



**PHASE II ENVIRONMENTAL SITE ASSESSMENT
VACANT LOT
2224-38 N. 10TH STREET
CITY AND COUNTY OF PHILADELPHIA, PENNSYLVANIA**

**Prepared For: Philadelphia Redevelopment Authority
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EEI Project No. 27836.01

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ALS Environmental Certificate of Analysis



1 General Information

Earth Engineering, Inc. (EEI) was contracted by the Philadelphia Redevelopment Authority to perform a Phase II Environmental Site Assessment (ESA) for the subject property located at 2224-38 N. 10th Street, Philadelphia City and County, Pennsylvania. A Phase I ESA has been conducted by EEI Dated April 28, 2015 which identified an industrial use history including a warehouse for the storage of spices and condiments, wall paper manufacturing. The industrial use also included the operation of a boiler house and coal storage facility on the property as well as a rail siding which entered the property from the northwestern corner and proceeded eastward down the center of the property.

2 Executive Summary

2.1 Subject Property Description

The subject property is a single parcel of land approximately 0.91 acres in size. The property is located on the western side of N. 10th Street between W. Nevada St to the north, and W. Colona Street to the south. The western boundary of the property is with the adjacent elevated rail lines operated by SEPTA. The property is zoned I-2 Industrial, and is presently a vacant lot surrounded by concrete obstacles. The property center is at approximately 39° 59' 10.8" north latitude, 75° 8' 59.4" west longitude. The location of the subject property is shown on the map below.

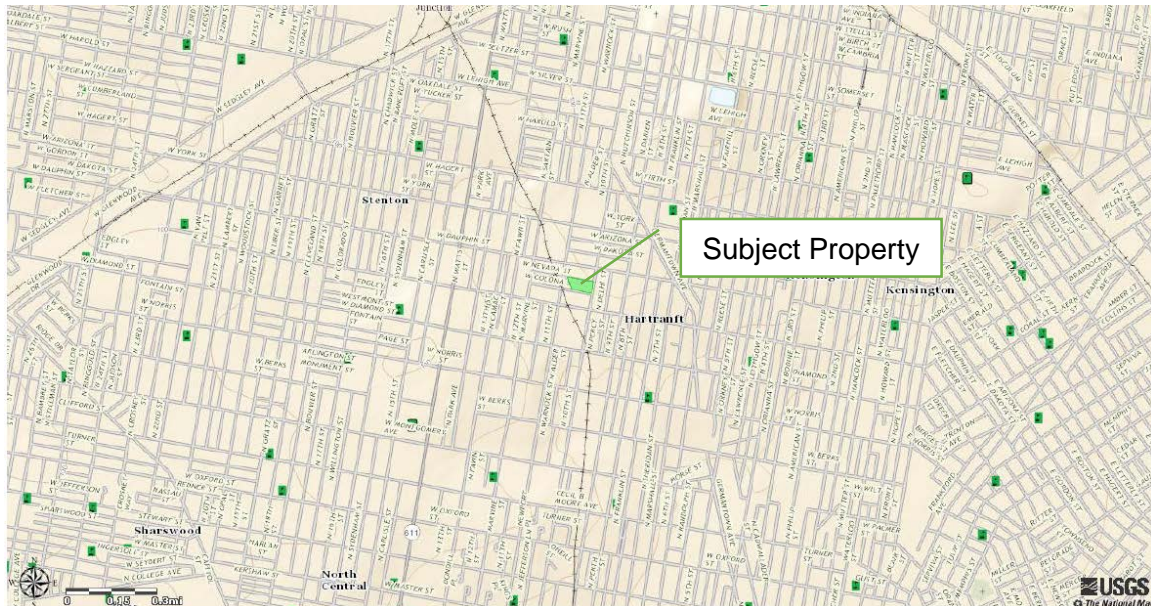


Figure 1 Subject Property Location Shown on USGS National Map



2.2 Scope of Work

EEI observed the subsurface soils in a series of test pits performed with a Case rubber tire backhoe. A series of five test pits were excavated across the site. The recovered soil was screened for Volatile Organic Compounds (VOC) using a calibrated Photo Ionization Detector (PID). The soils were visually classified and described, and are documented in this report in the appendix.

Samples of the soils were collected for laboratory analysis of Priority Pollutant Metals and Target Compound List Volatile Organic Compounds (VOC), Semi Volatile Organic Compounds (SVOC), and the Poly Chlorinated Biphenyls (PCB).

Upon completion of the laboratory analysis, the results were compared to the PADEP Statewide Health Standards (SHS) for each detection.

2.3 Environmental Report Summary

Earth Engineering, Inc. (EEI) was contracted to perform a Phase II Environmental Site Assessment (ESA) for the subject property located at 2224-38 N. 10th Street, Philadelphia City and, Pennsylvania, *the property*.

Historic fill materials consisting of brick, block, concrete, slag, and stone mixed with soil material was encountered all excavations which indicated the former industrial building has been collapsed into its foundations. Brick and concrete fill was encountered from beneath the surface topsoil which extends from 1.0 to 2.0 feet below ground surface. The fill materials included the presence of interior non-structural items which indicate that the structure was not entirely empty or cleared out prior to the demolition. Materials encountered include cable, interior doors, waste bins, hoses, etc.

The laboratory analysis found trace concentrations of VOC and PCB in the samples which were orders of magnitude below the applicable PADEP SHS. SVOC analysis identified one or more compound which exceeded the SHS in four of the five locations. The concentration of arsenic exceeded the SHS at two of the five locations, and the lead concentration in one of the five locations was greater than the SHS.

One sample location, identified as S-5 located on the southern portion of the property near Colona Street found no concentrations greater than the applicable SHS of any metal or



compound. This location showed the shallowest demolition fill strata of any of the locations.

2.4 Recommendations

EEl recommends that any development plans include provision for the historic fill materials on the site. These fill materials are not clean fill and may not be exported from the site as such. The samples of the soils and historic fill materials indicate that concentrations of several analytes are greater than the SHS. Development plans should include the remediation of these materials to protect the environment and public from adverse impacts.

2.5 Limitations and Exceptions

The data and conclusions contained in this report are based upon available information obtained for the site and observations made in the field. Discrepancies or inaccuracies regarding any data provided are not the responsibility of EEl. EEl further assumes no responsibility or liability for environmentally hazardous materials, which are the responsibility of the site owners, adjacent property owners, or other persons or entities.

3 Field Investigation

3.1 Boring Locations and Description

A series of test pit locations were selected for examination based on the findings of the previous Phase I ESA.

The site sketch of the testing locations is shown below.



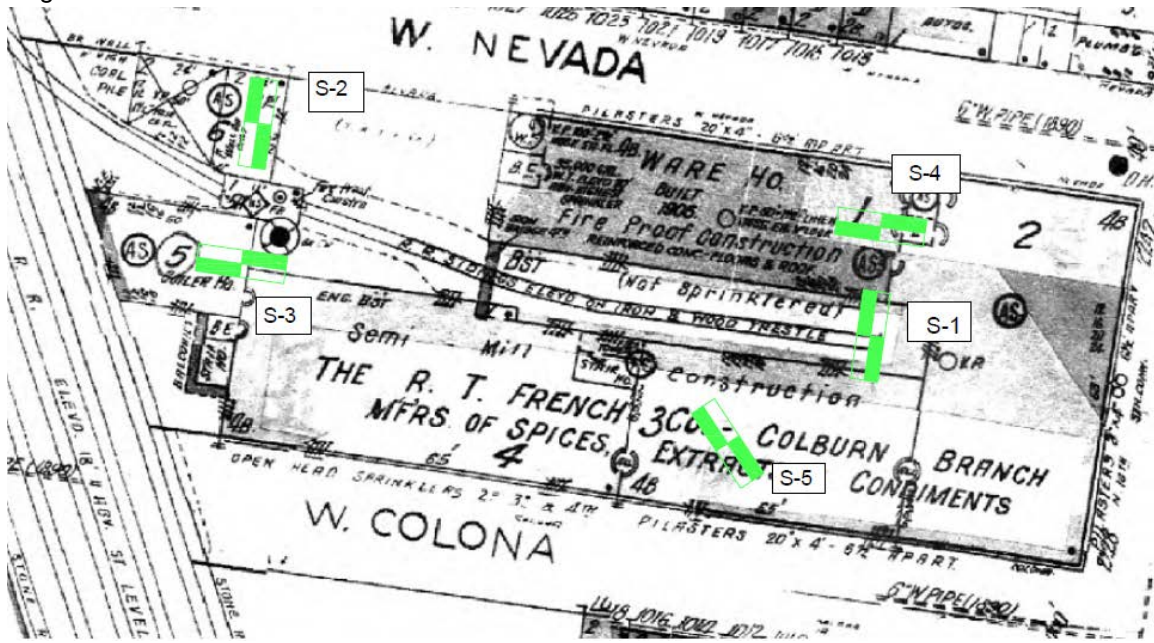


Figure 2 Site Sketch Showing Boring Locations over the 1951 Sanborn Fire Insurance Map of Site.

All these locations were grass covered areas at the surface. A soil layer extended from the surface to between one and two feet deep.

Beneath the surficial soils all borings encountered a predominantly brick fill. This consisted of full and broken bricks, concrete, metal components and parts, plastic, wood, and miscellaneous debris and waste materials. Foundations of mortared brick and reinforced concrete were encountered from approximately three feet below the ground surface in locations S-1, S-2, S-3 and S-4. Excavations were extended horizontally where these foundation structures could not be penetrated with the backhoe.

A micaceous sand with silt and trace gravel was encountered beneath the fills and foundations in all of the excavations. One sample was collected from each of the excavations from the material which was deemed most likely to exhibit contamination based on the field screening and visual observations.

3.2 VOC Screening

The soils recovered from the excavations was screened using a Rae Systems MiniRae 3000 Photo Ionization Detector. The detector was calibrated prior to the beginning of field

work using 100 ppm isobutylene span gas. The background or ambient air readings on the site varied between 0.0 and 0.3 ppm.

Screening was accomplished by punching a ¼ inch diameter hole into the recovered soils using a stainless steel probe. The intake of the meter was then placed within the cavity and the soil gases measured. If readings were questionable for any reason, such as a gust of wind etc. a small portion of the recovered soils were placed in a plastic zipper bag and screened.

No VOC readings were detected in any of the recovered soils.

3.3 Laboratory Analysis

ALS Environmental Laboratories of Middletown, PA was directed to analyze the samples. The analytical results were returned to EEI on May 12, 2015. EEI reviewed and tabulated the results, and compared them with the PADEP Statewide Health Standard. The laboratory results are presented below.

Table 1 - Volatile Organic Compounds							
ANALYTE	UNITS	S-1	S-2	S-3	S-4	S-5	SHS
Acetone	ug/kg	60.6	73.4	94.2	57.6	22.4	3300000
Benzene	ug/kg	ND	ND	ND	2.6	ND	500
Methylene Chloride	ug/kg	3.1	ND	ND	ND	ND	500
Tetrachloroethene	ug/kg	10	15.9	17.2	9.5	ND	500
Toluene	ug/kg	ND	ND	ND	3	ND	100000
Trichloroethene	ug/kg	ND	3.7	ND	ND	ND	500

Table 2 - Poly-Chlorinated Biphenyls							
ANALYTE	UNITS	S-1	S-2	S-3	S-4	S-5	SHS
Total Polychlorinated Biphenyl	mg/kg	ND	0.13	ND	0.071	ND	
Aroclor-1248	mg/kg	ND	0.04	ND	ND	ND	9
Aroclor-1254	mg/kg	ND	0.06	ND	ND	ND	4.4
Aroclor-1260	mg/kg	ND	ND	ND	0.04	ND	30



Table 3 - Semi-Volatile Organic Compounds							
ANALYTE	UNITS	S-1	S-2	S-3	S-4	S-5	SHS
Acenaphthene	ug/kg	143	2410	3260	350	ND	2700000
Acenaphthylene	ug/kg	ND	2060	3070	502	ND	2500000
Anthracene	ug/kg	543	6720	15700	1160	ND	350000
Benzo(a)anthracene	ug/kg	1590	15300	37500	3440	389	5700
Benzo(a)pyrene	ug/kg	1520	13800	30300	3550	383	570
Benzo(b)fluoranthene	ug/kg	1940	18000	41300	4540	450	5700
Benzo(g,h,i)perylene	ug/kg	954	7320	16200	2260	236	180000
Benzo(k)fluoranthene	ug/kg	722	6680	16600	1810	206	57000
Biphenyl	ug/kg	ND	227	295	ND	ND	790000
Carbazole	ug/kg	243	2540	7540	840	ND	21000
Chrysene	ug/kg	1550	14700	35000	3400	372	230000
Dibenzo(a,h)anthracene	ug/kg	274	3470	4990	632	ND	570
Dibenzofuran	ug/kg	ND	1820	3350	280	ND	95000
bis(2-Ethylhexyl)phthalate	ug/kg	ND	357	ND	ND	ND	130000
Fluoranthene	ug/kg	3090	32800	75400	6680	767	3200000
Fluorene	ug/kg	176	3700	4700	423	ND	3000000
Indeno(1,2,3-cd)pyrene	ug/kg	1030	8040	18200	2400	249	5700
2-Methylnaphthalene	ug/kg	ND	408	1250	114	ND	600000
Naphthalene	ug/kg	ND	722	2280	314	ND	25000
Phenanthrene	ug/kg	2040	23100	49800	4360	332	10000000
Pyrene	ug/kg	2850	27200	61900	5680	703	2200000

Table 4 - Metals							
ANALYTE	UNITS	S-1	S-2	S-3	S-4	S-5	SHS
Antimony, Total	mg/kg	1.3	1.5	2.5	5.3	ND	27
Arsenic, Total	mg/kg	5	88.5	18.8	4.7	3.5	12
Beryllium, Total	mg/kg	1.2	ND	ND	ND	1.1	320
Cadmium, Total	mg/kg	1.2	2.4	2.1	2.3	ND	38
Chromium, Total	mg/kg	16.4	29.3	19.6	15.3	46.9	94
Copper, Total	mg/kg	102	27.2	68.7	67.7	49.5	8100
Lead, Total	mg/kg	93.7	410	387	513	49	450
Mercury, Total	mg/kg	0.099	0.12	0.3	0.25	ND	10
Nickel, Total	mg/kg	25.4	27.4	18.2	9.8	20.6	650
Thallium, Total	mg/kg	0.75	ND	ND	ND	ND	14
Zinc, Total	mg/kg	280	442	1330	519	113	12000



A copy of the laboratory Certificate of Analysis Report is included in the appendix of this report.

4 Analysis of Data and Conclusions

The laboratory analysis a relatively wide spread impact from SVOCs in the site soils. The detected concentrations are part of a subgroup of SVOC known as polycyclic aromatic hydrocarbons (PAH). These are commonly found in fossil fuels (oil and coal) and in tar deposits, and are produced, generally, when insufficient oxygen or other factors result in incomplete combustion of organic matter. The documented operation of coal storage indicates that coal has been burned on the property and it is likely that ash residue from this operation is left behind. The probable source of the elevated metals concentrations is not as clear or well documented in the site history, however inorganic constituents do not degrade during combustion, and the metals arsenic and lead have numerous historic applications which may account for the elevated presence of these metals.

A graphical presentation of the elevated concentrations (below) shows that the greater concentrations as well as number of exceedances are found on the western portion of the property. No exceedances were detected in the soils beneath the slab at the location S-5 which is the oldest part of the former structure.

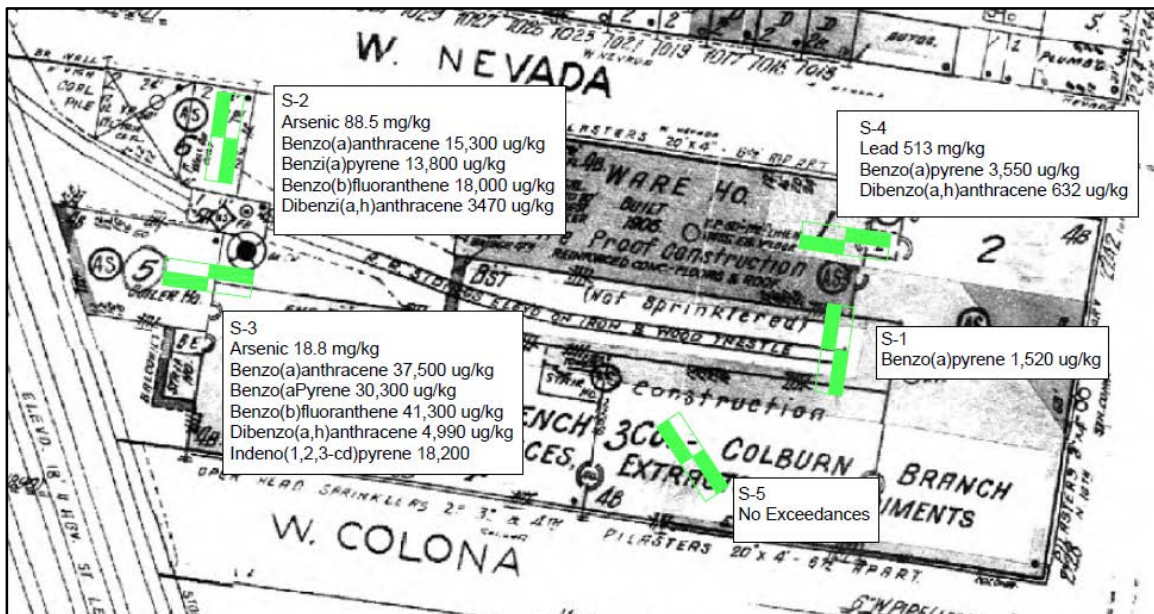


Figure 3 - Elevated Concentrations shown on 1951 Sanborn Fire Insurance Map.

The results indicate that the site is likely eligible for entry into the PADEP Act 2 program. Remediation is likely able to be accomplished as part of a development plan and can include relocating contaminated materials to non-contact areas such as beneath slabs and or pavement, or removal of contaminated materials from the site for disposal or recycling.

5 Signature

This report is intended to provide a professional service to the Philadelphia Redevelopment Authority and is intended to present a professional opinion regarding the subject property, located at 2224-38 N. 10th Street, Philadelphia City and County, Pennsylvania.

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental professional as defined in section 312.10 of 40 CFR 312. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set for in 40 CFR Part 312.

Respectfully submitted,
EARTH ENGINEERING, INCORPORATED

David Van Keuren
GeoEnvironmental Project Manager

