Health and Safety Plan and for the appropriate performance of work according to that plan and applicable laws. The site-specific HASP, provided in Appendix A, will be used to protect personnel, as well as any site visitors. The HASP will be readily available at all times. The remedial contractor performing the work will also be responsible for preparing their own

site-specific HASP or adopting the HASP provided in Appendix A as their own. During all phases of work, the remedial contractor shall monitor health and safety conditions and fully enforce all provisions of the Site-specific HASP, as well as Amtrak's Roadway Worker Protection requirements. The remedial contractor shall also be responsible for monitoring general site conditions and for safety hazards. Specifically, monitoring will be performed to verify that all requirements of 29 CFR 1910 and 1926 are adhered.

The Health and Safety Plan and requirements defined in this Remedial Action Work Plan pertain to all remedial and invasive work performed at the site until the issuance of a Certificate of Completion.

As provided in the HASP, site controls will be established to limit potential exposure to impacted materials. A support zone (SZ), contamination reduction zone (CRZ), and an exclusion zone (EZ) will be established to define specific areas of personal protective equipment (PPE) requirements. Site worker decontamination procedures will be adhered to when leaving the EZ. Personnel decontamination procedures will be conducted within the CRZ. Control zones and PPE requirements are further defined in the HASP (Appendix A).

Health and safety monitoring, including both worker and community monitoring, will be performed during all work activities. All monitoring activities will be performed in accordance with the NYSDEC TAGM 4031-Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites (NYSDEC, 1989), the New York State Department of Health (NYSDOH) protocol for Community Air Monitoring (NYSDEC, 2002), and HASP.

The Site Safety Coordinator will be identified upon selection of a remedial contractor. A resume will be provided to NYSDEC prior to the start of remedial construction.

Confined space entry will comply with all OSHA requirements to address the potential risk posed by combustible and toxic gasses.

4.1.2 Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP) provides a detailed description of site-specific sampling and analytical methods and sample handling procedures for post-excavation sampling. The elements of this plan are provided in Section 5.2.

4.1.3 Construction Quality Assurance Plan

The Construction Quality Assurance Plan (CQAP) provides a description of the observation and testing activities that will be used to monitor construction quality and confirm that remedy construction is in conformance with the remediation objectives. The elements of this plan are provided in Section 5.4.

4.1.4 Soil/Materials Management Plan

The Soil/Materials Management Plan (SoMP) includes detailed plans for managing all soils/materials that are disturbed in OU-4, including excavation, handling, storage, transport, and disposal. The SoMP also includes all of the controls that will be applied to these efforts to assure effective, nuisance-free performance in compliance with all applicable Federal, State and local laws and regulations. The SoMP is provided in Section 5.5.

4.1.5 Storm-Water Pollution Prevention Plan

The erosion and sediment controls will be in conformance with requirements presented in the New York State Guidelines for Urban Erosion and Sediment Control. Hay bales and/or silt fence will be placed at locations upgradient of excavation areas, to control storm water runoff and surface water from entering or exiting the excavation. Catch basin inlets will be protected to prevent disturbed soil and ballast from entering. These control measures will be installed where needed prior to initiating each soil excavation. Any collected surface water will be managed as discussed in Section 5.5.6.

4.1.6 Community Air Monitoring Plan

The OU-4 remedial action will require air monitoring during all intrusive remedial actions to measure the concentration of particulates in ambient air in the work zone.

The Community Air Monitoring Program (CAMP) was developed in accordance with the NYSDOH Generic Community Air Monitoring Plan contained in Appendix 1A of the draft DER-10 (NYSDEC, 2002). The CAMP includes real-time continuous air monitoring at the work site's downwind perimeter for VOCs and particulates. Implementation and management procedures are specified within the CAMP. During all phases of work, the remedial contractor will be responsible for mitigating any vapor and particulate issues, via suppression techniques defined in the CAMP. The CAMP is provided as Appendix B.

4.1.7 Community Participation Plan

A Community Participation Plan (CPP) has been filed with the NYSDEC. A certification of mailing was sent to the NYSDEC project manager following the distribution of the OU-4 Proposed Remedial Action Plan Fact Sheet which included: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet, and (4) a list of recipients (contact list).

A document repository has been established at the following location and contains all applicable project documents:

Queens Public Library, Sunnyside Branch
43-06 Greenpoint Avenue
Long Island City, NY 11104
718-784-3033

Monday and Thursday	1:00 PM to 8:00 PM
Tuesday	1:00 PM to 6:00 PM
Wednesday and Friday	10:00 AM to 6:00 PM
Saturday	10:00 AM to 5:30 PM
Sunday	Closed

4.2 General Remedial Construction Information

The following sections discuss general remedial construction information related to the work in OU-4 including project organization, remedial engineer responsibilities, work schedule, and worker requirements and responsibilities.

4.2.1 Project Organization

The remedial contractor has not been selected to date. Once established, a listing of key personnel involved in the Remedial Action will be provided to the NYSDEC.

4.2.2 Remedial Engineer

The Remedial Engineer for this project will be Charles McGuckin. The Remedial Engineer is a registered professional engineer licensed by the State of New York. The Remedial Engineer will have primary direct responsibility for implementation of the remedial program for Amtrak Sunnyside Yard (NYSDEC Site No. 241006). The Remedial Engineer will certify in the FER that the remedial activities were observed by qualified environmental professionals under his supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved in full conformance with that Plan. All deviations from the RAWP are to be identified and approved by NYSDEC. Other Remedial Engineer certification requirements are listed later in this RAWP.

The Remedial Engineer will coordinate the work of other contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, emergency spill response services, import of backfill material, and management of waste transport and disposal. The Remedial Engineer will be responsible for all appropriate communication with NYSDEC and NYSDOH.

4.2.3 Remedial Action Construction Schedule

A preliminary schedule for performance of the remedial work is provided in Figure 18. Several areas requiring excavation are located within active tracks that cannot be addressed without extensive disturbance to the Yard's daily operations. Detailed planning and coordination will be required for scheduling track outages, rerouting trains to maintain operations, and the removal and reconstruction of track. For this reason, track areas will need to be addressed during scheduled track maintenance. As shown on the preliminary schedule, it is anticipated that several areas requiring excavation are readily accessible and can be addressed shortly after RAWP approval.

4.2.4 Work Hours

A New York City Building Department permit is not required for work within Sunnyside Yard. Construction work will occur between 7 a.m. and 7 p.m. from Monday to Friday. NYSDEC will be notified of any variances to the work schedule. Every effort will be made to limit disturbances to the local community to the extent practicable.

4.2.5 Site Security

Access is monitored by Amtrak personnel at guard booths located at each entrance to the Yard. Access to work areas will be limited to authorized and safety trained personnel including Amtrak employees working in OU-4, remedial contractors, Amtrak representatives, and regulatory representatives from the NYSDEC and NYSDOH.

4.2.6 Traffic Control

The truck route for ingress and egress to OU-4 will be determined by the excavation location within the Yard. Access will be via 42nd Place to Northern Boulevard or 39th Street to Northern Boulevard. These routes were selected based on the existing Yard access roads and an effort to limit transportation of work vehicles through residential areas.

4.2.7 Contingency Plan

A contingency plan describes procedures to be conducted in the event of an emergency, or the remedial work fails to meet any of its objectives, or otherwise fails to protect human health or the environment. The contingency plan is discussed in Section 5.5.9.

4.2.8 Worker Training and Monitoring

As discussed in Section 4.1.1, all remedial workers conducting activities in the exclusion zone will be required to have 40-hour HAZWOPER training in accordance with the referenced regulation, as well as complete Amtrak's Roadway Worker Protection training.

4.2.9 Agency Approvals

The remedial action will commence in accessible areas following receipt of approval of this RAWP from the NYSDEC. Amtrak is exempt from certain local permitting requirements. Any applicable permits or government approvals required for remedial construction or will be obtained prior to the start of remedial construction.

The planned end use for OU-4 is in conformance with the current zoning for the property as determined by New York City Department of Planning.

4.2.10 Pre-Construction Meeting with NYSDEC

Given the nature of the extended remedial schedule, a pre-construction meeting will be conducted at the startup of each soil excavation once scheduled. The meeting will be attended by Amtrak representatives, the remedial contractor, the Remedial Engineer, and the NYSDEC. The meeting will include discussion of: personnel roles, work hours, schedule, communications, training requirements, site preparation work to be completed, review of the scope of work to be performed at that time, and any other upcoming activities.

4.2.11 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in the HASP (Appendix A). That document will define the specific project contacts for use by NYSDEC and NYSDOH in the case of a day or night emergency.

4.2.12 Remedial Action Costs

The total estimated cost of the Remedial Action is $1,762,211. An itemized and detailed summary of estimated costs for all remedial activity is attached as Table 4.

4.3 Site Preparation

Site preparation activities will be dependent upon the location of the area to be excavated (i.e., within track areas or open work areas). Site preparation may include: identification of underground utilities, track removal, and removal of existing above grade structures/materials (e.g., temporary trailers, stockpiled railyard materials). These activities will be performed by Amtrak personnel immediately prior to soil excavation. Removal of any pavement to access the soil excavation area will be performed by the remedial contractor.

4.3.1 Mobilization

Site mobilization activities typically include mobilization of equipment to the work area, installation of erosion control measures, and set-up of temporary facilities and decontamination facilities. Given that most of the remedial zones are located remotely from each other and the soil excavation schedule will be driven by Amtrak's track maintenance and repair schedule, re-mobilization of equipment will be required as remedial zones are available for excavation.

4.3.2 Erosion and Sedimentation Controls

Soil erosion and sediment control measures for management of storm water will be installed in accordance with the New York Guidelines for Urban Erosion and Sediment Control. Hay bales will be placed at locations upgradient of excavation areas to control storm water runoff and surface water from entering or exiting the excavation. Catch basin inlets will be protected to prevent disturbed soil and ballast from entering. All erosion and sediment control measures will be temporary measures given the expected short duration to complete each soil excavation.

4.3.3 Stabilized Construction Entrance(s)

Stabilized construction entrances will be installed at points of vehicle ingress and egress at a location depending upon which Yard exit will be used by trucks (e.g., 39th Street ramp, 42nd Place entrance). The location of several remedial zones within tracks will preclude the stabilized construction entrance and soil stockpiles to be in proximity of the work zone.

4.3.4 Utility Marker and Easements Layout

Amtrak and its contractors are solely responsible for the identification of utilities that might be affected by work under the RAWP and implementation of all required, appropriate, or necessary health and safety measures during performance of work under this RAWP. Amtrak and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. Amtrak and its contractors will obtain any applicable local, State or Federal permits or approvals pertinent to such work that may be required to perform work under this RAWP. Approval of this RAWP by NYSDEC does not constitute satisfaction of these requirements.

For safety concerns with regard to the presence of underground utilities, Amtrak typically requires manual excavation to a depth of 5 feet. Prior to each excavation, Amtrak will identify any active underground utilities and either disconnect or temporary reroute, if possible, or support the utility so that it may remain in place. Identified utilities will be mapped and excavation will be performed with caution in these areas.

The presence of utilities and easements will be investigated by the Remedial Engineer. Following clearance by Amtrak, no risk or impediment to the planned work under this Remedial Action Work Plan will be posed by utilities or easements in OU-4.

4.3.5 Sheeting and Shoring

Appropriate management of structural stability of onsite or offsite structures during onsite activities including excavation is the sole responsibility of Amtrak and its contractors. Amtrak and its contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. Amtrak and its contractors will obtain any applicable local, State or Federal permits or approvals that may be required to perform work under this RAWP. Further, Amtrak and its contractors are solely responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved RAWP.

4.3.6 Equipment and Material Staging

All equipment and work materials will be staged in Amtrak approved staging areas to be determined prior to commencing work at each remedial zone.

4.3.7 Decontamination Area

A temporary decontamination pad will be constructed to decontaminate trucks and other vehicles/equipment. The decontamination pad will be constructed using 60-mil high density polyethylene (HDPE) liner with perimeter berms, sloped to a low-lying sump to contain any liquids. The decontamination pad will be sized to accommodate the largest construction vehicle used and located adjacent to the waste staging area.

4.3.8 Site Fencing

Given the anticipated short duration to complete each soil excavation and location of many remedial zones within tracks, perimeter fencing will not be employed.

4.3.9 Demobilization

Each remedial zone will be restored and graded to pre-construction conditions. All waste staging areas, hay bales used for erosion control, and decontamination pads will be removed and

materials disposed. Soil underlying the plastic sheeting used for waste staging areas will be inspected for any residual evidence of waste materials and removed, if necessary. All equipment will be decontaminated prior to leaving the Yard. Amtrak will replace any track or work trailers formerly located in the work area.

4.4 Reporting

Daily reports will be prepared each time excavation of a remedial zone is performed. All daily reports will be included in the Final Engineering Report. The following sections provide a summary of reports that will be prepared and maintained.

4.4.1 Daily Reports

Daily activity reports will be prepared and maintained onsite for compilation and record management. Daily reports will be submitted to NYSDEC and NYSDOH Project Managers upon request during scheduled remedial activity and will include:

- Date and weather;
- Listing of personnel and equipment onsite;
- A summary of work activities performed;
- A summary of samples collected;
- An update of progress made during the reporting day;
- Locations of work and quantities of material imported and exported from OU-4 including waste manifest information;
- References to a map for site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP findings, including excursions;
- An explanation of notable site conditions; and
- A summary of future work activities.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions will be included in the daily reports. Emergency

conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication.

Daily Reports will include a description of daily activities keyed to a site map that identifies work areas. These reports will include a summary of air sampling results, odor and dust problems and corrective actions, and all complaints received from the public.

A site map for use in identifying locations described in reports submitted to NYSDEC is attached in Plate 1.

The NYSDEC assigned project number will appear on all reports.

4.4.2 Monthly Reports

Monthly reports will be submitted to NYSDEC and NYSDOH Project Managers within one week following the end of the month of the reporting period as required by NYSDEC and will include:

- Activities during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e., tons of material exported and imported, etc.);
- Description of approved activity modifications, including changes of work scope and/or schedule;
- Sampling results received following internal data review and validation, as applicable; and
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays.

4.4.3 Other Reporting

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital (JPEG) format with the Final Engineering Report. Photos will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the work area prior to any Remedial Actions will be provided. Representative photos will be provided of each work area before, during, and after remediation. Photos will be submitted to NYSDEC on CD or other acceptable electronic media and will be sent to NYSDEC's Project Manager (2 copies) and to NYSDOH's

Project Manager (1 copy). CD's will have a label and a general file inventory structure that separates photos into directories and sub-directories according to logical Remedial Action components. A photo log keyed to photo file ID numbers will be prepared to provide explanation for all representative photos.

Job-site record keeping for all remedial work will be appropriately documented. These records will be maintained onsite at all times during the project and be available for inspection by NYSDEC and NYSDOH staff.

4.4.4 Complaint Management Plan

Any complaints received from the public regarding nuisances or other site conditions will be communicated within 24 hours to NYSDEC and NYSDOH, investigated and remedied, if required.

4.4.5 Deviations from the Remedial Action Work Plan

Any required deviations from this RAWP will be discussed by Amtrak and Amtrak's representatives with the NYSDEC. At that time, the reasons for necessary deviations from the approved RAWP will be explained and the effect of the required deviations on the overall remedy will be evaluated. If the deviation is deemed to be a significant change to the RAWP by the NYSDEC, a description and reasons for the proposed change will be emailed to the NYSDEC Project Manager for review and written approval.

5.0 REMEDIAL ACTION: MATERIAL REMOVAL FROM SITE

The following sections provide an overview of the work elements, health and safety tasks, performance evaluation measures, and decontamination procedures for the OU-4 Remedial Action.

5.1 Soil Excavation

Soil with concentrations exceeding the Yard soil cleanup levels will be excavated and transported for offsite disposal. The Yard soil cleanup levels are as follow:

- Total PCBs – 25 mg/kg;
- Total SVOCs – 500 mg/kg; and
- Lead – 3,900 mg/kg.

In total, approximately 2,330 cubic yards of soil will be excavated and transported offsite for disposal. The following sections discuss the extent and quantity of soil to be removed from each Remedial Zone.

Remedial Zone PCB-1

The PCB exceedances in Remedial Zone PCB-1 have not been horizontally or vertically delineated. Assuming an area that encompasses the three PCB exceedance locations to a depth of 6 ft bls, the volume of PCB contaminated soil in Remedial Zone 1 is estimated to be 440 cubic yards. The excavation boundaries are shown on Figure 8.

Remedial Zone PCB-2

Sample Pit-4 is a sediment sample that was collected from within the Track 4 Maintenance Pit. This sample exceeded the total PCB soil cleanup level with a concentration of 470 mg/kg. The Track 4 Maintenance Pit is constructed of concrete and measures approximately 50 feet long, 6 feet wide, and 2 feet deep, as shown on Figure 9. This subsurface structure and any sediment/debris within the structure will be removed in its entirety. Assuming the concrete thickness is 8 inches, it is estimated that 27 cubic yards of concrete will be removed and disposed offsite.

Following the pit removal, soil characterization samples will be collected from soil to the west, east, and below the bottom of the Track 4 Maintenance Pit to identify any PCB impacts caused from historical usage. Two soil borings will be completed on each side of the inspection pit at a distance of 10 feet from the pit sidewalls. Three soil borings will be completed within the inspection pit footprint to collect samples from soil formerly underlying the inspection pit. From each boring, three soil samples will be collected in 1 foot sampling intervals and submitted for PCB analysis.

Based on the soil sampling results, soil excavation in this area may be performed. Assuming soil within the areas sampled requires excavation, it is estimated that 30 cubic yards of soil will be removed. Post-excavation samples will be collected only if the characterization soil samples do not provide horizontal and vertical delineation of the extent of contamination.

Remedial Zone PCB-3

Based on sampling data, the excavation in Remedial Zone PCB-3 will extend 5.5 ft bls. Sampling to delineate the western extent of the excavation will be performed prior to soil excavation. For estimating purposes, it was assumed the excavation would extend 20 ft to the west of sample S-114. Samples at locations HB-14, SB-4, and HB-16 provided horizontal delineation to the north, east, and south, respectively. The excavation boundaries are shown on Figure 10. The volume of PCB contaminated soil in Remedial Zone 3 is estimated to be 480 cubic yards.

According to Amtrak, soil within this area was excavated to a depth of approximately 8 feet bls during the NYCDOT bridge rehabilitation work. Confirmatory sampling to verify the removal of the above PCB exceedances was not performed. For this reason, additional investigation of will be required to confirm the extent of contamination in this area.

Remedial Zone PCB-4

Horizontal and vertical delineation of samples HB-22 and HB-23 was not completed. For estimating purposes, it was assumed the excavation would extend 20 ft to the west of sample HB-22-40 and 20 ft to the east of sample SB-23+40. Delineation sampling to confirm the western and eastern excavation boundaries will be completed prior to the remedy. The

excavation will be performed within the width of the track and between pavement located to the north and south of Track 26. Using the estimated depths shown on Figure 11, the volume of PCB contaminated soil in Remedial Zone 4 is approximately 520 cubic yards.

Remedial Zone PCB-5

The PCB exceedance in Remedial Zone PCB-5 was horizontally and vertically delineated. The exceedance at FT-2 is limited to the 0 to 2 feet bls sampling interval. The excavation boundaries are shown on Figure 12. The estimated volume of PCB contaminated soil in Remedial Zone PCB-5 is 18 cubic yards.

Remedial Zone PCB-6

The PCB exceedance in Remedial Zone PCB-6 was horizontally and vertically delineated. The PCB exceedance at PC-6 extends to 3 ft bls. The excavation boundaries are shown on Figure 13. The estimated volume of PCB contaminated soil in Remedial Zone PCB-6 is 25 cubic yards.

Remedial Zone PCB-7

The delineation samples collected surrounding PC-10 did not exceed the PCB soil cleanup level and confirmed the PCB contaminated soil extends to 2 ft bls. The excavation boundaries are shown on Figure 14. The estimated volume of PCB contaminated soil in Remedial Zone PCB-7 is 23 cubic yards. Access to this remedial zone is limited by the presence of temporary office trailers accommodating Amtrak personnel that have been relocated due to the ESA construction.

Remedial Zone PCB-8

The delineation samples collected surrounding samples 925-3 and 925-3S did not exceed the total PCB soil cleanup levels, completing delineation in this area and confirming the PCB contaminated soil is limited to 1 ft bls. The excavation boundaries are shown on Figure 14. The estimated volume of PCB contaminated soil in Remedial Zone PCB-8 is 14 cubic yards.

Remedial Zone PCB-9

The PCB exceedance was vertically delineated by S-101A (2-3), confirming PCB contaminated soil extends 2 ft bls. Horizontal delineation at this location was also completed. The excavation

boundaries are shown on Figure 14. The estimated volume of PCB contaminated soil in Remedial Zone PCB-9 is 16 cubic yards.

Remedial Zone PCB-10

The extent of PCB contaminated soil in Remedial Zone PCB-10 has been horizontally delineated. Vertical delineation of sample SB45-D3 (1-2) was completed. Based on the elevated PCB concentration identified at this location (940 mg/kg), the excavation depth across a 20 ft by 20 ft area surrounding sample SB45-D3 will be 3 ft bls. Excavation of the remaining area will extend 2 ft bls. The excavation boundaries are shown on Figure 15. The volume of PCB contaminated soil is estimated to be 330 cubic yards.

Remedial Zone PCB-11

The PCB exceedance in Remedial Zone PCB-11 was horizontally and vertically delineated. The area of excavation extends 20 feet between LLS-11N and LLS-11S, within the width of Loop Track 2 (approximately 10 feet), and to a depth of 2 feet bls. The excavation boundaries are shown on Figure 16. The volume of PCB contaminated soil in Remedial Zone PCB-11 is estimated to be 15 cubic yards.

Remedial Zone PCB-12

The PCB exceedance in Remedial Zone PCB-12 was horizontally and vertically delineated. The area of excavation extends 36 feet between LP2-3W and LLS-21E, within the width of Loop Track 2 (approximately 10 feet), and to a depth of 1 ft bls. The excavation boundaries are shown on Figure 17. The volume of PCB contaminated soil in Remedial Zone PCB-12 is estimated to be 13 cubic yards.

Remedial Zone Lead-20

The Lead exceedance in Remedial Zone LEAD-20 was horizontally and vertically delineated. The area of excavation extends 40 feet between LLS-15-20N and LLS-15-20S, within the width of Loop Track 1 (approximately 10 feet), and to a depth of 1 ft bls. The excavation boundaries are shown on Figure 16. The estimated volume of lead contaminated soil in Remedial Zone Lead-20 is 15 cubic yards.

Summary

		Non-Hazardous	Hazardous	Non-Hazardous
Remedial Zone	**Depth (ft bls)**	**Soil Volume PCBs > 25 mg/kg but < 50 mg/kg (cubic yards)**	**Soil Volume PCBs > 50 mg/kg (cubic yards)**	**Soil Volume Lead > 3,900 mg/kg (cubic yards)**
PCB-1	6	440		
PCB-2	4		30	
PCB-3	5.5		480	
PCB-4	4 and 8		520	
PCB-5	2		18	
PCB-6	3	25		
PCB-7	2	23		
PCB-8	1		15	
PCB-9	2		16	
PCB-10	2 and 3		330	
PCB-11	2		15	
PCB-12	1		13	
LEAD-20	1			15
Estimated Volume		**488**	**1437**	**15**
Contingency Volume [1]		**98**	**287**	**3**
Total Volume		**586**	**1724**	**18**

1. A contingency of 20 percent has been added to the soil volume to account for those remedial zones that require additional delineation, potentially resulting in increased soil volume.

5.2 Remedial Performance Evaluation

Characterization samples will be collected in remedial zones that have not been fully delineated prior to excavation. Post-excavation samples will be collected only if the characterization soil sample results do not provide horizontal and vertical delineation of the extent of contamination.

As shown on the figures, four remedial zones require further delineation. The planned locations for characterization borings are shown on Figures 8 through 11. From each boring, three soil samples will be collected in 1 foot sampling intervals and submitted for PCB analysis. The one remedial zone exhibiting an exceedance of the soil cleanup level for lead has been fully delineated. For this reason, characterization sampling is limited to PCB analysis.

5.2.1 Methodology

Soil samples to be submitted for analysis will be homogenized, placed in a laboratory sample jar, and transported to the laboratory in an iced container. Samples will be submitted for PCB analysis. Laboratory analysis will be performed by a NYSDEC-approved laboratory using USEPA SW846 Method 8062 for PCBs.

5.2.2 Reporting of Results

The laboratory will report analytical results in Analytical Services Protocol (ASP) Category B deliverable packages. An electronic data deliverable will also be provided by the laboratory.

All sample data generated for the Remedial Action will be logged in a database and organized to facilitate data review and evaluation. The electronic dataset will include the data flags provided in accordance with USEPA Laboratory Data Validation Functional Guidelines for Evaluating Organic Analysis and Inorganic Analyses, as well as additional comments of the data review for ASP/CLP analyses. The data flags include such items as: 1) concentration below required detection limit, 2) estimated concentration due to poor recovery below required detection limit, 3) estimated concentration due to poor spike recovery, and 4) concentration of chemical also found in laboratory blank.

5.2.3 QA/QC

Quality control (QC) samples serve as checks on both the sampling and measurements systems and assist in determining the overall data quality with regard to representation, accuracy, and precision. Field duplicates and matrix spike samples are analyzed to assess the quality of the data resulting from the field sampling. Field duplicate samples are individual portions of the same field sample. These samples can be used to estimate the overall precision of the data collection activity. Sampling error can be estimated by the comparison of field sample result and duplicated sample result. Matrix spike and matrix spike duplicates are used to evaluate analytical accuracy and precision, respectively. MS/MSDs will be analyzed by the laboratory at a frequency of one per preparation batch.

5.2.4 DUSR

The usability of laboratory-generated data may be performed by conducting a systematic review of the data for compliance with the established QC criteria based on the results provided by the laboratory. It is anticipated that all laboratory data will be validated (e.g., complete transcription checks, calculation checks) by the laboratory. The data reviewer will identify any out-of-control data points and data omissions and interact with the laboratory to correct data deficiencies. Decisions to repeat sample collection and analyses may be made by Amtrak and the Remedial Engineer based on the extent of deficiencies and their importance in the overall context of the project.

5.2.5 Reporting of Data in FER

Chemical labs used for all sample results and contingency sampling will be NYSDOH ELAP certified. All data will be tabularized with sample locations shown on figures and provided in the FER.

5.3 Estimated Material Removal Quantities

Remediation-derived waste to be transported offsite for disposal includes:

- PCB-impacted non-hazardous soil – 586 cubic yards (estimated)
- NYS B007 hazardous waste/TSCA PCB Remediation Waste – 1,724 cubic yards (estimated)
- Non-hazardous soil lead impacted soil – 18 cubic yards (estimated)
- Bulk concrete from the Track 4 Pit removal – 27 cubic yards (estimated)
- Asphalt/concrete pavement material – 14 cubic yards (estimated)

Segregation of each of the remediation-derived wastes will be performed based on media and classifications (e.g., concrete, PCB hazardous soil, non-hazardous soil). The PCB-impacted non-hazardous soil will be disposed with the TSCA PCB Remediation waste. Waste characterization samples will be submitted for analysis for the disposal facility requirements, which may include PCBs, total lead, TCLP VOCs, TCLP SVOCs, TCLP metals, and RCRA characteristics.

An average density of 1.5 tons per cubic yard was assumed for concrete removed from the Track 4 Maintenance Pit. Based on this density assumption, it is estimated that approximately 40 tons of concrete would be generated. The Track 4 Maintenance Pit concrete will be sampled for waste characterization purposes. It is likely the concrete will be classified as non-hazardous petroleum impacted concrete.

All construction equipment used in handling impacted materials will be decontaminated prior to reuse or leaving the work area. Construction equipment includes hand tools, excavation buckets, and disposal vehicles. All equipment will be inspected after decontamination and prior to leaving the Yard to ensure all residual contamination has been removed. A designated decontamination area (i.e., decontamination pad) will be established near the work area on an impermeable material. The decontamination area will be constructed with bermed edges to contain all decontamination solids/liquids. Wastewater will be managed as described below in Section 5.5.6.

5.4 Construction Quality Assurance Plan

Monitoring construction quality assurance and control ensures the remediation is performed in accordance with the objectives of this RAWP. The following sections discuss the components of the Construction Quality Assurance Plan.

5.4.1 Remedial Contractor Responsibilities

The selected remedial contractor will be an Amtrak-approved contractor qualified and trained to perform the excavation and handling of contaminated soil, as well as trained in the safety requirements of working in an active railyard. The remedial contractor will be responsible for the following quality assurance tasks:

- Performing the work such that contaminated soils are handled properly including the monitoring of stockpiles and dust generation.
- Prevention of the spread of contaminated material onto clean areas.
- Monitoring of exposure risks to remedial workers and Amtrak workers in the work area.
- Management of the offsite disposal for all waste generated. Disposal facilities to be used will be approved by Amtrak.

- Conduct coordination meeting with Amtrak and the Remedial Engineer. Frequency of meetings (e.g., weekly, bi-weekly) will be determined based on the duration of the scheduled remedial activity.

- Recordkeeping including the completion of daily activity reports, work area air monitoring results, and waste disposal documentation.

- Preparation of project plans including a Contractor HASP and project shop drawing/submittals.

5.4.2 Construction Quality Control Testing

The following task specific testing will be performed:

- In remedial zones that have not been fully delineated, the Remedial Engineer will perform delineation characterization sampling for the compound of concern. Upon completion of the sampling, the bounds of the excavation will be staked out based on the location of the delineation borings for excavation by the Remedial Contractor.

- A New York State-licensed surveyor will survey the limits of each Remedial Zone excavation to verify the excavation was performed as specified in this RAWP and to provide measurements of any over-excavation performed.

- Waste characterization sampling of contaminated soil excavated from each Remedial Zone will be performed. The Remedial Engineer will collect waste characterization samples from stockpiled soil in accordance with the frequency and analysis requirements of the receiving disposal facility.

- Offsite clean fill documentation from suppliers will be obtained.

- CAMP monitoring results will be logged daily with Action Limit Reports completed to document any action level exceedances. Copies of the daily logs and Action Limit Reports will be maintained in OU-4 during the scheduled remedial activity.

5.5 Soil/Materials Management Plan

The following sections provide the Soil Management Plan to be implemented during the Remedial Action.

5.5.1 Soil Screening Methods

Visual, olfactory and PID soil screening and assessment will be performed by a qualified environmental professional during all remedial excavations into known or potentially contaminated material. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy, prior to issuance of the COC.

All primary contaminant sources (including but not limited to tanks and hotspots) identified during the Remedial Action will be surveyed by a surveyor licensed to practice in the State of New York. This information will be provided on maps in the Final Engineering Report.

Screening will be performed by qualified environmental professionals. Resumes will be provided for all personnel responsible for field screening (i.e. those representing the Remedial Engineer) of invasive work for unknown contaminant sources during remediation and development work.

5.5.2 Stockpile Methods

Stockpiles will be inspected at a minimum of once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained in OU-4 and available for inspection by NYSDEC.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Soil stockpiles will be continuously encircled with silt fences or bermed to control runoff. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

A dedicated water truck equipped with a water cannon will be available onsite for dust control.

5.5.3 Materials Excavation and Load Out

The Remedial Engineer or a qualified environmental professional under his supervision will oversee all invasive work and the excavation and load-out of all excavated material.

Amtrak and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements in OU-4 will be investigated by the Remedial Engineer. Following clearance from Amtrak, no risk or impediment to the planned work under this Remedial Action Work Plan will be posed by utilities or easements in OU-4.

Loaded vehicles leaving the Yard will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated onsite. The Remedial Engineer will be responsible for ensuring that all outbound trucks are inspected and will be brushed or washed as required to removed loose soil at the truck wash before leaving the Yard until the remedial construction is complete.

Locations where vehicles enter or exit the work area shall be inspected daily for evidence of offsite sediment tracking.

The Remedial Engineer will be responsible for ensuring that all egress points for truck and equipment transport from the Yard will be clean of dirt and other materials derived from the work area during remediation and development. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site -derived materials.

Amtrak and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all invasive work, the structural integrity of excavations, and for structures that may be affected by excavations (such as building foundations and bridge footings).

Each hotspot and structure to be remediated (vaults and associated piping, etc.) will be removed and characterization sampling completed before excavations commence proximal to the hotspot or structure.

5.5.4 Materials Transport Offsite

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

All trucks loaded with site materials will exit the vicinity of the work area using only these approved truck routes.

The proposed in-bound and out-bound truck routes to the Yard are 42nd Place to Northern Boulevard or 39th Street to Northern Boulevard, depending on the location of the remedial zone to be addressed. These are the most appropriate routes and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting offsite queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the Yard. Queuing of trucks will be performed onsite in order to minimize offsite disturbance. Offsite queuing will be prohibited.

5.5.5 Materials Disposal Offsite

Disposal locations will be established at a later date and will be reported to the NYSDEC Project Manager. The total quantity of material expected to be disposed offsite was discussed in Section 5.3.

All soil/fill/solid waste excavated and removed from OU-4 will be treated as contaminated and regulated material and will be disposed in accordance with all local, State (including 6 NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this site is proposed for unregulated disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to NYSDEC's Project Manager. Unregulated offsite management of materials from OU-4 is prohibited without formal NYSDEC approval.

Material that does not meet unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

The following documentation will be obtained and reported by the Remedial Engineer for each disposal location used in this project to fully demonstrate and document that the disposal of material derived from OU-4 conforms with all applicable laws: (1) a letter from the Remedial Engineer or Amtrak to the receiving facility describing the material to be disposed and requesting formal written acceptance of the material. This letter will state that material to be disposed is contaminated material generated at an environmental remediation site in New York

State. The letter will provide the project identity and the name and phone number of the Remedial Engineer. The letter will include as an attachment a summary of all chemical data for the material being transported (including site characterization data); and (2) a letter from all receiving facilities stating it is in receipt of the correspondence (above) and is approved to accept the material. These documents will be included in the FER.

Non-hazardous historic fill and contaminated soils taken offsite will be handled, at minimum, as a Municipal Solid Waste per 6 NYCRR Part 360-1.2.

Historic fill and contaminated soils from OU-4 are prohibited from being disposed at Part 360-16 Registration Facilities (also known as Soil Recycling Facilities).

Soils that are contaminated but non-hazardous and are being removed from OU-4 are considered by the Division of Solid & Hazardous Materials (DSHM) in NYSDEC to be Construction and Demolition (C&D) materials with contamination not typical of virgin soils. These soils may be sent to a permitted Part 360 landfill. They may be sent to a permitted C&D processing facility without permit modifications only upon prior notification of NYSDEC Region 2 DSHM. This material is prohibited from being sent or redirected to a Part 360-16 Registration Facility. In this case, as dictated by DSHM, special procedures will include, at a minimum, a letter to the C&D facility that provides a detailed explanation that the material is derived from a DER remediation site, that the soil material is contaminated and that it must not be redirected to onsite or offsite Soil Recycling Facilities. For the purposes of this RAWP, PCB-impacted non-hazardous soil excavated from OU-4 will be disposed with the TSCA PCB Remediation Waste.

The Final Engineering Report will include an accounting of the destination of all material removed from OU-4 during this Remedial Action, including excavated soil, contaminated soil, historic fill, solid waste, and hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. This information will also be presented in a tabular form in the FER.

Bill of Lading system or equivalent will be used for offsite movement of non-hazardous wastes and contaminated soils. This information will be reported in the Final Engineering Report.

Hazardous wastes derived from onsite will be stored, transported, and disposed in full compliance with applicable local, State, and Federal regulations.

Appropriately licensed haulers will be used for material removed from OU-4 and will be in full compliance with all applicable local, State and Federal regulations.

Waste characterization will be performed for offsite disposal in a manner suitable to the receiving facility and in conformance with applicable permits. Sampling and analytical methods, sampling frequency, analytical results, and QA/QC will be reported in the FER. All data available for soil/material to be disposed at a given facility must be submitted to the disposal facility with suitable explanation prior to shipment and receipt.

5.5.6 Fluids Management

Construction wastewater will be generated from personnel/equipment decontamination and stormwater run-off/run-on in bermed soil stockpile and excavation areas. Dewatering liquids are not anticipated to be generated because the soil to be excavated in each remedial zone is unsaturated soil (by definition of OU-4). Construction wastewater will be collected as generated and stored onsite in leak tight drums. The wastewater will be sampled and submitted for analysis for disposal characterization. Based on the laboratory analytical results, the construction wastewater will be disposed offsite at a permitted disposal facility.

All liquids to be removed from OU-4 will be handled, transported, and disposed in accordance with applicable local, State, and Federal regulations.

5.5.7 Backfill from Offsite Sources

Clean fill, suitable for railroad operations, will be imported onsite and used for backfill in each of the remedial zones. Clean fill will be gravel or sand (USCS classifications GW, GP, GM, SW, SP, and SM) per Amtrak's Railroad Specifications. For track areas, the clean fill will be placed to grade level and compacted to railroad specifications. Ballast for track reconstruction will be provided by Amtrak. For paved areas, suitable subgrade material for pavement replacement will be imported by the remedial contractor.

All materials proposed for import onto OU-4 will be approved by the Remedial Engineer and will be in compliance with provisions in this RAWP prior to receipt at the site.

Material from industrial sites, spill sites, other environmental remediation sites, or other potentially contaminated sites will not be imported to OU-4.

The Final Engineering Report will include the following certification by the Remedial Engineer: "I certify that all import of soils from off-site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan."

All imported soils will meet NYSDEC approved backfill or cover soil quality objectives for the Yard. These NYSDEC approved backfill or cover soil quality objectives are the more stringent of Protection of Public Health for commercial use or Protection of Groundwater as defined by 6 NYCRR part 375-6.7(d). Non-compliant soils will not be imported onsite without prior approval by NYSDEC. Nothing in the approved Remedial Action Work Plan or its approval by NYSDEC should be construed as an approval for this purpose.

Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for the Yard, will not be imported onsite without prior approval by NYSDEC. Nothing in this Remedial Action Work Plan should be construed as an approval for this purpose.

Solid waste will not be imported onsite. Trucks entering the Yard with imported soils will be securely covered with tight fitting covers.

5.5.8 Stormwater Pollution Prevention

Barriers and hay bale checks will be installed where needed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained in OU-4 and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the RAWP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters

Silt fencing or hay bales will be installed around stockpile areas (if not already bermed), around sewer inlets, and the downgradient perimeter of the excavation area.

5.5.9 Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during onsite remedial excavation, sampling will be performed on product, sediment and surrounding soils, etc. Chemical analytical work will be for full scan parameters (TAL metals; TCL volatiles and semivolatiles, TCL pesticides and PCBs). These analyses will not be limited to Spills Technology and Remediation Series (STARS) parameters where tanks are identified without prior approval by NYSDEC. Analyses will not be otherwise limited without NYSDEC approval.

If subsurface structures associated with railroad utilities or former tracks are identified during field activities, inspection of the structure will be performed to identify staining or impacted contents. Any contents (e.g., soil, sediment) will be sampled for the compounds of concern.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC’s Project Manager. These findings will be also included in daily and periodic electronic media reports.

5.5.10 Community Air Monitoring Plan

The air monitoring program will be implemented during all intrusive remedial actions to measure the concentration of particulates in ambient air in the work zone.

A CAMP will be developed in accordance with the NYSDOH Generic Community Air Monitoring Plan contained in Appendix 1A of the draft DER-10 (NYSDEC, 2002). The CAMP will include real-time continuous air monitoring at the work area's downwind perimeter for VOCs and particulates. Implementation and management procedures will be specified within the CAMP. During all phases of work, the remedial contractor will be responsible for mitigating any vapor and particulate issues, via suppression techniques defined in the CAMP.

A map showing the location of fixed and mobile sampling stations will be developed for each individual Remedial Zone prior to the start of work.

Exceedances observed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers and included in the Daily Report.

5.5.11 Odor and Dust Control Plan

Odors and dust will be continually monitored during excavation activities and addressed using the measures discussed below. The degree to which these measures will be used will depend on particulate levels in ambient air at the perimeter of the work area as determined through implementation of the CAMP. The planned excavations are relatively small areas remotely located across the Yard and located within unsaturated soil that is impacted by PCBs and lead. For these reasons, it is not anticipated that excavation of the Remedial Zones will pose a significant source of odors or dust.

The Final Engineering Report will include the following certification by the Remedial Engineer: "I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology defined in the Remedial Action Work Plan."

5.5.11.1 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors off-site and onsite. Specific odor control methods to be used on a routine basis will include assigning a dedicated air monitoring technician to monitor odors, backfilling excavations in a timely manner, and maintaining covers over stockpiled impacted soils. If nuisance odors are identified, work in that particular work area will be halted and the source of odors will be identified and corrected. Work will not resume in this area until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of all other complaints about the project. Implementation of all odor controls, including the halt of work, will be the responsibility of Amtrak's Remedial Engineer, who is responsible for certifying the Final Engineering Report.

As necessary, a foam unit to suppress vapors and odors that are generated during the soil excavations will be employed. The foam unit, such as a Rusmar PFU-400, includes a self-contained 400-gallon tank for mixing foam concentrate. Foam would be applied to stockpiled soil and excavation sidewalls in an effort to maintain work zone and perimeter air monitoring criteria established in the HASP and CAMP. Tarps will also be employed to suppress vapor and odors from stockpiled soil in the staging area.

All necessary means will be employed to prevent onsite and off-site nuisances. At a minimum, procedures will include: (a) limiting the area of open excavations; (b) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (a) direct load-out of soils to trucks for off-site disposal; (b) use of chemical odorants in spray or misting systems; and, (c) use of staff to monitor odors in surrounding neighborhoods.

5.5.11.2 Dust Control Plan

A dust suppression plan that addresses dust management during invasive onsite work will include, at a minimum, the items listed below:

- Dust suppression will be achieved through the use of a dedicated onsite water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.

- Gravel will be used on roadways to provide a clean and dust-free road surface.
- Onsite roads will be limited in total area to minimize the area required for water truck sprinkling.

6.0 RESIDUAL CONTAMINATION TO REMAIN ONSITE

Since residual contaminated soil will exist beneath OU-4 after the remedy is complete, Engineering and Institutional Controls (ECs and ICs) are required to protect human health and the environment. These ECs and ICs are described hereafter. Long-term management of EC/ICs and of residual contamination will be executed under a site-specific Site Management Plan (SMP) that will be developed and included in the FER.

ECs and monitoring will be implemented to protect public health and the environment by appropriately managing residual contamination. OU-4 will have two primary EC systems. These are: (1) controlled site access with security gates at each entrance; and (2) existing surface covers (pavement, ballast, tracks, buildings) will be maintained in areas that are known to contain cPAHs at concentrations greater than 25 mg/kg.

The FER will provide a description of areas of residual contamination and a figure identifying area locations.

7.0 ENGINEERING CONTROL: COVER SYSTEM

Exposure to soil exhibiting concentrations of cPAHs greater than 25 mg/kg will be prevented by maintenance of a surface cover. The surface cover may consist of one-foot thick clean cover (clean fill or ballast) or pavement. As shown on Figure 19, each of the known areas of cPAH with concentrations exceeding 25 mg/kg is currently covered by either pavement or ballast/track. The Site Management Plan will include procedures to be followed in the event the surface covers in these areas are disturbed due to railyard operations or construction.

8.0 INSTITUTIONAL CONTROLS

After the remedy is complete, OU-4 will have residual contamination remaining in place. Engineering Controls (ECs) for the residual contamination have been incorporated into the remedy to render the overall site remedy protective of public health and the environment. Two elements have been designed to ensure continual and proper management of residual contamination in perpetuity: an Environmental Easement and a Site Management Plan. These elements are described in this Section.

A site-specific Environmental Easement will be recorded with Queens County to provide an enforceable means of ensuring the continual and proper management of residual contamination and protection of public health and the environment in perpetuity or until released in writing by NYSDEC. It requires that the grantor of the Environmental Easement and the grantor's successors and assigns adhere to all Engineering and Institutional Controls (ECs/ICs) placed on this site by this NYSDEC-approved remedy. ICs provide restrictions on site usage and mandate operation, maintenance, monitoring, and reporting measures for all ECs and ICs.

The Site Management Plan (SMP) describes appropriate methods and procedures to ensure compliance with all ECs and ICs that are required by the Environmental Easement. Once the SMP has been approved by the NYSDEC, compliance with the SMP is required by the grantor of the Environmental Easement and grantor's successors and assigns.

8.1 Environmental Easement

An Environmental Easement, as defined in Article 71 Title 36 of the Environmental Conservation Law, is required when residual contamination is left onsite after the Remedial Action is complete. If the site will have residual contamination after completion of all Remedial Actions, then an Environmental Easement is required. As part of this remedy, an Environmental Easement approved by NYSDEC will be filed and recorded with the Queens County Clerk. The Environmental Easement will be submitted as part of the Final Remediation Report.

The Environmental Easement renders the site a Controlled Property. The Environmental Easement must be recorded with the Queens County Clerk before the Certificate of Completion can be issued by NYSDEC. A series of Institutional Controls are required under this remedy to

implement, maintain and monitor these Engineering Control systems, prevent future exposure to residual contamination by controlling disturbances of the subsurface soil and restricting the use of the site to railroad use only. These Institutional Controls are requirements or restrictions placed on the site that are listed in, and required by, the Environmental Easement. Institutional Controls can, generally, be subdivided between controls that support Engineering Controls, and those that place general restrictions on site usage or other requirements. Institutional Controls in both of these groups are closely integrated with the Site Management Plan, which provides all of the methods and procedures to be followed to comply with this remedy.

The Institutional Controls that support Engineering Controls are:

- Compliance with the Environmental Easement by the Grantee and the Grantee's successors and adherence of all elements of the SMP is required.
- All Engineering Controls must be maintained as specified in this SMP.
- All Engineering Controls on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP.
- Data and information pertinent to Site Management for the Controlled Property must be reported at the frequency and in a manner defined in the SMP.
- Onsite environmental monitoring devices, including but not limited to, groundwater monitor wells, must be protected and replaced as necessary to ensure proper functioning in the manner specified in the SMP.
- Engineering Controls may not be discontinued without an amendment or extinguishment of the Environmental Easement.

Adherence to these Institutional Controls for the site is mandated by the Environmental Easement and will be implemented under the Site Management Plan (discussed in the next section). The Controlled Property (OU-4) will also have a series of Institutional Controls in the form of site restrictions and requirements. The site restrictions that apply to the Controlled Property are:

- Vegetable gardens and farming on the Controlled Property are prohibited.
- Use of groundwater underlying the Controlled Property is prohibited without treatment rendering it safe for intended purpose.

- All future activities on the Controlled Property that will disturb residual contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the Site Management Plan.

- The Controlled Property may be used for railroad-related use only, provided the long-term Engineering and Institutional Controls included in the Site Management Plan are employed.

- The Controlled Property may not be used for a higher level of use, such as restricted residential use without an amendment or extinguishment of this Environmental Easement.

- Grantor agrees to submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow. This periodic statement must be certified by an expert that the NYSDEC finds acceptable.

8.2 Site Management Plan

Site Management is the last phase of remediation and begins with the approval of the Final Engineering Report and issuance of the Certificate of Completion (COC) for the Remedial Action. The Site Management Plan is submitted as part of the FER but will be written in a manner that allows its removal and use as a complete and independent document. Site Management continues in perpetuity or until released in writing by NYSDEC. The property owner is responsible to ensure that all Site Management responsibilities defined in the Environmental Easement and the Site Management Plan are performed.

The SMP is intended to provide a detailed description of the procedures required to manage residual contamination left in place at the site following completion of the Remedial Action. This includes: (1) development, implementation, and management of all Engineering and Institutional Controls; and (2) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of site information to NYSDEC.

To address these needs, this SMP will include four plans: (1) an Engineering and Institutional Control Plan for implementation and management of EC/ICs; (2) an Operation and Maintenance Plan for the surface cover systems; and (3) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation, dated December 2002, and the guidelines provided by NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annually. The Site Management Plan will be based on a calendar year and will be due for submission to NYSDEC by March 1 of the year following the reporting period.

No exclusions for handling of residual contaminated soils will be provided in the SMP. All handling of residual contaminated material will be subject to provisions contained in the SMP.

9.0 FINAL ENGINEERING REPORT

A Final Engineering Report will be submitted to NYSDEC following implementation of the Remedial Action defined in this RAWP. The FER provides the documentation that the remedial work required under this RAWP has been completed and has been performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all material removed from the Site including the surveyed map(s) of all sources. The Final Engineering Report will include as-built drawings for all constructed elements, certifications, manifests, bills of lading as well as the complete Site Management Plan (formerly the Operation and Maintenance Plan). The FER will provide a description of the changes in the Remedial Action from the elements provided in the RAWP and associated design documents. The FER will provide a tabular summary of all performance evaluation sampling results and all material characterization results and other sampling and chemical analysis performed as part of the Remedial Action. The FER will be prepared in conformance with DER-10.

The Final Remediation Report will include written and photographic documentation of all remedial work performed under this remedy.

The FER will provide a thorough summary of all residual contamination left on the site after the remedy is complete. Residual contamination includes all contamination that exceeds the Track 1 Unrestricted Use SCO in 6NYCRR Part 375-6. A table that shows exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the site after the Remedial Action and a map that shows the location and summarizes exceedances from Track 1 Unrestricted SCOs for all soil/fill remaining at the site after the Remedial Action will be included in the FER.

The FER will provide a thorough summary of all residual contamination that exceeds the SCOs defined for the site in the RAWP and must provide an explanation for why the material was not removed as part of the Remedial Action. A table that shows residual contamination in excess of Yard SCOs and a map that shows residual contamination in excess of Yard SCOs will be included in the FER.

The Final Engineering Report will include an accounting of the destination of all material removed from the site, including excavated contaminated soil, historic fill, solid waste,

hazardous waste, non-regulated material, and fluids. Documentation associated with disposal of all material must also include records and approvals for receipt of the material. It will provide an accounting of the origin and chemical quality of all material imported onsite.

Before approval of a FER and issuance of a Certificate of Completion, all project reports must be submitted in digital form on electronic media (PDF).

9.1 Certifications

The following certification will appear in front of the Executive Summary of the Final Engineering Report. The certification will be signed by the Remedial Engineer, Charles McGuckin, who is a Professional Engineer registered in New York State. This certification will be appropriately signed and stamped. The certification will include the following statements:

I, Charles McGuckin, am currently a registered professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program for OU-4 at the Amtrak Sunnyside Yard site (NYSDEC Site No. 241006).

I certify that the site description presented in this FER is identical to the site descriptions presented in the Environmental Easement, the Site Management Plan, and the Record of Decision for Amtrak Sunnyside Yard – OU-4 and related amendments.

I certify that the Remedial Action Work Plan dated July 2009 and Stipulations [if any] approved by the NYSDEC were implemented and that all requirements in those documents have been substantively complied with.

I certify that the remedial activities were observed by qualified environmental professionals under my supervision and that the remediation requirements set forth in the Remedial Action Work Plan and any other relevant provisions of ECL 27-1419 have been achieved.

I certify that all use restrictions, Institutional Controls, Engineering Controls, and all operation and maintenance requirements applicable to the site are contained in an Environmental Easement

created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded. A Site Management Plan has been submitted by Amtrak for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by the NYSDEC.

I certify that the export of all contaminated soil, fill, water or other material from the property was performed in accordance with the Remedial Action Work Plan, and were taken to facilities licensed to accept this material in full compliance with all Federal, State and local laws.

I certify that all import of soils from off-site, including source approval and sampling, has been performed in a manner that is consistent with the methodology defined in the Remedial Action Work Plan.

I certify that all invasive work during the remediation and all invasive development work were conducted in accordance with dust and odor suppression methodology and soil screening methodology defined in the Remedial Action Work Plan.

I certify that all information and statements in this certification are true. I understand that a false statement made herein is punishable as Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

10.0 SCHEDULE

Several of the Remedial Zones are located within active tracks and under temporary trailers serving as office space during the ESA construction that cannot be addressed without extensive disturbance to the Yard's daily operations. Detailed planning and coordination would be required for scheduling track outages, rerouting trains to maintain operations, the removal and reconstruction of track, and temporary relocating of office trailers. There are Remedial Zones, however, that are located in open areas that are more easily accessible and could be addressed on a quicker timetable. It is anticipated that Remedial Zones PCB-5 through PCB-9 are currently accessible and could be addressed upon approval of this RAWP. The remaining Remedial Zones will be addressed during scheduled demolition or track maintenance in these areas. A conceptual schedule for completing the remaining Remedial Zones is shown on Figure 18.

11.0 REFERENCES

NYSDEC, 1989, NYSDEC TAGM 4031 – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites.

NYSDEC, 2002. Draft DER-10 Technical Guidance for Site Investigation and Remediation, Appendix 1A, NYSDOH Generic Community Air Monitoring Plan, December 25, 2002.

NYSDEC, 2009a. Proposed Remedial Action Plan, Amtrak Sunnyside Yard, Operable Unit 4, Long Island City, Queens County, New York, Site No. 241006, February 2009.

NYSDEC, 2009b. Record of Decision, Amtrak Sunnyside Yard Site, Operable Unit No. 4, Long Island City, Queens County, New York, Site Number 241006, March 2009.

Roux Associates, 2008. Operable Unit 4 Remedial Investigation Report, Sunnyside Yard, Queens, New York, October 2, 2008.

Roux Associates, 2009. Operable Unit 4 Feasibility Study, Sunnyside Yard, Queens, New York, January 30, 2009.

Table 1. Summary of Polychlorinated Biphenyl Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	GE-40-7-6DL 10/22/07 0-6	GE-40-7-7DL2 10/22/07 0-6	L4-1 01/23/09 0-1	L4-1 01/23/09 1-2	L4-1 01/23/09 2-3	L4-2 01/23/09 0-1	L4-2 01/23/09 1-2	L4-2 01/23/09 2-3
Aroclor-1016			NR	NR	28 U	29 U	27 U	31 U	27 U	27 U
Aroclor-1221			NR	NR	28 U	29 U	27 U	31 U	27 U	27 U
Aroclor-1232			NR	NR	28 U	29 U	27 U	31 U	27 U	27 U
Aroclor-1242			NR	NR	28 U	29 U	27 U	31 U	27 U	27 U
Aroclor-1248			NR	NR	28 U	29 U	27 U	31 U	27 U	27 U
Aroclor-1254			NR	NR	28 U	29 U	27 U	31 U	27 U	27 U
Aroclor-1260			NR	NR	320	190	34	1700	180	27 U
Aroclor-1262			NR	NR	28 U	29 U	27 U	31 U	27 U	27 U
Aroclor-1268			NR	NR	28 U	29 U	27 U	31 U	27 U	27 U
TOTAL PCBs	25,000		**27000**	**85000**	320	190	34	1700	180	27 U

Notes:
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
D - Sample was analyzed at a secondary dilution
U - Compound was analyzed for but not detected
NR - Compound results were not reported
NYSDEC - New York State Department of Environmental Protection
PCB - Polychlorinated Biphenyl
Bold text indicates the exceedance of NYSDEC Site Specific Cleanup Level for PCBs

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Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	L4-3 01/23/09 0-1	L4-3 01/23/09 1-2	L4-3 01/23/09 2-3	L4-4 01/23/09 0-1	L4-4 01/23/09 1-2	L4-4 01/23/09 2-3	L4-5 01/23/09 0-1	L4-5 01/23/09 1-2	L4-5 01/23/09 2-3
Aroclor-1016			32 U	27 U	26 U	30 U	28 U	27 U	29 U	27 U	27 U
Aroclor-1221			32 U	27 U	26 U	30 U	28 U	27 U	29 U	27 U	27 U
Aroclor-1232			32 U	27 U	26 U	30 U	28 U	27 U	29 U	27 U	27 U
Aroclor-1242			32 U	27 U	26 U	30 U	28 U	27 U	29 U	27 U	27 U
Aroclor-1248			32 U	27 U	26 U	30 U	28 U	27 U	29 U	27 U	27 U
Aroclor-1254			32 U	27 U	26 U	30 U	28 U	27 U	29 U	27 U	27 U
Aroclor-1260			1700	74	26 U	410	110	27 U	200	110	100
Aroclor-1262			32 U	27 U	26 U	30 U	28 U	27 U	29 U	27 U	27 U
Aroclor-1268			32 U	27 U	26 U	30 U	28 U	27 U	29 U	27 U	27 U
TOTAL PCBs	25,000		1700	74	26 U	410	110	27 U	200	110	100

Notes:
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Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	L4-6 01/23/09 0-1	L4-6 01/23/09 1-2	L4-6 01/23/09 2-3	L4-7 01/23/09 0-1	L4-7 01/23/09 1-2	L4-7 01/23/09 2-3	L4-8 01/23/09 0-1	L4-8 01/23/09 1-2	L4-8 01/23/09 2-3
Aroclor-1016			32 U	28 U	27 U	30 U	27 U	28 U	32 U	32 U	28 U
Aroclor-1221			32 U	28 U	27 U	30 U	27 U	28 U	32 U	32 U	28 U
Aroclor-1232			32 U	28 U	27 U	30 U	27 U	28 U	32 U	32 U	28 U
Aroclor-1242			32 U	28 U	27 U	30 U	27 U	28 U	32 U	32 U	28 U
Aroclor-1248			32 U	28 U	27 U	30 U	27 U	28 U	32 U	32 U	28 U
Aroclor-1254			32 U	28 U	27 U	30 U	27 U	28 U	32 U	32 U	28 U
Aroclor-1260			1800	130	27 U	970	120	28 U	4600	2100	60
Aroclor-1262			32 U	28 U	27 U	30 U	27 U	28 U	32 U	32 U	28 U
Aroclor-1268			32 U	28 U	27 U	30 U	27 U	28 U	32 U	32 U	28 U
TOTAL PCBs	25,000		1800	130	27 U	970	120	28 U	4600	2100	60

Notes:
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
D - Sample was analyzed at a secondary dilution
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Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	L4-9 01/23/09 0-1	L4-9 01/23/09 1-2	L4-9 01/23/09 2-3	L5-1 01/22/09 0-1	L5-1 01/22/09 1-2	L5-1 01/22/09 2-3	L5-2 01/22/09 0-1	L5-2 01/22/09 1-2	L5-2 01/22/09 2-3
Aroclor-1016			30 U	30 U	28 U	29 U	27 U	27 U	32 U	29 U	26 U
Aroclor-1221			30 U	30 U	28 U	29 U	27 U	27 U	32 U	29 U	26 U
Aroclor-1232			30 U	30 U	28 U	29 U	27 U	27 U	32 U	29 U	26 U
Aroclor-1242			30 U	30 U	28 U	29 U	27 U	27 U	32 U	29 U	26 U
Aroclor-1248			30 U	30 U	28 U	29 U	27 U	27 U	32 U	29 U	26 U
Aroclor-1254			30 U	30 U	28 U	29 U	27 U	27 U	32 U	29 U	26 U
Aroclor-1260			160	67	28 U	1100	91	34	1100	29 U	26 U
Aroclor-1262			30 U	30 U	28 U	29 U	27 U	27 U	32 U	29 U	26 U
Aroclor-1268			30 U	30 U	28 U	29 U	27 U	27 U	32 U	29 U	26 U
TOTAL PCBs	25,000		160	67	28 U	1100	91	34	1100	29 U	26 U

Notes:
µg/kg - Micrograms per kilogram
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D - Sample was analyzed at a secondary dilution
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Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	L5-3 01/22/09 0-1	L5-3 01/22/09 1-2	L5-3 01/22/09 2-3	L5-4 01/22/09 0-1	L5-4 01/22/09 1-2	L5-4 01/22/09 2-3	L5-5 01/22/09 0-1	L5-5 01/22/09 1-2	L5-5 01/22/09 2-3
Aroclor-1016			28 U	29 U	27 U	29 U	30 U	29 U	30 U	27 U	27 U
Aroclor-1221			28 U	29 U	27 U	29 U	30 U	29 U	30 U	27 U	27 U
Aroclor-1232			28 U	29 U	27 U	29 U	30 U	29 U	30 U	27 U	27 U
Aroclor-1242			28 U	29 U	27 U	29 U	30 U	29 U	30 U	27 U	27 U
Aroclor-1248			28 U	29 U	27 U	29 U	30 U	29 U	30 U	27 U	27 U
Aroclor-1254			28 U	29 U	27 U	29 U	30 U	29 U	30 U	27 U	27 U
Aroclor-1260			3700	3200	200	29 U	30 U	29 U	150	27 U	27 U
Aroclor-1262			28 U	29 U	27 U	29 U	30 U	29 U	30 U	27 U	27 U
Aroclor-1268			28 U	29 U	27 U	29 U	30 U	29 U	30 U	27 U	27 U
TOTAL PCBs	25,000		3700	3200	200	29 U	30 U	29 U	150	27 U	27 U

Notes:
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D - Sample was analyzed at a secondary dilution
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Aroclor-1016			30 U	27 U	27 U	30 U	28 U	26 U	29 U	27 U	26 U
Aroclor-1221			30 U	27 U	27 U	30 U	28 U	26 U	29 U	27 U	26 U
Aroclor-1232			30 U	27 U	27 U	30 U	28 U	26 U	29 U	27 U	26 U
Aroclor-1242			30 U	27 U	27 U	30 U	28 U	26 U	29 U	27 U	26 U
Aroclor-1248			30 U	27 U	27 U	30 U	28 U	26 U	29 U	27 U	26 U
Aroclor-1254			30 U	27 U	27 U	30 U	28 U	26 U	29 U	27 U	26 U
Aroclor-1260			380	27 U	27 U	460	28 U	26 U	290	27 U	26 U
Aroclor-1262			30 U	27 U	27 U	30 U	28 U	26 U	29 U	27 U	26 U
Aroclor-1268			30 U	27 U	27 U	30 U	28 U	26 U	29 U	27 U	26 U
TOTAL PCBs	25,000		380	27 U	27 U	460	28 U	26 U	290	27 U	26 U

Notes:
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
D - Sample was analyzed at a secondary dilution
U - Compound was analyzed for but not detected
NR - Compound results were not reported
NYSDEC - New York State Department of Environmental Protection
PCB - Polychlorinated Biphenyl
Bold text indicates the exceedance of NYSDEC Site Specific Cleanup Level for PCBs

Table 1. Summary of Polychlorinated Biphenyl Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	L5-9 01/22/09 0-1	L5-9 01/22/09 1-2	L5-9 01/22/09 2-3	L5-10 01/22/09 0-1	L5-10 01/22/09 1-2	L5-10 01/22/09 2-3	SB-45D5 03/31/09 0-1	SB-45D5 03/31/09 1-2	SB-45D5 03/31/09 2-3
Aroclor-1016			30 U	28 U	27 U	29 U	27 U	30 U	150 U	27 U	27 U
Aroclor-1221			30 U	28 U	27 U	29 U	27 U	30 U	150 U	27 U	27 U
Aroclor-1232			30 U	28 U	27 U	29 U	27 U	30 U	150 U	27 U	27 U
Aroclor-1242			30 U	28 U	27 U	29 U	27 U	30 U	150 U	27 U	27 U
Aroclor-1248			30 U	28 U	27 U	29 U	27 U	30 U	150 U	27 U	27 U
Aroclor-1254			30 U	28 U	27 U	29 U	27 U	30 U	150 U	27 U	27 U
Aroclor-1260			240	28 U	27 U	220	27 U	62	5300 D	110	580
Aroclor-1262			30 U	28 U	27 U	29 U	27 U	30 U	150 U	27 U	27 U
Aroclor-1268			30 U	28 U	27 U	29 U	27 U	30 U	150 U	27 U	27 U
TOTAL PCBs	25,000		240	28 U	27 U	220	27 U	62	5300 D	110	580

Notes:
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
D - Sample was analyzed at a secondary dilution
U - Compound was analyzed for but not detected
NR - Compound results were not reported
NYSDEC - New York State Department of Environmental Protection
PCB - Polychlorinated Biphenyl
Bold text indicates the exceedance of NYSDEC Site Specific Cleanup Level for PCBs

Table 1. Summary of Polychlorinated Biphenyl Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	SB-45D6 03/31/09 0-1	SB-45D6 03/31/09 1-2	SB-45D6 03/31/09 2-3	SB-45D6 03/31/09 3-4	W-1 04/01/09 0-1	W-1 04/01/09 1-2	W-2 04/01/09 0-1	W-2 04/01/09 1-2	W-3 04/01/09 0-1
Aroclor-1016			1500 U	1500 U	28 U	27 U	140 U	30 U	280 U	280 U	1400 U
Aroclor-1221			1500 U	1500 U	28 U	27 U	140 U	30 U	280 U	280 U	1400 U
Aroclor-1232			1500 U	1500 U	28 U	27 U	140 U	30 U	280 U	280 U	1400 U
Aroclor-1242			1500 U	1500 U	28 U	27 U	140 U	30 U	280 U	280 U	1400 U
Aroclor-1248			1500 U	1500 U	28 U	27 U	140 U	30 U	280 U	280 U	1400 U
Aroclor-1254			1500 U	1500 U	28 U	27 U	140 U	30 U	280 U	280 U	1400 U
Aroclor-1260			38000 D	28000 D	1800	550	4900 D	940	8900 D	9800 D	40000 D
Aroclor-1262			1500 U	1500 U	28 U	27 U	140 U	30 U	280 U	280 U	1400 U
Aroclor-1268			1500 U	1500 U	28 U	27 U	140 U	30 U	280 U	280 U	1400 U
TOTAL PCBs	25,000		**38000 D**	**28000 D**	1800	550	4900 D	940	8900 D	9800 D	**40000 D**

Notes:
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
D - Sample was analyzed at a secondary dilution
U - Compound was analyzed for but not detected
NR - Compound results were not reported
NYSDEC - New York State Department of Environmental Protection
PCB - Polychlorinated Biphenyl
Bold text indicates the exceedance of NYSDEC Site Specific Cleanup Level for PCBs

Table 1. Summary of Polychlorinated Biphenyl Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	W-3 04/01/09 1-2	W-3 04/13/09 2-3	W-3 04/13/09 3-4	W-3S 04/13/09 0-1	W-3S 04/13/09 1-2	W-3S 04/13/09 2-3	W-4 04/13/09 0-1	W-4 04/13/09 1-2	W-4 04/13/09 2-3
Aroclor-1016			1400 U	56 U	27 U	28 U	56 U	57 U	280 U	140 U	280 U
Aroclor-1221			1400 U	56 U	27 U	28 U	56 U	57 U	280 U	140 U	280 U
Aroclor-1232			1400 U	56 U	27 U	28 U	56 U	57 U	280 U	140 U	280 U
Aroclor-1242			1400 U	56 U	27 U	28 U	56 U	57 U	280 U	140 U	280 U
Aroclor-1248			1400 U	56 U	27 U	28 U	56 U	57 U	280 U	140 U	280 U
Aroclor-1254			1400 U	56 U	27 U	28 U	56 U	2900 D	280 U	3900 D	280 U
Aroclor-1260			51000 D	2400 D	77	1900	2400 D	57 U	7600 D	140 U	6500 D
Aroclor-1262			1400 U	56 U	27 U	28 U	56 U	57 U	280 U	140 U	280 U
Aroclor-1268			1400 U	56 U	27 U	28 U	56 U	57 U	280 U	140 U	280 U
TOTAL PCBs	25,000		**51000 D**	2400 D	77	1900	2400 D	2900 D	7600 D	3900 D	6500 D

Notes:
µg/kg - Micrograms per kilogram
ft bls - Feet below land surface
D - Sample was analyzed at a secondary dilution
U - Compound was analyzed for but not detected
NR - Compound results were not reported
NYSDEC - New York State Department of Environmental Protection
PCB - Polychlorinated Biphenyl
Bold text indicates the exceedance of NYSDEC Site Specific Cleanup Level for PCBs

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:**	GE-31-5 DL	L4-1	L4-1	L4-1	L4-2	L4-2	L4-2	L4-3	L4-3
		Sample Date:	08/16/06	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09
		Sample Depth (ft bls):	1-5	0-1	1-2	2-3	0-1	1-2	2-3	0-1	1-2
1,2,4-Trichlorobenzene			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
2,4,5-Trichlorophenol			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
2,4,6-Trichlorophenol			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
2,4-Dichlorophenol			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
2,4-Dimethylphenol			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
2,4-Dinitrophenol			NR	380 U	390 U	370 U	420 U	360 U	360 U	2100 U	360 U
2,4-Dinitrotoluene			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
2,6-Dinitrotoluene			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
2-Chloronaphthalene			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
2-Chlorophenol			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
2-Methylnaphthalene			NR	76 U	78 U	73 U	190	72 U	72 U	420 U	170
2-Methylphenol			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
2-Nitroaniline			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
2-Nitrophenol			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
3+4-Methylphenols			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
3,3'-Dichlorobenzidine			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
3-Nitroaniline			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
4,6-Dinitro-2-methylphenol			NR	380 U	390 U	370 U	420 U	360 U	360 U	2100 U	360 U
4-Bromophenyl phenyl ether			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
4-Chloro-3-methylphenol			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
4-Chloroaniline			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
4-Chlorophenyl phenyl ether			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
4-Nitroaniline			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
4-Nitrophenol			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Acenaphthene			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Acenaphthylene			NR	83	78 U	73 U	150	72 U	72 U	3200	86
Anthracene			NR	100	78 U	73 U	230	72 U	72 U	2800	72 U
Benzo(a)anthracene			4800	300	220	73 U	400	72 U	72 U	9100	270
Benzo(a)pyrene			4900	350	230	73 U	470	72 U	72 U	8000	260
Benzo(b)fluoranthene			7100	1100	630	79	1200	83	78	17000	560
Benzo(g,h,i)perylene			NR	480	290	73 U	830	72 U	72 U	6900	220
Benzo(k)fluoranthene			4200	300	160	73 U	330	72 U	72 U	4500	180
Benzoic acid			NR	380 U	390 U	370 U	420 U	360 U	360 U	2100 U	360 U
Benzyl alcohol			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
bis(2-Chloroethoxy)methane			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
bis(2-Chloroethyl)ether			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
bis(2-Chloroisopropyl)ether			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
bis(2-Ethylhexyl)phthalate			NR	76 U	78 U	73 U	130	72 U	72 U	420 U	72 U
Butylbenzylphthalate			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Carbazole			NR	84	78 U	73 U	140	72 U	72 U	640	72 U
Chrysene			5900	590	370	73 U	690	72 U	72 U	9900	330

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	GE-31-5 DL 08/16/06 1-5	L4-1 01/23/09 0-1	L4-1 01/23/09 1-2	L4-1 01/23/09 2-3	L4-2 01/23/09 0-1	L4-2 01/23/09 1-2	L4-2 01/23/09 2-3	L4-3 01/23/09 0-1	L4-3 01/23/09 1-2
Di-n-butylphthalate			NR	76 U	78 U	73 U	84	72 U	72 U	420 U	72 U
Di-n-octylphthalate			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Dibenzo(a,h)anthracene			NR	160	95	73 U	230	72 U	72 U	2200	78
Dibenzofuran			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Diethylphthalate			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Dimethylphthalate			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Fluoranthene			NR	520	360	73 U	690	72 U	72 U	9900	370
Fluorene			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Hexachlorobenzene			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Hexachlorobutadiene			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Hexachlorocyclopentadiene			NR	76 U	78 U	73 U	83 U	72 U	72 U	2100 U	72 U
Hexachloroethane			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Indeno(1,2,3-cd)pyrene			1100	440	260	73 U	710	72 U	72 U	6900	230
Isophorone			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
N-Nitroso-di-n-propylamine			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
N-Nitrosodiphenylamine			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Naphthalene			NR	76 U	78 U	73 U	210	72 U	72 U	420 U	81
Nitrobenzene			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Pentachlorophenol			NR	380 U	390 U	370 U	420 U	360 U	360 U	4200 U	360 U
Phenanthrene			NR	190	170	73 U	340	72 U	72 U	1400	250
Phenol			NR	76 U	78 U	73 U	83 U	72 U	72 U	420 U	72 U
Pyrene			NR	500	360	73 U	610	72 U	72 U	10000	330
Total SVOCs:	500,000		NR	5197	3145	79	7634	83	78	92440	3415
Total cPAHs	25,000		**28000**	3240	1965	79	4030	83	78	**57600**	1908

Notes:
SVOC - Semivolatile Organic Compounds
NYSDEC - New York State Department of Environmental Protection
µg/kg - Micrograms per kilogram
Ft bls- Feet below land surface
U - Indicates that the compound was analyzed for but not detected
D - Sample was analyzed at a secondary dilution
NR - Compound results were not reported
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for SVOCs
cPAHs - Carcinogenic Polycyclic Aromatic Hhydrocarbons

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:**	L4-3	L4-4	L4-4	L4-4	L4-5	L4-5	L4-5	L4-6
		Sample Date:	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09
		Sample Depth (ft bls):	2-3	0-1	1-2	2-3	0-1	1-2	2-3	0-1
1,2,4-Trichlorobenzene			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
2,4,5-Trichlorophenol			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
2,4,6-Trichlorophenol			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
2,4-Dichlorophenol			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
2,4-Dimethylphenol			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
2,4-Dinitrophenol			350 U	400 U	370 U	360 U	390 U	360 U	360 U	430 U
2,4-Dinitrotoluene			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
2,6-Dinitrotoluene			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
2-Chloronaphthalene			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
2-Chlorophenol			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
2-Methylnaphthalene			70 U	210	74 U	72 U	330	120	72 U	87 U
2-Methylphenol			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
2-Nitroaniline			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
2-Nitrophenol			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
3+4-Methylphenols			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
3,3'-Dichlorobenzidine			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
3-Nitroaniline			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
4,6-Dinitro-2-methylphenol			350 U	400 U	370 U	360 U	390 U	360 U	360 U	430 U
4-Bromophenyl phenyl ether			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
4-Chloro-3-methylphenol			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
4-Chloroaniline			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
4-Chlorophenyl phenyl ether			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
4-Nitroaniline			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
4-Nitrophenol			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Acenaphthene			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Acenaphthylene			70 U	130	74 U	72 U	78 U	72 U	72 U	94
Anthracene			70 U	190	74 U	72 U	78 U	72 U	72 U	120
Benzo(a)anthracene			70 U	320	79	72 U	97	72 U	72 U	300
Benzo(a)pyrene			70 U	410	120	72 U	130	72 U	72 U	290
Benzo(b)fluoranthene			70 U	1100	300	72 U	380	150	72 U	710
Benzo(g,h,i)perylene			70 U	890	190	72 U	270	84	72 U	430
Benzo(k)fluoranthene			70 U	240	74 U	72 U	93	72 U	72 U	210
Benzoic acid			350 U	400 U	370 U	360 U	390 U	360 U	360 U	430 U
Benzyl alcohol			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
bis(2-Chloroethoxy)methane			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
bis(2-Chloroethyl)ether			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
bis(2-Chloroisopropyl)ether			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
bis(2-Ethylhexyl)phthalate			70 U	120	93	72 U	78 U	72 U	72 U	160
Butylbenzylphthalate			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Carbazole			70 U	98	74 U	72 U	78 U	72 U	72 U	87 U
Chrysene			70 U	540	130	72 U	170	72	72 U	430

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	L4-3 01/23/09 2-3	L4-4 01/23/09 0-1	L4-4 01/23/09 1-2	L4-4 01/23/09 2-3	L4-5 01/23/09 0-1	L4-5 01/23/09 1-2	L4-5 01/23/09 2-3	L4-6 01/23/09 0-1
Di-n-butylphthalate			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Di-n-octylphthalate			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Dibenzo(a,h)anthracene			70 U	250	74 U	72 U	86	72 U	72 U	130
Dibenzofuran			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Diethylphthalate			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Dimethylphthalate			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Fluoranthene			70 U	440	100	72 U	170	85	72 U	550
Fluorene			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Hexachlorobenzene			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Hexachlorobutadiene			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Hexachlorocyclopentadiene			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Hexachloroethane			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Indeno(1,2,3-cd)pyrene			70 U	790	170	72 U	240	73	72 U	380
Isophorone			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
N-Nitroso-di-n-propylamine			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
N-Nitrosodiphenylamine			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Naphthalene			70 U	120	74 U	72 U	100	72 U	72 U	87 U
Nitrobenzene			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Pentachlorophenol			350 U	400 U	370 U	360 U	390 U	360 U	360 U	430 U
Phenanthrene			70 U	230	74 U	72 U	86	72 U	72 U	270
Phenol			70 U	79 U	74 U	72 U	78 U	72 U	72 U	87 U
Pyrene			70 U	460	120	72 U	160	78	72 U	480
Total SVOCs:	500,000		0	6538	1302	0	2312	662	0	4554
Total cPAHs	25,000		0	3650	799	0	1196	295	0	2450

Notes:
SVOC - Semivolatile Organic Compounds
NYSDEC - New York State Department of Environmental Protection
µg/kg - Micrograms per kilogram
Ft bls- Feet below land surface
U - Indicates that the compound was analyzed for but not detected
D - Sample was analyzed at a secondary dilution
NR - Compound results were not reported
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for SVOCs
cPAHs - Carcinogenic Polycyclic Aromatic Hhydrocarbons

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:**	L4-6	L4-6	L4-7	L4-7	L4-7	L4-8	L4-8	L4-8
		Sample Date:	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09	01/23/09
		Sample Depth (ft bls):	1-2	2-3	0-1	1-2	2-3	0-1	1-2	2-3
1,2,4-Trichlorobenzene			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
2,4,5-Trichlorophenol			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
2,4,6-Trichlorophenol			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
2,4-Dichlorophenol			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
2,4-Dimethylphenol			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
2,4-Dinitrophenol			380 U	360 U	410 U	370 U	370 U	1300 U	430 U	370 U
2,4-Dinitrotoluene			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
2,6-Dinitrotoluene			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
2-Chloronaphthalene			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
2-Chlorophenol			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
2-Methylnaphthalene			76 U	72 U	81 U	73 U	610	270	160	75 U
2-Methylphenol			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
2-Nitroaniline			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
2-Nitrophenol			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
3+4-Methylphenols			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
3,3'-Dichlorobenzidine			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
3-Nitroaniline			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
4,6-Dinitro-2-methylphenol			380 U	360 U	410 U	370 U	370 U	1300 U	430 U	370 U
4-Bromophenyl phenyl ether			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
4-Chloro-3-methylphenol			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
4-Chloroaniline			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
4-Chlorophenyl phenyl ether			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
4-Nitroaniline			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
4-Nitrophenol			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
Acenaphthene			76 U	72 U	81 U	73 U	570	540	85 U	75 U
Acenaphthylene			76 U	72 U	320	73 U	74 U	1400	350	75 U
Anthracene			76 U	72 U	390	73 U	260	2000	330	75 U
Benzo(a)anthracene			76 U	72 U	700	73 U	74 U	5800	750	75 U
Benzo(a)pyrene			76 U	72 U	580	73 U	74 U	4900	670	75 U
Benzo(b)fluoranthene			140	72 U	1600	73 U	74 U	11000	1900	90
Benzo(g,h,i)perylene			92	72 U	580	73 U	74 U	2800	540	75 U
Benzo(k)fluoranthene			76 U	72 U	410	73 U	74 U	3100	430	75 U
Benzoic acid			380 U	360 U	410 U	370 U	370 U	1300 U	430 U	370 U
Benzyl alcohol			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
bis(2-Chloroethoxy)methane			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
bis(2-Chloroethyl)ether			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
bis(2-Chloroisopropyl)ether			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
bis(2-Ethylhexyl)phthalate			76 U	72 U	300	73 U	89	700	210	75 U
Butylbenzylphthalate			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
Carbazole			76 U	72 U	110	73 U	74 U	350	150	75 U
Chrysene			110	72 U	920	73 U	74	6800	1200	75 U

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	L4-6 01/23/09 1-2	L4-6 01/23/09 2-3	L4-7 01/23/09 0-1	L4-7 01/23/09 1-2	L4-7 01/23/09 2-3	L4-8 01/23/09 0-1	L4-8 01/23/09 1-2	L4-8 01/23/09 2-3
Di-n-butylphthalate			76 U	72 U	81 U	73 U	74 U	260 U	130	75 U
Di-n-octylphthalate			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
Dibenzo(a,h)anthracene			76 U	72 U	200	73 U	74 U	1000	190	75 U
Dibenzofuran			76 U	72 U	81 U	73 U	160	390	85 U	75 U
Diethylphthalate			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
Dimethylphthalate			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
Fluoranthene			86	72 U	1200	73 U	170	8800	1300	75 U
Fluorene			76 U	72 U	81 U	73 U	680	520	85 U	75 U
Hexachlorobenzene			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
Hexachlorobutadiene			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
Hexachlorocyclopentadiene			76 U	72 U	410 U	73 U	74 U	1300 U	430 U	75 U
Hexachloroethane			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
Indeno(1,2,3-cd)pyrene			78	72 U	610	73 U	74 U	3100	560	75 U
Isophorone			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
N-Nitroso-di-n-propylamine			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
N-Nitrosodiphenylamine			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
Naphthalene			76 U	72 U	81 U	73 U	74 U	600	140	75 U
Nitrobenzene			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
Pentachlorophenol			380 U	360 U	810 U	370 U	370 U	2600 U	850 U	370 U
Phenanthrene			94	72 U	400	73 U	1300	3300	460	75 U
Phenol			76 U	72 U	81 U	73 U	74 U	260 U	85 U	75 U
Pyrene			77	72 U	1200	73 U	380	8500	1200	75 U
Total SVOCs:	500,000		677	0	9520	0	4293	65870	10670	90
Total cPAHs	25,000		328	0	5020	0	74	**35700**	5700	90

Notes:
SVOC - Semivolatile Organic Compounds
NYSDEC - New York State Department of Environmental Protection
µg/kg - Micrograms per kilogram
Ft bls- Feet below land surface
U - Indicates that the compound was analyzed for but not detected
D - Sample was analyzed at a secondary dilution
NR - Compound results were not reported
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for SVOCs
cPAHs - Carcinogenic Polycyclic Aromatic Hhydrocarbons

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:**	L4-9	L4-9	L4-9	L5-1	L5-1	L5-1	L5-2	L5-2
		Sample Date:	01/23/09	01/23/09	01/23/09	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09
		Sample Depth (ft bls):	0-1	1-2	2-3	0-1	1-2	2-3	0-1	1-2
1,2,4-Trichlorobenzene			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
2,4,5-Trichlorophenol			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
2,4,6-Trichlorophenol			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
2,4-Dichlorophenol			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
2,4-Dimethylphenol			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
2,4-Dinitrophenol			1200 U	400 U	380 U	390 U	370 U	350 U	420 U	390 U
2,4-Dinitrotoluene			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
2,6-Dinitrotoluene			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
2-Chloronaphthalene			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
2-Chlorophenol			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
2-Methylnaphthalene			240 U	120	76 U	160	73 U	71 U	180	110
2-Methylphenol			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
2-Nitroaniline			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
2-Nitrophenol			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
3+4-Methylphenols			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
3,3'-Dichlorobenzidine			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
3-Nitroaniline			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
4,6-Dinitro-2-methylphenol			1200 U	400 U	380 U	390 U	370 U	350 U	420 U	390 U
4-Bromophenyl phenyl ether			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
4-Chloro-3-methylphenol			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
4-Chloroaniline			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
4-Chlorophenyl phenyl ether			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
4-Nitroaniline			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
4-Nitrophenol			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Acenaphthene			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Acenaphthylene			300	130	76 U	640	74	71 U	590	78 U
Anthracene			630	290	76 U	420	73 U	71 U	580	78 U
Benzo(a)anthracene			2200	890	270	1300	210	71 U	1300	260
Benzo(a)pyrene			2300	880	250	1500	220	71 U	1400	240
Benzo(b)fluoranthene			4800	1900	430	3300	510	71 U	4300	830
Benzo(g,h,i)perylene			1700	640	250	1300	170	71 U	1600	220
Benzo(k)fluoranthene			1500	640	140	780	150	71 U	1200	180
Benzoic acid			1200 U	400 U	380 U	390 U	370 U	350 U	420 U	390 U
Benzyl alcohol			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
bis(2-Chloroethoxy)methane			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
bis(2-Chloroethyl)ether			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
bis(2-Chloroisopropyl)ether			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
bis(2-Ethylhexyl)phthalate			240 U	80 U	76 U	190	73 U	71 U	410	78 U
Butylbenzylphthalate			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Carbazole			240 U	80 U	76 U	150	73 U	71 U	260	78 U
Chrysene			3600	1400	360	1500	250	71 U	2200	450

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	L4-9 01/23/09 0-1	L4-9 01/23/09 1-2	L4-9 01/23/09 2-3	L5-1 01/22/09 0-1	L5-1 01/22/09 1-2	L5-1 01/22/09 2-3	L5-2 01/22/09 0-1	L5-2 01/22/09 1-2
Di-n-butylphthalate			240 U	80 U	76 U	78 U	73 U	71 U	130	78 U
Di-n-octylphthalate			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Dibenzo(a,h)anthracene			670	250	77	460	73 U	71 U	560	79
Dibenzofuran			240 U	80 U	76 U	83	73 U	71 U	110	78 U
Diethylphthalate			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Dimethylphthalate			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Fluoranthene			2000	890	410	1800	310	71 U	2300	520
Fluorene			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Hexachlorobenzene			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Hexachlorobutadiene			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Hexachlorocyclopentadiene			1200 U	400 U	76 U	78 U	73 U	71 U	84 U	78 U
Hexachloroethane			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Indeno(1,2,3-cd)pyrene			1500	560	200	1400	170	71 U	1600	200
Isophorone			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
N-Nitroso-di-n-propylamine			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
N-Nitrosodiphenylamine			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Naphthalene			240 U	84	76 U	110	73 U	71 U	150	78 U
Nitrobenzene			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Pentachlorophenol			2400 U	800 U	380 U	780 U	370 U	350 U	840 U	390 U
Phenanthrene			750	330	200	490	100	71 U	760	270
Phenol			240 U	80 U	76 U	78 U	73 U	71 U	84 U	78 U
Pyrene			2800	1300	520	1800	260	71 U	2200	390
Total SVOCs:	500,000		24750	10304	3107	17383	2424	0	21830	3749
Total cPAHs	25,000		16570	6520	1727	10240	1510	0	12560	2239

Notes:
SVOC - Semivolatile Organic Compounds
NYSDEC - New York State Department of Environmental Protection
µg/kg - Micrograms per kilogram
Ft bls- Feet below land surface
U - Indicates that the compound was analyzed for but not detected
D - Sample was analyzed at a secondary dilution
NR - Compound results were not reported
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for SVOCs
cPAHs - Carcinogenic Polycyclic Aromatic Hhydrocarbons

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:**	L5-2	L5-3	L5-3	L5-3	L5-4	L5-4	L5-4	L5-5
		Sample Date:	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09
		Sample Depth (ft bls):	2-3	0-1	1-2	2-3	0-1	1-2	2-3	0-1
1,2,4-Trichlorobenzene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2,4,5-Trichlorophenol			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2,4,6-Trichlorophenol			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2,4-Dichlorophenol			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2,4-Dimethylphenol			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2,4-Dinitrophenol			350 U	370 U	780 U	370 U	390 U	400 U	380 U	400 U
2,4-Dinitrotoluene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2,6-Dinitrotoluene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2-Chloronaphthalene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2-Chlorophenol			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2-Methylnaphthalene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2-Methylphenol			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2-Nitroaniline			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
2-Nitrophenol			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
3+4-Methylphenols			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
3,3'-Dichlorobenzidine			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
3-Nitroaniline			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
4,6-Dinitro-2-methylphenol			350 U	370 U	780 U	370 U	390 U	400 U	380 U	400 U
4-Bromophenyl phenyl ether			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
4-Chloro-3-methylphenol			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
4-Chloroaniline			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
4-Chlorophenyl phenyl ether			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
4-Nitroaniline			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
4-Nitrophenol			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Acenaphthene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Acenaphthylene			70 U	240	450	73 U	150	80 U	77 U	240
Anthracene			70 U	270	610	73 U	240	80 U	77 U	240
Benzo(a)anthracene			70 U	610	1200	73 U	480	190	77 U	680
Benzo(a)pyrene			70 U	650	1400	73 U	870	200	77 U	620
Benzo(b)fluoranthene			70 U	1300	2700	110	3700	670	120	3100
Benzo(g,h,i)perylene			70 U	870	1400	73 U	870	200	77 U	700
Benzo(k)fluoranthene			70 U	430	600	73 U	900	180	77 U	590
Benzoic acid			350 U	370 U	780 U	370 U	390 U	400 U	380 U	400 U
Benzyl alcohol			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
bis(2-Chloroethoxy)methane			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
bis(2-Chloroethyl)ether			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
bis(2-Chloroisopropyl)ether			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
bis(2-Ethylhexyl)phthalate			70 U	180	200	73 U	78 U	80 U	77 U	79 U
Butylbenzylphthalate			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Carbazole			70 U	110	190	73 U	140	80 U	77 U	160
Chrysene			70 U	870	1500	73 U	1500	440	99	1500

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** / **Sample Date:** / **Sample Depth (ft bls):**	L5-2 01/22/09 2-3	L5-3 01/22/09 0-1	L5-3 01/22/09 1-2	L5-3 01/22/09 2-3	L5-4 01/22/09 0-1	L5-4 01/22/09 1-2	L5-4 01/22/09 2-3	L5-5 01/22/09 0-1
Di-n-butylphthalate			70 U	75 U	160 U	73 U	78 U	80 U	77 U	120
Di-n-octylphthalate			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Dibenzo(a,h)anthracene			70 U	200	380	73 U	390	84	77 U	310
Dibenzofuran			70 U	75 U	160 U	73 U	78 U	80 U	77 U	87
Diethylphthalate			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Dimethylphthalate			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Fluoranthene			70 U	790	1300	77	530	370	85	1000
Fluorene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Hexachlorobenzene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Hexachlorobutadiene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Hexachlorocyclopentadiene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Hexachloroethane			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Indeno(1,2,3-cd)pyrene			70 U	630	1100	73 U	890	190	77 U	760
Isophorone			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
N-Nitroso-di-n-propylamine			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
N-Nitrosodiphenylamine			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Naphthalene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	100
Nitrobenzene			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Pentachlorophenol			350 U	750 U	1600 U	370 U	780 U	400 U	380 U	400 U
Phenanthrene			70 U	230	280	73 U	270	200	79	410
Phenol			70 U	75 U	160 U	73 U	78 U	80 U	77 U	79 U
Pyrene			70 U	870	1500	73 U	650	350	78	900
Total SVOCs:	500,000		0	8250	14810	187	11580	3074	461	11517
Total cPAHs	25,000		0	4690	8880	110	8730	1954	219	7560

Notes:
SVOC - Semivolatile Organic Compounds
NYSDEC - New York State Department of Environmental Protection
µg/kg - Micrograms per kilogram
Ft bls- Feet below land surface
U - Indicates that the compound was analyzed for but not detected
D - Sample was analyzed at a secondary dilution
NR - Compound results were not reported
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for SVOCs
cPAHs - Carcinogenic Polycyclic Aromatic Hhydrocarbons

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:**	L5-5	L5-5	L5-6	L5-6	L5-6	L5-7	L5-7	L5-7
		Sample Date:	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09
		Sample Depth (ft bls):	1-2	2-3	0-1	1-2	2-3	0-1	1-2	2-3
1,2,4-Trichlorobenzene			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
2,4,5-Trichlorophenol			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
2,4,6-Trichlorophenol			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
2,4-Dichlorophenol			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
2,4-Dimethylphenol			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
2,4-Dinitrophenol			360 U	360 U	410 U	360 U	370 U	400 U	370 U	340 U
2,4-Dinitrotoluene			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
2,6-Dinitrotoluene			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
2-Chloronaphthalene			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
2-Chlorophenol			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
2-Methylnaphthalene			72 U	72 U	140	72 U	73 U	140	74 U	68 U
2-Methylphenol			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
2-Nitroaniline			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
2-Nitrophenol			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
3+4-Methylphenols			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
3,3'-Dichlorobenzidine			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
3-Nitroaniline			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
4,6-Dinitro-2-methylphenol			360 U	360 U	410 U	360 U	370 U	400 U	370 U	340 U
4-Bromophenyl phenyl ether			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
4-Chloro-3-methylphenol			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
4-Chloroaniline			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
4-Chlorophenyl phenyl ether			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
4-Nitroaniline			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
4-Nitrophenol			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Acenaphthene			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Acenaphthylene			72 U	72 U	300	72 U	73 U	130	74 U	68 U
Anthracene			72 U	72 U	370	72 U	73 U	230	74 U	68 U
Benzo(a)anthracene			120	72 U	1300	86	73 U	310	320	68 U
Benzo(a)pyrene			94	72 U	1200	96	73 U	450	340	68 U
Benzo(b)fluoranthene			140	100	2900	180	110	1700	1300	68 U
Benzo(g,h,i)perylene			72 U	72 U	1300	92	73 U	670	470	68 U
Benzo(k)fluoranthene			72 U	72 U	750	72 U	73 U	300	290	68 U
Benzoic acid			360 U	360 U	410 U	360 U	370 U	400 U	370 U	340 U
Benzyl alcohol			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
bis(2-Chloroethoxy)methane			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
bis(2-Chloroethyl)ether			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
bis(2-Chloroisopropyl)ether			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
bis(2-Ethylhexyl)phthalate			72 U	72 U	100	72 U	73 U	79 U	74 U	68 U
Butylbenzylphthalate			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Carbazole			72 U	72 U	230	72 U	73 U	140	74 U	68 U
Chrysene			150	72 U	1900	130	73 U	750	530	68 U

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	L5-5 01/22/09 1-2	L5-5 01/22/09 2-3	L5-6 01/22/09 0-1	L5-6 01/22/09 1-2	L5-6 01/22/09 2-3	L5-7 01/22/09 0-1	L5-7 01/22/09 1-2	L5-7 01/22/09 2-3
Di-n-butylphthalate			72 U	72 U	81 U	72 U	73 U	100	74 U	68 U
Di-n-octylphthalate			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Dibenzo(a,h)anthracene			72 U	72 U	440	72 U	73 U	220	180	68 U
Dibenzofuran			72 U	72 U	130	72 U	73 U	79 U	74 U	68 U
Diethylphthalate			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Dimethylphthalate			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Fluoranthene			190	72 U	1800	130	73 U	600	260	68 U
Fluorene			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Hexachlorobenzene			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Hexachlorobutadiene			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Hexachlorocyclopentadiene			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Hexachloroethane			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Indeno(1,2,3-cd)pyrene			72 U	72 U	1200	80	73 U	650	420	68 U
Isophorone			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
N-Nitroso-di-n-propylamine			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
N-Nitrosodiphenylamine			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Naphthalene			72 U	72 U	170	72 U	73 U	88	74 U	68 U
Nitrobenzene			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Pentachlorophenol			360 U	360 U	810 U	360 U	370 U	790 U	370 U	340 U
Phenanthrene			160	72 U	970	72 U	73 U	270	170	68 U
Phenol			72 U	72 U	81 U	72 U	73 U	79 U	74 U	68 U
Pyrene			250	72 U	1900	120	73 U	810	330	68 U
Total SVOCs:	500,000		1104	100	17100	914	110	7558	4610	0
Total cPAHs	25,000		504	100	9690	572	110	4380	3380	0

Notes:
SVOC - Semivolatile Organic Compounds
NYSDEC - New York State Department of Environmental Protection
µg/kg - Micrograms per kilogram
Ft bls- Feet below land surface
U - Indicates that the compound was analyzed for but not detected
D - Sample was analyzed at a secondary dilution
NR - Compound results were not reported
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for SVOCs
cPAHs - Carcinogenic Polycyclic Aromatic Hhydrocarbons

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:**	L5-8	L5-8	L5-8	L5-9	L5-9	L5-9	L5-10	L5-10
		Sample Date:	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09	01/22/09
		Sample Depth (ft bls):	0-1	1-2	2-3	0-1	1-2	2-3	0-1	1-2
1,2,4-Trichlorobenzene			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
2,4,5-Trichlorophenol			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
2,4,6-Trichlorophenol			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
2,4-Dichlorophenol			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
2,4-Dimethylphenol			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
2,4-Dinitrophenol			380 U	360 U	350 U	400 U	380 U	350 U	390 U	360 U
2,4-Dinitrotoluene			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
2,6-Dinitrotoluene			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
2-Chloronaphthalene			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
2-Chlorophenol			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
2-Methylnaphthalene			77 U	72 U	69 U	80 U	76 U	71 U	87	72 U
2-Methylphenol			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
2-Nitroaniline			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
2-Nitrophenol			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
3+4-Methylphenols			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
3,3'-Dichlorobenzidine			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
3-Nitroaniline			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
4,6-Dinitro-2-methylphenol			380 U	360 U	350 U	400 U	380 U	350 U	390 U	360 U
4-Bromophenyl phenyl ether			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
4-Chloro-3-methylphenol			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
4-Chloroaniline			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
4-Chlorophenyl phenyl ether			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
4-Nitroaniline			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
4-Nitrophenol			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Acenaphthene			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Acenaphthylene			230	72 U	69 U	740	76 U	71 U	110	72 U
Anthracene			210	72 U	69 U	730	76 U	71 U	140	72 U
Benzo(a)anthracene			420	180	69 U	3200	180	71 U	220	72 U
Benzo(a)pyrene			410	300	69 U	2400	220	71 U	220	72 U
Benzo(b)fluoranthene			1500	1100	69 U	7400	630	100	1200	72 U
Benzo(g,h,i)perylene			500	420	69 U	2300	320	71 U	510	72 U
Benzo(k)fluoranthene			350	230	69 U	2000	160	71 U	280	72 U
Benzoic acid			380 U	360 U	350 U	400 U	380 U	350 U	390 U	360 U
Benzyl alcohol			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
bis(2-Chloroethoxy)methane			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
bis(2-Chloroethyl)ether			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
bis(2-Chloroisopropyl)ether			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
bis(2-Ethylhexyl)phthalate			110	72 U	69 U	130	76 U	71 U	250	72 U
Butylbenzylphthalate			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Carbazole			150	72 U	69 U	300	76 U	71 U	96	72 U
Chrysene			920	520	69 U	4600	300	76	590	72 U

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	L5-8 01/22/09 0-1	L5-8 01/22/09 1-2	L5-8 01/22/09 2-3	L5-9 01/22/09 0-1	L5-9 01/22/09 1-2	L5-9 01/22/09 2-3	L5-10 01/22/09 0-1	L5-10 01/22/09 1-2
Di-n-butylphthalate			130	72 U	69 U	100	76 U	71 U	78 U	72 U
Di-n-octylphthalate			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Dibenzo(a,h)anthracene			170	140	69 U	970	110	71 U	180	72 U
Dibenzofuran			77 U	72 U	69 U	88	76 U	71 U	84	72 U
Diethylphthalate			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Dimethylphthalate			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Fluoranthene			880	270	69 U	4400	290	88	470	72 U
Fluorene			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Hexachlorobenzene			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Hexachlorobutadiene			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Hexachlorocyclopentadiene			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Hexachloroethane			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Indeno(1,2,3-cd)pyrene			460	400	69 U	2300	300	71 U	480	72 U
Isophorone			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
N-Nitroso-di-n-propylamine			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
N-Nitrosodiphenylamine			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Naphthalene			77 U	72 U	69 U	84	76 U	71 U	130	72 U
Nitrobenzene			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Pentachlorophenol			770 U	360 U	350 U	800 U	380 U	350 U	780 U	360 U
Phenanthrene			390	170	69 U	540	180	71 U	280	72 U
Phenol			77 U	72 U	69 U	80 U	76 U	71 U	78 U	72 U
Pyrene			820	310	69 U	4200	280	93	390	72 U
Total SVOCs:	500,000		7650	4040	0	36482	2970	357	5717	0
Total cPAHs	25,000		4230	2870	0	22870	1900	176	3170	0

Notes:
SVOC - Semivolatile Organic Compounds
NYSDEC - New York State Department of Environmental Protection
µg/kg - Micrograms per kilogram
Ft bls- Feet below land surface
U - Indicates that the compound was analyzed for but not detected
D - Sample was analyzed at a secondary dilution
NR - Compound results were not reported
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for SVOCs
cPAHs - Carcinogenic Polycyclic Aromatic Hhydrocarbons

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** **Sample Date:** **Sample Depth (ft bls):**	L5-10 01/22/09 2-3	TE-ALT-11 07/14/00 0-4	TE-D-11 11/07/00 0-1
1,2,4-Trichlorobenzene			79 U	NR	NR
2,4,5-Trichlorophenol			79 U	NR	NR
2,4,6-Trichlorophenol			79 U	NR	NR
2,4-Dichlorophenol			79 U	NR	NR
2,4-Dimethylphenol			79 U	NR	NR
2,4-Dinitrophenol			400 U	NR	NR
2,4-Dinitrotoluene			79 U	NR	NR
2,6-Dinitrotoluene			79 U	NR	NR
2-Chloronaphthalene			79 U	NR	NR
2-Chlorophenol			79 U	NR	NR
2-Methylnaphthalene			79 U	NR	NR
2-Methylphenol			79 U	NR	NR
2-Nitroaniline			79 U	NR	NR
2-Nitrophenol			79 U	NR	NR
3+4-Methylphenols			79 U	NR	NR
3,3'-Dichlorobenzidine			79 U	NR	NR
3-Nitroaniline			79 U	NR	NR
4,6-Dinitro-2-methylphenol			400 U	NR	NR
4-Bromophenyl phenyl ether			79 U	NR	NR
4-Chloro-3-methylphenol			79 U	NR	NR
4-Chloroaniline			79 U	NR	NR
4-Chlorophenyl phenyl ether			79 U	NR	NR
4-Nitroaniline			79 U	NR	NR
4-Nitrophenol			79 U	NR	NR
Acenaphthene			79 U	NR	NR
Acenaphthylene			79 U	NR	NR
Anthracene			79 U	NR	NR
Benzo(a)anthracene			79 U	4100	6800
Benzo(a)pyrene			79 U	4900	2900 J
Benzo(b)fluoranthene			230	11000	4300 J
Benzo(g,h,i)perylene			130	NR	NR
Benzo(k)fluoranthene			79 U	7600	4400 J
Benzoic acid			400 U	NR	NR
Benzyl alcohol			79 U	NR	NR
bis(2-Chloroethoxy)methane			79 U	NR	NR
bis(2-Chloroethyl)ether			79 U	NR	NR
bis(2-Chloroisopropyl)ether			79 U	NR	NR
bis(2-Ethylhexyl)phthalate			79 U	NR	NR
Butylbenzylphthalate			79 U	NR	NR
Carbazole			79 U	NR	NR
Chrysene			100	9600	12000

Table 2. Summary of Semivolatile Organic Compound Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in µg/kg)	NYSDEC Site Specific Soil Cleanup Level (µg/kg)	**Sample Designation:** / **Sample Date:** / **Sample Depth (ft bls):**	L5-10 01/22/09 2-3	TE-ALT-11 07/14/00 0-4	TE-D-11 11/07/00 0-1
Di-n-butylphthalate			79 U	NR	NR
Di-n-octylphthalate			79 U	NR	NR
Dibenzo(a,h)anthracene			79 U	4700	680 J
Dibenzofuran			79 U	NR	NR
Diethylphthalate			79 U	NR	NR
Dimethylphthalate			79 U	NR	NR
Fluoranthene			79 U	NR	NR
Fluorene			79 U	NR	NR
Hexachlorobenzene			79 U	NR	NR
Hexachlorobutadiene			79 U	NR	NR
Hexachlorocyclopentadiene			79 U	NR	NR
Hexachloroethane			79 U	NR	NR
Indeno(1,2,3-cd)pyrene			120	9900	1300 J
Isophorone			79 U	NR	NR
N-Nitroso-di-n-propylamine			79 U	NR	NR
N-Nitrosodiphenylamine			79 U	NR	NR
Naphthalene			79 U	NR	NR
Nitrobenzene			79 U	NR	NR
Pentachlorophenol			400 U	NR	NR
Phenanthrene			79 U	NR	NR
Phenol			79 U	NR	NR
Pyrene			79 U	NR	NR
Total SVOCs:	500,000		580	NR	NR
Total cPAHs	25,000		450	**51800**	**32380**

Notes:
SVOC - Semivolatile Organic Compounds
NYSDEC - New York State Department of Environmental Protection
µg/kg - Micrograms per kilogram
Ft bls- Feet below land surface
U - Indicates that the compound was analyzed for but not detected
D - Sample was analyzed at a secondary dilution
NR - Compound results were not reported
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for SVOCs
cPAHs - Carcinogenic Polycyclic Aromatic Hhydrocarbons

Table 3. Summary of Lead Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in mg/kg)	NYSDEC Site Specific Soil Cleanup Level (mg/kg)	**Sample Designation:** **SampleDate:** **Sample Depth (ft bls):**	L4-1 01/23/09 0-1	L4-1 01/23/09 1-2	L4-1 01/23/09 2-3	L4-2 01/23/09 0-1	L4-2 01/23/09 1-2	L4-2 01/23/09 2-3	L4-3 01/23/09 0-1
Lead	3,900		200	120	29	770	31	28	450

mg/kg - milligrams per kilogram
ft bls - feet below land surface
U - Indicates that the compound was analyzed for but not detected
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for Lead

Table 3. Summary of Lead Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in mg/kg)	NYSDEC Site Specific Soil Cleanup Level (mg/kg)	**Sample Designation:** **SampleDate:** **Sample Depth (ft bls):**	L4-3 01/23/09 1-2	L4-3 01/23/09 2-3	L4-4 01/23/09 0-1	L4-4 01/23/09 1-2	L4-4 01/23/09 2-3	L4-5 01/23/09 0-1	L4-5 01/23/09 1-2
Lead	3,900		75	22	360	55	25	450	41

mg/kg - milligrams per kilogram
ft bls - feet below land surface
U - Indicates that the compound was analyzed for but not detected
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for Lead

Table 3. Summary of Lead Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in mg/kg)	NYSDEC Site Specific Soil Cleanup Level (mg/kg)	**Sample Designation:** **SampleDate:** **Sample Depth (ft bls):**	L4-5 01/23/09 2-3	L4-6 01/23/09 0-1	L4-6 01/23/09 1-2	L4-6 01/23/09 2-3	L4-7 01/23/09 0-1	L4-7 01/23/09 1-2	L4-7 01/23/09 2-3
Lead	3,900		20	600	150	50	580	26	21

mg/kg - milligrams per kilogram
ft bls - feet below land surface
U - Indicates that the compound was analyzed for but not detected
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for Lead

Table 3. Summary of Lead Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in mg/kg)	NYSDEC Site Specific Soil Cleanup Level (mg/kg)	**Sample Designation:** **SampleDate:** **Sample Depth (ft bls):**	L4-8 01/23/09 0-1	L4-8 01/23/09 1-2	L4-8 01/23/09 2-3	L4-9 01/23/09 0-1	L4-9 01/23/09 1-2	L4-9 01/23/09 2-3	L5-1 01/22/09 0-1
Lead	3,900		680	420	140	280	480	76	590

mg/kg - milligrams per kilogram
ft bls - feet below land surface
U - Indicates that the compound was analyzed for but not detected
Bold text indicates the exceedance of the NYSDEC Site Specific
Cleanup Level for Lead

Table 3. Summary of Lead Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in mg/kg)	NYSDEC Site Specific Soil Cleanup Level (mg/kg)	**Sample Designation:** **SampleDate:** **Sample Depth (ft bls):**	L5-1 01/22/09 1-2	L5-1 01/22/09 2-3	L5-2 01/22/09 0-1	L5-2 01/22/09 1-2	L5-2 01/22/09 2-3	L5-3 01/22/09 0-1	L5-3 01/22/09 1-2
Lead	3,900		100	8.1	520	200	14	470	490

mg/kg - milligrams per kilogram
ft bls - feet below land surface
U - Indicates that the compound was analyzed for but not detected
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for Lead

Table 3. Summary of Lead Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in mg/kg)	NYSDEC Site Specific Soil Cleanup Level (mg/kg)	**Sample Designation:** **SampleDate:** **Sample Depth (ft bls):**	L5-3 01/22/09 2-3	L5-4 01/22/09 0-1	L5-4 01/22/09 1-2	L5-4 01/22/09 2-3	L5-5 01/22/09 0-1	L5-5 01/22/09 1-2	L5-5 01/22/09 2-3
Lead	3,900		79	170	190	140	260	21	15

mg/kg - milligrams per kilogram
ft bls - feet below land surface
U - Indicates that the compound was analyzed for but not detected
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for Lead

Table 3. Summary of Lead Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in mg/kg)	NYSDEC Site Specific Soil Cleanup Level (mg/kg)	**Sample Designation:** **SampleDate:** **Sample Depth (ft bls):**	L5-6 01/22/09 0-1	L5-6 01/22/09 1-2	L5-6 01/22/09 2-3	L5-7 01/22/09 0-1	L5-7 01/22/09 1-2	L5-7 01/22/09 2-3	L5-8 01/22/09 0-1
Lead	3,900		1500	440	100	340	110	5.1 U	490

mg/kg - milligrams per kilogram
ft bls - feet below land surface
U - Indicates that the compound was analyzed for but not detected
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for Lead

Table 3. Summary of Lead Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

Parameter (Concentrations in mg/kg)	NYSDEC Site Specific Soil Cleanup Level (mg/kg)	**Sample Designation:** **SampleDate:** **Sample Depth (ft bls):**	L5-8 01/22/09 1-2	L5-8 01/22/09 2-3	L5-9 01/22/09 0-1	L5-9 01/22/09 1-2	L5-9 01/22/09 2-3	L5-10 01/22/09 0-1	L5-10 01/22/09 1-2
Lead	3,900		110	5.2 U	330	180	27	440	110

mg/kg - milligrams per kilogram
ft bls - feet below land surface
U - Indicates that the compound was analyzed for but not detected
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for Lead

Table 3. Summary of Lead Concentrations Detected in Post-RI Soil Samples, OU-4 Remedial Action Work Plan, Sunnyside Yard, Queens

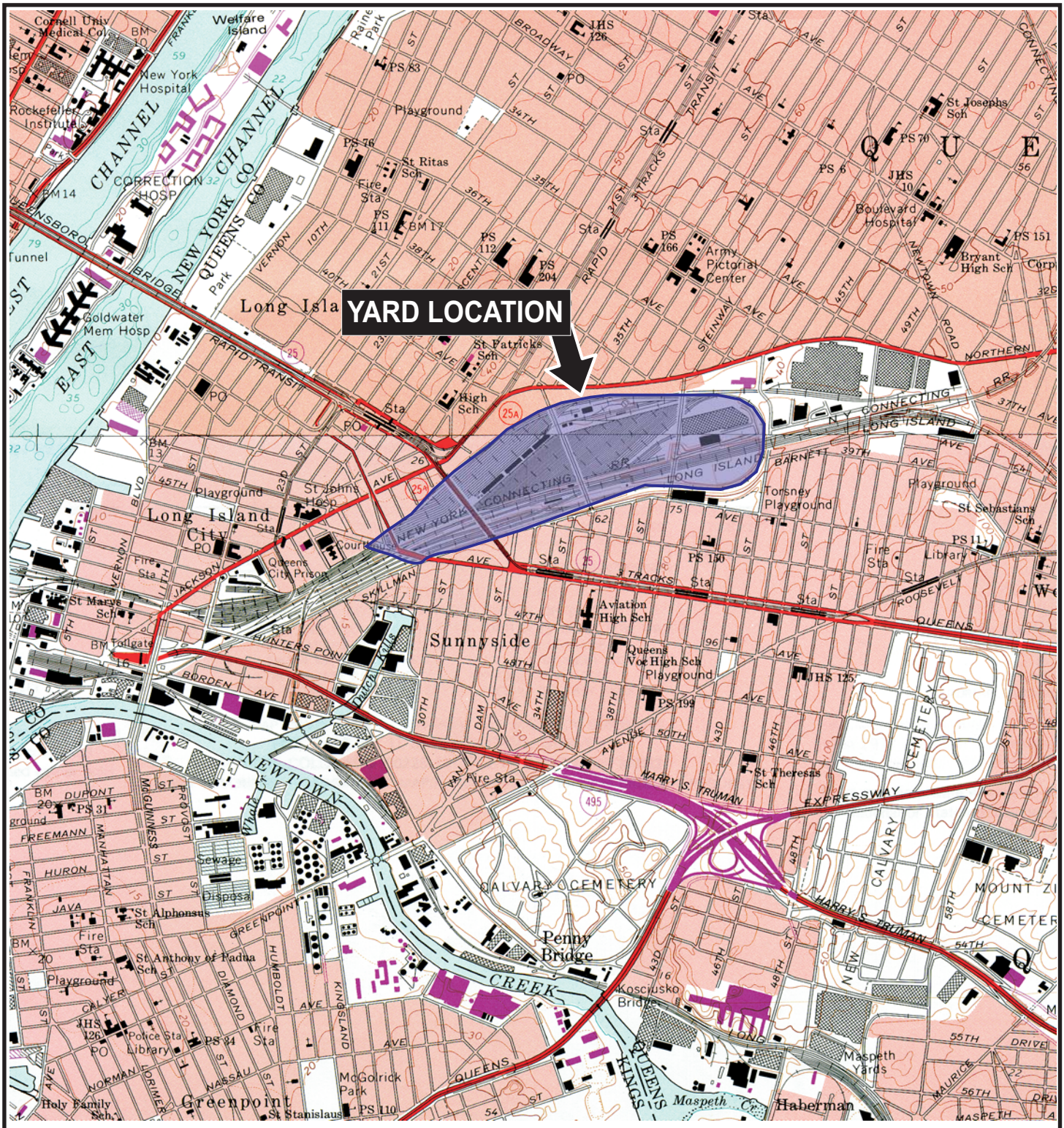
Parameter (Concentrations in mg/kg)	NYSDEC Site Specific Soil Cleanup Level (mg/kg)	**Sample Designation:** **SampleDate:** **Sample Depth (ft bls):**	L5-10 01/22/09 2-3	LLS-15-20N 04/13/09 0-1	LLS-15-20S 04/13/09 0-1	LLS-15-40N 04/13/09 0-1	LLS-15-40S 04/13/09 0-1
Lead	3,900		170	71	150	250	210

mg/kg - milligrams per kilogram
ft bls - feet below land surface
U - Indicates that the compound was analyzed for but not detected
Bold text indicates the exceedance of the NYSDEC Site Specific Cleanup Level for Lead

Table 4. Estimated Remedial Action Cost, OU-4 Remedial Action Work Plan, Amtrak Sunnyside Yard, Queens, New York

Description	Quantity	Unit	Unit Cost	Total Cost
Track Pit 4				
Removal of concrete inspection pit (Track 4 Pit), investigation of surrounding soil, excavation of PCB-containing soil.				
Mobilization	1	LS	$500.00	$500.00
Removal of sediment	1	LS	$1,000.00	$1,000.00
Inspection Pit Removal	1	LS	$10,000.00	$10,000.00
Soil Investigation	1	LS	$7,000.00	$7,000.00
Excavate and Stockpile Soil	36	CY	$24.00	$864.00
Backfill and Compaction	75	CY	$30.00	$2,250.00
Stabilization of Sediment	1.3	CY	$15.00	$18.75
T&D PCB Hazardous Sediment	1.2	Tons	$177.00	$216.27
T&D Hazardous PCB Containing Soil	54	Tons	$177.00	$9,558.00
T&D Non-Hazardous PCB Containing Concrete	40	Tons	$100.00	$4,000.00
Waste Characterization Sampling	2	Each	$750.00	$1,500.00
Community Air Monitoring	2	Day	$1,200.00	$2,400.00
Subtotal				**$39,307.02**
PCB Exceedance Excavations - PCBs > 25 ppm (11 remedial zones)				
Mobilization	11.0	Each	$500.00	$5,500
Pavement Removal	30.0	CY	$12.00	$360
Predelineation Soil Samples (PCBs only)	30	samples	$60.00	$1,800
Excavate and Stockpile Soil	2,274	CY	$24.00	$54,576
Backfill and Compaction	2,501	CY	$30.00	$75,042
T&D Non-Hazardous PCB Containing Soil	0	Tons	$100.00	$0
T&D Hazardous PCB Containing Soil	3,411	Tons	$177.00	$603,747
T&D asphalt/concrete pavement material	30.0	CY	$60.00	$1,800.00
Waste Characterization Sampling	11	samples	$750.00	$8,250
Replace pavement	3014	SF	$6.00	$18,084.00
Community Air Monitoring	15	Day	$1,200.00	$18,000.00
Subtotal				**$787,159.00**
Lead Exceedance Excavation - Lead > 3900 ppm (1 remedial zone)				
Excavation of non-hazardous Lead-containing soil (Excavation depth 1 ft bls)				
Mobilization	1	LS	$500.00	$500.00
Excavate and Stockpile Soil	18	CY	$24.00	$432.00
Backfill and Compaction	20	CY	$30.00	$594.00
T&D Non-Hazardous Lead Containing Soil	27	Tons	$100.00	$2,700.00
Waste Characterization Sampling	1	Each	$750.00	$750.00
Community Air Monitoring	1	Day	$1,200.00	$1,200.00
Subtotal				**$6,176.00**
Annual Maintenance and Inspection				
Present value of annual inspection, maintenance, and reporting of surface covers over cPAH areas, soil excavation reporting				
Inspection and maintenance of surface covers - ($2,500 per year for 30 years)	1	LS	$38,431.00	$38,431.00
Reporting ($5,000 per year for 30 years)	1	LS	$76,862.00	$76,862.00
Subtotal				**$115,293.00**

Subtotal Direct Costs	$947,935
Contingency (30%)	$284,381
TOTAL DIRECT COSTS	**$1,232,316**
Project Management (6%)	$73,939
Remedial Design (12%)	$147,878
Construction Management (8%)	$98,585
Track and ET Dept. Coordination (10%)	$123,232
H&S Dust/Odor Control (7%)	$86,262
TOTAL INDIRECT COSTS	**$529,896**
TOTAL CAPITAL COSTS	**$1,762,211**



SOURCE:
CENTRAL PARK AND BROOKLYN, NEW YORK
QUADRANGLE 7.5 MINUTE SERIES (TOPOGRAPHIC)

QUADRANGLE LOCATION

N

0 2000'

Title:

LOCATION OF SITE

OU-4
REMEDIAL ACTION WORK PLAN

Prepared for:

AMTRAK

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: H.G.		Date: 10JUNE09	FIGURE 1
Prepared by: J.A.D.		Scale: 1"=2000'	
Project Mgr.: H.G.		Office: NY	
File No.: AM7114801		Project No.: 05571Y10	

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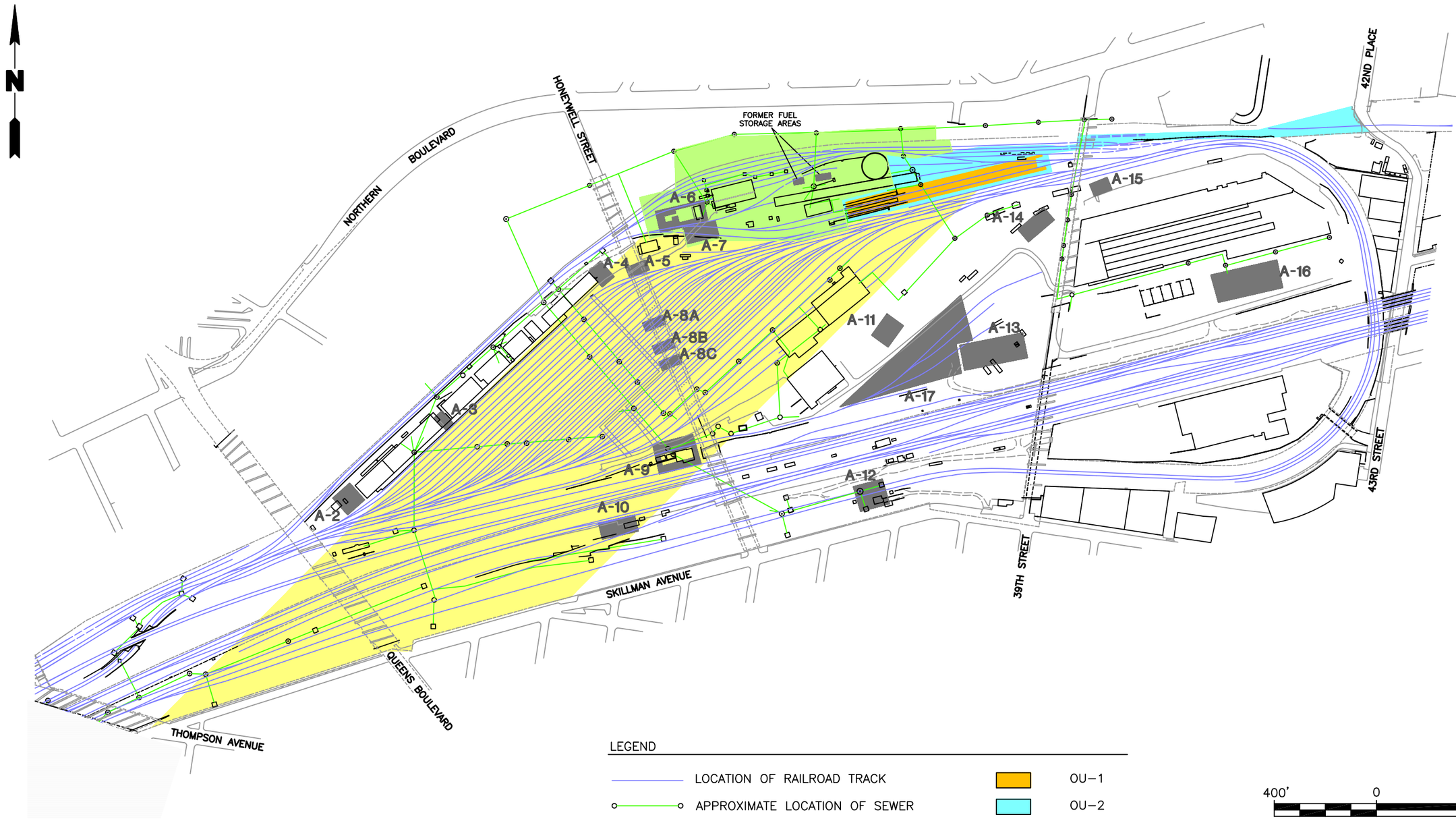

LEGEND

- LOCATION OF RAILROAD TRACK
- APPROXIMATE LOCATION OF SEWER
- GRATE COVER CATCH BASIN LOCATION
- SOLID COVER MANHOLE LOCATION
- GRATE COVER MANHOLE LOCATION
- A-2 LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN
- APPROXIMATE PROPERTY BOUNDARY

- OU-1
- OU-2
- OU-3
- OU-4
- OU-5

400' 0 400'

NOTES

1. LOCATIONS OF SEWER COMPONENTS BASED UPON A REVIEW OF AMTRAK-SUPPLIED ENGINEERING DIAGRAMS AND LIMITED FIELD SURVEY.
2. OU-6, GROUND WATER BENEATH THE YARD, IS NOT SHOWN.
3. LIRR - LONG ISLAND RAIL ROAD

Title:

AMTRAK YARD LAYOUT

OU-4
REMEDIAL ACTION WORK PLAN

Prepared For:
AMTRAK

ROUX ASSOCIATES, INC.
Environmental Consulting & Management

Compiled by: H.G.	Date: 10JUNE09	FIGURE
Prepared by: J.A.D.	Scale: AS SHOWN	2
Project Mgr: H.G.	Office: NY	
File No: AM7114802	Project: 05571Y10	

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INSET OF AREA 8

HONEYWELL ST.

A-8A

A-8B

A-8C

50' 0 50'

OU-1

OU-2

OU-3

NORTHERN BLVD.

39th STREET

FORMER REA BUILDING (DEMOLISHED)

RETAINING WALL INSTALLED BY ESA

SUBSTATION

QUEENS BLVD.

SKILLMAN AVE.

VAN DAM ST.

INSET OF FORMER SKILLMAN AVENUE RETAIL GASOLINE SERVICE STATION

30' 0 30'

EXPLANATION

- LOCATION OF SOIL BORING COMPLETED IN OU-4 AND ANALYZED FOR PCBs, cPAHS/SVOCs, AND LEAD
- ▲ LOCATION OF SOIL BORING COMPLETED IN OU-4 AND ANALYZED FOR ONE OR TWO OF THE FOLLOWING: PCBs, cPAHS/SVOCs, OR LEAD, BUT NOT ALL THREE
- APPROXIMATE EXTENT OF OU-4 BOUNDARY
- A-9 LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)
- PRIVATE PROPERTY NOT OWNED BY AMTRAK (NOT PART OF SUNNYSIDE YARD)

NOTES:

OU-4 - OPERABLE UNIT 4

PCB - POLYCHLORINATED BIPHENYL

cPAHS - SEVEN SPECIFIC POLYCYCLIC AROMATIC HYDROCARBONS CONSIDERED BY THE NYSDEC TO BE CARCINOGENIC

160' 0 160'

N

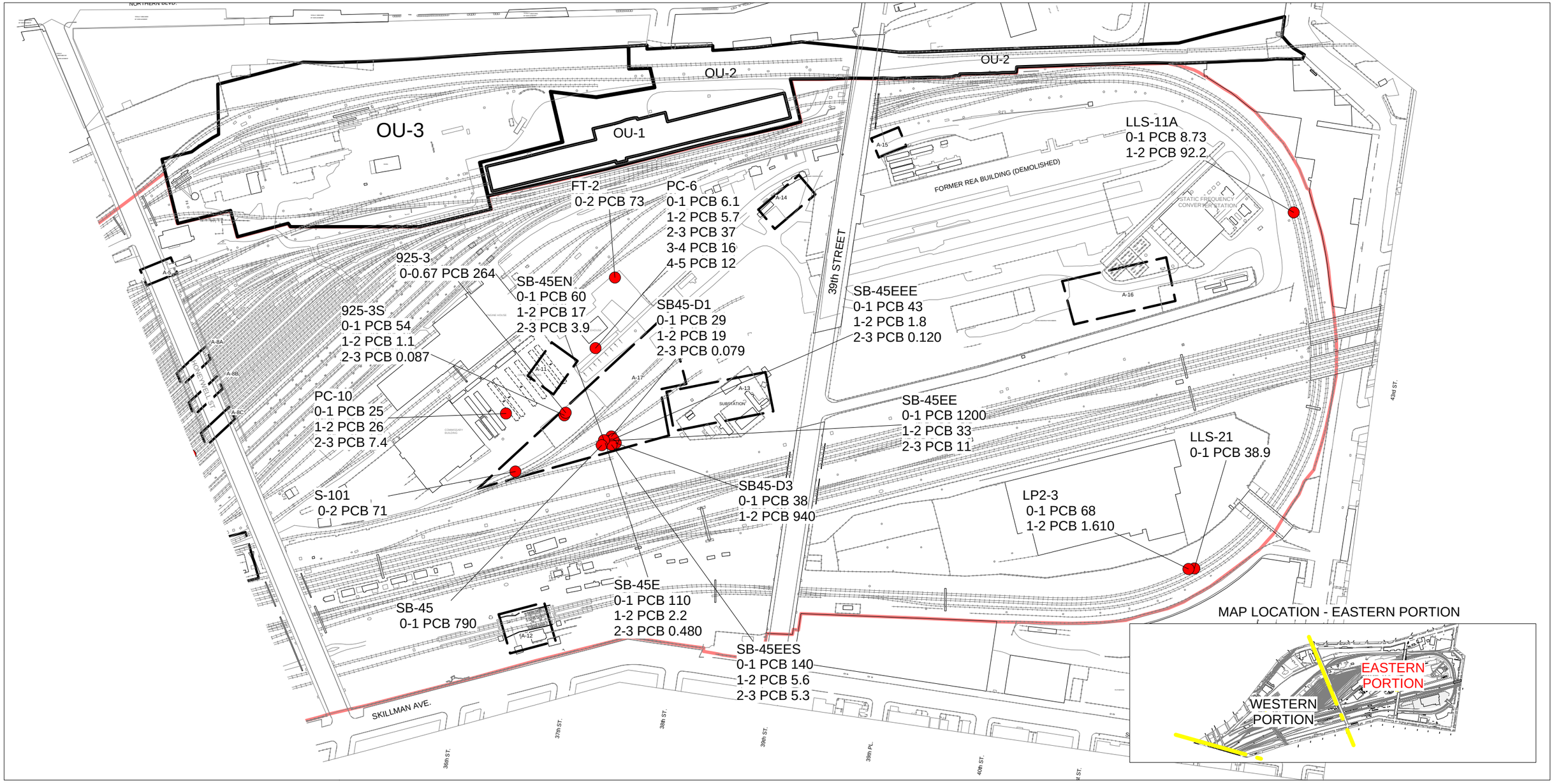
Title: OU-4 SOIL BORING LOCATIONS

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Prepared For: AMTRAK

ROUX ASSOCIATES INC. Environmental Consulting & Management

Compiled by: RSK	Date: 6/29/2009	FIGURE
Prepared by: RSK	Scale: SHOWN	3
Project Mgr: JEF	Office: NY	
File No.: AM711480S.WOR	Project: 0055.007TY010	



SOIL SAMPLE EXPLANATION

DESIGNATION

S-101
0-2 PCB 71

TOTAL PCBs CONCENTRATION IN SOIL (MG/KG)

SAMPLE DEPTH (FT BLS)

LEGEND:

- LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG
- A-9 — LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)
- APPROXIMATE EXTENT OF OU-4 BOUNDARY

NOTES:

OU-4 - OPERABLE UNIT 4

FT - FEET

BLS - BELOW LAND SURFACE

MG/KG - MILLIGRAMS PER KILOGRAM

PCBs - POLYCHLORINATED BIPHENYLS

N

240' 0 240'

Title:

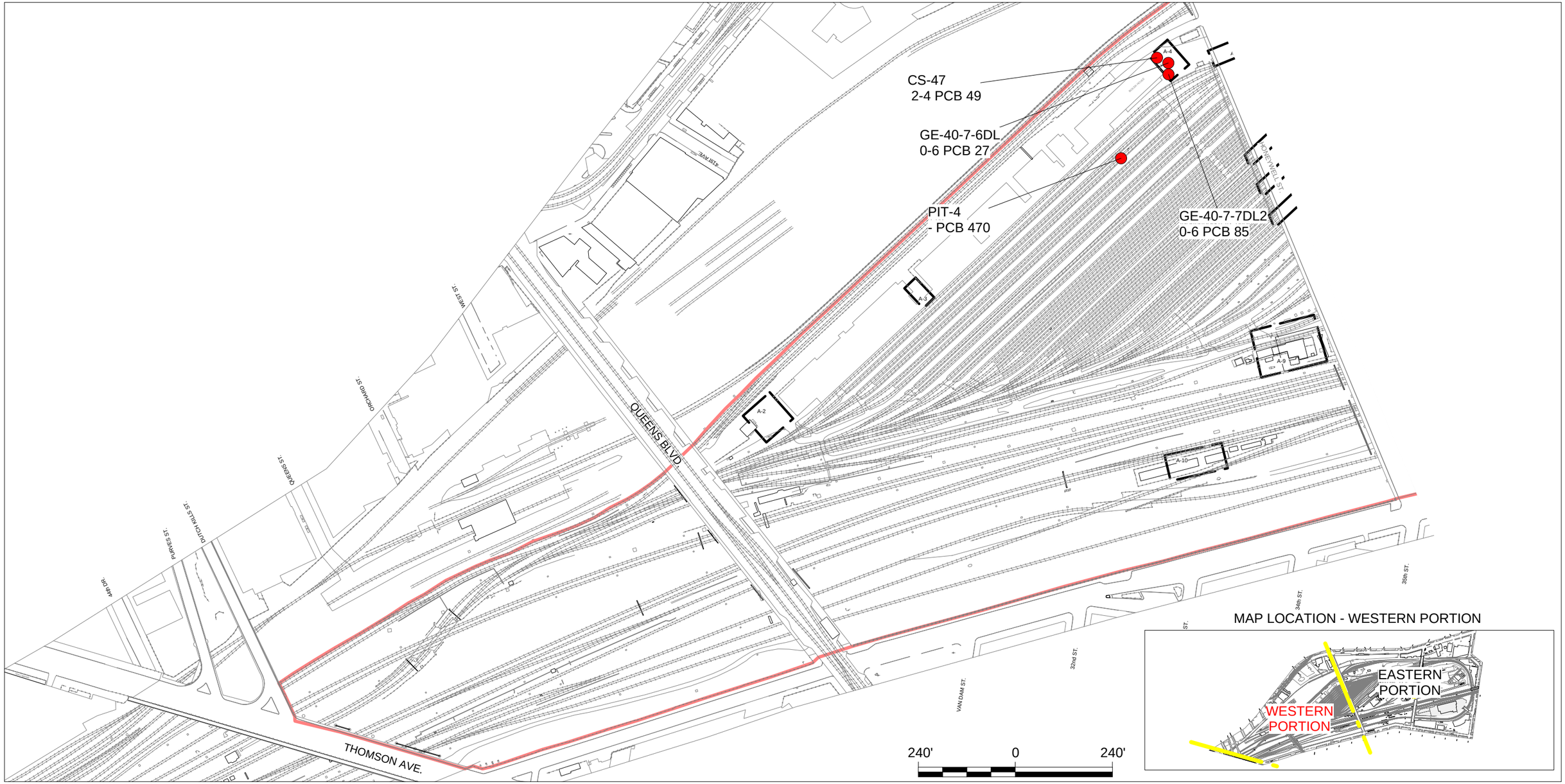
OU-4 SOIL QUALITY - TOTAL PCBs EXCEEDANCES IN SOIL (EASTERN PORTION OF YARD)

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Prepared For: AMTRAK

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: RSK	Date: 6/29/2009	FIGURE
Prepared by: RSK	Scale: SHOWN	4
Project Mgr: HG	Office: NY	
File No: AM7114806A.WOR	Project: 0055.0071Y010	



SOIL SAMPLE EXPLANATION

DESIGNATION

CS-47
2-4 PCB 49

TOTAL PCBs CONCENTRATION IN SOIL (MG/KG)

SAMPLE DEPTH (FT BLS)

LEGEND:

LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG

A-9 — LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)

APPROXIMATE EXTENT OF OU-4 BOUNDARY

NOTES:

TOTAL PCB EXCEEDANCES IN SOIL IN AREA 8 ARE PRESENTED IN FIGURE 6

OU-4 - OPERABLE UNIT 4

FT - FEET

BLS - BELOW LAND SURFACE

MG/KG - MILLIGRAMS PER KILOGRAM

PCBs - POLYCHLORINATED BIPHENYLS

N

Title:

OU-4 SOIL QUALITY - TOTAL PCBs EXCEEDANCES IN SOIL (WESTERN PORTION OF YARD)

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Prepared For: AMTRAK

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: RSK	Date: 6/29/2009	FIGURE
Prepared by: RSK	Scale: SHOWN	5
Project Mgr: HG	Office: NY	
File No: AM7114706B.WOR	Project: 0055.0071Y010	

SOIL SAMPLE EXPLANATION

DESIGNATION

CS-53
0-2 | PCBs 88

TOTAL PCBs CONCENTRATION IN SOIL (MG/KG)

SAMPLE DEPTH (FT BLS)

HONEYWELL CT.

A-8A

A-8B

A-8C

HB-17+20
0-1 PCBs 29.086

CS-53
0-2 PCBs 88

HB-17
0-1 PCBs 4148.576
1-2 PCBs 3532.476
2-3 PCBs 1034.226

S-53
0-2 PCBs 71.16
3.5-5.5 PCBs 0.41
5-7 PCBs 0.161

HB-23+20
0-1 PCB 2572.294

SB-18
0-1 PCBs 2400

HB-23
0-1 PCBs 525.6
1-2 PCBs 866.944
2-3 PCBs 806.914

S-114
0-2 PCBs 90

HB-23+40
0-1 PCBs 40

SB-67
0-1 PCBs 9700

SB-71
0-1 PCBs 680

S-106
0-2 PCBs 20000

HB-22
0-1 PCBs 77.663
1-2 PCBs 3.365

SB-68
0-1 PCBs 25000

SB-16
6-7 PCBs 380

HB-22-20
0-1 PCBs 103.63

S-104
0-2 PCBs 860

S-105
0-2 PCBs 15000

30' 0 30'

LEGEND:

- LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG
- A-8 — LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)

NOTES:

OU-4 - OPERABLE UNIT 4

FT - FEET

BLS - BELOW LAND SURFACE

MG/KG - MILLIGRAMS PER KILOGRAM

PCBs - POLYCHLORINATED BIPHENYLS

N

Title:

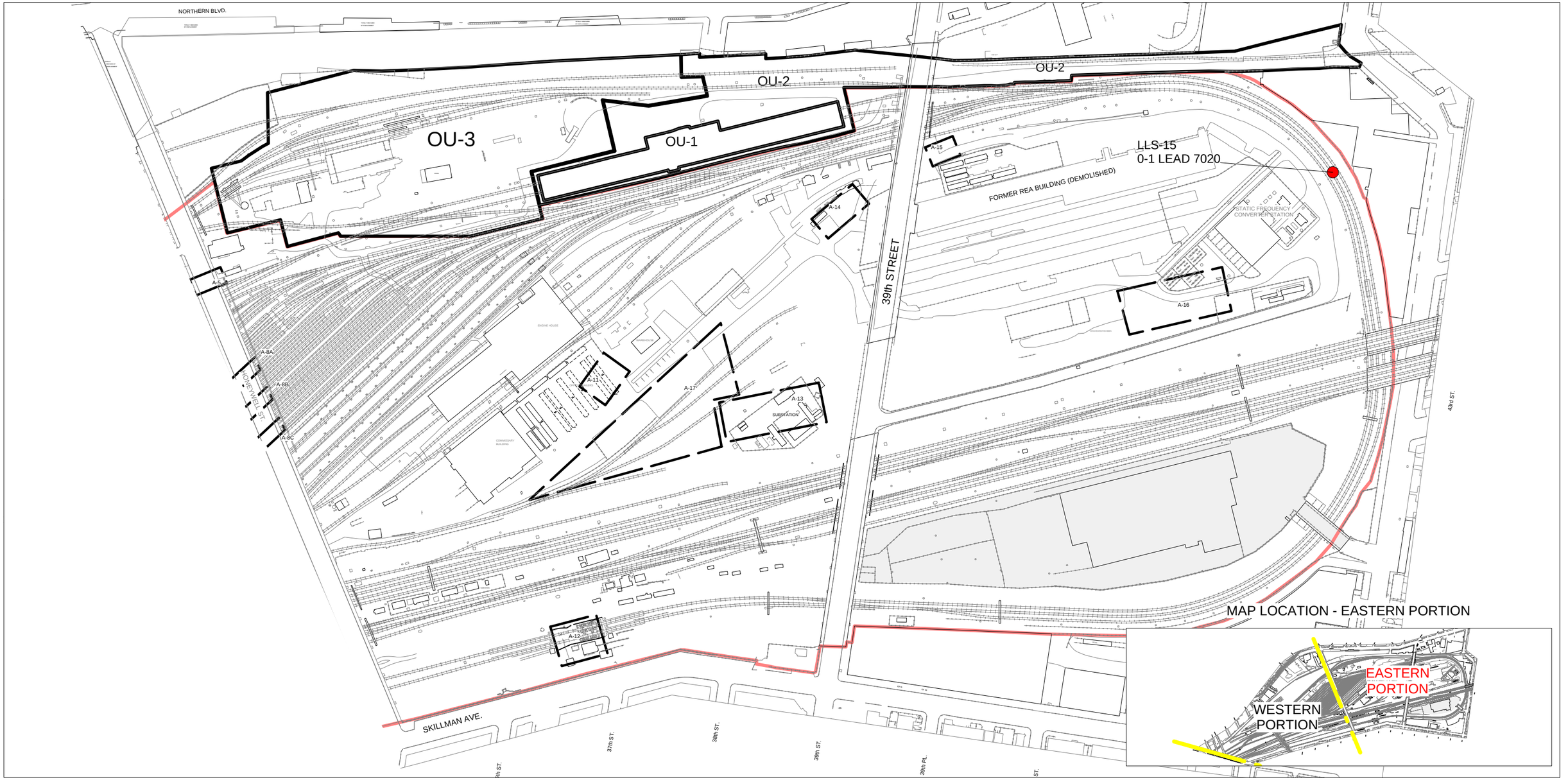
OU-4 SOIL QUALITY- TOTAL PCBs EXCEEDANCES IN SOIL (AREA 8)

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Prepared For: AMTRAK

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: RSK	Date: 6/29/2009	FIGURE
Prepared by: RSK/LD	Scale: SHOWN	6
Project Mgr: HG	Office: NY	
File No: AM7114807.WOR	Project: 0055.0071Y010	



SOIL SAMPLE EXPLANATION

DESIGNATION

LLS-15
0-1 | LEAD 7020

LEAD CONCENTRATION IN SOIL (MG/KG)

SAMPLE DEPTH (FT BLS)

LEGEND:

- LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR LEAD GREATER THAN 3,900 MG/KG
- PRIVATE PROPERTY NOT OWNED BY AMTRAK (NOT PART OF SUNNYSIDE YARD)
- A-9 — LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)
- APPROXIMATE EXTENT OF OU-4 BOUNDARY

NOTES:

OU-4 - OPERABLE UNIT 4

FT - FEET

BLS - BELOW LAND SURFACE

MG/KG - MILLIGRAMS PER KILOGRAM

PCBs - POLYCHLORINATED BIPHENYLS

240' 0 240'

N

Title:

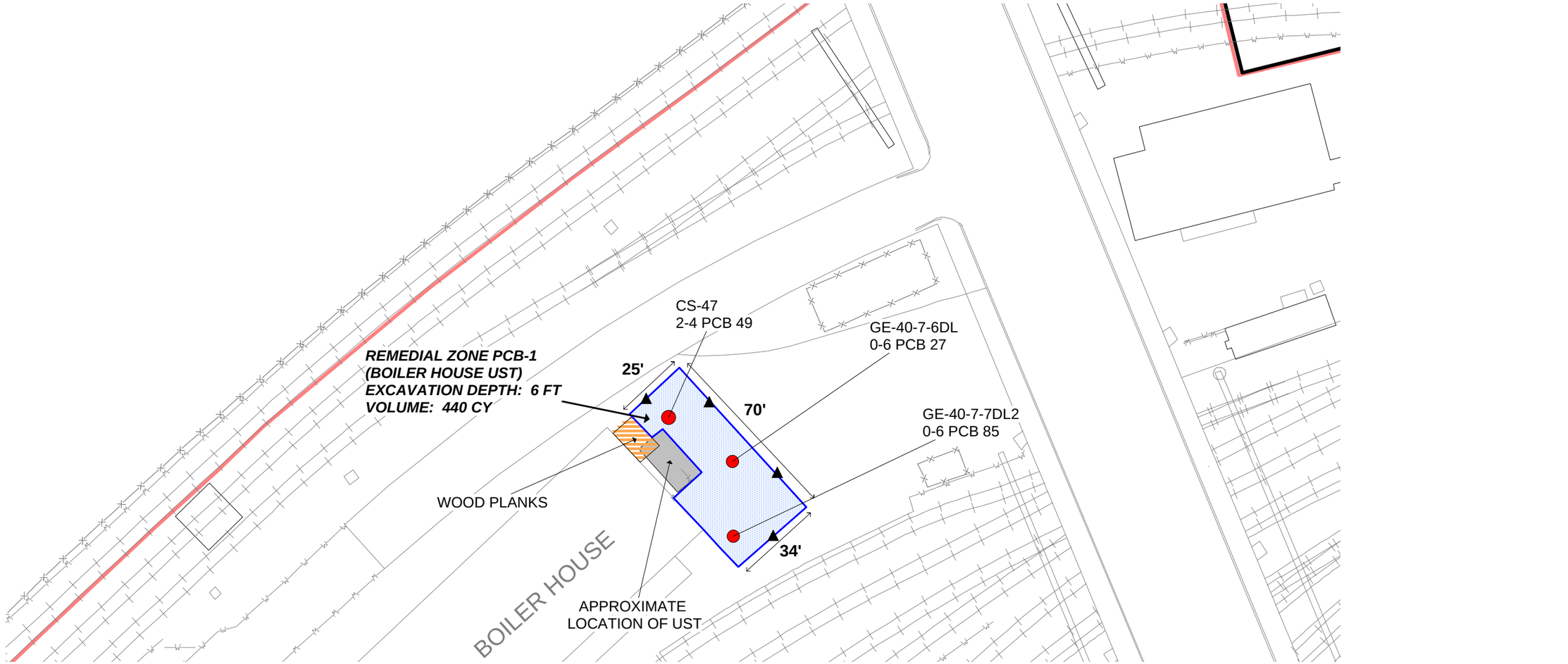
OU-4 SOIL QUALITY - LEAD EXCEEDANCE IN SOIL (EASTERN PORTION OF YARD)

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

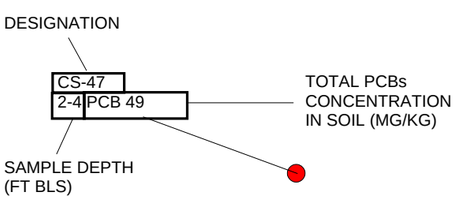
Prepared For: AMTRAK

ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: LD	Date: 6/29/2009	FIGURE
Prepared by: LD	Scale: AS SHOWN	7
Project Mgr: HG	Office: NY	
File No: AM7114808.WOR	Project: 0055.0071Y010	



SOIL SAMPLE EXPLANATION



40' 0 40'

LEGEND:

- LIMIT OF SOIL EXCAVATION TO ADDRESS PCBs EXCEEDANCE OF 25 MG/KG
- APPROXIMATE EXTENT OF OU-4 BOUNDARY
- CS-47 — LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG
- ▲ LOCATION OF PLANNED DELINEATION SOIL BORING TO CONFIRM SOIL EXCAVATION LIMITS

NOTES:

1. SAMPLE CS-47 WAS COLLECTED NEAR THE BOILER HOUSE 20,000 GALLON FUEL OIL UST.
2. THE PCBs EXCEEDANCES WERE NOT HORIZONTALLY OR VERTICALLY DELINEATED. THE AREA SHOWN HAS BEEN ESTIMATED. DELINEATION SAMPLES WILL BE REQUIRED.

OU-4 - OPERABLE UNIT 4
FT - FEET
BLS - BELOW LAND SURFACE
CY - CUBIC YARDS
MG/KG - MILLIGRAMS PER KILOGRAM
PCBs - POLYCHLORINATED BIPHENYLS
UST - UNDERGROUND STORAGE TANK

N

Title:

REMEDIAL ZONE PCB-1 SOIL EXCAVATION PLAN

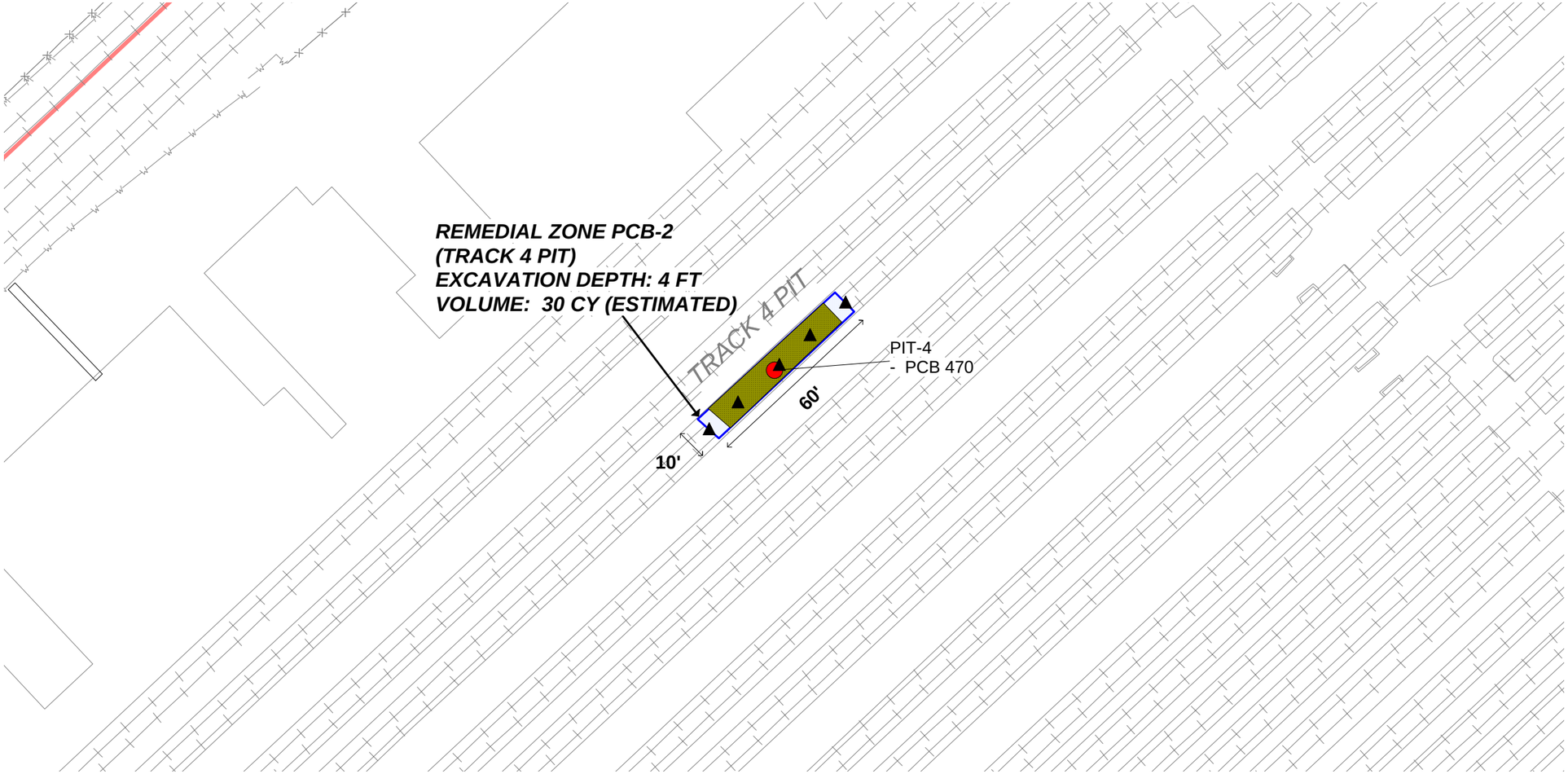
OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Prepared For: AMTRAK

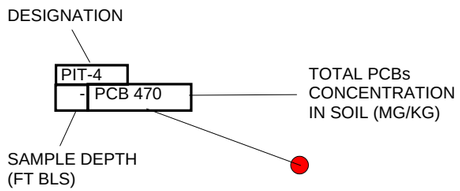
REMEDIAL ENGINEERING, P.C.
ENVIRONMENTAL ENGINEERS

Compiled by: JEP	Date: 9/15/2009
Prepared by: JEP	Scale: AS SHOWN
Project Mgr: JEP	Project: 0055.0071Y010
File No: AM7114809.WOR	

FIGURE 8



SOIL SAMPLE EXPLANATION



40' 0 40'

LEGEND:

- LIMIT OF SOIL EXCAVATION TO ADDRESS PCBs EXCEEDANCE OF 25 MG/KG
- TRACK 4 PIT TO BE REMOVED
- APPROXIMATE EXTENT OF OU-4 BOUNDARY
- PIT-4 — LOCATION AND DESIGNATION OF SEDIMENT SAMPLE WITH RESULT FOR PCBs GREATER THAN 25 MG/KG
- ▲ — LOCATION OF PLANNED DELINEATION SOIL BORING TO CONFIRM SOIL EXCAVATION LIMITS

NOTES:

1. SAMPLE PIT-4 WAS A SEDIMENT SAMPLE COLLECTED FROM WITHIN THE TRACK PIT.
2. SOIL BORINGS ADJACENT TO AND BELOW THE TRACK PIT WILL BE PERFORMED TO CHARACTERIZE SOIL QUALITY AND EXTENT OF SOIL EXCAVATION REQUIRED.

OU-4 - OPERABLE UNIT 4

FT - FEET

BLS - BELOW LAND SURFACE

CY - CUBIC YARDS

MG/KG - MILLIGRAMS PER KILOGRAM

PCBs - POLYCHLORINATED BIPHENYLS

N

Title:

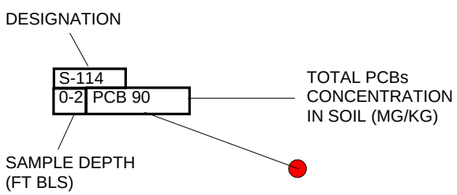
REMEDIAL ZONE PCB-2 SOIL EXCAVATION AND STRUCTURE REMOVAL PLAN

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Prepared For: AMTRAK

REMEDIAL ENGINEERING, P.C. *ENVIRONMENTAL ENGINEERS*	Compiled by: JEP	Date: 6/29/2009	FIGURE 9
	Prepared by: JEP	Scale: AS SHOWN	
	Project Mgr: JEP	Project: 0055.0071Y010	
	File No: AM7114810.WOR		

SOIL SAMPLE EXPLANATION



40' 0 40'

LEGEND:

- LIMIT OF SOIL EXCAVATION TO ADDRESS PCBs EXCEEDANCE OF 25 MG/KG
- S-114 — LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG
- SB-4 — LOCATION AND DESIGNATION OF HORIZONTAL DELINEATION SOIL SAMPLE
- ▲ LOCATION OF PLANNED DELINEATION SOIL BORING TO CONFIRM SOIL EXCAVATION LIMITS

NOTES:

1. THE LIMITS OF EXCAVATION WERE DELINEATED TO THE NORTH, EAST, AND SOUTH. A SOIL BORING AT THE WESTERN BOUNDARY WILL BE PERFORMED TO CHARACTERIZE SOIL QUALITY AND EXTENT OF SOIL EXCAVATION REQUIRED.

OU-4 - OPERABLE UNIT 4

FT - FEET

BLS - BELOW LAND SURFACE

CY - CUBIC YARDS

MG/KG - MILLIGRAMS PER KILOGRAM

PCBs - POLYCHLORINATED BIPHENYLS

N

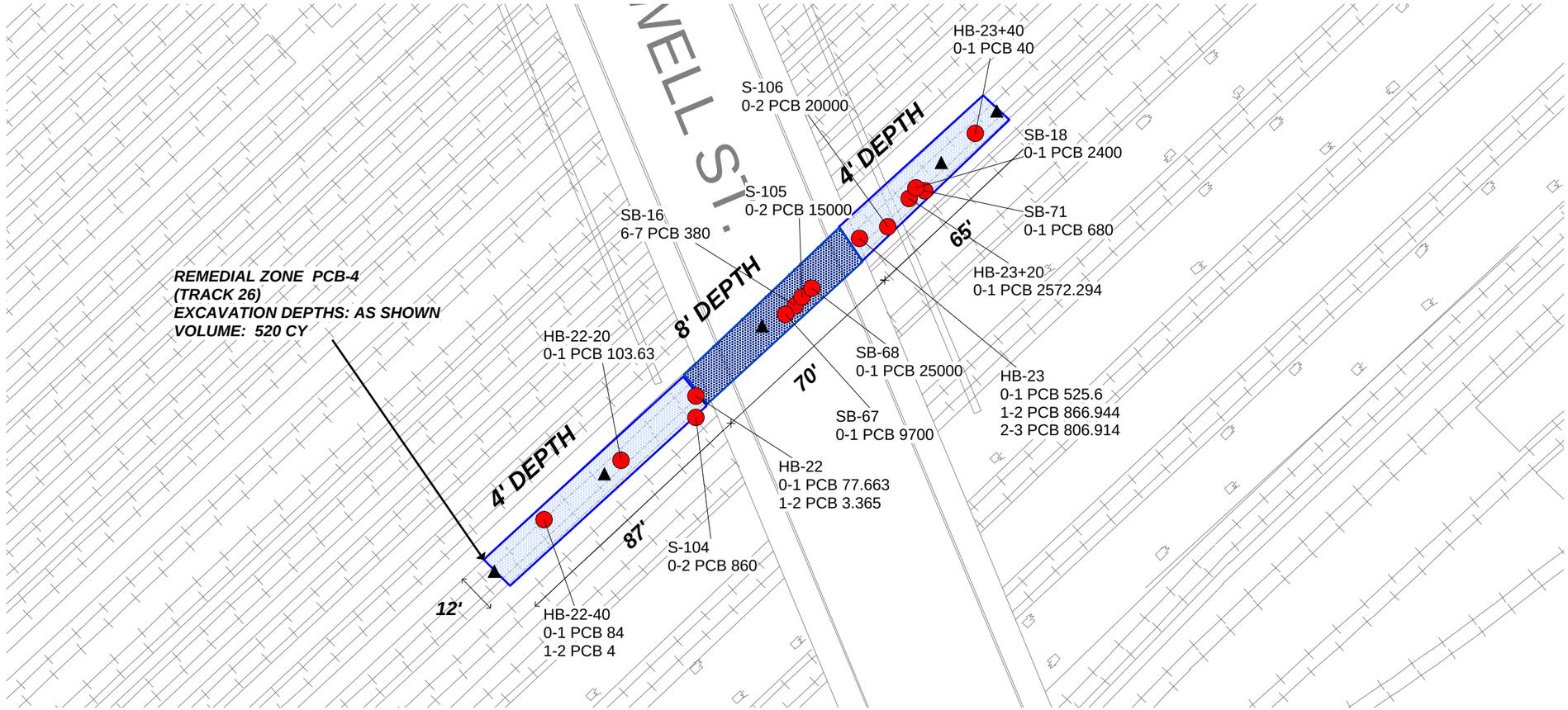
Title:

REMEDIAL ZONE PCB-3 SOIL EXCAVATION PLAN

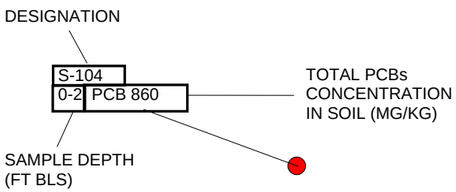
OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Prepared For: AMTRAK

REMEDIAL ENGINEERING, P.C. *ENVIRONMENTAL ENGINEERS*	Compiled by: JEP	Date: 6/29/2009	FIGURE 10
	Prepared by: JEP	Scale: AS SHOWN	
	Project Mgr: JEP	Project: 0055.0071Y010	
	File No: AM7114811.WOR		



SOIL SAMPLE EXPLANATION



40' 0 40'

LEGEND:

- LIMIT OF SOIL EXCAVATION TO 4 FT BELOW LAND SURFACE TO ADDRESS PCBs EXCEEDANCE OF 25 MG/KG
- LIMIT OF SOIL EXCAVATION TO 8 FT BELOW LAND SURFACE TO ADDRESS PCBs EXCEEDANCE OF 25 MG/KG
- HB-15 — LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG
- ▲ LOCATION OF PLANNED DELINEATION SOIL BORING TO CONFIRM SOIL EXCAVATION LIMITS

NOTES:

1. THE PCBs EXCEEDANCES IN REMEDIAL ZONE PCB-4 WERE NOT HORIZONTALLY AND VERTICALLY DELINEATED. SOIL BORINGS WILL BE PERFORMED TO CONFIRM THE EXTENT OF SOIL EXCAVATION REQUIRED.

OU-4 - OPERABLE UNIT 4
FT - FEET
BLS - BELOW LAND SURFACE
CY - CUBIC YARDS
MG/KG - MILLIGRAMS PER KILOGRAM
PCBs - POLYCHLORINATED BIPHENYLS

N

Title:

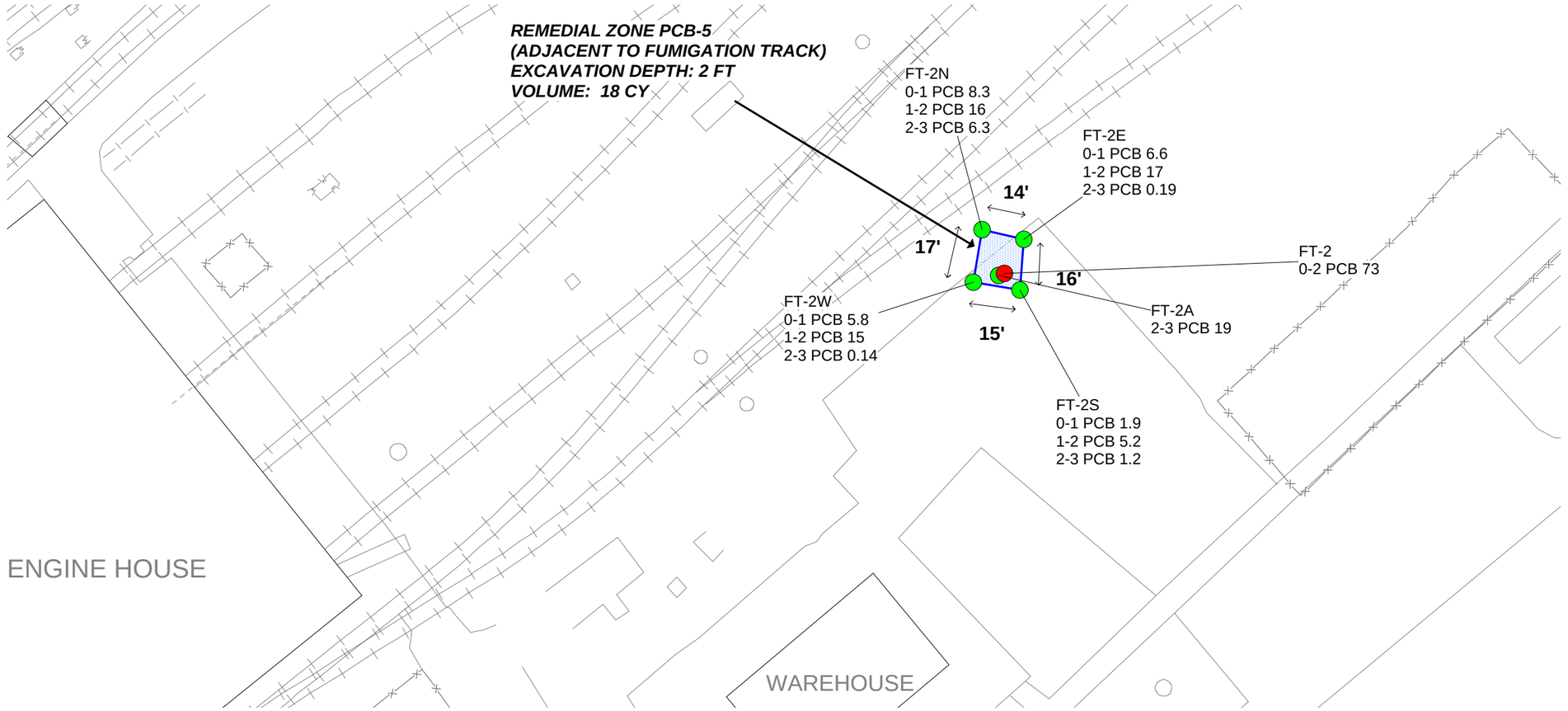
REMEDIAL ZONE PCB-4
SOIL EXCAVATION PLAN

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

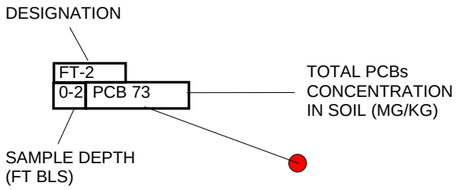
Prepared For: AMTRAK

REMEDIAL ENGINEERING, P.C. *ENVIRONMENTAL ENGINEERS*	Compiled by: JEP	Date: 6/29/2009
	Prepared by: JEP	Scale: AS SHOWN
	Project Mgr: JEP	Project: 0055.0071Y010
	File No: AM7114812.WOR	

FIGURE 11



SOIL SAMPLE EXPLANATION



40' 0 40'

LEGEND:

- LIMIT OF SOIL EXCAVATION TO ADDRESS PCBs EXCEEDANCE OF 25 MG/KG
- FT-2 — LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG
- FT-2W — LOCATION AND DESIGNATION OF DELINEATION BORING
- LOCATION OF EXISTING FENCING

NOTES:

1. THE HORIZONTAL LIMITS OF EXCAVATION ARE SHOWN. THE VERTICAL LIMIT OF EXCAVATION EXTENDS 2 FT BELOW LAND SURFACE.

OU-4 - OPERABLE UNIT 4

FT - FEET

BLS - BELOW LAND SURFACE

CY - CUBIC YARDS

MG/KG - MILLIGRAMS PER KILOGRAM

PCBs - POLYCHLORINATED BIPHENYLS

N

Title:

REMEDIAL ZONE PCB-5 SOIL EXCAVATION PLAN

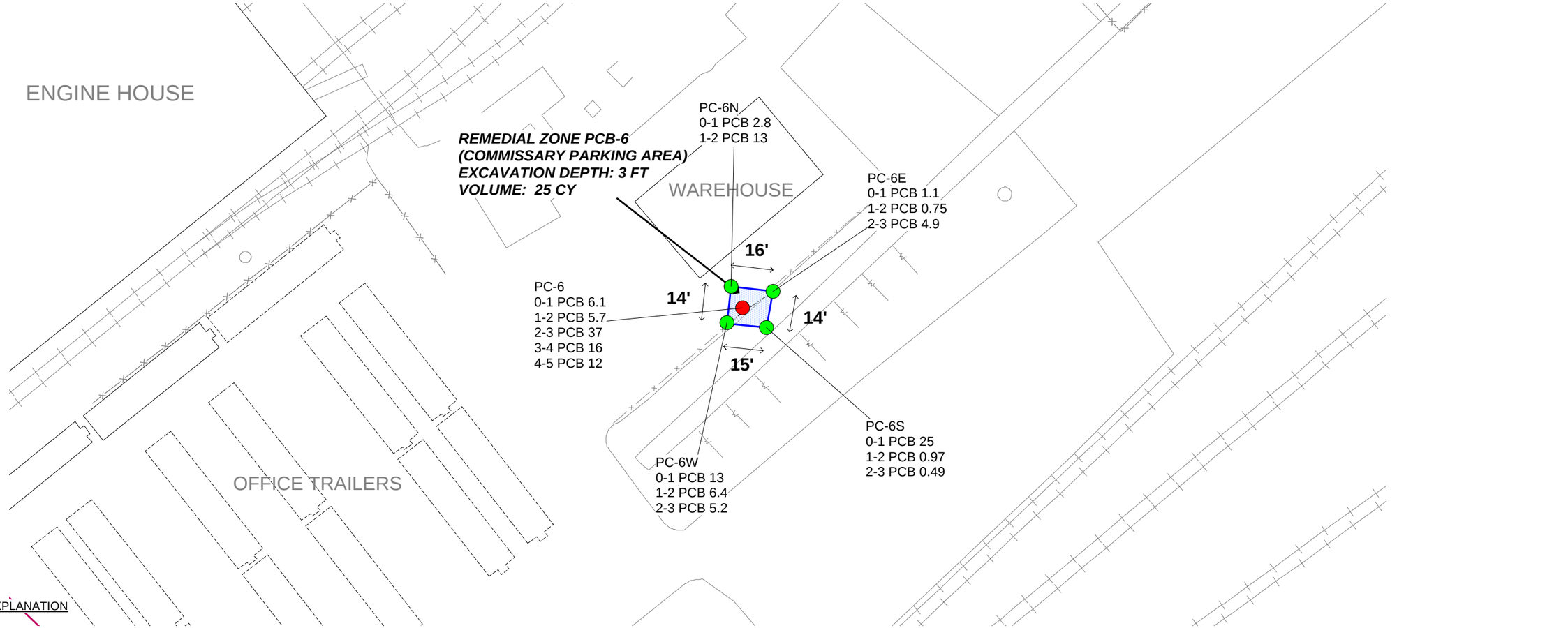
OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Prepared For: AMTRAK

REMEDIAL ENGINEERING, P.C.
ENVIRONMENTAL ENGINEERS

Compiled by: JEP	Date: 6/29/2009
Prepared by: JEP	Scale: AS SHOWN
Project Mgr: JEP	Project: 0055.0071Y010
File No: AM7114813.WOR	

FIGURE 12



LEGEND:

- LIMIT OF SOIL EXCAVATION TO ADDRESS PCBs EXCEEDANCE OF 25 MG/KG
- PC-6 — LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG
- PC-6S — LOCATION AND DESIGNATION OF DELINEATION BORING
- LOCATION OF EXISTING FENCE

NOTES:

1. THE HORIZONTAL LIMIT OF EXCAVATION IS SHOWN. THE VERTICAL LIMIT OF EXCAVATION EXTENDS 3 FT BELOW LAND SURFACE.
2. THE APPROXIMATE LOCATION OF RECENTLY ADDED OFFICE TRAILERS IS SHOWN WITH DASHED LINES.

OU-4 - OPERABLE UNIT 4
FT - FEET
BLS - BELOW LAND SURFACE
CY - CUBIC YARDS
MG/KG - MILLIGRAMS PER KILOGRAM
PCBs - POLYCHLORINATED BIPHENYLS

N

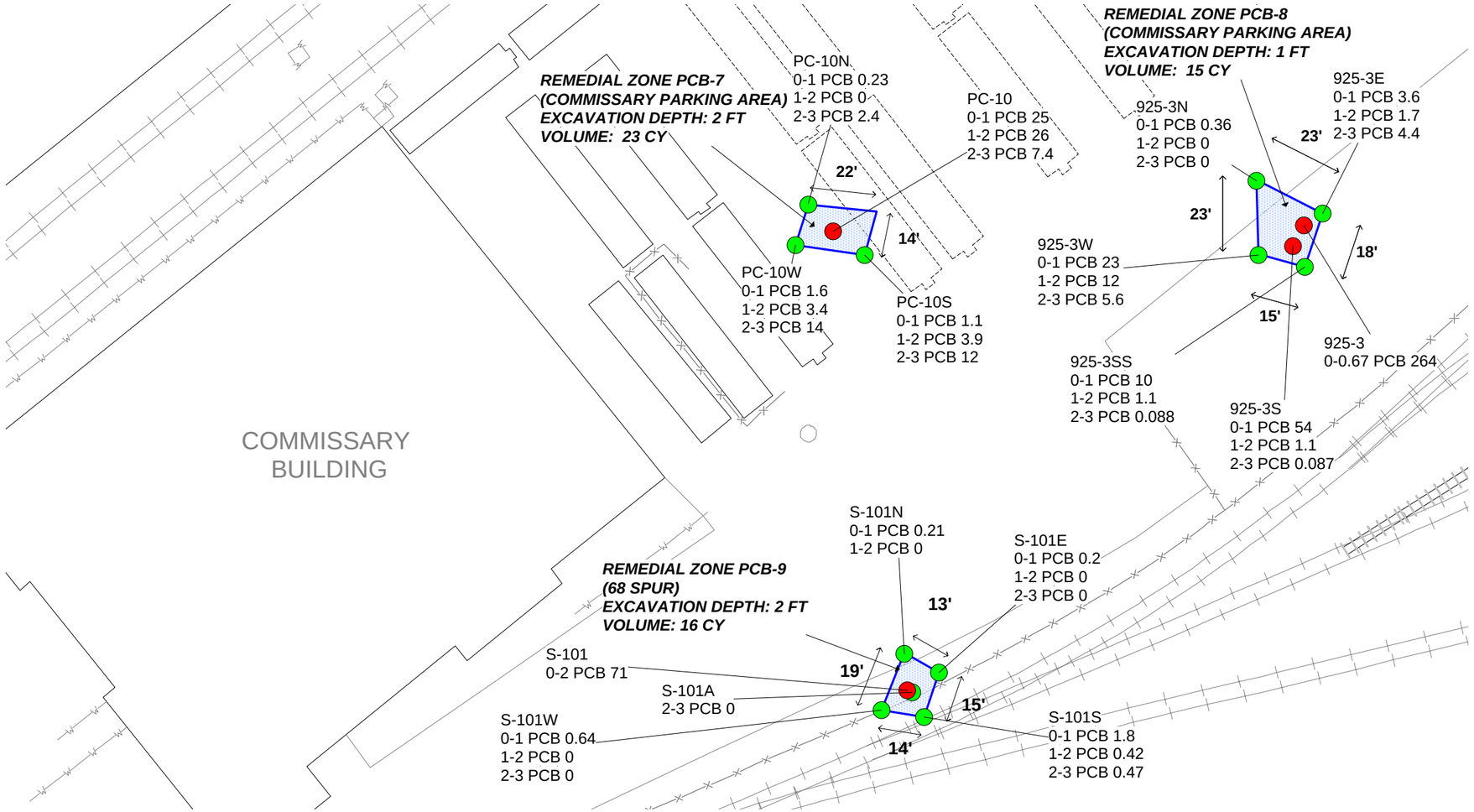
Title:

REMEDIAL ZONE PCB-6 SOIL EXCAVATION PLAN

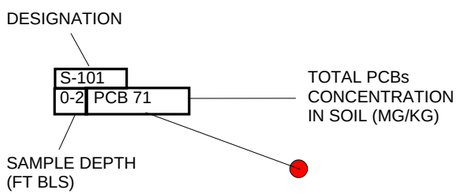
OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Prepared For: AMTRAK

REMEDIAL ENGINEERING, P.C. *ENVIRONMENTAL ENGINEERS*	Compiled by: JEP	Date: 6/29/2009	FIGURE 13
	Prepared by: JEP	Scale: AS SHOWN	
	Project Mgr: JEP	Project: 0055.0071Y010	
	File No: AM7114814.WOR		



SOIL SAMPLE EXPLANATION



40' 0 40'

LEGEND:

- LIMIT OF SOIL EXCAVATION TO ADDRESS PCBs EXCEEDANCE OF 25 MG/KG
- PC-10 — LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG
- PC-10N — LOCATION AND DESIGNATION OF DELINEATION BORING
- LOCATION OF EXISTING FENCE

NOTES:

1. THE HORIZONTAL LIMIT OF EXCAVATION FOR PCB-7 IS SHOWN. THE VERTICAL LIMIT OF EXCAVATION EXTENDS 2 FT BELOW LAND SURFACE.
2. THE HORIZONTAL LIMIT OF EXCAVATION FOR PCB-8 IS SHOWN. THE VERTICAL LIMIT OF EXCAVATION EXTENDS 1 FT BELOW LAND SURFACE.
3. THE HORIZONTAL LIMIT OF EXCAVATION FOR PCB-9 IS SHOWN. THE VERTICAL LIMIT OF EXCAVATION EXTENDS 2 FT BELOW LAND SURFACE.
4. THE APPROXIMATE LOCATIONS OF RECENTLY ADDED OFFICE TRAILERS ARE SHOWN IN DASHED LINES.

OU-4 - OPERABLE UNIT 4

FT - FEET

BLS - BELOW LAND SURFACE

CY - CUBIC YARDS

MG/KG - MILLIGRAMS PER KILOGRAM

PCBs - POLYCHLORINATED BIPHENYLS

N

Title:

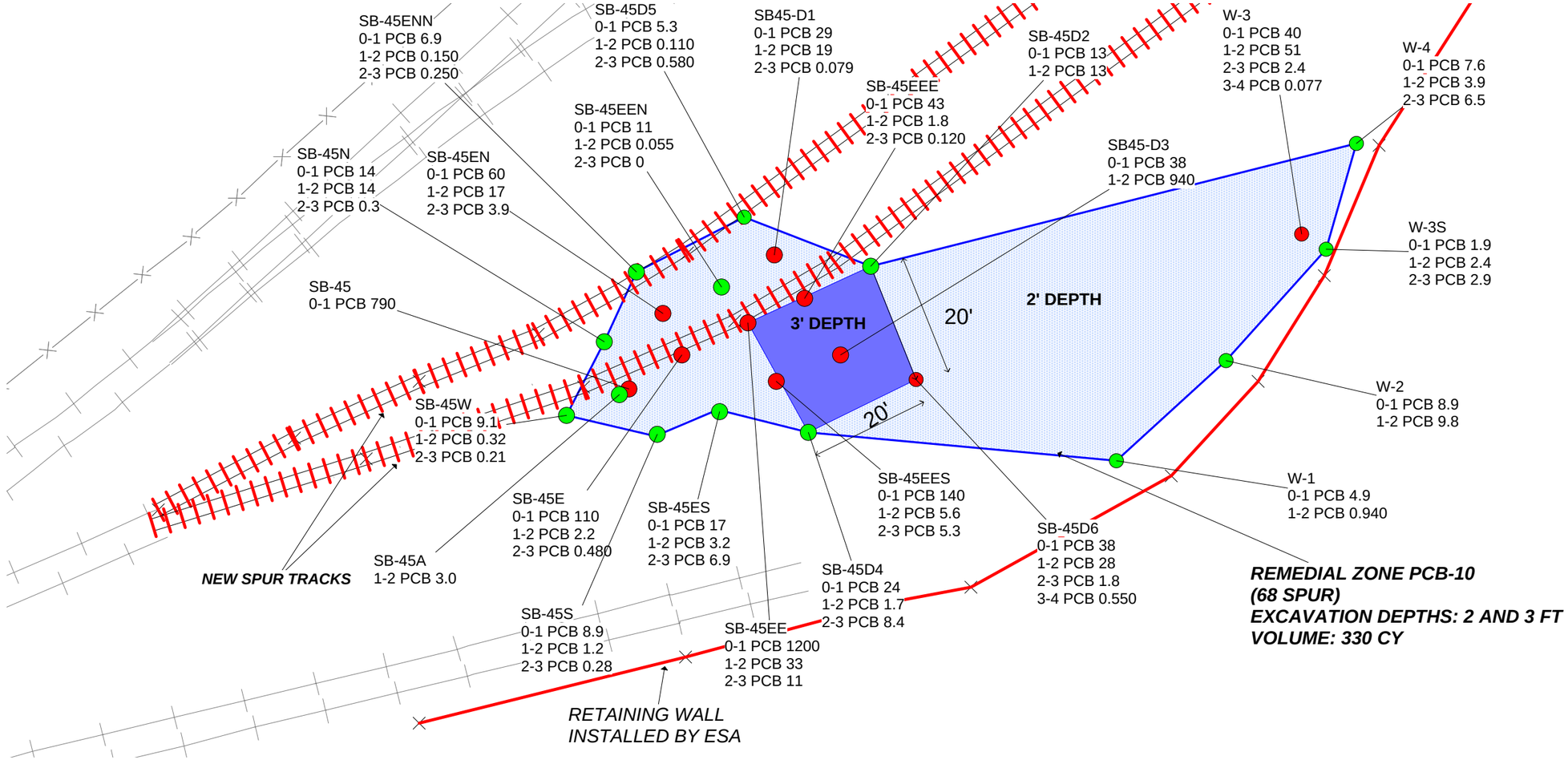
REMEDIAL ZONES PCB-7, PCB-8, AND PCB-9 SOIL EXCAVATION PLAN

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

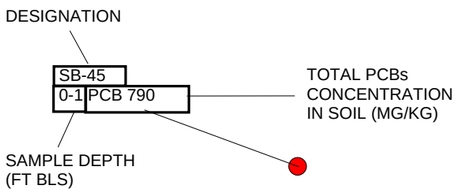
Prepared For: AMTRAK

REMEDIAL ENGINEERING, P.C.
ENVIRONMENTAL ENGINEERS

Compiled by: JEP	Date: 6/29/2009	FIGURE 14
Prepared by: JEP	Scale: AS SHOWN	
Project Mgr: JEP	Project: 0055.0071Y010	
File No: AM7114815.WOR		



SOIL SAMPLE EXPLANATION



LEGEND:

- LIMIT OF SOIL EXCAVATION TO 2 FT BELOW LAND SURFACE TO ADDRESS PCBs EXCEEDANCE OF 25 MG/KG
- LIMIT OF SOIL EXCAVATION TO 3 FT BELOW LAND SURFACE TO ADDRESS PCBs EXCEEDANCE OF 25 MG/KG
- SB-45 — LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG
- SB-45W — LOCATION AND DESIGNATION OF DELINEATION BORING

NOTES:

1. THE POSITION OF THE RETAINING WALL INSTALLED BY ESA (SHOWN IN RED) AND THE TWO NEW SPUR TRACKS (SHOWN IN RED) WERE DETERMINED USING A TRIMBLE HAND HELD GPS ON MAY 20, 2009.

OU-4 - OPERABLE UNIT 4
FT - FEET
BLS - BELOW LAND SURFACE
CY - CUBIC YARDS
MG/KG - MILLIGRAMS PER KILOGRAM
ESA - EAST SIDE ACCESS
PCBs - POLYCHLORINATED BIPHENYLS

N

Title:

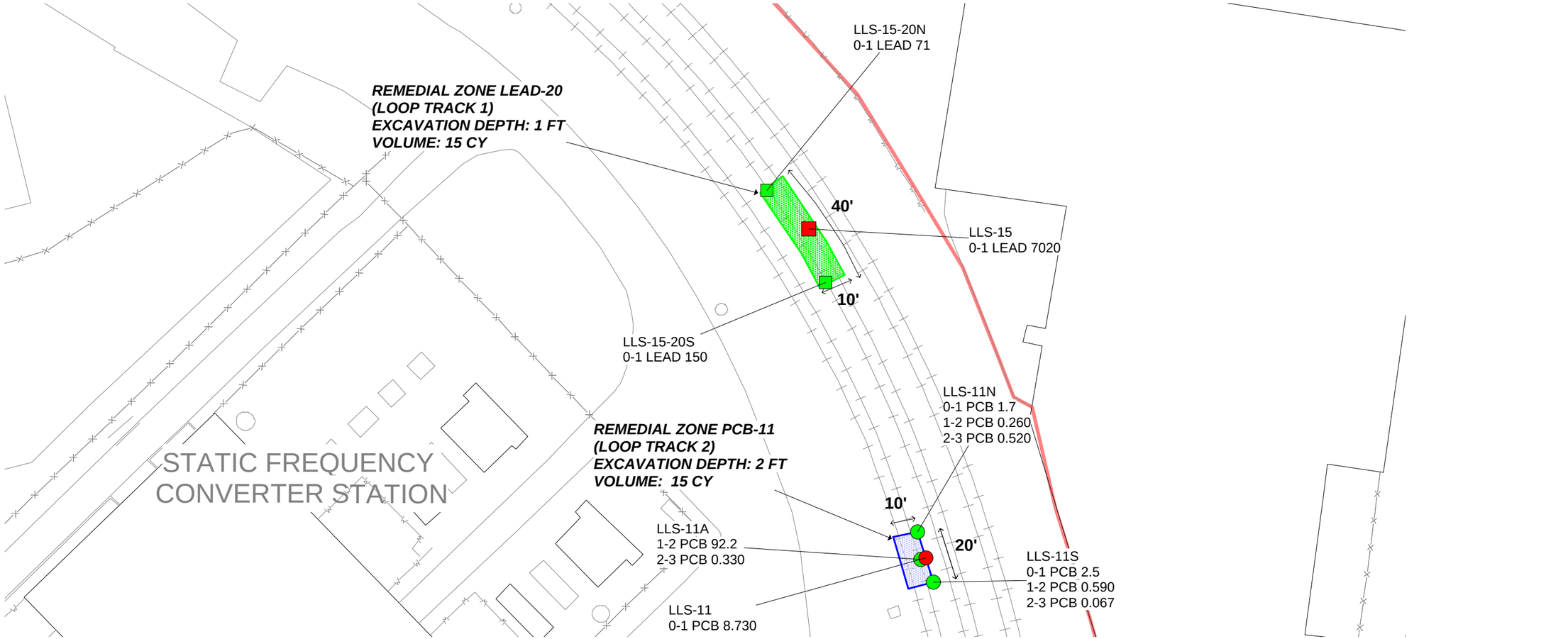
REMEDIAL ZONE PCB-10 SOIL EXCAVATION PLAN

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

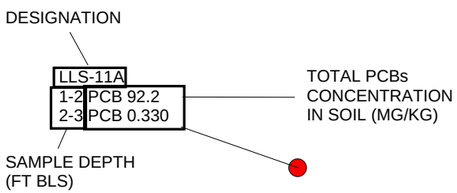
Prepared For: AMTRAK

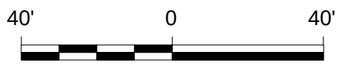
Remedial
REMEDIAL ENGINEERING, P.C.
ENVIRONMENTAL ENGINEERS

Compiled by: JEP	Date: 6/29/2009	FIGURE 15
Prepared by: JEP	Scale: AS SHOWN	
Project Mgr: JEP	Project: 0055.0071Y010	
File No: AM7114816.WOR		



SOIL SAMPLE EXPLANATION





LEGEND:

- LIMIT OF SOIL EXCAVATION TO ADDRESS PCB EXCEEDANCE OF 25 MG/KG
- LLS-11 — LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG
- LLS-11S — LOCATION AND DESIGNATION OF DELINEATION BORING FOR PCBs EXCEEDANCE
- LIMIT OF SOIL EXCAVATION TO ADDRESS LEAD EXCEEDANCE OF 3900 MG/KG
- LLS-15 — LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR LEAD GREATER THAN 3900 MG/KG
- LLS-15-20N — LOCATION AND DESIGNATION OF DELINEATION BORING FOR LEAD EXCEEDANCE

NOTES:

1. THE LIMITS OF EXCAVATION FOR REMEDIAL ZONE LEAD-20 ARE SHOWN. THE VERTICAL LIMIT OF EXCAVATION EXTENDS 1 FT BELOW LAND SURFACE.
2. THE LIMITS OF EXCAVATION FOR REMEDIAL ZONE PCB-11 ARE SHOWN. THE VERTICAL LIMIT OF EXCAVATION EXTENDS 2 FT BELOW LAND SURFACE.

OU-4 - OPERABLE UNIT 4
FT - FEET
BLS - BELOW LAND SURFACE
CY - CUBIC YARDS
MG/KG - MILLIGRAMS PER KILOGRAM
PCBs - POLYCHLORINATED BIPHENYLS

N

Title:

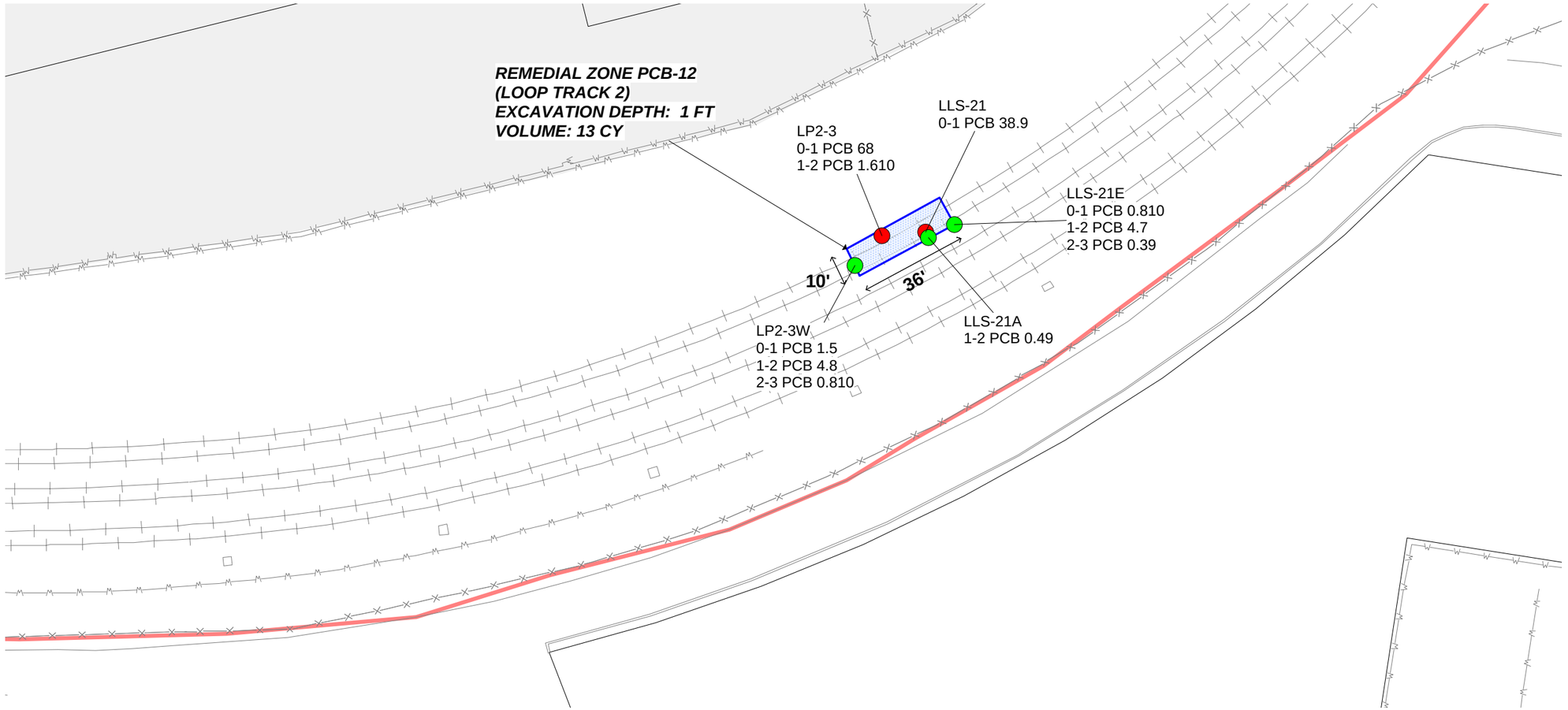
REMEDIAL ZONES PCB-11 AND LEAD-20 SOIL EXCAVATION PLAN

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

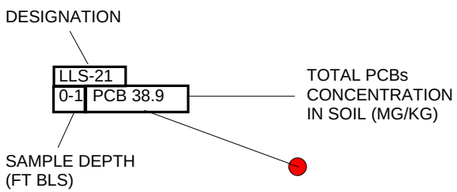
Prepared For: AMTRAK

REMEDIAL ENGINEERING, P.C.
ENVIRONMENTAL ENGINEERS

Compiled by: JEP	Date: 6/29/2009	FIGURE
Prepared by: JEP	Scale: AS SHOWN	16
Project Mgr: JEP	Project: 0055.0071Y010	
File No: AM7114817.WOR		



SOIL SAMPLE EXPLANATION



40' 0 40'

LEGEND:

- LIMIT OF SOIL EXCAVATION TO ADDRESS PCBs EXCEEDANCE OF 25 MG/KG
- LP2-3 — LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR PCBs GREATER THAN 25 MG/KG
- LP2-3W — LOCATION AND DESIGNATION OF DELINEATION BORING

NOTES:

1. THE HORIZONTAL LIMIT OF EXCAVATION IS SHOWN. THE VERTICAL LIMIT OF EXCAVATION EXTENDS 1 FT BELOW LAND SURFACE.

OU-4 - OPERABLE UNIT 4
FT - FEET
BLS - BELOW LAND SURFACE
CY - CUBIC YARDS
MG/KG - MILLIGRAMS PER KILOGRAM
PCBs - POLYCHLORINATED BIPHENYLS

N

Title:

REMEDIAL ZONE PCB-12 SOIL EXCAVATION PLAN

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Prepared For: AMTRAK

Remedial REMEDIAL ENGINEERING, P.C. *ENVIRONMENTAL ENGINEERS*	Compiled by: JEP	Date: 6/29/2009	FIGURE 17
	Prepared by: JEP	Scale: AS SHOWN	
	Project Mgr: JEP	Project: 0055.0071Y010	
	File No: AM7114818.WOR		

Operable Unit 4 Remedial Action
Preliminary Project Schedule

Task Name	2010 Qtr 3	2010 Qtr 4	2010 Qtr 1	2010 Qtr 2	2010 Qtr 3	2010 Qtr 4	2011 Qtr 1	2011 Qtr 2	2011 Qtr 3	2011 Qtr 4	2012 Qtr 1	2012 Qtr 2	2012 Qtr 3	2012 Qtr 4	2013 Qtr 1	2013 Qtr 2	2013 Qtr 3	2013 Qtr 4	2014 Qtr 1
OU-4 REMEDIAL ACTION																			
Excavation of Remedial Zones PCB-5 through PCB-10																			
Excavation of Remedial Zone PCB-5																			
Excavation of Remedial Zone PCB-6																			
Excavation of Remedial Zone PCB-8																			
Excavation of Remedial Zone PCB-9																			
Excavation of Remedial Zone PCB-1 and PCB-2																			
Excavation of Remedial Zone PCB-1																			
Inspection and Excavation of Remedial Zone PCB-2																			
Excavation of Remedial Zones PCB-3 and PCB-4																			
Excavation of Remedial Zone PCB-3																			
Excavation of Remedial Zone PCB-4																			
Excavation of Remedial Zones PCB-7 and PCB-10																			
Excavation of Remedial Zone PCB-7																			
Excavation of Remedial Zone PCB-10																			
Excavation of Remedial Zones PCB-11, PCB-12, and Lead-20																			
Excavation of Remedial Zone PCB-11																			
Excavation of Remedial Zone Lead-20																			
Excavation of Remedial Zone PCB-12																			

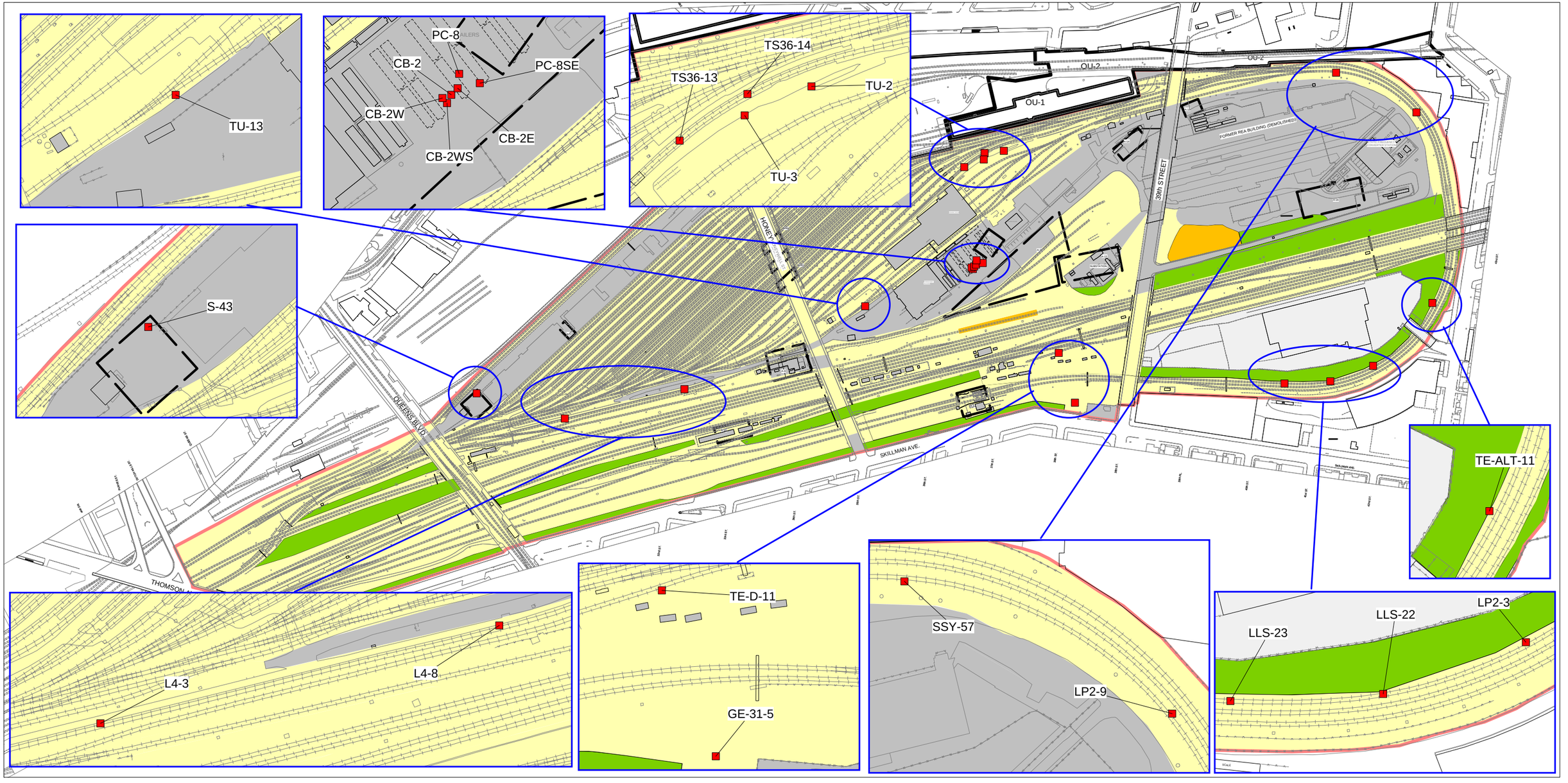
Project No: 0055.0071Y010
File No.: AM7114819.MPP
Compiled by: JEP
Date: 09/24/2009

Task Summary

Notes:
1. Task durations are estimated. Dates and sequencing of Work are subject to change.

FIGURE 18

ROUX ASSOCIATES, INC.
Environmental Consulting & Management



LEGEND:

- TRACK (INCLUDES TRACKS, BALLAST, CONCRETE AND PAVED WALKWAYS) (65.13 ACRES - 54.27%)
- ASPHALT / CONCRETE PAVEMENT AND BUILDINGS (29.6 ACRES - 24.66%)
- BRUSH/VEGETATION (20.66 ACRES - 17.21%)
- EXPOSED GROUND (4.59 ACRES - 3.82%)
- L4-3 — LOCATION AND DESIGNATION OF SOIL BORING WITH ONE OR MORE SOIL SAMPLE RESULTS FOR TOTAL cPAHs GREATER THAN 25 MG/KG
- APPROXIMATE EXTENT OF OU-4 BOUNDARY

NOTES:

1. APPROXIMATE TOTAL AREA OF OPERABLE UNIT 4 IS 120 ACRES.
2. SCALE ON ALL INSETS: 1 INCH = 120 FEET

MG/KG - MILLIGRAMS PER KILOGRAM

cPAHs - CARCINOGENIC POLYCYCLIC AROMATIC HYDROCARBONS

N

400' 0 400'

Title:

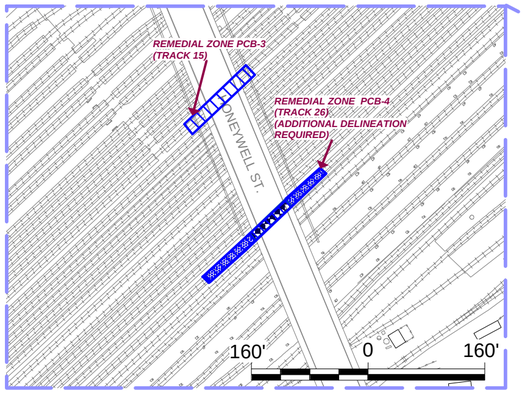
ELEVATED TOTAL cPAHs IN SOIL RELATIVE TO LAND SURFACE COVER

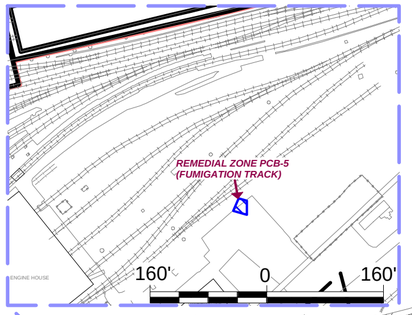
OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

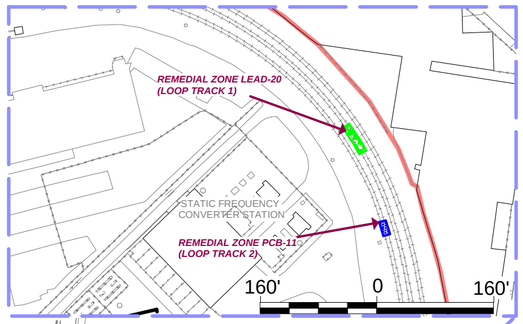
Prepared For: AMTRAK

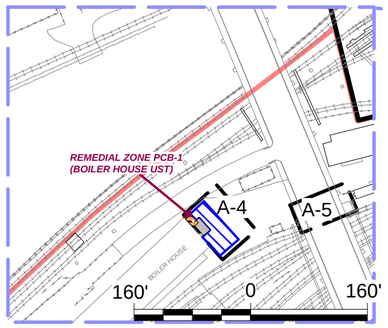
ROUX ASSOCIATES INC
Environmental Consulting & Management

Compiled by: RSK	Date: 6/2/2009	FIGURE
Prepared by: RSK	Scale: AS SHOWN	19
Project Mgr: JEP	Office: NY	
File No: AM7114820.WOR	Project: 0055.0071Y010	



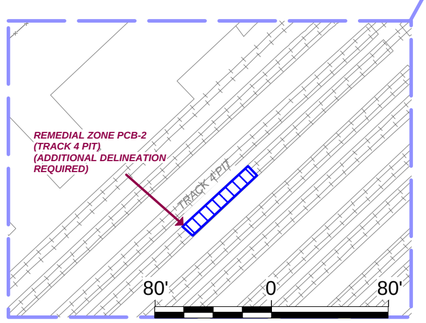


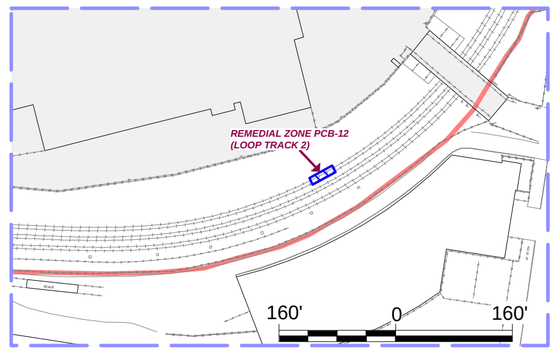




BASEMAP SCALE:

400' 0 400'





LEGEND:

- APPROXIMATE EXTENT OF REMEDIAL EXCAVATION TO ADDRESS PCB EXCEEDANCE OF 25 MG/KG
- APPROXIMATE EXTENT OF REMEDIAL EXCAVATION TO ADDRESS LEAD EXCEEDANCE OF 3,900 MG/KG
- A-9 — LOCATION AND DESIGNATION OF PREVIOUSLY DETERMINED AREA OF CONCERN (AREA)
- PRIVATE PROPERTY NOT OWNED BY AMTRAK (NOT PART OF SUNNYSIDE YARD)
- APPROXIMATE EXTENT OF OU-4 BOUNDARY

NOTES:

MG/KG - MILLIGRAMS PER KILOGRAM

OU-4 - OPERABLE UNIT 4

FT - FEET

PCBs - POLYCHLORINATED BIPHENYLS

N

Title:

REMEDIAL ACTION PLAN
SUMMARY OF REMEDIAL ZONES TO BE EXCAVATED

OPERABLE UNIT 4
REMEDIAL ACTION WORK PLAN

Prepared For: AMTRAK

REMEDIAL ENGINEERING, P.C.
ENVIRONMENTAL ENGINEERS

Compiled by: RSK	Date: 9/24/09	PLATE	
Prepared by: RSK	Scale: AS SHOWN		1
Project Mgr: JEP	Office: NEW YORK		
File No: AM7114821.WOR	Project: 0055.0071Y010		