APPENDIX J

Remedial Investigation Report and Phase I Environmental Site Assessments

(Full reports with appendices on accompanying CD)

Teutonia Buena Vista, LLC

92 Main Street • Yonkers, New York 10701

Remedial Investigation Report / Former Teutonia Hall Site

March 2008

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5633-002

MALCOLM PIRNIE

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1. Introduction

1.1. Purpose and Scope

On behalf of Teutonia Buena Vista, LLC, Malcolm Pirnie, Inc. (Malcolm Pirnie) has prepared this Remedial Investigation Report (RI) in support of plans to redevelop the Former Teutonia Hall Property (Site), located on the west side of Buena Vista Avenue in the City of Yonkers, Westchester County, New York. The Site which is located approximately 100 to 200 feet south of the intersection of Buena Vista and Hudson Avenue consists of five adjoining parcels that have been developed over a period of time. The existing building structures that currently occupy the Site can generally be characterized as multi-story brick and concrete buildings with street addresses identified as #41, 45, 47, 51 and 53 Buena Vista Avenue. These parcels are known as the Former Teutonia Hall and are subject to the Brownfield Cleanup Program (BCP).

Teutonia Buena Vista, LLC plans to redevelop the Site and provide residential units and parking space. Prior to initiating the investigation, the consortium applied for, and was accepted as a participant (Site #C360085) in the New York State Brownfield Cleanup Program (BCP), which provides tax incentives and liability release to remediate Brownfield Sites for redevelopment and reuse. The Site investigation was performed in accordance with the requirements of the BCP and with approval and oversight provided by the New York State Department of Environmental Conservation (NYSDEC).

Purposes of this RI include the characterization of:

- The presence and magnitude of contaminants at the Site, if present.
- The extent and composition, both physical and chemical, of overburden (fill/soil) material.
- The hydrogeologic characteristics (e.g., depth to saturated zone, proximity to drinking water aquifers, flood plains and wetlands).
- The potential for migration of contaminants from the Site, and whether possible future migration may pose a threat to human health or the environment.
- The preliminary identification of potentially feasible remedial alternatives, if warranted.

This report summarizes the findings of field activities conducted at the Site in January, May and June 2005, May and July 2006 by Ecosystems Strategies, Inc., and July-August 2007 by Malcolm Pirnie. Field activities were conducted in accordance with the

NYSDEC-approved Supplemental RI Work Plan for the Former Teutonia Hall Site, submitted by Malcolm Pirnie in July 2007.

1.2. Site Description and Location

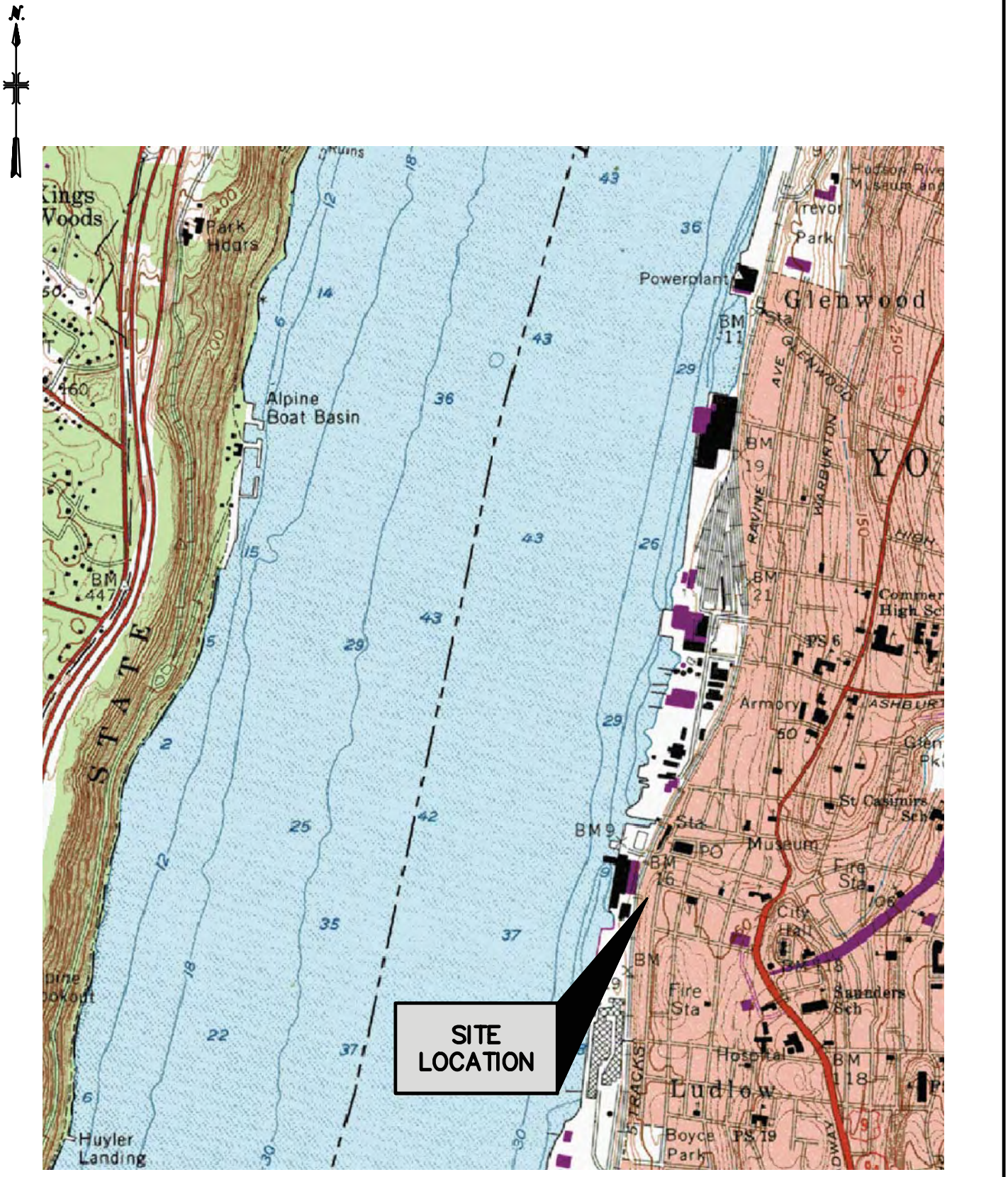
As shown on Figures 1-1 and 1-2, the Former Teutonia Hall Site is situated on approximately 0.75-acres of land located in the City of Yonkers, Westchester County, New York. The properties or parcels that comprise the BCP redevelopment area include the attached building complex and land at #41, 45, 47, 51 and 53 Buena Vista Avenue shown on Figure 1-3. The Site is located approximately 500 feet east of the south-flowing Hudson River and is currently bounded to the north by a vacant building, to the south by residential property, to the east by Buena Vista Avenue and to the west by the active Metro North/Amtrak railroad line and Right of Way.

1.3. Site Background and History

A variety of light industrial commercial enterprises and residential buildings have occupied the property(ies) that comprise the Site investigation area. Historic development of these parcels has included a variety of commercial enterprises that may have impacted Site media. The business ventures have included: clothing, jewelry and toy manufacturing, dry cleaning, dental office facilities, warehouse storage and auto repair/parts distribution.

1.4. Report Organization

Section 2 provides details concerning the physical characteristics of the Site area, including topography, demography, and the geologic setting. Section 3 summarizes the findings of previous investigations conducted at the Site, and Section 4 provides a description of the field activities conducted during this Site investigation including field methods and results. Section 5 provides the results of the hydrogeologic evaluation of the Site, and Section 6 provides the findings of the data usability and summary reports. Section 7 discusses the nature and extent of contaminant impacts in the soil vapor, surface and subsurface soil/fill, and groundwater at the Site. The human health risk assessment and conclusions with recommendations are provided in Sections 8 and 9, respectively. References for investigations and literature cited in this report are provided in Section 10.



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YONKERS, NEW YORK
FORMER TEUTONIA HALL SITE
41 TO 53 BUENA VISTA AVE.

VICINITY MAP

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FIGURE 1-1

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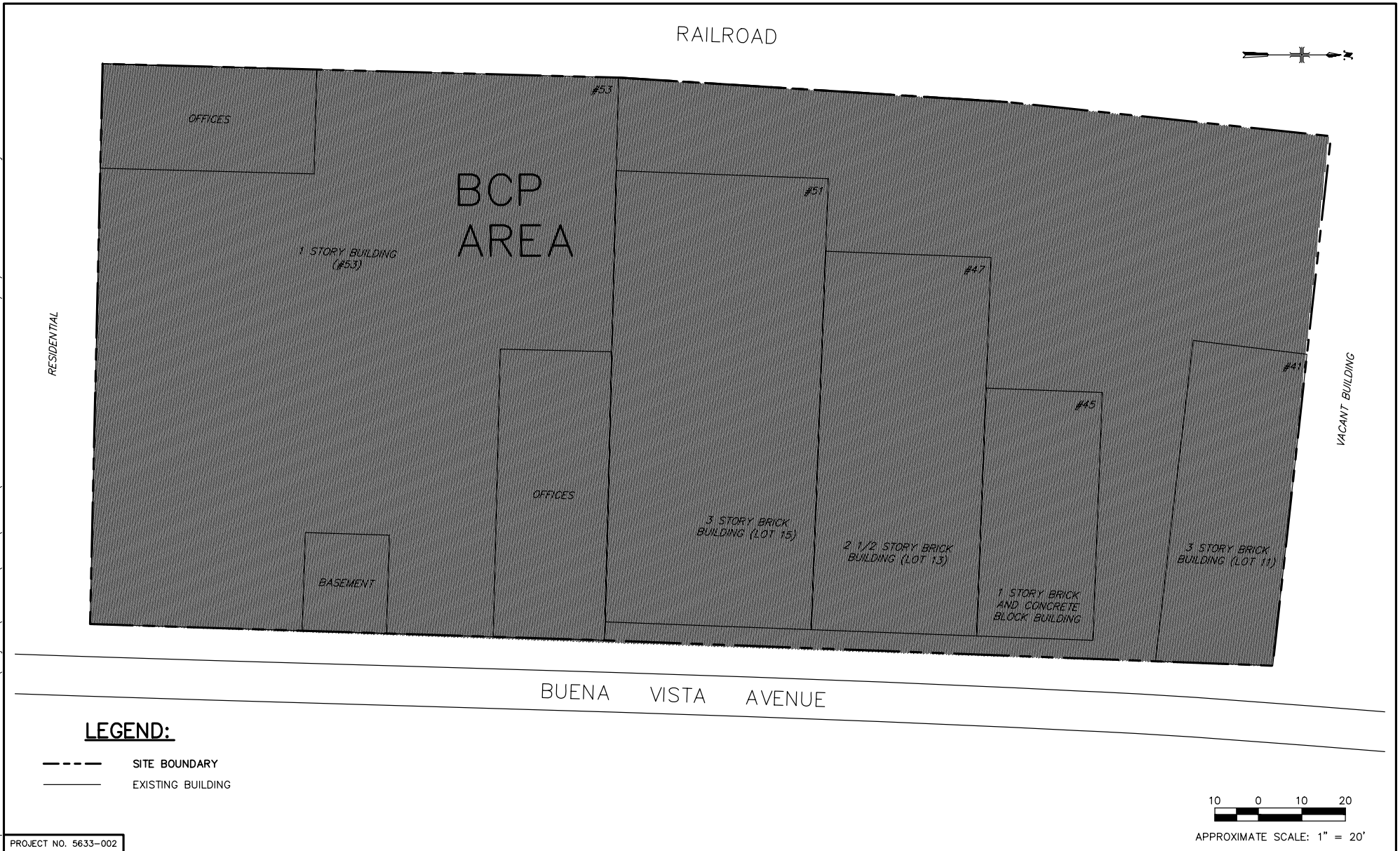
AERIAL PHOTOGRAPH
Human Health Evaluation
Former Teutonia Hall Site
Yonkers, New York

January 2008

FIGURE 1-2



PROJECT NO. 5633-002

MALCOLM PIRNIE

YONKERS, NEW YORK
FORMER TEUTONIA HALL SITE
41 TO 53 BUENA VISTA AVE.

BCP – PROPERTY OUTLINE
REMEDIAL INVESTIGATION

MALCOLM PIRNIE, INC.
MARCH 2008
FIGURE 1–3

2. Physical Setting

2.1. Land Use and Demography

Situated in the City of Yonkers, NY, the properties surrounding the Site are zoned for residential and light commercial/industrial use. In its present condition, the portion of the Site admitted into the BCP consists of five buildings, ranging from one to three stories in height. Prior to and during the July RI investigation, the building located at #53 Buena Vista Avenue was actively used as an auto/truck maintenance facility. The repair and maintenance activities have since ended and the entire BCP Site is now inactive and vacant.

The Site is bounded to the north by a vacant building, to the east by Buena Vista Avenue, to the south by residential land use, and to the west by the active Metro North/Amtrak railroad line.

2.2. Topography and Drainage

The Former Teutonia Hall Site is located in the lower Hudson River Valley within the New England uplands physiographic province. Major topographic features of the province are the result of the variable nature of the underlying bedrock and periods of glaciation that created scoured uplands, glacial troughs, and reworked deposits of deep valley fill.

The surface topography within the City of Yonkers is characterized by an elevated ridge of differentially eroded bedrock and mantle of unconsolidated sediment having a north to south trending axis of orientation. Radial surface water drainage flows from the rounded hilltops east toward the Saw Mill River and west toward the Hudson River drainage systems. Peak elevations within the City range from a maximum of 350 to 400 feet above mean sea level (AMSL) to the low elevation (sea level) as measured at the City's western edge along the Hudson River.

The Site is located less than 500 feet east of the Hudson River on a gently sloping topographic bench approximately 50 feet above the River's edge. The elevation on the Site ranges from approximately 30 to 50 feet AMSL. The topography of the Site directs local surface water drainage to the north with a regional westerly shallow groundwater component imparted toward the Hudson River.

2.3. Climate

The climate of Yonkers is characterized as temperate, maritime with weather patterns influenced by air masses and weather systems that originate over land areas of the North American continent. Cool, dry weather prevails when the airflow descends from the northwest. Conversely, warmer and more humid weather prevails when airflow comes from the south and southwesterly directions. The Site climate can be generally defined as follows:

- Average Annual Precipitation = 51.01 inches
- Average Summer High Temperature = 85.5^{o} F
- Average Winter Low Temperature = 22.4^{o} F

2.4. Soils

The Soil Survey of Westchester County identifies the soils as Urban Land, which is defined as areas having 80 percent or more of the surface covered by asphalt, concrete, or buildings. Soil borings drilled at the Site encountered a soil profile generally consisting of red-brown fine to coarse sands, with silt and gravel. This material is consistent with deposits identified in this area by the Surficial Geologic Map of New York (Cadwell Et al., 1986). The map identifies the material as stratified outwash sand and gravel deposits.

2.5. Regional Geology and Hydrogeology

2.5.1. Regional Overburden Geology

The Surficial Geologic map of New York identifies surficial geology at the Site as stratified outwash sands and gravels (Cadwell Et al., 1986). Poorly-sorted till is mapped at the higher elevations north and south of the Site. Based on subsurface data collected during drilling and soil excavation activities completed in close proximity to the Site, the native overburden consists of interbedded outwash sands, and silty sands, underlain by poorly sorted gravels, and cobbles.

2.5.2. Regional Bedrock Geology

According to the Geologic Map of New York, the Site is underlain by Metamorphic bedrock defined as the Manhattan Schist. The Manhattan Schist consists of Paleozoic (~ 450 million year old) massive rusty- to sometimes maroon-weathering, medium- to coarse-textured, biotite-muscovite-plagioclase-quartz-garnet-kyanite-sillimanite gneiss and, to a lesser degree, schist. The unit is characterized by the lack of internal layering, the presence of kyanite, sillimanite, quartz, and magnetite layers and lenses up to 10 centimeters (cm) thick, with interbedded layers of black amphibolite (metabasalt), and minor quartzose granofels. The unit is a major ridge former in northern Manhattan; its durability is a result of the lack of layering and the presence of weathering-resistant

minerals including quartz, garnet, kyanite, and sillimanite. Boreholes advanced to a maximum depth of 47.5' bgs during the RI drilling program did not penetrate bedrock.

2.5.3. Regional Hydrogeology

Based on the regional topography, the groundwater flow in the vicinity of the Site is expected to flow from the elevated recharge areas located east of the Site into the Hudson River drainage system that ultimately discharges southward into the Atlantic Ocean.

3. Summary of Previous Investigations

3.1. General

The following is a summary of previous environmental investigations performed at the Site. Information for this summary was obtained from reports, or portions of reports, provided by Teutonia Buena Vista, LLC. Copies of the reports and/or portions of reports are included on the CD-ROM diskette included in Appendix A. Figure 3-1 illustrates the borehole, soil gas and groundwater sampling locations advanced during the investigations discussed below. Analytical results of the Site investigations discussed below are summarized in Tables 3-1 (soil vapor), Table 3-2 (surface and subsurface soil), Table 3-3 (sediment), and Table 3-4 (groundwater). Where appropriate, the tabulated historical data is referenced to the most current NYS regulatory guidance criteria (i.e. New York State Soil Cleanup Objectives (NYS SCO's) and NYSDOH air guidance).

3.2. Previous Investigations

Prior to implementing the 2007 RI investigation, all investigations were performed on the Buena Vista properties previous admitted into the BCP program. Subsequent to the sale and change of ownership, the BCP Site boundary was modified to include the Bldg. #53 property.

January 2005 – Working on behalf of S&B Environmental, LLC, the consulting firm of Ecosystems Strategies, Inc. (ESI) performed a Combined Phase I and II Environmental Site Assessment (ESA) at the Former Teutonia Hall BCP Site (#41 to 51 Buena Vista Ave.). Results of the Phase I and Phase II Assessment were summarized in a report dated January 2005. The report identified several environmental concerns or conditions that included:

- Two (2) inactive above ground fuel-oil storage tanks (ASTs) that are encapsulated with soil material in concrete vaults located in the basements of the buildings at 45 and 51 Buena Vista Avenue. The approximate volume of the ASTs is 3,000 and 1,000 gallons, respectively.
- A 55-gallon drum containing a petroleum fuel product is located in the basement of the Bldg. #51 property.
- A cursory inspection identified potential asbestos containing materials and lead based paint in the #41 to 51 Buena Vista Avenue buildings.
- A floor drainage system identified as a potential contaminant transport mechanism is located in the basement at #47 Buena Vista Avenue.

Table 3-1
HISTORICAL RESULTS - SOIL VAPOR
FORMER TEUTONIA HALL SITE

	Semi-site-specific [2] Target Soil Gas Concentration [3]			January 2005	June 2005								May 2006										July 2006					
	@ 10^{-6} target cancer risk and target HQ = 1	@ 10^{-4} target cancer risk and target HQ = 1	NYSDOH Air Guideline Value [1]	Bldg. 47	Bldg. 51			Bldg. 47			Bldg. 45	Bldg. 41	Bldg. 45	Bldg. 47	Bldg. 51						Bldg. 47	Bldg. 51	Bldg. 53					
				HB-5SG	2SG-1	2SG-2	2SG-3	2SG-4	2SG-5	2SG-6	2SG-7	2SG-8	3SG-1	3SG-2	3SG-3	3SG-4	3SG-5	3SG-6	3SG-7	3SG-8	3SG-9	3SG-10	4SG-1	4SG-2	4SG-3	4SG-4	4SG-5	4SG-6
Volatile Organic Compounds (µg/m^3)																												
1,1,1-Trichloroethane	1,100,000	1,100,000	NA	ND	ND	ND	ND	30.5	52.7	33.3	18.9	ND	8.88	9.99	32.7	ND	ND	ND	ND	ND	6.1	ND	ND	77.7	ND	ND	ND	ND
1,2,4-Trimethylbenzene	3,000	3,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.5	3	3.5	10	ND	ND	ND	ND	10	33.5	ND	21.5	17.5	17.5	145	18.5
1,3,5-Trimethylbenzene	3,000	3,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.5	6	ND	12.5	ND	ND	ND	ND
4-Ethyltoluene	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.49	4.49	4.99	1.2	ND	ND	ND	ND	27.5	54.9	ND	ND	ND	ND	ND	ND
Acetone	180,000	180,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	87	29	29	21.8	ND	ND	ND	ND	17.2	18.9	ND	ND	ND	ND	ND	ND
Benzene	160	16,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	ND	ND	2.27	ND	ND	ND	ND	ND	11.4	ND	ND	ND	ND	ND	ND
Carbon Disulfide	350,000	350,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.53	8.87	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cyclohexane	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	22.1	4.2	2.8	ND	ND	ND	ND	ND	4.9	8.4	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	18,000	18,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	766	ND	ND	ND	ND	80.7
Ethylbenzene	1,100	110,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.27	13.7	ND	12.4	10.6	9.27	20.8	21.2
Isopropanol	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	190	ND	ND	ND	ND	ND	ND	ND	11.8	9.25	ND	ND	ND	ND	ND	ND
Methyl Ethyl ketone	500,000	500,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	17.4	ND	ND	ND	ND	ND	ND	ND	6	7.8	ND	ND	ND	ND	ND	ND
MTBE	1,500,000	1,500,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.66	ND	ND	ND	ND	ND	ND	ND
n-Heptane	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.57	ND	ND	ND	ND	ND	ND
n-Hexane	100,000	100,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	18.6	4.29	24.3	ND	ND	ND	ND	ND	ND
o-xylene	3,500,000	3,500,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.21	4.86	ND	ND	ND	ND	9.72	17.2	ND	21.2	14.1	12.8	19.9	23.9
p-&m-Xylenes	3,500,000	3,500,000	NA	ND	6.18	ND	ND	ND	5.74	ND	ND	ND	2.21	1.77	3.09	7.07	2.21	ND	ND	ND	14.1	24.3	ND	27.4	20.8	17.7	36.2	38
Propylene	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.92	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Styrene	500,000	500,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.2	2.17	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	410	41,000	100	ND	***9660***	***966***	***317***	69	***441***	82.8	***103***	29	60	55.9	***138***	31.7	***207***	***5380***	***1180***	***421***	***124***	***228***	***5380***	***1030***	***1100***	***586***	***290***	***2970***
Toluene	200,000	200,000	NA	4.22	8.05	4.22	3.83	4.6	5.75	ND	4.98	ND	3.45	2.68	7.67	19.9	65.2	ND	ND	3.45	29.5	65.2	ND	49.8	42.2	42.2	149	149
Trichloroethylene (TCE)	11	1,100	5	ND	***21.3***	***15.9***	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	***5.47***	ND	ND	ND	ND	ND	***2460***	***92.9***	***32.8***	***24.6***	***17.5***	***656***
Trichlorofluoromethane	350,000	350,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.57	5.71	ND	ND	ND	ND	ND	ND

Notes

Highlighted concentrations exceed the semi-site specific target soil gas concentrations.

Bold/Italic values exceed NYSDOH air guidance value(s).

(1) New York State Department of Health Air Guideline Values (Table 3.1; NYSDOH, 2006)

(2) Semi-site-specific attenuation factor = 0.002 for sand substrate and 3' sample depth (Figure 3a; USEPA, 2002)

(3) Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (USEPA, 2002).

HQ = Hazard quotient for adverse, noncancer health effects

NA = Not Available

Table 3-2
HISTORICAL RESULTS - SOIL SAMPLES
FORMER TEUTONIA HALL SITE

Investigation	NYS SCO's	NYS SCO's	Urban Background Concentrations(2)(3)	January 2005							November 2005																					May 2006								
Sample ID	Restricted Residential	Restricted Commerical		HB-1	HB-3	HB-3	HB-4	HB-6	HB-7	HB-8	2HB-1	2HB-1	2HB-2	2HB-2	2HB-3	2HB-3	2HB-4	2HB-5	2HB-5	2HB-6	2HB-6	2HB-7	2HB-7	2HB-8	2HB-8	2HB-9	2HB-9	2HB-10	2HB-10	SB-1	SB-2	SB-3	SB-3	SB-4	SB-4	SB-5	SB-5	SB-6	SB-7	SB-8	SB-9
Depth (ft bgs)				0-2	0-2	2-4	4-6	0-2	8-10	0-2	4-6	8-10	0-2	6-8	0-2	6-8	4-6	0-2	6-8	0-2	4-6	0-2	8-10	5-6	9-10	0-2	9-10	0-2	7.0	0-2	0-0.5	0-0.5	8-10	0-0.5	8-10	8	10-12	0-0.5	0-0.5	0-0.5	0-0.5
Volatile Organic Compounds (µg/kg)																																								
1,2,4-Trimethylbenzene	52,000	190,000	NA	ND	11	7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	52,000	190,000	NA	ND	16	9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	19,000	150,000	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1300	ND	ND	ND	ND	ND	ND	ND	ND	ND	12,000	ND	ND	ND	25 J
Semi-Volatile Organic Chemicals (µg/kg)																																								
Acenaphthene	100000	500000	NA	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	6,700	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	100000	500000	NA	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	790 J	800 J	ND	4,800	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	1000	5600	169-59,000	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,100 J	2,200 J	ND	16,000	ND	ND	ND	ND	63 J	ND	1,300 J	ND
Benzo(a)pyrene	1000	1000	165-220	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	***1,800 J***	***1,800 J***	ND	***11,000***	ND	ND	ND	ND	ND	ND	***1,400 J***	ND
Benzo(b)fluoranthene	1000	5600	15,000-62,000	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,200 J	2,300 J	910 J	21,000	ND	ND	ND	ND	88 J	ND	1,500 J	ND
Benzo(ghi)perylene	100000	500000	900-47,000	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	600 J	890 J	ND	4,600	ND	ND	ND	ND	ND	ND	850 J	ND
Benzo(k)fluoranthene	3900	56000	300-26,000	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	7,400	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate				N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,500 J	2,100 J	ND	950 J	ND	ND	1,900 J	1,000 J	ND	ND	ND	ND
Carbazole			NA	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	3,500	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	3900	56000	251-640	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,200 J	2,200 J	ND	***16,000***	ND	ND	ND	ND	70 J	ND	***1,200 J***	ND
Di-n-butyl phthalate			NA	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	1,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	100000	500000	200-166,000	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	4,600	1,500	27,000	78 J	ND	ND	ND	140 J	ND	2,000 J	ND
Fluorene	100000	500000	NA	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	5,500	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1 2 3-cd)pyrene	500	5600	8,000-61,000	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	590 J	ND	2,800 J	ND	ND	ND	ND	ND	ND	810 J	ND
2-Methylnaphthalene				N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND	ND	6,500	ND	ND	680 J	ND	ND	ND	ND	ND
Naphthalene	100000	500000	NA	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	700 J	ND	ND	35,000	ND	ND	1,000 J	ND	ND	ND	660 J	ND
Phenanthrene	100000	500000	NA	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3,800	3,400	ND	27,000	ND	ND	ND	ND	65 J	ND	ND	ND
Pyrene	100000	500000	145-147,000	N/A	N/A	N/A	ND	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4,000	ND	1,600 J	27,000	77 J	ND	ND	ND	110 J	ND	1,800 J	ND
Metals (mg/kg)																																								
Aluminum			33,000	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	4830	7810	5250	5150	7940	3870	4340	4740	8820	4980	4670	5750
Antimony			N/A	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8.56	4550	5.59	3.66	5.79	0.344	0.38	2.6	13.9	0.357	0.904	3.53
Arsenic	16	16	3 - 12**	5.2	N/A	N/A	N/A	4	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2.85	***33.9***	1.25	1.03	2.71	0.411	0.454	0.414	3.14	1.67	1.27	2.82
Barium	400	400	15 - 600	85.7	N/A	N/A	N/A	60	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	52.6	83.2	50.5	39.7	50.7	30.2	46	29.6	52.1	37.4	42.4	54.1
Beryllium	72	590	0 - 1.75	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.176	0.332	0.17	0.167	0.306	0.096	0.116	0.151	0.32	0.179	0.166	0.203
Cadmium	4.3	9.3	0.1 - 1	1.19	N/A	N/A	N/A	1	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.4	0.406	0.035	0.035	0.037	0.035	0.038	0.035	0.039	0.036	0.035	0.035
Calcium			130 - 35,000	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50300	2690	4260	3560	4330	8450	1990	2160	3270	3500	2090	3150
Chromium	180	1500	1.5 - 40**	22.8	N/A	N/A	N/A	17	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	16.2	22.8	24.3	15.8	15.6	12.1	12.5	13.9	16.7	12.2	9.97	13.1
Cobalt			2.5 - 60**	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3.75	1.19	6.3	5.47	6.93	8.58	5.03	4.77	7.28	4.92	4.47	5.23
Copper	270	270	1 - 50	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	***81.9***	***401***	35	35.1	21.6	27.4	22.7	30.3	22.5	24.2	26.9	30.4
Iron			2,000 - 550,000	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	8630	5460	9490	8820	13400	8820	7710	7760	14200	8840	7810	9770
Lead	400(4)	1000	200-500	63	N/A	N/A	N/A	15	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	160	***44,200***	202	37.8	77.4	8.88	147	1.6	18.2	36.9	61	74.6
Magnesium			100 - 5,000	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	30500	1290	4200	3890	4190	8430	2550	2820	3520	2950	2490	2610
Manganese	2000	10000	50 - 5,000	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	218	127	235	235	381	203	140	186	381	263	262	258
Mercury	0.81	2.8	0.001 - 0.2	0.26	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	***0.419***	***2***	***0.242***	0.106	0.146	0.012	ND	0.008 J	***3.3***	0.11	***2.8***	***0.799***
Nickel	310	310	0.5 - 25	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	9.68	***88.9***	13.8	13.1	12.9	***38.3***	10.4	1.0.8	13.3	10.8	10.3	11.8
Potassium			8,500 - 43,000**	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	958	748	1160	989	552	592	774	485	1270	914	676	712
Selenium	180	1500	0.1 - 3.9	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.363	1.6	0.488	0.363	0.379	0.357	0.395	0.36	0.668	0.371	0.361	0.372
Silver	180	1500	NA	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.084	48.7	0.084	0.084	0.088	0.083	0.091	0.083	0.093	0.086	0.084	0.084
Sodium			6,000 - 8,000	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	179	361	154	156	174	245	122	173	159	69	112	168
Thallium			NA	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.561	1.1	0.56	0.56	586	0.552	0.61	0.556	0.619	0.573	0.559	0.558
Vanadium			1 - 300	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	15.3	21.4	16.2	14.9	19.4	11.7	13.7	13.6	22.3	14.6	13.1	15.6
Zinc	10000	10000	9 - 50	ND	N/A	N/A	N/A	ND	N/A	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	***116***	***1020***	***59.6***	45.8	***81***	23.2	20.4	19.2	39.9	***65.3***	36.6	***61.7***

Notes

Only those analytes detected at a minimum of one location and greater than the reporting limit are shown.

Highlighted concentrations exceed NYS Restricted Residential SCOs.

Bold/Italic values exceed upper limits of urban background concentrations.

(1) New York State Dept. of Environmental Conservation Recommended Soil Cleanup Objectives, Dec. 2006.

(2) TAL Inorganic Analytes from Eastern USA Background as shown in New York State Dept. of Environmental Conservation TAGM 4046, Dec. 2000.

(3) SVOCs background from Background Soil Concentrations of Poly Aromatic Hydrocarbons (PAHs), Urban Soils (U.S. and other), Toxicological Profile for PAHs, US Dept. of Health and Human Services, August 1995.

(4) USEPA Region 3 Soil Screening Level.

*** New York State background concentration.*

*** - The Soil Cleanup Objective refers to the sum of these compounds.*

B - indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.

J - Indicates value detected below quantitation limit.

N/A - Not Applicable or Not Available.

Table 3-3
FLOOR DRAIN SEDIMENT SAMPLE RESULTS
FORMER TEUTONIA HALL SITE

	NYS SCO's[1]		January 2005	
	Restricted Residential	Restricted Commercial		
Sample ID			**G-1**	**G-2**
Volatile Organic Compounds (µg/kg)				
			ND	N/A
Semi-Volatile Organic Compounds (µg/kg)				
Benzo(k)fluoranthene	3900	56000	280	--
Chrysene	3900	56000	390	--
Fluoranthene	100000	500000	570	--
Phenanthrene	100000	500000	2500	--
Pyrene	100000	500000	900	--
Metals (mg/kg)				
Arsenic	16	16	--	***16.1***
Barium	400	400	--	146
Cadmium	4.3	9.3	--	***14.7***
Chromium	180	1500	--	27.3
Lead	400	1000	--	***2360***
Mercury	0.81	2.8	--	**1.31**
Silver	180	1500	--	111

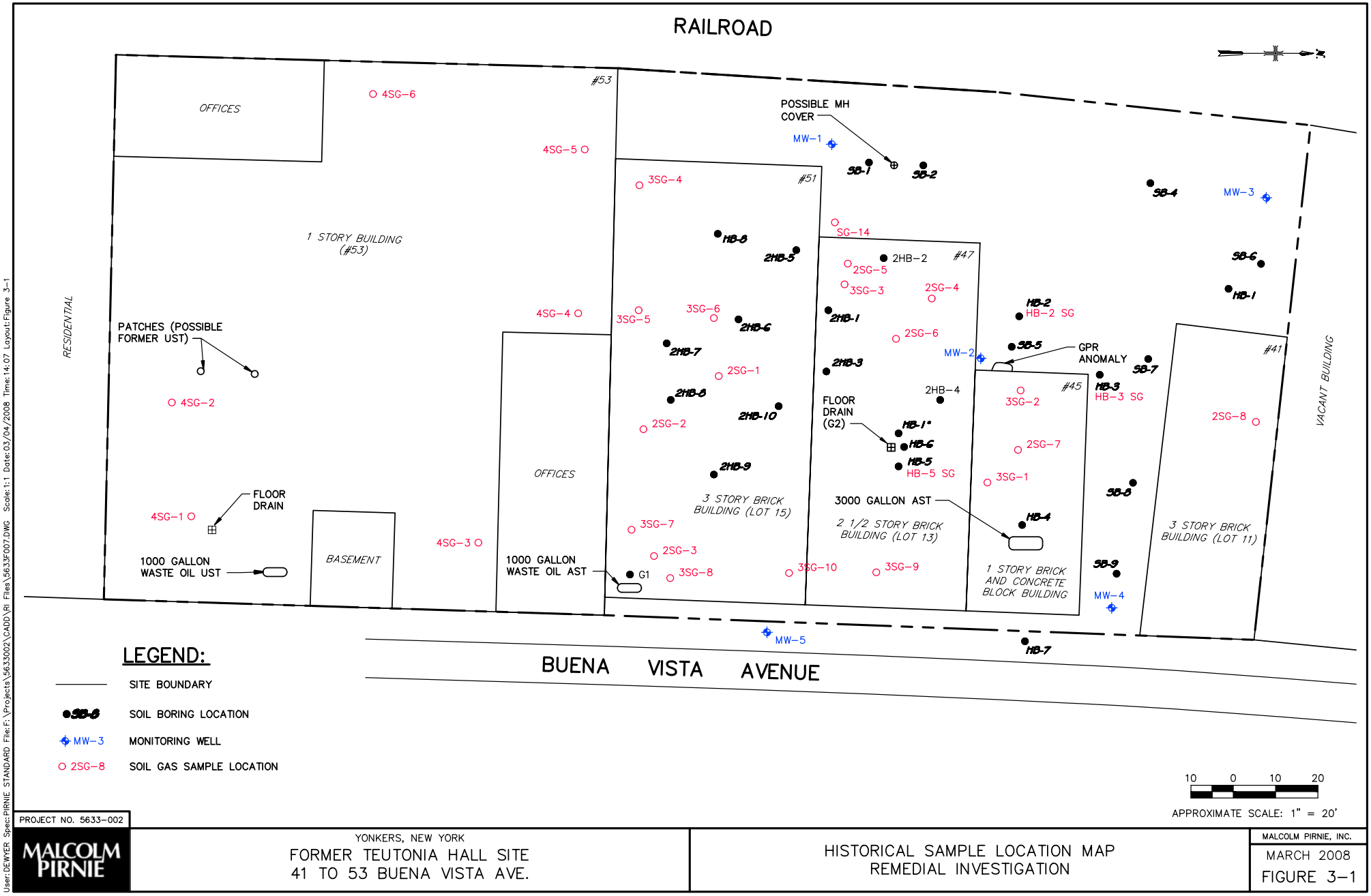
Notes:
Only those analytes detected at a minimum of one location and greater than the reporting limit are shown.
Highlighted concentrations exceed NYS Restricted Residential SCOs.

(1) New York State Dept. of Environmental Conservation Recommended Soil Cleanup Objectives, Dec. 2006.
NA - Not Applicable or Not Available.
-- = not analyzed

Table 3-4
HISTORICAL RESULTS - GROUNDWATER
FORMER TEUTONIA HALL SITE

	Class GA	May 2006										August 2007
	Guidance Level	MW-1		MW-2	MW-2	MW-3		MW-4		MW-5	MW-5	MW TEMP
Volatile Organic Compounds (µg/L)												
1,2-Dichloroethylene (Total)		ND		ND		1.0 J		ND		ND		ND
Chloroform		ND		6.4		0.57 J		3.5 J		ND		ND
Methylene Chloride	5											**19**
Tetrachloroethylene		1.7 J		ND		4.0 J		ND		ND		ND
Metals (ug/L)		**Total**	**Dissolved**	**Total**	**Dissolved**	**Total**	**Dissolved**	**Total**	**Dissolved**	**Total**	**Dissolved**	**Total**
Aluminium		391	89.1	530	116	42.1 J	23 J	576	109	979	137 J	58500
Antimony	3	ND	**4.14 J**	**7.08 J**	ND	ND	**5.62**	ND	ND	**11.8J**	**4.84 J**	**8.3 J**
Arsenic	25											**29.6**
Barium	1000	124	123	74.6	65	118	124	86.1 J	73.7 J	84.8	70.1	865
Beryillium	3	0.11	0.09	ND	ND	ND	ND	ND	ND	ND	ND	2.7
Cadmium	5											**12.3**
Calcium		94,600	96,300	46,700	44,000	115,000	122,000	56,100	52,800	122,000	117,000	246000
Chromium	50	4.2 J	3.23 J	3	0.85 J	2.87 J	5.87 J	3.31 J	0.81 J	4.26 J	1.25 J	**126**
Copper	200	4.27 J	3.65 J	ND	ND	ND	ND	3.71 J	ND	5.27 J	ND	**456**
Iron	300	**347**	41.5 J	**548**	83.8 J	ND	ND	**668**	96.4	**1,100**	140	**71800**
Lead	25											**1780**
Magnesium	35,000	32,800	33,400	19,200	18,000	**42,700**	**45,500**	22,800	21,400	**52,700**	**50,400**	**86500**
Manganese	300	232	222	97.9	73.6	187	194	**709**	**623**	**528**	**432**	**23000**
Mercury	0.7	ND	0.08 J	ND	0.08 J	0.11	0.08	0.12	0.03	0.09 J	0.04 J	**5.0**
Nickel	100											**245.0**
Potassium		6510	6740	6640	5770	10,200	11,200	10,200	9,080	14,400	12,500	52000
Sodium	20000	**192,000**	**196,000**	**92,800**	**86,000**	**56,600**	**60,200**	**138,000**	**126,000**	**182,000**	**172,000**	**397,000**
Thallium	5	**5.17 J**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vanadium		ND	ND	0.77	ND	ND	ND	ND	ND	ND	ND	107
Zinc	2,000	20.1	29.5	27	28	17.1 J	32	30.4	31.9	18.1	28.6	**2570**

Notes:
[1)] Class GA Ambient Water Quality Standards and Guidance Values from TOGS series 1.1.1, June 1998, and April 2000 addendum
Shaded and framed concentrations exceed Class GA groundwater standards or guidance values.
Only those analytes detected at a minimum of one location and greater than the reporting limit are shown
Blank space indicates analyte was not detected
- Indicates sample was not analyzed for this parameter
Shaded and framed concentrations exceed SCO
MDL - Method detection Limit
N/A - Not applicable or available
TICs Tentatively Identified Compounds
DATA QUALIFIERS
J - indicated an estimated value. Results is < sample quantification limit but >0.
B - analyte found in associated blank as well as sample.



PROJECT NO. 5633-002

MALCOLM PIRNIE

YONKERS, NEW YORK
FORMER TEUTONIA HALL SITE
41 TO 53 BUENA VISTA AVE.

HISTORICAL SAMPLE LOCATION MAP
REMEDIAL INVESTIGATION

MALCOLM PIRNIE, INC.
MARCH 2008
FIGURE 3-1

XREFS:F:\Projects\5633002\CADD\RI Files\XREF\B-V_AVE-GSP - FIGURE 3-1.dwg F:\Projects\5633002\CADD\RI Files\XREF\11x17-BOR.dwg IMAGES:None
User:DEWYER Spec:PIRNIE STANDARD File:F:\Projects\5633002\CADD\RI Files\5633F007.DWG Scale:1:1 Date:03/04/2008 Time:14:07 Layout:Figure 3-1

Based on a review of historic Sanborn maps and documented on-site work practices, a limited Phase II ESA was performed by ESI during January 2005 to assess Site environmental conditions.

The Phase II ESA, subsurface drilling, and environmental media sampling program was completed at the # 41 through #51 Parcels of the Teutonia Hall Site. The purpose of the sampling program was to characterize the physical and chemical properties of the shallow overburden unit beneath the Site. The sampling program included the collection of surface and subsurface soil, sediment and soil gas samples.

A total of 8 borings designated HB-1 through HB-8, were advanced from ground surface to a maximum depth of 10 feet below ground surface (bgs). Selected soil samples from each boring were collected based on photo-ionization detector (PID) screening results coupled with visual and olfactory observations. Soil/sediment samples G-1 and G-2 were collected adjacent to the AST in Building #51 and from the floor drain in Building #47, respectively. Soil samples were submitted for analyses of Volatile Organic Compounds (VOCs), selected Semi-Volatile Organic Compounds (SVOCs) including polycyclic aromatic hydrocarbons (PAHs), and RCRA metals. Three soil gas samples identified as HB-2 SG, HB-3 SG and HB-5 SG, were collected at manually advanced borings and analyzed for VOCs by EPA Method TO-14A.

Analytical results for soil and sediment samples identified elevated concentrations of PAHs and selected metals above the NYS Soil Cleanup Objectives for Restricted Residential use guidance criteria. More specifically, PAHs were detected at the G-1 sample location with concentrations of arsenic, cadmium, chromium lead and mercury detected at borehole locations HB-1 (0-2') and in the sediment sample G-2. The highest concentrations of RCRA metals were detected at the G-2 floor drain sample.

Analytical results determined for soil gas samples identified a very low concentration of toluene in the sample collected at the HB-5 SG location.

Overburden consists of fill (0-4') overlying loose brown-red sand, fine-medium grained with trace clay. Saturated conditions were not encountered at depths less than 10 feet below ground surface.

- Elevated concentrations of arsenic, cadmium, lead and mercury that exceed NYS SCO's criteria were detected in sediment samples collected from the floor drain designated G-2 located in the basement of building #47.
- Asbestos containing materials were identified in Site building materials.

June 2005 – During June 2005, a supplemental soil gas sampling program was completed by ESI at the #41-51 Buena Vista Site to better delineate areas of contamination and to further characterize soil gas within shallow soil materials. A total

of 8 soil gas samples designated 2SG-1 through 2SG-8 were collected from small diameter borings advanced within the confines of the on-site buildings. These samples were submitted for VOC analysis by EPA Method TO-14A.

Analytical results of the soil gas samples identified VOCs, more specifically chlorinated solvents 1,1,1-Trichloroethane (TCA), Tetrachloroethene (PCE), Toluene, and Trichloroethene (TCE) in each of the Site soil gas samples. Elevated concentrations of PCE and TCE that exceed the semi-site specific target soil gas criteria were detected in the samples collected at sample locations 2SG-1, 2SG-2 and 2SG-5. As shown on Table 3-1 the greatest concentrations of PCE and TCE were identified below Bldg. #51in the sub-slab soil gas samples collected at location 2SG-1.

A summary of data collected during the June 2005 investigation revealed:

- Multiple VOCs associated with BTEX and chlorinated solvent compounds were detected in soil gas samples collected throughout the entire Site;
- Elevated concentrations of PCE identified in soil gas samples collected in the #51 property may infer a potential "Hot Spot" or source area spill.

May 2006 – During May 2006, ESI conducted a supplemental subsurface drilling, sampling and geophysical investigation on behalf of the Urban Group LLC under an initial BCP agreement. The purpose of this supplemental Site investigation was to further characterize the physical and chemical properties of Site soil gas, soil and groundwater and if present, identify the location and orientation of any underground storage tanks (USTs).

Prior to the implementation of the subsurface investigation, a non-invasive geophysical survey was completed by the subcontracted firm NAEVA Geophysics Inc. Ground penetrating radar (GPR) was used to perform the investigation that focused on two areas located immediately west of buildings #45 and 47. Results of the gridded survey identified a semi-circular anomaly adjacent to the west wall of building #45. The floor drain present in the basement of building #47 was determined to connect with a drainage system that drains toward Buena Vista Avenue. The potential manhole/drain cover observed west of building #47 was determined to be connected to the municipal sewer system.

A total of nine soil borings were advanced outside of the Site buildings. The borings advanced during the May 2006 investigation, generally confirmed a soil material/fill depth which ranges from approximately 2 to 6 feet in thickness. Soil borings were designated SB-1 through SB-9.

Soil samples were collected at selected borehole locations based on photo-ionization detector (PID) screening results coupled with visual and olfactory observations. Samples

were submitted for Target Compound List (TCL) VOC and SVOC analytes, Polychlorinated Biphenyl's (PCBs) and Target Analyte List (TAL) Metals.

Analytical results of the soils testing identified elevated levels of PCE, SVOCs and metals above Restricted Residential SCO's guidance criteria. Specifically, an elevated PCE concentration was detected at a depth of 10-12 feet bgs at boring SB-5 located in Bldg. #51. PAH exceedances above NYS SCO's were detected at the borehole locations designated SB-1 (0.0-2.0'), SB-2 (0.0-0.5'), SB-3 (8.0-10.0'), and SB-8 (0.0-0.5'). Analysis of soil samples submitted from the borings also identified arsenic, lead and mercury at concentrations that exceed the SCO restricted residential guidance criteria for metals (See Table 3-2). The highest concentrations of metals were detected in the surface soil sample collected in the 0.0-0.5' interval at the SB-2 location.

A total of five groundwater samples were collected at locations shown on Figure 3-1. The groundwater samples designated MW-1 to MW-5 were submitted for VOC, SVOC, PCBs and TAL total and dissolved metals analyses.

Results of the groundwater testing generally indicated no significant VOC, SVOC or PCB impacts to the Site groundwater. However, as shown on Table 3-3 elevated concentrations of antimony, iron, magnesium, manganese, and sodium were detected above NYSDEC Class GA groundwater standards in the groundwater samples collected from the monitoring well network. .

A total of 10 soil gas samples designated 3SG-1 through 3SG-10 were collected from sub-slab borings advanced within the #45 to #51building structures (Figure 3-1). The soil gas samples were submitted for VOC analysis by EPA Method TO-15.

Analysis of the soil gas samples collected during the May 2006 event identified significantly elevated concentrations of PCE in the samples 3SG-6 and 3SG-7. A review of the soil gas data collected at the 2SG-1, 2SG-2, 3SG-6 and 3SG-7 sampling locations support a determination of a potential "Hotspot" source area in shallow overburden material beneath the easternmost half of Bldg #51. With the exception of soil gas samples collected at locations 3SG-5, 3SG-6, 3SG-7 and 3SG-8, concentrations of VOCs associated with petroleum based derivatives were generally detected in all soil gas samples collected during the May 2006 event.

The May 2006 investigation data suggests that the source of Site impacts detected in surface soil, subsurface soil, soil gas, and groundwater may be the result of historic work practices and property use coupled with a potential release of petroleum based products.

July 2006 – Working on behalf of Urban Group LLC, ESI was contracted to perform a combined Phase I and II ESA of the AVET Coach Corp. property located at 53 Buena Vista Avenue. The 0.25 acre property is characterized as a 1 story building containing an

automotive repair shop and office space. The Phase I report identified several environmental concerns or conditions that included:

- One underground storage tank (UST) was located on the ground floor in the southeastern quadrant of Bldg. #53. The 1,000 gallon tank is used for the storage of waste oil prior to off-site disposal.
- Thirty 55-gallon drums containing petroleum based oil products were staged in the auto repair shop.
- A cursory inspection identified potential asbestos containing materials and lead based paint.
- Two floor drains were identified.

Based on a review of historic Sanborn maps and documented on-site work practices, a limited Phase II ESA investigation was performed during June 2006 to characterize subsurface conditions with regards to potential environmental impacts.

As an element of the Phase II ESA, a soil gas sampling program was also performed to characterize the sub-slab soil gas beneath the Bldg. #53 structure. The sampling program entailed the collection of soil gas samples from small diameter borings advanced through the concrete building slab. A total of six (6) soil gas samples identified as 4SG-1 through 4SG-6 were submitted for VOC analyses by EPA Method TO-14A.

Analytical results for soil gas samples detected VOCs associated with petroleum constituents and chlorinated solvents. Most notably were the elevated concentrations of PCE and TCE that exceeded NYSDOH guidance criteria were detected at each of the sampling locations. A summary of the July 2006 data indicate:

- VOCs were detected in all sub-slab soil gas samples collected beneath the parcel #53 building structure. The analytical data suggest that soil beneath the building is impacted by chlorinated solvents.
- A cursory inspection identified potential asbestos containing materials and lead based paint.

4. Remedial Investigation Methods and Results

4.1. General

The field activities discussed within this section consist of those tasks performed for the supplemental RI between July and September 2007. All tasks were conducted in accordance with the NYSDEC-approved Supplemental Remedial Investigation Work Plan (Malcolm Pirnie, July 2007).

The remedial investigation included a soil boring and environmental sampling program that required completion of the following field tasks:

- Advancement of 27 soil borings;
- Installation and sampling of one groundwater monitoring well;
- Sampling of soil vapor at 14 locations;
- Collection and analysis of 37 subsurface soil samples;
- Collection of and analysis of eight surface soil samples.

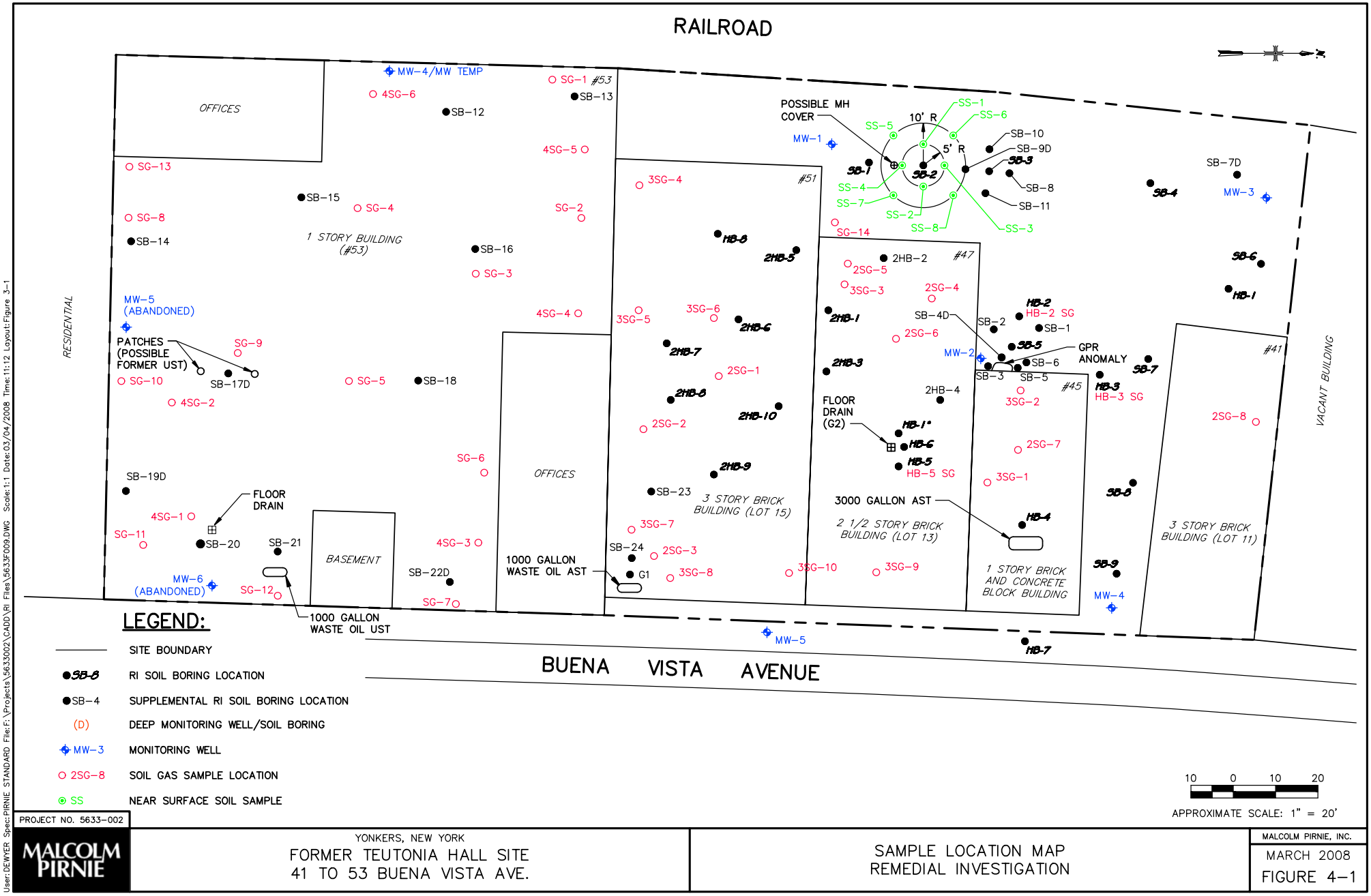
Locations of all drilling and sampling points are illustrated on Figure 4-1. Detailed discussions of the purpose, methodologies, and results of each of the investigative activities performed under the supplemental RI are presented below. Analytical results are presented and discussed in Section 7.0.

4.2. Soil Boring Program

4.2.1. Purpose

A soil boring program was initiated at the Site on July 30th and completed August 30th, 2007. The drilling program was conducted to characterize the physical and chemical composition of the Site overburden soils, and/or fill materials through the collection and analysis of subsurface soil and/or fill samples. The program facilitated the collection of groundwater samples for chemical analysis and included the advancement / installation of:

- 27 soil borings: 18 shallow, nine deep
- Three attempted temporary groundwater monitoring wells
- Eight surface soil samples
- 14 soil-vapor samples



PROJECT NO. 5633-002

MALCOLM PIRNIE

YONKERS, NEW YORK
FORMER TEUTONIA HALL SITE
41 TO 53 BUENA VISTA AVE.

SAMPLE LOCATION MAP
REMEDIAL INVESTIGATION

MALCOLM PIRNIE, INC.
MARCH 2008
FIGURE 4-1

4.2.2. Methodology

A total of 27 soil borings were drilled as part of the supplemental RI. Twenty five boreholes, designated SB-1 through SB-22, and MW-4, 5, and 6, were advanced through unconsolidated fill/overburden deposits using direct push macro core sampling techniques. Two boreholes designated SB-23, and SB-24 were installed in the basement of the Building at 51 Buena Vista Ave. using a hand auger after coring through the cement floor. Continuous macro core samples were collected during direct push advancement at each borehole location, screened for volatile organic vapors and described on stratigraphic borehole logs. The borehole logs with overburden descriptions are presented in Appendix B. The total volatile organic vapors detected in the soil samples were measured using a Mini-Rae photo-ionization detector (PID).

4.2.3. Results

Of the 27 soil borings advanced during the summer 2007 drilling program, only 20 were advanced to the proposed depths due to drilling refusal. The proposed depths were 16 feet BGS for the shallow borings, and 40 feet BGS for the deep borings. Drilling and sampling operations were terminated at two shallow borings designated SB-23 and SB-24, which were located in the basement of Teutonia Hall, when hand auger refusal was encountered at a gravel/cobble zone at 5.5 and 6 feet BGS, respectively. Three deep borings designated SB-4D, SB-7D, and SB-22D were terminated short of the target depth of 40 feet BGS due to macro core refusal in dense soil materials. Based on subsurface data collected at the boreholes, a gravel/cobble zone was encountered at a depth of 27 feet BGS at SB-4D, 35 feet' BGS at SB-7D, and 32 feet BGS at SB-22D.

Three temporary groundwater monitoring wells were planned but only one of the three boring locations, MW-4, contained groundwater sufficient to justify installation of a well. MW-4 was drilled to a depth of 47.5 feet BGS at which point refusal was encountered. A 1-inch diameter PVC screen was installed to a depth of 46.7 feet BGS at the MW-4 location. MW-5 was terminated after two attempts encountered refusals at depths of 42 and 33 feet BGS. MW-6 was terminated after two attempts encountered refusals at depths of 35.5 and 29 feet BGS. Because no saturated soils were observed in the macro cores from MW-5, and MW-6, well screens were not installed in the boreholes. MW-4 was re-named MW-Temp during the groundwater sampling, after discovering that the Site already has monitoring wells named MW-1 through MW-5.

Saturated conditions were observed in the overburden at 32 feet BGS at SB-7D, and at 44 feet BGS at MW-Temp. No other locations displayed evidence of saturated soils.

PID measurements of the total organic vapors detected while screening soil samples during macro core advancement were recorded on the stratigraphic borehole logs. Volatile organic vapors were detected at three boreholes located adjacent to a ground penetrating radar (GPR) anomaly identified west of Building #45 during prior

investigations. These borings included SB-3, SB-4 and SB-5. PID readings up to 1505 PPM were recorded from the 10 to 12 feet depth interval in this area.

Volatile organic vapors were detected at one boring adjacent to the "Possible manhole cover" west of the 47 building. At SB-9 readings reached a maximum of 33.2 ppm at a depth of 7 feet BGS.

Inside the 53 Buena Vista Avenue building three borings had PID readings above background. MW-4 (MW-Temp) had a maximum reading of 31.0 ppm at a depth of 1 foot BGS. MW-6 had a maximum reading of 293.0 at a depth of 6 feet BGS. SB-22D had a maximum reading of 3.8 ppm at a depth of 11 feet BGS.

A tabulated summary of the total depth of each soil boring, depth to water when encountered, PID measurements, and intervals selected for sample analyses are presented in Table 4-1. A description of the geologic conditions encountered during the drilling program is provided in Section 5. All soil borings not converted to monitoring wells were backfilled by pressure grouting the borehole from the total depth to the ground surface with a cement/bentonite grout mixture.

4.3. Monitoring Well Installation

4.3.1. Purpose

One temporary groundwater monitoring well was installed at the borehole location designated MW-4, (later re-named MW-Temp) during the RI to facilitate the collection of groundwater samples required to characterize water quality at the Site.

4.3.2. Methodology

Subsequent to completion of the boring MW-4 (MW-Temp) to total depth, a temporary one-inch diameter monitoring well designed to monitor the uppermost water producing zone was installed in the borehole. The monitoring well was constructed using Schedule 40 PVC screen and riser material. A machine slotted well screen having a .010 inch slot size and measuring ten (10) feet in length was placed on the bottom of the borehole at the monitoring well location. A locking J-plug was used to complete the well.

4.3.3. Results

A tabulated summary of monitoring well construction for the Site monitoring well network is presented on Table 4-2.

A detailed well construction diagram for the temporary overburden well is included with the stratigraphic borehole logs presented in Appendix B.

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TABLE 4-1
SOIL BORING SUMMARY
FORMER TEUTONIA HALL SITE
YONKERS, NEW YORK

Boring No.	Date Drilled	Total Depth *(feet bgs)*	Depth to Water *(feet bgs)*	Maximum PID Reading / Depth Interval *(ppm/feet bgs)*	Sampled Interval *(feet bgs)*	Analyses	Comments
SB-1	07/30/07	16.0	not encountered	0.0 ppm / throughout	10.5 TO 11.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-2	07/30/07	16.0	not encountered	0.0 ppm / throughout	7.0 to 7.5	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-3	07/30/07	16.0	not encountered	973 ppm / 10 ft	10.0 to 10.5	VOCs, SVOCs, TAL Metals, Pest, PCBs	Strong odor observed 6-11 ft BGS
SB-4D	07/30/07	27.0	not encountered	1505 ppm / 8 ft	8.5 to 9.0 31.0 to 32.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	Black staining, strong odor 8.5-9.5 ft BGS
SB-5	07/30/07	16.0	not encountered	16.1 ppm / 12 ft	11.5 to 12.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-6	07/30/07	16.0	not encountered	0.0 ppm / throughout	9.0 to 10.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-7D	07/31/07	35.0	32.0	0.0 ppm / throughout	10.0 to 15.0 30.0 to 35.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	Poor soil recovery
SB-8	07/31/07	16.0	not encountered	0.0 ppm / throughout	3.0 to 3.5	VOCs, SVOCs, TAL Metals, Pest, PCBs	Duplicate sample collected "DUP-01"
SB-9	07/31/07	16.0	not encountered	33.2 ppm / 7 ft	7.0 to 10.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	loose sand, poor recovery
SB-10	07/31/07	16.0	not encountered	0.0 ppm / throughout	13.0 to 14.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-11	07/31/07	16.0	not encountered	0.0 ppm / throughout	8.0 to 10.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-12	08/01/07	16.0	not encountered	0.0 ppm / throughout	3.0 to 5.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	Black stain observed at 4.5 ft BGS
SB-13	08/01/07	16.0	not encountered	0.0 ppm / throughout	14.0 to 16.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-14	08/02/07	16.0	not encountered	0.0 ppm / throughout	0.5 to 1.5	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-15	08/01/07	16.0	not encountered	0.0 ppm / throughout	1.0 to 3.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-16	08/02/07	16.0	not encountered	0.0 ppm / throughout	6.0 to 8.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-17D	08/02/07	40.0	not encountered	0.0 ppm / throughout	13.0 to 15.0 25.0 to 30.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	MS/MSD collected at 13-15 ft BGS
SB-18	08/02/07	16.0	not encountered	0.0 ppm / throughout	7.0 to 9.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-19D	08/02/07	40.0	not encountered	0.0 ppm / throughout	1.0 to 3.0 20.0 to 25.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-20	08/01/07	16.0	not encountered	0.0 ppm / throughout	5.0 to 7.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	Duplicate sample collected "DUP-02"
SB-21	08/01/07	16.0	not encountered	0.0 ppm / throughout	14.0 to 16.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	
SB-22D	08/02/07	32.0	not encountered	3.8 ppm / 11 ft	11.0 to 12.0 25.0 to 30.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	Refusal at 32 ft BGS MS/MSD at 11-12 ft BGS
SB-23	08/03/07	5.5	not encountered	0.0 ppm / throughout	4.0 to 5.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	Hand auger refusal at 5.5 ft BGS
SB-24	08/03/07	6.0	not encountered	0.0 ppm / throughout	3.0 to 5.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	Hand auger refusal at 6.0 ft BGS
MW-TEMP	07/31/07	47.5	44.0	31.0 ppm / 1 ft	1.0 to 3.0 25.0 to 30.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	Refusal at 47.5 ft BGS
MW-5	08/02/07	42.0	not encountered	0.0 ppm / throughout	3.0 to 5.0 25.0 to 30.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	Soil dry, No well installed
MW-6	08/02/07	35.5	not encountered	293 ppm / 6 ft	6.0 to 7.0 20.0 to 23.0	VOCs, SVOCs, TAL Metals, Pest, PCBs	Soil dry, No well installed

Notes:

bgs - below ground surface
ppm - parts per million
VOCs = TCL Volatile Organic Compounds
SVOCs = TCL Semivolatile Organic Compounds
TCL = Target Compound List
TAL = Target Analyte List

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TABLE 4-2
SUMMARY OF MONITORING WELL CONSTRUCTION DETAILS
REMEDIAL INVESTIGATION REPORT
FORMER TEUTONIA HALL SITE
YONKERS, NEW YORK

Well No.	Screen Diam. *(in)*	Slot Size *(in)*	Well Material	Borehole Diameter *(in)*	Borehole Depth *(ft bgs)*	Screened Interval *(ft bgs)*	Date Installed
2007 RI Well Installation							
MW-TEMP	1	0.020	PVC	2.0	47.5	36.5 - 46.5	8/1/2007
Existing Well Network							
MW-1	2	0.010	PVC	8.0	40.0	30.0 - 40.0	5/25/2006
MW-2	2	0.010	PVC	8.0	38.0	28.0 - 38.0	5/26/2006
MW-3	2	0.010	PVC	8.0	43.5	33.5 - 43.5	5/30/2006
MW-4	2	0.010	PVC	8.0	35.0	25.0 - 35.0	5/31/2006
MW-5	2	0.010	PVC	8.0	37.0	34.0 - 44.0	5/31/2006

Notes:
bgs - below ground surface.

4.4. Monitoring Well Development

4.4.1. Purpose

The newly installed well was developed to remove fine sediment from within the well annulus and to improve the well efficiency. The development process is intended to provide groundwater sampling locations that will yield water samples that are representative of the groundwater quality at that location.

4.4.2. Methodology

The well was developed using a dedicated bailer. Due to the lack of water recharge, the well water was not monitored for pH, specific conductivity, temperature, dissolved oxygen, and turbidity. Development water was purged to the surrounding ground surface.

4.4.3. Results

Attempts were made to develop the newly installed monitoring well over a period of days. However, due to the poor well yield and slow recharge, a Well Development/Purging Log was not generated.

4.5. Environmental Sampling Program

The environmental sampling program included the collection and analysis of; soil vapor, surface and subsurface soil/fill material, and groundwater samples in accordance with the NYSDEC approved RI Work Plan. Soil and groundwater samples collected during the RI investigation were sent to Test America, Inc. in Amherst, New York for analyses, soil vapor samples were submitted to the Test America Laboratories air testing lab in Colchester, Vt. Third party validation of all analytical results was provided by Environmental Quality Associates, Inc. Data validation and usability is discussed in Section 6.0 with the validation results presented in Appendix C. Validated analytical results for the sampled media are discussed in the Site Contaminant Characterization Section 7.

4.5.1. Soil Vapor Characterization

4.5.1.1. Purpose

Malcolm Pirnie, Inc. sampled soil vapor from beneath Building 53 to supplement existing data from the 41 to 51 properties. The supplemental RI soil vapor sampling event was performed in accordance with the NYSDEC-approved RI Work Plan.

4.5.1.2. Methodology

A total of 14 soil vapor samples designated SG-1 through SG-14 were collected as part of the supplemental RI. SG-1 through SG-13 were collected from beneath the slab

foundation of the 53 building and SG-14 was collected outdoors on the 47 Buena Vista Ave. property, directly to the west of the building, see Figure 4-1.

A nominal 3/4-inch diameter hole was advanced in to the slab to a depth of approximately 2 inches, followed by a 5/16-inch diameter hole through the bottom of the slab. An electric hammer drill was used to install the drill holes to the finish depth not exceeding 2 inches below the bottom of the cement slab. ¼-inch OD Teflon®-lined polypropylene tubing was placed in the borehole with the sampling point resting near the bottom of the borehole. A silica sand filter pack was then installed within the borehole annulus to prevent clogging of the sample tubing. Bentonite powder was placed on top of the filter pack and hydrated with de-ionized water to create a low permeability seal around the tubing inside the drill hole. An inverted plastic pail was used as an enclosure around the sample point. An atmosphere of helium gas was used to displace the ambient air beneath the apparatus at the surface.

Prior to sampling, each vapor point was purged at a rate of approximately 200 milliliters per minute for a period of approximately two minutes using a personnel air monitoring pump. A portable helium detector was used to check for the presence of the tracer gas in the sampling point. The sampling points were checked before, and after sample collection. A six-liter, laboratory-certified summa canister was used to collect the soil vapor sample. Air in the canister was evacuated at the laboratory (Test America Laboratories – Colchester, VT) thereby creating negative pressure (vacuum) within the canister. The summa canister was then fitted with a pressure gauge and flow controller to regulate air flow into the canister. The flow controller was pre-calibrated to collect a composite soil vapor sample over a one-hour time period. An in-line particulate filter was positioned in the sample apparatus chain prior to the flow controller.

Following purging, the Teflon-lined tubing was attached to the summa canister and the sample valve opened. The pressure in the canister was checked to verify that a vacuum had been maintained in the canister during shipment. Changes in pressure were monitored during the sampling period to verify proper flow controller calibration and sampling rate.

The soil vapor samples collected in the summa canisters were submitted under chain of custody to Test America Laboratories for VOC analyses by USEPA Compendium Method TO-15.

4.5.1.3. Results

Analytical results for the soil vapor characterization samples are discussed in detail in Section 7.0, Site Contaminant Characterization.

4.5.2. Subsurface Soil Sampling

4.5.2.1. Purpose

The purpose of the soil boring program was to characterize the physical and chemical conditions of the subsurface fill materials at the Site. This characterization was also used to evaluate potential human health risks. Subsurface soils were collected from the soil borings.

4.5.2.2. Methodology

A minimum of one representative soil sample was submitted for chemical analysis from each borehole advanced during the investigation. Two soil samples were collected from each of the nine deep soil borings, one at the interval indicated by screening activities, and another near the bottom of the borehole to generally characterize the on-site post-excavation soil material. As described above in subsection 4.1, soil material was collected during borehole advancement using a two-inch diameter macro-core sampler. The macro-core barrel and cutting shoe were decontaminated prior to each use using a solution of Alconox and water. Upon retrieval, each macro-core sample was screened with a photoionization detector (PID) and described on boring logs by a Malcolm Pirnie geologist. Subsequent to recording PID measurements, a representative soil sample was colleted from the interval with the highest PID readings, or the areas with visual evidence of contamination. All samples were collected in laboratory supplied sample jars and placed on ice.

All soil samples were submitted under chain of custody to Test America Laboratory for analysis of TCL VOCs, TCL SVOCs, TAL metals, and Pesticide /PCBs.

4.5.2.3. Results

A total of 35 subsurface soil samples were collected from the 27 soil borings and submitted to the analytical laboratory. A soil boring summary is presented on Table 4-1. Analytical results for the soil samples are discussed in detail in Section 7.0, Site Contaminant Characterization.

4.5.3. Surface Soil Sampling Program

4.5.3.1. Purpose

A surface soil sampling program was conducted to evaluate the extent of organic/inorganic contamination identified in the soil material located adjacent to the manhole cover west of the building at 47 Buena Vista Avenue.

4.5.3.2. Methodology

Soil samples were collected from the uppermost 6 inches of soil using decontaminated stainless steel trowels and placed into decontaminated stainless steel bowls. Samples

were placed into laboratory provided glass jars and submitted under chain of custody to Test America Laboratory for TCL VOC, SVOC, and TAL Metals analyses.

4.5.3.3. Results

Analytical results of the surface soil samples are discussed in section 7.0

4.5.4. Groundwater Sampling Program

4.5.4.1. Purpose

Due to the difficult sub-surface drilling conditions, depth to groundwater, and the limited equipment options created by the indoor drilling, only one of three attempted monitoring wells were installed and sampled to characterize the groundwater quality at the site.

4.5.4.2. Methodology

Groundwater samples were collected from monitoring well MW-Temp immediately following the installation and development in August 2007. A water level indicator was used to measure the water table elevation at the monitoring well. The well was then purged using a polyethylene disposable bailer. Groundwater samples were collected over multiple visits using new polyethylene disposable bailers. Samples were collected for TCL VOCs, total/dissolved TAL metals, and PCBs.

4.5.4.3. Results

Analytical results for the groundwater sample are discussed in detail in Section 7.0, Site Contaminant Characterization.

5. Hydrogeologic Evaluation

5.1. Introduction

The geology and hydrogeology of the Former Teutonia Hall Site is described herein using data from previous Site investigations, hydrogeologic reference literature, and the most recent information collected from the soil borings, and a temporary monitoring well completed during the Malcolm Pirnie July and August 2007 supplemental Remedial Investigation.

Investigations to date consisted of the completion and sampling of a total of forty-nine (49) soil borings, thirty-nine (39) soil vapor sampling locations, 8 surface soil samples, and 6 monitoring wells at the Site. Figure 4-1 shows the location of all sampling locations. Stratigraphic borehole logs completed for the recent investigation are provided in Appendix B. A tabulated summary of soil boring details is presented in Table 4-1.

5.2. Site Geology

In general, subsurface conditions at the Site consist of fill materials underlain by fine to coarse grained sand with trace to little silt and trace fine-medium gravel. Boring depths ranged from 5.5 feet to 47.5 feet bgs during the Site investigation. Bedrock was not encountered during the investigation.

Fill Materials - Fill materials consist of a gravel sub-base directly beneath concrete building floors. Fill ranges from six inches to one foot in thickness across the Site.

Coarse-Grained Soils – A fine-coarse grained sand unit consisting of stratified sand with interbedded lenses of gravel and silty sand deposits was encountered throughout the Site. The sand unit contains fine to medium sub-angular gravel and cobbles that are typical of reworked fluvial (river) deposits. These coarse-grained units were generally identified at varying depths, including near the surface.

5.3. Site Hydrogeology

Depth to groundwater was measured in Site monitoring wells during the August 2007 sampling event. With the exception of the temporary monitoring well (MW-Temp), all Site monitoring wells were observed to be dry during the August 30, 2007 sampling event. A water depth of 44.0’ bgs was measured in the temporary well.

Groundwater Flow - The water table could not be determined because of the lack of groundwater in the monitoring well network.

Based on the topography and general character of the Site stratigraphy, shallow groundwater flow is assumed to have a general west to northwest flow component through the Site overburden material. Shallow groundwater discharge was not observed on Site but is assumed to discharge to the Hudson River located approximately 400 feet west of the Site at a lower elevation.

6. Data Validation/Usability

Environmental samples were collected for the Site soil and groundwater media during the July/August 2007 Remedial Investigation sampling event. Soil samples collected from RI soil borings were analyzed for target compound list (TCL) VOCs, TCL SVOCs, and target analyte list (TAL) metals. Poly-chlorinated biphenyls (PCBs) and pesticides were analyzed at selected locations. A groundwater sample was also collected from one temporary monitoring well and analyzed for TCL VOCs, TCL SVOCs, total and dissolved TAL Metals, and Pesticides/PCBs. TestAmerica, of Buffalo, New York analyzed both the soil and groundwater samples collected by Malcolm Pirnie, Inc. In addition to the soil and groundwater samples, subsurface soil vapor samples were collected and submitted to TestAmerica Laboratories of Burlington, Vermont for VOC analysis.

Environmental Quality Associates, Inc. (EQA), a qualified data validator, performed third-party validation of the subsurface air quality data, soil and groundwater analytical results. The data validation was conducted in accordance with the guidelines established by NYSDEC's Data Usability Summary Review (DUSR) process. The DUSR process was performed to provide a determination of whether the data meets the project specific criteria for data quality and data use.

Laboratory data summary forms were reviewed by the validator for application of validation qualifiers, per the USEPA Region 2 validation SOPs and the USEPA National Functional Guidelines for Data Review, with consideration of the requirements of the project Work Plan. The following criteria were reviewed:

- Laboratory narrative discussions.
- Case narratives
- Custody Documentation
- Holding times
- Surrogate and internal standard recoveries
- Matrix spike recoveries/duplicate correlations
- Field duplicate correlations
- Preparation/calibration blanks
- Matrix spiked blanks/laboratory control samples
- Calibration/CRI/CRA standards

- ICP interference check standards
- ICP serial dilution correlations
- Method compliance
- Sample result verification

Data Review Reports were prepared for sample delivery groups (SDGs) and are attached to this report as Appendix C. The Data Review Reports provide copies of the laboratory analytical results and descriptions of the criteria used to review the laboratory results and supporting quality control documentation. As referenced in the tabulated summary tables in report Section 3, Section 7 and Form 1s in Appendix C, all data packages were deemed usable by the data validator. The usability of the data, as assessed by the data validator is presented in detail in the following sections. With the exception of historical investigation data, the data summary tables presented in Section 7 and Appendix C of the report use analytical results that have been validated, and when used in conjunction with historical data, provide the basis for Site evaluation and recommendations. A discussion of validated analytical results for qualified environmental media is presented below.

6.1. Validated Soil Vapor Results

The August 2007 soil vapor sampling event consisted of two Sample Delivery Groups (SDGs), identified as NY121458 and NY121472. These SDGs consisted of fourteen summa canisters plus one field duplicate and trip blank quality control (QC) sample. The soil vapor samples were analyzed for volatile organic compounds by US EPA Air Toxics Method TO-15. All samples collected and received by the laboratory during the August sampling event were received in good condition under intact custody seals. Established holding times from collection to analysis were met for all samples. Internal QC checks that included standard recoveries and calibration checks were within acceptable range criteria. Method and trip blanks were free of contamination. No additional issues were identified therefore, no data qualifiers were necessary for soil vapor analytical results.

6.2. Validated Surface Soil/Groundwater Results

The August 2007 sampling event consisted of one Sample Delivery Group (SDG), identified as 0807S2. This SDG consisted of 8 surface soil and one partial groundwater samples collected from at grade sampling locations and one temporary well. The soil samples were analyzed for full TCL VOCs, TCL SVOCs and TAL metals. The groundwater sample collected at MW-Temp was submitted for TCL VOCs, TCL SVOCs, total and dissolved TAL Metals, and PCB analysis. All samples collected and received by the laboratory during the August sampling event were received within the allowable temperature range for cooler packed samples (between two and six degrees centigrade) established by the NYSDEC-ASP. Established holding times for extraction and analysis were met for all samples. No additional issues were identified regarding sample receipt or holding times for the August SDG.

Volatile Organics - Soil

Data validation resulted in assigning "UJ" or "J" flag qualifiers to some of the results indicating that the result is non-detect or a quantitatively estimated value. The qualifier were assigned to the volatile organic data based for the following reason:

- Continuing calibration parameters exhibiting several target compounds whose Relative Response Factor (RRF) values were greater than 15% of the Relative Standard Deviation (RSD).

Volatile Organics – Groundwater

Qualified data not required as all reported data for VOCs was compliant and determined acceptable with laboratory qualifiers.

Semi-Volatile Organics – Soil

Qualified data not required as all reported data for SVOCs was compliant and determined acceptable with laboratory qualifiers.

PCBs - Groundwater

Qualified data not required as all reported data for PCBs was compliant and determined acceptable as non-detect.

TAL Metals - Soil

Matrix spike recoveries for mercury were below the acceptable QA/QC control limit of 75%. Reported concentrations of these analytes were flagged as estimated values with a "J" qualifier.

Laboratory control sample recoveries for mercury reference standards were below the lower acceptable limit ranges. All mercury data for soil were flagged as estimated values with a "UJ" or "J" qualifier.

Positive results reported for antimony, selenium, and sodium greater than the analyte method detection limit (MDL) but below the reporting limit (RL), were designated with a "B" qualifier by the laboratory. The qualified designation was changed to a "J" qualification by the data validator to indicate estimated values with an indeterminate bias direction.

TAL Metals - Groundwater

Positive results reported for aluminum, antimony, chromium and vanadium greater than the analyte method detection limit (MDL) but below the reporting limit (RL), were designated with a "B" qualifier by the laboratory. The qualified designation was changed to a "J" qualification by the data validator to indicate estimated values with an indeterminate bias direction.

6.3. Validated Subsurface Soil Results

The soil samples included in the SDG designated as 0807SS were analyzed for full TCL VOCs, TCL SVOCs, Pesticides, PCBs and TAL metals. Based on the case narrative and the validation report, all samples in the SDG collected during the August sampling event were received in good condition and were analyzed within all applicable holding times. Samples were received above the ASP specified temperature range but below the EPA Region II validation action limit.

A summary of the data validation that includes affected data results or data qualification is provided below. Additional notes, which did not affect results or data qualification, are located in the appended data validation report, (Appendix C).

Volatile Organics - Soil

Data validation resulted in assigning "UJ" or "J" flag qualifiers to some of the results indicating that the result is non-detect or a quantitatively estimated value. The qualifiers were assigned to the volatile organic data based for one or more of the following reasons:

- Qualifying positive results for methylene chloride less than 10x the blank value as a quantitatively estimated non-detect value "U". Positive results greater than 10x the blank concentration action level resulted in deletion of the laboratory's "B" qualifier flag.
- Surrogate recoveries of compounds exceeding the upper or lower limits on initial and confirmatory sample runs, due to matrix interferences.
- Analyses of QA/QC samples that included MS/MSD, Blank spikes and internal standards exhibited several target compounds whose recoveries where outside the laboratory derived limits.
- Continuing calibration parameters exhibiting several target compounds whose Relative Response Factor (RRF) values were greater than a negative 20% and therefore indicative of a potential negative bias.

Semi-Volatile Organics - Soil

- Bis(2-ethylhexyl)phthalate was detected in the method and field QA/QC blanks. If these compounds were found to be present in associated samples below a 10x blank value, they were qualified "U" as non-detect.
- Recovery of targeted SVOCs 4-nitrophenol, pentachlorophenol, and chrysene were detected outside the allowable control limits in the MS/MSD (QA/QC) soil sample. Reported results for these compounds were qualified "UJ" or "J" as non-detect or with an indication of positive bias.
- Continuing calibration parameters exhibited several target compounds whose %D values were greater than 20%D of the Relative Response Factors (RRF). Compounds identified with a positive results having a positive bias were flagged "J". Results with negative drift were qualified "UJ" or "J" as non-detect or with an indication of potential low bias.

Chlorinated Pesticides - Soil

Data validation resulted in assigning "UJ" or "J" flag qualifiers to some of the results indicating that the result is non-detect or a quantitatively estimated value. The qualifiers were assigned to the pesticides data based for one or more of the following reasons:

- Analyses of QA/QC samples that included Blank spikes and internal method blank standards exhibited several target compounds (Dieldrin, 4,4' DDE, 4,4' DDT, Endrin aldehyde, Endosulfan sulfate and Methoxychlor) whose recoveries were outside the laboratory derived limits.
- Continuing calibration parameters exhibiting several target compounds whose Relative Response Factor (RRF) values were less than a 15% and therefore indicative of a potential bias.

PCBs - Soil

- Surrogate recoveries of decachlorobiphenol exceeded the upper limit on initial and confirmatory sample runs, due to matrix interferences. Positive results for PCB Aroclors were flagged "J" indicative of potential positive bias.
- Analyses of QA/QC samples that included field duplicate and internal standards exhibited several target compound (Aroclor 1248) whose recovery was outside the laboratory derived limit. Assigned "UJ" or "J" flag qualifiers to some of the results indicating that the result is non-detect or a quantitatively estimated due to indeterminate bias direction.
- Continuing calibration parameters identified target compound Aroclor 1260 who's Relative Response Factor (RRF) values were greater than a 15% drift and therefore indicative of a potential positive bias were flagged "J" as estimated.

TAL Metals - Soil

- Matrix spike (MS) recoveries for aluminum, barium, calcium, iron, lead, magnesium and potassium were outside the acceptable QA/QC control limits of 75% (low) 125%(high). Reported concentrations of these analytes were flagged as estimated values with a "J" qualifier indicative of potential bias.
- Matrix spike duplicate (MSD) precision values reported for iron and magnesium were determined to be greater than the respective acceptable 20% RPD limit. As a result, reported concentrations were qualified as estimated "J" with indeterminate bias direction.
- The serial dilution sample precision values for potassium exceeded the acceptable limit of 10 %D Positive results were qualified "J" with indication of low bias.
- CRDL calibration standards for mercury (Hg) identified recoveries below accepted protocol requirement. Positive results detected at a concentration 2x below the CRDL were flagged as estimated "UJ" or "J" with indication of low bias.

7. Site Contaminant Characterization

7.1. Introduction

The nature and extent of contamination at the Former Teutonia Hall Site was characterized through collection and analysis of surface and subsurface soil/fill, groundwater, and soil vapor samples as part of this remedial investigation. Sampling methodologies were performed in accordance with the NYSDEC and NYSDOH-approved Supplemental Remedial Investigation Work Plan for the Former Teutonia Hall Site (Malcolm Pirnie, Inc., March/April 2006). Sampling protocols and methodologies for each sampled media are described in Section 4.0 of this report. Subsurface soil/fill and groundwater samples collected during the RI sampling events completed during July and August 2007 were submitted for analyses under chain-of-custody to Severn Trent Laboratory of Buffalo, New York. Soil vapor samples collected during the investigation were submitted for analyses under chain-of-custody to Severn Trent Laboratories of Burlington, Vermont. Analytical services provided by both laboratories were performed in accordance with the most current SW-846 and ASP2000 analytical methods and protocols. Appendix D contains raw analytical data (Form 1's) for each sample analyzed for this supplemental investigation. Tabulated analytical data summarized in this section includes sample results from historic investigations as well as the most recent data collected by Malcolm Pirnie

Sampling locations and frequency of collection were based on observed Site conditions and review of the historical environmental data described in Section 3. Sampling locations for all media are provided on Figure 4-1. Subsurface soil/fill samples were ultimately collected from a total of 49 investigation soil borings.

The recent SRI investigation included collection of 14 soil vapor samples, 35 subsurface soil samples and one groundwater sample from soil borings and a temporary groundwater monitoring well. Analytical results that included both historic and 2007 investigation data were utilized for Site contaminant characterization purposes. The results are discussed in this section and are presented in Tables 3-1 through 3-4 (Historic) and 7-1 through 7-4 (Malcolm Pirnie 2007).

Analytical results for the investigations were compared to the following standards and criteria:

- Soil vapor analytical results were compared to Generic Target Indoor Air Concentrations and Generic Screening Levels for shallow soil vapor as provided by the USEPA Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway

Table 7-1
SUMMARY OF SOIL GAS ANALYTICAL RESULTS
FORMER TEUTONIA HALL SITE
YONKERS, NEW YORK

	Semi-site-specific [2] Target Soil Gas Concentration [3]			Sample Collection Period - August 2007														
	@ 10^{-6} target cancer risk and target HQ = 1	@ 10^{-4} target cancer risk and target HQ = 1	NYSDOH Air Guidance Value [1]	Building #53														Outside
Sample Number				SG-1	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	SG-8	SG-9	SG-10	SG-11	SG-12[4]	SG-13	SG-DUP	SG-14
Volatile Organic Compounds (ug/m^3)																		
1,3-Butadiene	4.3	430	NA		38													3.3
Trichloroflouromethane	350,000	350,000	NA															1.1
Acetone	180,000	180,000	NA	430	230					110	310	160		200		88		
Isopropyl Alcohol	NA	NA	NA								71					22		
Methyl tert-Butyl Ether	1,500,000	1,500,000	NA									54						
n-Hexane	100,000	100,000	NA		14							29						2.3
1,2-Dichloroethene	NA	NA	NA				4,400								19		19	
Methyl Ethyl Ketone	500,000	500,000	NA	120	38						12	24				5.0	38	1.9
cis-1,2-Dichloroethene	18,000	18,000	NA				4,400								19		19	
Chloroform	53	5,300	NA											19	22		23	
1,1,1-Trichloroethane	1,100,000	1,100,000	NA					180				9.3		98		2.6		
Cyclohexane	NA	NA	NA									41						
2,2,4-Trimethylpentane	NA	NA	NA									20						
Benzene	160	16,000	NA		54						3.8				23	3.8	27	6.4
n-Heptane	NA	NA	NA															1.8
Trichloroethene	11	1,100	5		***12***		***2,000***				***54***	***30***	***9,100***	***59***	***130***		***150***	
Toluene	200,000	200,000	NA	23	49						8.7	13				4.1		6.0
Tetrachloroethene	410	41,000	100	***430***	***1,600***	***190,000***	***41,000***	***22,000***	***7,500***	***1,300***	***560***	***1,600***	***45,000***	***2,100***	***3,000***	61	***3,200***	***160***
Ethyl benzene	1,100	110,000	NA															1.7
1,2,4-Trimethylbenzene	3,000	3,000	NA		8.8							7.9						

Notes:

Highlighted concentrations exceed one or both of the the semi-site specific target soil gas concentrations.

Bold/Italic values exceed NYSDOH air guidance value(s).

(1) New York State Department of Health Air Guideline Values (Table 3.1; NYSDOH, 2006)

(2) Semi-site-specific attenuation factor = 0.002 for sand substrate and 3' sample depth (Figure 3a; USEPA, 2002)

(3) Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (USEPA, 2002).

(4) Duplicate collected at SG-12.

HQ = Hazard quotient for adverse, noncancer health effects

NA = Not Available

Table 7-2
SUMMARY OF ANALYTICAL RESULTS - SURFACE SOIL
FORMER TEUTONIA HALL SITE

Sample Number / Collection Date	NYSDEC SCOs Restricted Residential	NYSDEC SCOs Restricted Commerical	Urban Background Concentrations[2][3]	SS-1 8/16/2007	SS-2 8/16/2007	SS-3 8/16/2007	SS-4 8/16/2007	SS-5 8/16/2007	SS-6 8/16/2007	SS-7 8/16/2007	SS-8 8/16/2007
VOCs - Method 8260 (ug/Kg)											
Methylene chloride	100000	500000	NA	14		18	11	10	15	7	5 J
SVOCs Method 8270 - (ug/Kg)											
4-Methylphenol											560 J
Naphthalene	100000	500000	NA			3500 J			460 J	270 J	16000
2-Methylnaphthalene						1400 J			230 J	120 J	6700
Acenaphthylene	100000	500000	NA							200 J	
Acenaphathene	100000	500000	NA	720 J		2600 J			390 J	350 J	10000
Dibenzofuran			NA	500 J		3000 J			500 J	270 J	13000
Diethyl phthalate			NA	470 J					570 J		
Fluorene	100000	500000	NA			2600 J			620 J	410 J	14000
Phenanthrene	100000	500000	NA	7600 J	7600 J	26000	6100 J	3600 J	6100	4100	94000
Anthracene	100000	500000	NA	1700 J	1800 J	6900 J	1400 J	720 J	1400 J	960 J	26000
Di-n-butyl phthalate			NA							3300	1700 J
Flouranthene	100000	500000	200-166,000	8200 J	8800 J	22000	6300 J	4000 J	5700	4900	72000
Pyrene	100000	500000	145-147,000	6400 J	7600 J	16000 J	4900 J	3300 J	4300	3700	49000
Benzo (a) anthracene	1000	5600	169-59,000	4400 J	4800 J	9200 J	3800 J	2200 J	2700 J	2400	32000
Chrysene	3900	56000	251-640	***3000 J***	***4600 J***	***7400 J***	***2600 J***	***1600 J***	***2200 J***	***1900***	***26000***
Bis(2-ethylhexyl) phthalate				3800 J				4600 J	1200 J	9000	2000 J
Benzo (b) fluoranthene	1000	5600	15,000-62,000	3800 J	4100 J	10000 J	3100 J	2000 J	3200 J	3100	28000
Benzo (k) fluoranthene	3900	56000	300-26,000	1300 J	1700 J		1000 J	650 J			10000
Benzo (a) pyrene	1000	1000	165-220	***3000 J***	***3500 J***	***7000 J***	***2600 J***	***1500 J***	***2000 J***	***1900***	***23000***
Indeno (1,2,3-cd) pyrene	500	5600	8,000-61,000	2000 J	2000 J	4200 J	1800 J	940 J	1200 J	1000 J	9900
Dibenzo (a,h) anthracene	330	560	NA	***880 J***		***1400 J***			310 J	370 J	***3600 J***
Benzo (ghi) perylene	100000	500000	900-47,000	2000 J	2700 J	4300 J	1800 J	1100 J	1200 J	1000 J	10000
Total Metals - (mg/Kg)											
Aluminum			33,000	91700	53600	30900	35200	67000	147000	14600	9210
Antimony			N/A	36.3	6.3 J	27.0	11.6 B	15.8 J	20.0	4.1 J	5.6 J
Arsenic	16	16	3 - 12**	7.7	***13.0***	***20.4***	6.8	***20.2***	5.2	8.6	5.2
Barium	400	400	15 - 600	329	169	270	127	354	329	147	99.5
Beryllium	72	590	0 - 1.75	0.79	0.43	0.59	0.41	0.59	1.4	0.32	0.30
Cadmium	4.3	9.3	0.1 - 1	***11.4***	***5.0***	***6.8***	***4.5***	***7.6***	***5.7***	***4.1***	***2.1***
Calcium			130 - 35,000	8340	9200	6460	5720	11200	8600	6310	8980
Chromium	180	1500	1.5 - 40**	***141***	***63.8***	***87.1***	***62.9***	***78.9***	***107***	***44.3***	39.5
Cobalt			2.5 - 60**	19.9	10.5	33.6	14.0	12.1	28.7	8.7	8.8
Copper	270	270	1 - 50	***1470***	***427***	***1160***	***380***	***906***	***1740***	***2180***	***101***
Iron			2,000 - 550,000	40200	26900	163000	46900	22700	18800	23700	20300
Lead	400	1000	200-500	***1300***	***622***	***783***	***572***	***1100***	***3140***	***658***	***511***
Magnesium			100 - 5,000	3910	4560	3410	3700	***6050***	***5230***	3780	***5440***
Manganese	2000	10000	50 - 5,000	532	410	765	451	518	482	289	277
Mercury	0.81	2.8	0.001 - 0.2	***0.911 J***	***0.859 J***	***1.5 J***	***0.609 J***	***1.1 J***	***0.586 J***	***0.823 J***	***0.626 J***
Nickel	310	310	0.5 - 25	***91.2***	***31.2***	***83.1***	***34.8***	***47.6***	***48.7***	24.8	20.9
Potassium			8,500 - 43,000**	1330	1700	1060	1400	1270	1070	1190	1510
Selenium	180	1500	0.1 - 3.9	2.5 J					1.1 J		
Silver	180	1500	NA	43.6	2.8	56.7	4.6	18.1	5.4	2.8	1.7
Sodium			6,000 - 8,000	510	218	291	180	331	374	117 J	80.4 J
Thallium			NA								
Vanadium			1 - 300	35.7	31.0	27.4	29.0	30.8	36.9	28.1	22.4
Zinc	10000	10000	9 - 50	***2590***	***1800***	***1420***	***2190***	***2710***	***2580***	***1100***	***354***

Notes:

Only those analytes detected at a minimum of one location and greater than the reporting limit are shown.
Highlighted concentrations exceed NYS Restricted Residential SCOs.
Bold/Italic values exceed upper limits of urban background concentrations.
(1) New York State Dept. of Environmental Conservation Recommended Soil Cleanup Objectives, Dec. 2006.
(2) TAL Inorganic Analytes from Eastern USA Background as shown in New York State Dept. of Environmental Conservation TAGM 4046, Dec. 2000.
(3) SVOCs background from Background Soil Concentrations of Poly Aromatic Hydrocarbons (PAHs), Urban Soils (U.S. and other), Toxicological Profile for PAHs, US Dept. of Health and Human Services, August 1995.
(4) USEPA Region 3 Soil Screening Level.
*** New York State background concentration.*

DATA QUALIFIERS

J - indicated an estimated value. Results is < sample quantification limit but >0.
B - analyte found in associated blank as well as sample.

Table 7-3
SUMMARY OF ANALYTICAL RESULTS - SUBSURFACE SOIL
FORMER TEUTONIA HALL SITE
YONKERS, NEW YORK

Sample Number	NYS SCO's	NYS SCO's	Urban	SB-1	SB-2	SB-3	SB-4D		SB-5	SB-6	SB-7D		SB-8	SB9	SB-10	SB-11	SB-13		SB-14	SB-15	SB-16	SB-17D		SB-18	SB-19D		SB-20	SB-21	SB-22D		SB-23	SB-24	MW-4/Temp		MW-5-07		MW-6		DUP-1	DUP-2
Sampling Depth (ft. bgs)	Restricted Residential	Restricted Commercial	Background Concentrations (2)(3)	10.5-11	7-7.5	10-10.5	8.5-9	31-32	11.5-12	9-10	10-15	30-35	3-5	7-10	13-14	8-10	14-16	3-5	0.5-1.5	1-3	6-8	13-15	25-30	7-9	1-3	20-25	5-7	14-16	11-12	25-30	4-5	3-5	1-3	25-30	25-30	3-5	20-23	6-7		
Collection Date				7/30/2007	7/30/2007	7/30/2007	7/30/2007	7/31/2007	7/30/2007	7/30/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007	7/31/2007	8/01/2007	8/01/2007	8/02/2007	8/01/2007	8/02/2007	8/02/2007	8/02/2007	8/02/2007	8/02/2007	8/02/2007	8/02/2007	8/01/2007	8/01/2007	8/02/2007	8/02/2007	8/03/2007	8/03/2007	7/31/2007	7/31/2007	8/02/2007	8/02/2007	8/02/2007	8/02/2007	7/31/2007	8/01/2007
VOCs - Method 8260 (ug/Kg)																																								
Methylene chloride	100000	500000	NA	56	84	97 J	85	75	88	78	88	71	55		84							41 J	65	56	42	40			63 J	68	50 J	56	59	65	44	51	65	56		48
Acetone	100000	500000	NA			790 J	25 J						10 J	10 J				22 J										11 J	31	11 J	6 J	8 J		13 J		6 J		36	14 J	
2-Butanone			NA			8 J																																		
Tetrachloroethene	19000	150000	NA														3 J	10		8																				
Toluene	100000	500000	NA	1 J		2 J	2 J					1 J	24 J							1 J				1 J						2 J	1 J		1 J		1 J	1 J	1 J		
Ethyl benzene	41000	390000	NA			44 J	18 J																																
Total Xylenes	100000	500000	NA			14000 DJ	7100 DJ																																
Methylcyclohexane			NA			5 J	2 J																																
Isopropylbenzene			NA			14000 DJ	6700 DJ																																
SVOCs Method 8270 - (ug/Kg)																																								
Phenol	100000	500000	NA														34 J																							
4-Methylphenol														140 J			38 J																							
Naphthalene	100000	500000	NA		47 J	1400 J	4500 J						160 J	1500 J			58 J																38 J							
2-Methylnaphthalene						530 J	1300 J						89 J	640 J			15 J																25 J							
Acenaphthylene	100000	500000	NA			280 J							160 J	270 J			300	25 J																						
Acenaphthalene	100000	500000	NA		75 J								180 J	750 J			28 J	8 J															41 J							
Dibenzofuran			NA		61 J	280 J							150 J	980 J			31 J																12 J							
Fluorene	100000	500000	NA		75 J	380 J							200 J	1000 J			34 J																							
Phenanthrene	100000	500000	NA		830 J	3300 J	77 J				24 J		2200 J	10000 J			680	190 J		17 J		11 J											200 J					12 J		
Anthracene	100000	500000	NA		160 J	860 J							520 J	2400 J			170 J	30 J															29 J							
Di-n-butyl phthalate			NA											430 J																									
Fluoranthene	100000	500000	200-166,000		940 J	3500 J	90 J		45 J		31 J		2500 J	9100 J			2,400	320		47 J		9 J											330					20 J		
Pyrene	100000	500000	145-147,000		710 J	2700 J	120 J				30 J		2000 J	7000 J			2,300	290		47 J		10 J											290					18 J		
Butyl benzyl phthalate			NA										370 J																											
Benzo(a)anthracene	1000	5600	169-59,000	9 J	430 J	1500 J	89 J		44 J		19 J		1200 J	4000 J		15 J	2,100	190 J		52 J		11 J	9 J		10 J	10 J							170 J			8 J		9 J	14 J	
Chrysene	3900	56000	251-640	9 J	370 J	***1200 J***					14 J		***1100 J***	***3600 J***		16 J	***1,800***	180 J		43 J					8 J								230					9 J		
Bis(2-ethylhexyl)phthalate			NA																																				
Di-n-octyl phthalate				10 J		49 J	90 J	10 J			8 J				9 J	20 J						16 J	16 J		14 J	14 J		8 J		23 J	14 J	10 J		12 J	12 J	21 J	22 J		
Benzo(b)fluoranthene	1000	5600	15,000-62,000	8 J	560 J	1900 J	59 J				20 J		1300 J	3800 J		14 J	2,400	250		63 J													320 J					19 J		
Benzo(k)fluoranthene	3900	56000	300-26,000	10 J							7 J		320 J	1200 J			700	65 J		28 J													68 J							
Benzo(a)pyrene	1000	1000	165-220		***350 J***	***1200 J***	52 J				19 J		***1000 J***	***3000 J***		8 J	***1,900***	180 J		48 J													210 J					10 J		
Indeno(1,2,3-cd)pyrene	500	5600	8,000-61,000	7 J	210 J	680 J					11 J		630 J	1700 J		13 J	1,000	120 J		31 J													160 J					8 J		
Dibenz(a,h)anthracene	330	560	NA		72 J	220 J							220 J	540 J		12 J	390	40 J		12 J													49 J							
Benzo(ghi)perylene	100000	500000	900-47,000		290 J	900 J	120 J				14 J		820 J	1900 J		12 J	1,000	140 J		36 J													190 J					8 J		
PCBs Method 8082 - (ug/Kg)																																								
Arochlor 1248	1000	1000	NA														42 J	29							26	41	34	38							230	38			19 J	55 J	
Arochlor 1260	1000	1000	NA																5.8 J								17 J													
Pesticides - (ug/Kg)																																								
beta-BHC	360	3000																0.78 J																						
delta-BHC	100000	500000																				0.73 J																		
Heptachlor epoxide	2100	15000															3.5 J		0.53 J																					
Endosulfan I	24000	200000																				0.51 J																		
4,4'-DDE	8900	62000				27 B											6.4 J		3.6 B				0.77 J	0.85 J	0.83 J	0.86 J									1.8 J	0.83 J			0.64 J	0.78 J
Endrin	11000	89000																				1.2 J												0.97 J						
Endosulfan II	24000	200000												3.8 J			5.1 J																							
4,4'-DDD	13000	92000				120	140										6.1 J																							
Endosulfan sulfate	24000	200000															10 J																							
4,4'-DDT	7900	47000		1.5 J		20 J		1.6 J	19 J				36 J	40 J	1.6J		13	1.8 J	2.6 J					1.9 J					1.8 J							1.8 J				
Methoxyclor					39 J	79 J												2.1	2.9 J																				
Endrin ketone	11000	89000																0.86 J																						
Endrin aldehyde	11000	89000															9.0 J		1.1 J					1.4 J														0.85 J		
gamma-Chlordane						6.1 J	10 J						0.44 J				4.7 J	0.63 J				1.2 J	0.56 J	0.64 J	0.63 J	0.59 J	0.54 J				0.59 J								0.41 J	1.1 J
Total Metals - (mg/Kg)																																								
Aluminum			33,000	19400	9590	7360	6580	9390	6120	7340	7570	4700	26800 J	8480	17300	7750	7400	11000	13700	5060	4960	5380	8300	3460	11300	12000	4720	9990	6850 N	4270	3850	5020	8820	9860	7300	4830	7480	7960	5820	4400
Antimony			N/A										29.6	2.3 J			1.1 J																						42.1	
Arsenic	16	16	3 - 12**	0.67 J	3.3	1.8 J	1.2 J	0.86 J	1.4 J	0.80 J	1.2 J	0.77 J	7.9	6.4	0.88 J	1.5 J	4.3	4.7	2.7	1.3 J	1.0 J	1.1 J	2.0 J	0.57 J	2.9	2.5 J	1.1 J	8.5	1.2 J	0.54 J	0.68 J	1.0 J	4.2	2.3 J	2.4 J	1.0 J	2.0 J	1.5 J	8.1	1.1 J
Barium	400	400	15 - 600	126	142	48.2	51.7	55.7	54.5	24.7	59.5	39.4	103	106	77.6	54.3	103	86.6	52.7	23.6	26.6	31.5	56.8	24.0	35.7	84.0	30.7	103	40.0 J	58.3	27.2	32.8	107	73.8	58.3	24.7	52.8	41.0	86.5	23.1
Beryllium	72	590	0 - 1.75	0.28	0.31	0.29	0.21 J	0.34	0.19 J	0.21 J	0.23	0.20 J	0.61	0.36	0.29	0.26	0.36	0.48	0.48	0.31	0.18 J	0.17 J	0.51	0.07 J	0.36	0.73	0.21 J	0.47	0.26	0.27	0.16 J	0.13 J	0.37	0.72	0.48	0.14 J	0.46	0.21 J	0.58	0.12 J
Cadmium	4.3	9.3	0.1 - 1		0.06 J								***1.2 J***	0.87														0.07 J					0.13 J						J	
Calcium			130 - 35,000	4210	2600	7880	8600	5640	2900	3210	3220	4980	26900	5010	3030	2910	5530	1960	583	1040	1490	754	1760	1190	2720	2220	875 J	4410	5810 J	7200	739	1260	14300	3270	8940	386	2240	11700	33300	400 J
Chromium	180	1500	1.5 - 40**	***184***	18.6	16.9	19.6	25.1	16.9	20.9	17.5	13.4	25.9 J	27.4	9.3	18.7	15.4	16.0	19.4	12.6	10.6	8.6	14.1	6.3	16.6	20.0	9.4	18.0	16.9	8.2	7.8	13.4	24.0	19.0	14.2	7.2	15.6	15.9	J	6.8
Cobalt			2.5 - 60**	18.6	10.7	6.0	5.9	6.9	6.9	8.5	7.2	4.4	7.9	7.4	4.4	7.0	7.0	6.7	8.0	4.5	3.9	4.4	7.9	3.1	7.3	11.5	4.7	6.6	5.0	2.5	2.9	4.7	7.1	9.3	7.2	4.4	8.0	5.4	6.9	3.0
Copper	270	270	1 - 50	31.8	20.1	14.3	14.4	31.6	28.3	31.4	22.4	21.1	***26.3 J***	***69.9***	46.5	21.7	24.6	16.1	15.8	12.5	11.8	9.7	17.9	7.9	13.0	23.5	12.5	37.8	11.8	8.0	7.5	11.0	33.4	19.5	16.7	8.9	18.3	13.8	103 J	8.2
Iron			2,000 - 550,000	26800	21800	13100	12500	15500	27300	12400	12500	9090	12400	17000	31600	14500	12800	16100	20400	13100	8960	10100 J	17800	6500	14900	25400	8680	15800	13100	5050	7340 J	10100	14700	21600	15300	7920	17200	12200	10700	7490
Lead	400	1000	200-500	0.68 J	5.2	5.4	2.9	4.7	2.9	2.4	5.1	2.4	460	180	2.3	8.1	235	127	12.6	2.9	2.1	2.7	8.9	1.8	10.4	12.1	2.6	231	22.2 J	2.2	1.8	2.0	189	10.2	7.6	3.2	8.2	5.1	317	2.3
Magnesium			100 - 5,000	17100	2970	6490	7420	8790	2790	5230	4820	4310	3690	3520	14200	3850	2940	3320	4940	2310	2210	2160 J	3670	1500	3090	4920	2050	2710	2910 J	3450	1640 *	2410	3960	4790	5810	2100	3260	3450	4860	1840
Manganese	2000	10000	50 - 5,000	108	4110	283	141	495	545	232	290	237	205	298	331	334	293	419	432	337	130	295	419	142	316	595	202	325	315	188	223	201	507	520	454	284	461	290	156	172
Mercury	0.81	2.8	0.001 - 0.2			0.015 J							***0.262 J***	***1.0***		0.009 J	***0.475***	***0.282***	0.006 J						0.016 J	0.013 J		***1.1***					0.192 J						***0.268***	
Nickel	310	310	0.5 - 25	***83.6***	15.8	13.3	12.9	17.3	14.3	***30.2***	16.3	11.9	21.1	17.7	17.6	18.4	14.9	12.9	17.8	12.7	9.1	9.3	18.1	7.0	14.2	24.5	9.3	13.3	12.0	5.6	7.7	10.3	16.9	21.1	19.0	10.5	17.0	12.5	14.3	8.8
Potassium			8,500 - 43,000**	3110	863	1190	1510	1740	723	531	1200	645	679	1270	2130	1490	1030	576	811	549	827	476 J	1440	583	652	2130	675	759	848 J	709	497 J	807	2000	2230	1450	601	1290	926	616	628
Selenium	180	1500	0.1 - 3.9										1.1 J	0.84 J			1.1 J	0.88 J				0.93 J						1.8 J											0.91 J	
Silver	180	1500	NA										0.72	2.0																									0.46 J	
Sodium			6,000 - 8,000	174	89.7 J	82.7 J	152 J	262	161 J	489	294	330	102 J	98.4 J	189	127 J	183	214	924	501	67.7 J	179 J	489	101 J	215	769	113 J	369	464	142 J	85.8 J	90.5 J	532	334	265	164 J	1550	462	65.8 J	178 J
Thallium			NA	0.79 J																																				
Vanadium			1 - 300	100	24.0	22.8	21.4	30.4	25.8	18.0	22.9	15.8	25.7	25.6	173	22.8	19.5	19.8	24.0	17.5	12.7	11.7	19.3	8.1	19.8	28.8	11.1	20.6	17.4	9.6	8.7	14.4	27.3	24.5	18.8	9.7	20.7	17.4	20.6	8.5
Zinc	10000	10000	9 - 50	76.0	29.5	29.9	28.7	37.5	23.7	19.5	27.0	24.7	645 J	184	142	30.0	73.3	76.2	42.0	23.0	19.3	19.2	38.5	13.6	29.7	52.9	18.2	88.9	23.7	12.3	13.7	23.1	72.9	44.5	35.4	20.3	37.7	27.0	179 J	16.9

Notes:

Only those analytes detected at a minimum of one location and greater than the reporting limit are shown.
Highlighted concentrations exceed NYS Restricted Residential SCOs.
Bold/Italic values exceed upper limits of urban background concentrations.
(1) New York State Dept. of Environmental Conservation Recommended Soil Cleanup Objectives, Dec. 2006.
(2) TAL Inorganic Analytes from Eastern USA Background as shown in New York State Dept. of Environmental Conservation TAGM 4046, Dec. 2000.
(3) SVOCs background from Background Soil Concentrations of Poly Aromatic Hydrocarbons (PAHs), Urban Soils (U.S. and other), Toxicological Profile for PAHs, US Dept. of Health and Human Services, August 1995.
(4) USEPA Region 3 Soil Screening Level.
*** New York State background concentration.*
*** - The Soil Cleanup Objective refers to the sum of these compounds.*
B - Indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.
J - Indicates value detected below quantitation limit.
E - Indicates an estimated value or not reported due to interferences.
N - Indicates spike sample recovery not within quality control limits.
NA - Not Applicable or Not Available.

Table 7-4
SUMMARY OF ANALYTICAL RESULTS - GROUNDWATER
FORMER TEUTONIA HALL SITE

Sample ID Collection Date	NYS Class "GA" Standards	**MW-TEMP** 8/30/2007		NYS Class "GA" Standards	**MW-TEMP** 8/30/2007
VOCs - Method 8260 (ug/L)			***Dissolved (Soluble) Metals - (ug/L)***		
Methylene chloride	5	19	Mercury	0.7	0.295
Acetone	50	36	Aluminum		121 J
2-Butanone	50	48	Antimony	3	6.7 J
4-Methyl-2-pentanone		17 J	Arsenic	25	
1,2,4-Trichlorobenzene	5	3 J	Barium	1000	129
Total Metals - (ug/L)			Beryllium		
Mercury	0.7	5.0	Cadmium	5	10.6
Aluminum		58500	Calcium		185000
Antimony	3	8.3 J	Chromium	50	3.5 J
Arsenic	25	29.6	Cobalt		483
Barium	1000	865	Copper	200	92.0
Beryllium		2.7	Iron	300	550
Cadmium	5	12.3	Lead	25	430
Calcium		246000	Magnesium		65200
Chromium	50	126	Manganese	300	19400
Cobalt		610	Nickel	100	112
Copper	200	456	Potassium		35500
Iron	300	71800	Selenium	10	
Lead	25	1780	Silver	50	
Magnesium		86500	Sodium	20,000	457000
Manganese	300	23000	Thallium		
Nickel	100	245	Vanadium		0.90 J
Potassium		52000	Zinc		1060
Selenium	10		***Pesticides - (ug/L)***		
Silver	50		alpha-BHC		0.11 J
Sodium	20,000	397000	Hepatachlor	0.04	0.10 J
Thallium			Hepatachlor epoxide	0.03	0.19 J
Vanadium		107	Endrin aldehyde	5	0.11 J
Zinc		2570	gamma-chlordane		0.11 J

Notes:

(1) Class GA Ambient Water Quality Standards and Guidance Values from TOGS series 1.1.1, June 1998, and April 2000 addendum
Shaded and framed concentrations exceed Class GA groundwater standards or guidance values.
Only those analytes detected at a minimum of one location and greater than the reporting limit are shown
Blank space indicates analyte was not detected
- Indicates sample was not analyzed for this parameter
Shaded and framed concentrations exceed NYS Class "GA" Groundwater Quality Standard
MDL - Method detection Limit
N/A - Not applicable or available
TICs Tentatively Identified Compounds

DATA QUALIFIERS

J - indicated an estimated value. Results is < sample quantification limit but >0.
B - analyte found in associated blank as well as sample.

from Groundwater and Soil. Additionally, select VOCs (PCE, TCE) were compared to NYSDOH Air Guideline Values.

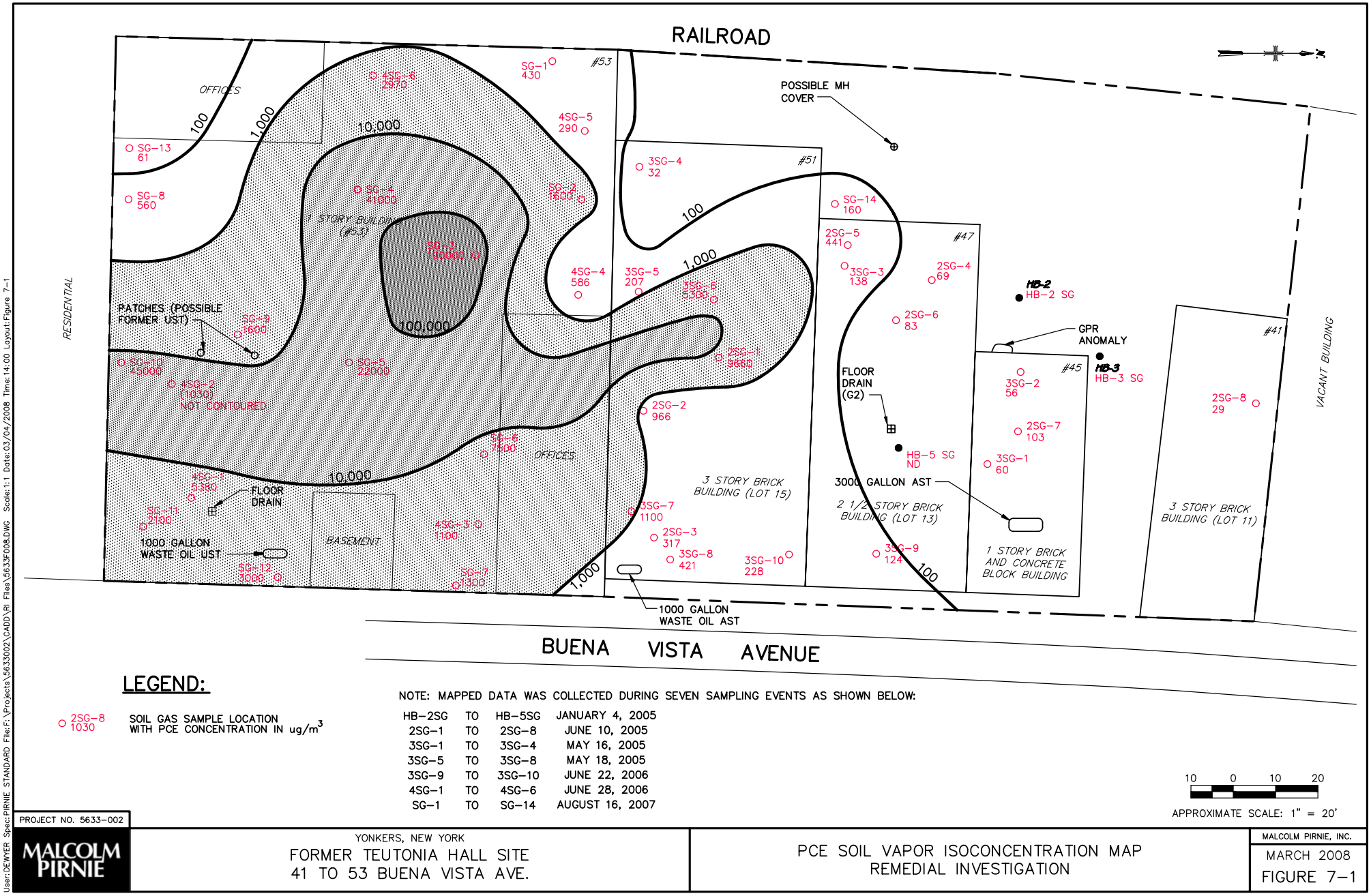
- Subsurface soil/fill data were compared to the NYS Recommended Soil Cleanup Objectives (Restricted Residential and Restricted Commercial), December 2006.
- Groundwater data were compared to NYSDEC Class GA groundwater standards and guidance values, (6NYCRR Part 360).

7.2. Subsurface Soil Vapor

The concentrations of VOCs measured in soil vapor samples were compared to USEPA Generic Screening Levels for shallow soil vapor, provided in the USEPA Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils. NYSDOH air guidance values for tetrachloroethene (PCE) and trichloroethene (TCE) were also referenced for comparison. Generally with the exception of PCE and TCE, a narrow suite of VOC concentrations detected in subsurface soil vapor at the Site were less than the USEPA draft guidance values. However, concentrations of PCE and TCE detected in subsurface soil vapor were typically 1 to 2 orders of magnitude greater than the guidance values identified for carcinogenic risk.

Analytical results of 14 soil vapor samples collected at locations designated SG-1 through SG-14 during the 2007 investigation detected VOC concentrations at each location. As summarized on Tables 3-1 and 7-1 for soil vapor, three volatile organic compounds were reported at concentrations that exceeded the USEPA semi-site specific target soil gas concentration and/or NYSDOH air guidance criteria. Examination of the data identified the VOC analytes as 1,3 butadiene, trichloroethene (TCE) and tetrachloroethene (PCE). While a concentration of 1,3 butadiene was detected at only one location (SG-2) that exceeded EPA criteria conversely, PCE was detected at virtually every soil gas sampling location except the HB-2SG boring which was manually advanced. PCE soil vapor results for the Site are depicted on the isoconcentration map Figure 7-1. Based on the mapped concentrations shown on the figure, a north-south trending area of elevated PCE soil vapor concentrations is centrally located beneath Bldgs. #51 and #53. Given the topography of the BCP Site and the loose, sandy character of the overburden material, the mapped concentrations support a premise that the Bldg. #51 and #53 foundations and slab floors are acting as stratigraphic trapping mechanisms for soil vapor. VOC analyte exceedances are discussed below.

Tetrachlorethene - PCE concentrations exceeding the minimum USEPA carcinogenic risk criteria (410 $\mu g/m^3$) and DOH screening standard of 100 $\mu g/m^3$ were detected at all but one sampling location (SG-13) advanced within the Bldg. #53 auto/truck maintenance facility. As shown on Figure 7-1, PCE was detected as high as 190,000 ug/m^3 in soil vapor sample SG-3. The elevated PCE concentrations detected along the southern and easternmost perimeters of the Site ranged from 3000 $\mu g/m^3$ at SG-12 to



LEGEND:

2SG-8 1030 — SOIL GAS SAMPLE LOCATION WITH PCE CONCENTRATION IN ug/m^3

NOTE: MAPPED DATA WAS COLLECTED DURING SEVEN SAMPLING EVENTS AS SHOWN BELOW:

HB-2SG	TO	HB-5SG	JANUARY 4, 2005
2SG-1	TO	2SG-8	JUNE 10, 2005
3SG-1	TO	3SG-4	MAY 16, 2005
3SG-5	TO	3SG-8	MAY 18, 2005
3SG-9	TO	3SG-10	JUNE 22, 2006
4SG-1	TO	4SG-6	JUNE 28, 2006
SG-1	TO	SG-14	AUGUST 16, 2007

10 0 10 20

APPROXIMATE SCALE: 1" = 20'

PROJECT NO. 5633-002

MALCOLM PIRNIE

YONKERS, NEW YORK
FORMER TEUTONIA HALL SITE
41 TO 53 BUENA VISTA AVE.

PCE SOIL VAPOR ISOCONCENTRATION MAP
REMEDIAL INVESTIGATION

MALCOLM PIRNIE, INC.
MARCH 2008
FIGURE 7-1

45,000 µg/m^3 at SG-10 and indicate potential off site soil vapor migration in the shallow overburden.

Trichloroethene - TCE was detected at concentrations that exceed the EPA carcinogenic risk criteria and NYSDOH guidance value at 13 of the 19 vapor sampling locations advanced in Building #53. TCE concentrations detected within Bldg 53 ranged from a low 12 µg/m^3 at SG-2 to a maximum of 9,100 µg/m^3 at SG-10. All TCE results exceed the DOH screening standard for TCE of 5 µg/m^3.

1,3-Butadiene - 1,3-Butadiene was detected at a concentration that exceeds the semi-site specific target soil gas concentration at one sample location. A concentration of 38 µg/m^3 was detected in sample SG-2, which exceeds the guidance criteria of 4.3 µg/m^3.

Vapor Intrusion Pathway Assessment

The NYSDEC and NYSDOH do not currently provide specific guidance values for allowable concentrations of most VOCs in soil vapor or indoor air. However, draft guidance has been released by the NYSDOH for two VOCs, trichloroethene (TCE) and tetrachloroethene (PCE). The guidance considers concentrations of VOCs in both subsurface soil vapor and indoor air to identify requirements to further assess exposure risks and/or mitigate exposure pathways. Based on the concentrations of VOCs (including TCE and PCE) detected in soil vapor at the Site, the human health assessment discussed in Section 8 will include a soil vapor intrusion pathway.

7.3. Surface Soil Results

Chemical analyses of eight surface soil samples collected at the Site during the 2007 SRI identified select SVOCs (i.e. PAHs) and metals at concentrations that exceed NYSDEC Restricted Residential Soil Cleanup Objectives (SCOs) and background concentrations for urban areas. The 2007 SRI samples were collected at a focal point area located approximately 20' west of Bldg. #47 based on previous investigation data. The SRI samples were designated SS-1 through SS-8.

Additional soil samples collected from the surface (0-0.5') and near surface intervals (0-2' bgs) during two previous investigations detected elevated concentrations of PAHs and the metals arsenic, lead and mercury in excess of NYSDEC SCOs . Analytical results for the surface /near surface soils are summarized in Tables 3-2 and 7-2.

VOCs

VOCs were not detected in surface soil samples at concentrations in excess of NYSDEC SCOs. Low concentrations of methylene chloride and trimethylbenzene analytes were detected in soils collected at select locations. The maximum concentration for all

methylene chloride detected in near surface soils is 18 µg/kg detected in the sample SS-3 (Table 7-3). Methylene chloride is a common lab contaminant and its detection is believed to be a laboratory artifact.

As shown on Table 3-2, PCE was detected at a concentration of 1300 µg/kg in the 0-2' interval at historical sampling location 2HB-9 advanced in the basement of Bldg. #51.

SVOCs

SVOCs were detected in the surface soil samples collected during the August 2007 SRI (Table 7-3) and during the May 2006 investigation (Table 3-2). Examination of the Table 3-2 historical results and Table 7-2 identified seven SVOCs (PAH) analytes at concentrations in excess of NYSDEC SCOs and Urban Background concentrations.

- Elevated concentrations of benzo(a)anthracene that exceeded the NYSDEC Restricted Residential SCO of 1,000 µg/kg were identified at three locations sampled during the 2006 investigation and in each surface soil sample collected during the 2007 SRI. Concentrations detected at the historical sample locations ranged from 1,300 J µg/kg at SB-8 to 2,200 J at SB-2. Concentrations ranged from 2,200 J ug/kg at SS-5 to a maximum of 32,000 µg/kg at SS-8 for surface samples collected west of Bldg. #47 during the SRI.
- Concentrations of benzo(a)pyrene and chrysene determined to exceed both the NYS restricted residential SCOs and/or urban background criteria were detected at three historical sampling locations and each SRI surface sampling location. Concentrations that exceeded the SCO guidance criteria for benzo(a)pyrene (1,000 ug/kg) ranged from 1,400J µg/kg at historic location SB-8 to a maximum 23,,000 ug/kg at sample location SS-8.
- Tables 3-2 and 7-2 identified concentrations of chrysene that exceeded the NYS restricted residential SCOs and urban background criteria for surface soils at one historic sampling location SB-8 (1,200J µg/kg) and in each SRI sampling location. Chrysene concentrations detected during the 2007 investigation ranged from 1,600J ug/kg at SS-5 to 26,000 µg/kg at SS-8.
- Elevated concentrations of benzo(b)fluoranthene that exceeded the Restricted Residential SCO (1,000 µg/kg) were identified at the SB-1, SB-2 and SB-8 locations sampled during the 2006 investigation. SCO exceedances of benzo(b)fluoranthene were detected in all soil samples collected during the SRI investigation. Concentrations ranged from a minimum of 2,000J µg/kg (SS-5) to a maximum 28,000 µg/kg at SS-8.
- As shown on Table 7-2, benzo(k)fluoranthene was detected at a concentration of 10,000 µg/kg, exceeding the NYSDEC SCO (3,900 µg/kg) at one sample location (SS-8).
- Concentrations of indeno(1,2,3-cd)pyrene determined to exceed NYS SCO Restricted Residential cleanup values were detected in all soil samples collected

during the 2007 SRI and at historic locations SB-2 and SB-8. Concentrations that exceeded the SCO restricted criteria for indeno(1,2,3-cd)pyrene (500 µg/kg) ranged from 590J µg/kg at SB-2 to 9,900 µg/kg at SS-8.

- Elevated concentrations of dibenzo(a,h)anthracene that exceeded the Restricted Residential SCO values were detected at four sampling locations. Concentrations that exceeded the SCO for dibenzo(a,h)anthracene (330 µg/kg) ranged from 370J µg/kg at SS-7 to 3,600J µg/kg at SS-8.

Metals

Soil collected in the surface and near surface interval at eleven sampling locations detected concentrations of metals that exceed the Restricted Residential SCOs. A comparison of analytical data with SCO values and Urban Background Concentrations for metals is presented in Tables 3-2 and 7-2. Based on elevated concentrations of metals that exceed regulatory guidelines and background criteria, the following observations were made:

- Concentrations of arsenic determined to exceed the NYS SCO for arsenic (16 mg/kg) were detected at one historic sampling location (33.9 mg/kg at SB-2) and two SRI locations identified as SS-3 and SS-5 at 20.4 and 20.2 mg/kg, respectively.
- Concentrations of cadmium determined to exceed the Restricted Residential SCO value for chromium (4.3 mg/kg) were detected at six sample locations (SS-1 through SS-6). The values ranged from 4.5 mg/kg at SS-4 to 11.4 at SS-1.
- Concentrations of copper that exceed the Restricted Residential SCO value for copper (270 mg/kg) were detected at all sample locations except SS-8. Concentrations ranged from 380 mg/kg at SS-4 to 2,180 mg/kg at SS-7.
- Elevated concentrations of lead that exceed the Restricted Residential SCO value for lead (400 mg/kg) were detected at all SRI sample locations (SS-1 through SS-8) and onh historic sampling location (SB-2). Exceedance concentrations ranged from a low 511 mg/kg at SS-8 to 44,200 mg/kg at historic location SB-2.
- Mercury concentrations that exceed both the NYS Restricted Residential SCO (0.81 mg/kg) and the range of urban background concentrations in eastern soils (0.001-0.2 mg/kg) were detected in soil samples SS-1, SS-2, SS-3, SS-5, SS-7, SB-2, SB-6 and SB-8. Concentrations exceeding guidance criteria ranged from a minimum of 0.823N mg/kg at the SS-7 location to a maximum of 3.3 mg/kg at the historic SB-6 sample location.

The analytical data summarized on Table 7-2 coupled with the sample locations shown on Figure 4-1 identified elevated concentrations of selected metals (arsenic, cadmium, copper, lead and mercury) in excess of Restricted Residential SCOs in shallow soil materials west of Bldg. #47 in the vicinity of historic boring SB-2.

7.4. Subsurface Soil Results

Chemical analyses of 36 subsurface soil samples collected at the Site identified SVOCs and metals at concentrations that exceed NYSDEC SCOs and Urban Background Concentrations.

The subsurface soil samples were collected from borings advanced during the SRI drilling program. Analytical results for the subsurface soils collected by Malcolm Pirnie are summarized in Table 7-3. Historical analytical soil results referenced for purposes of comparison are presented in Table 3-2.

VOCs

As shown on the summary Table 7-3, VOCs were not detected in subsurface soil samples at concentrations in excess of NYSDEC SCOs. Low concentrations of acetone, 2-butanone, tetrachloroethene and toluene were detected at random locations across the Site. VOCs associated with petroleum based fuel products were detected in depth specific soil intervals collected at the SB-3 (10.0-10.5') and SB-4D (8.5-9.0') boreholes located adjacent to the GPR anomaly west of Bldg. #45. The petroleum based VOC indicators included ethyl benzene, total xylenes, methylcyclohexane, and isopropyl benzene. Low concentrations of methylene chloride were detected in all soil samples collected during the SRI investigation. The concentrations of methylene chloride are attributed to carryover laboratory artifacts.

A maximum concentration of 14,000 DJ µg/kg for total xylenes and isopropyl benzene was detected in the 10.0-10.5' interval at sample SB-3 (Table 7-3).

SVOCs

SVOCs were detected in soil samples collected during previous investigations and during the July-August 2007 drilling program (Table 7-3). Seven SVOCs identified as carcinogenic poly aromatic hydrocarbons (PAHs) were detected in the subsurface soil at concentrations in excess of NYSDEC SCOs for Restricted Residential use and/or Urban Background Concentrations for soils in the Eastern U.S.A.

Examination of Tables 3-2 and 7-2 indicates the following:

- Elevated concentrations of benzo(a)anthracene exceeding the NYSDEC Restricted Residential SCO (1,000 µg/kg) were identified in soil samples collected at soil borings SB-3 (1,500 ug/kg at 10.0-10.5'), SB-8 (1,200 ug/kg at 3.0-5.0'), SB-9(4,000 ug/kg at 7.0-10.0'), and SB-13(2,100 ug/kg at 14.0-16.0'). A maximum concentration for benzo(a)anthracene was detected in the subsurface sample collected at historic sampling location SB-3 (16,000 ug/kg at 8.0-10.0' bgs).

- Elevated concentrations of benzo(a)pyrene determined to exceed the NYSDEC Restricted Residential SCO (1,000 µg/kg) and uppermost Urban Background Concentration (220 ug/kg) were identified in the soil samples collected at the most recent soil borings SB-3 (1,200 ug/kg at 10.0-10.5'), SB-9 (3,000 ug/kg at 7.0-10.0'), and SB-13(1,900 ug/kg at 14.0-16.0'). A maximum concentration of 11,000 ug/kg for benzo(a)pyrene was detected in the subsurface sample collected from the 8.0-10.0' interval at historic sampling location SB-3.
- Elevated concentrations of benzo(b)fluoranthene exceeding the NYSDEC Restricted Residential SCO (1,000 µg/kg) were identified in soil samples collected at soil borings SB-3 (1,900 ug/kg at 10.0-10.5'), SB-8 (1,300 ug/kg at 3.0-5.0'), SB-9 (3,800 ug/kg at 7.0-10.0'), and SB-13(2,400 ug/kg at 14.0-16.0'). A maximum concentration of 21,000 ug/kg for benzo(b)fluoranthene was detected in the subsurface sample collected from the 8.0-10.0' interval at historic sampling location SB-3.
- Elevated concentrations of indeno(1,2,3-cd)pyrene exceeding the NYSDEC Restricted Residential SCO (500 µg/kg) were identified in the soil samples collected at soil borings SB-3 (680 J ug/kg at 10.0-10.5'), SB-8 (630 J ug/kg at 3.0-5.0'), SB-9 (1,700 ug/kg at 7.0-10.0'), and SB-13(1,000 ug/kg at 14.0-16.0'). A maximum concentration of 2,800 J ug/kg was detected in the subsurface sample collected from the 8.0-10.0' interval at historic sampling location SB-3.
- A concentration of 16,000 ug/kg detected for chrysene at historic borehole location SB-3 exceeded both the NYSDEC Restricted Residential SCO (3,900 µg/kg) and uppermost Urban Background Concentration (640 ug/kg).
- Elevated concentrations of dibenzo(a,h)anthracene exceeding the NYSDEC Restricted Residential SCO (330 µg/kg) were identified in the soil samples collected at soil borings SB-9 (540J µg/kg at 7.0-10.0') and SB-13 (380 µg/kg at 14.0-16.0').

Metals

Based on the of the 49 subsurface soil/fill samples collected during previous investigations and the recent SRI, select TAL metals were detected at concentrations that exceed the NYSDEC SCOs for restricted residential use and/or background concentrations for Urban Soils in the Eastern U.S. soils. A comparison of analytical data with SCO criteria and Urban Background Concentrations for metals is presented in Tables 3-2 and 7-3. Based on elevated concentrations of metals that exceed regulatory guidelines and background criteria, the following observations were made.

- Concentrations of four select metals that exceed regulatory criteria were detected in subsurface soil samples collected at only five borehole locations advanced during the 2007 SRI drilling program.
- An elevated concentration of chromium that exceeds the NYSDEC Restricted Residential SCO (180 mg/kg) and upper limit for Urban Background Concentrations (40 mg/kg) was identified at soil boring SB-1 (184 mg/kg at 10.5-11.0' bgs).

- An elevated concentration of lead exceeding the NYSDEC Restricted Residential SCO (400 mg/kg) was identified at soil boring SB-8 (460N mg/kg at 3-5' bgs).
- An elevated concentration of manganese determined to exceed the NYSDEC Restricted Residential SCO (2000 mg/kg) was identified at soil boring SB-2 (4,110 mg/kg at 7.0-7.5').
- Elevated concentrations of mercury that exceed the NYSDEC Restricted Residential SCO (0.81 mg/kg) and upper limit for Urban Background Concentrations (0.2 mg/kg) was identified at soil borings SB-9 (1.0 mg/kg at 7.0-10.0' bgs) and SB-21 (1.1 mg/kg at 14.0-16.0' bgs).

The analytical data summarized in Table 7-3 coupled with the sample locations shown on Figure 4-1 identified elevated concentrations of selected metals (chromium, lead, manganese, and mercury) in excess of NYSDEC SCOs. Concentrations of metals determined to consistently exceed guidance criteria were identified in soil samples collected near the possible manhole cover on the west side of Bldg. #47, and near the GPR anomaly on the west side of Bldg. #45.

Poly-Chlorinated Biphenyl's (PCBs)

Low concentrations of Aroclor 1248 were detected in soil samples collected at five borehole locations located within Bldg. #53. The detected concentrations ranged from a low 26 ug/kg in the 25-30' bgs interval at SB-17D to a maximum of 230 ug/kg in the 25-30' bgs interval at the abandoned MW-5 location. Trace concentrations of the PCB analyte Aroclor 1260 were detected at the SB-14 (5.8 J ug/kg) and SB-19D (17.0 J ug/kg) sampling locations. The PCB results were qualified as an estimated value, or flagged as detected above instrument detection limits, but below the contract required detection limits (CRDLs).

Pesticides

As shown on Table 7-3, low to trace concentrations of a suite of pesticides were detected at borehole locations advanced across the Site. Detected concentrations were generally qualified as an estimated value, or flagged as detected above instrument detection limits, but below the contract required detection limits (CRDLs). The highest concentrations for the pesticide analyte 4,4'- DDD were identified at the SB-3 (120 ug/kg at 10.0-10.5' bgs) and SB-4D (140 ug/kg at 8.5-9.0' bgs) sampling locations. There were no pesticide analytes identified that exceed guidance criteria.

7.5. Sediment Sample Results

As shown on Table 3-3, the sediment sample identified as G-2 collected in the floor drain of Bldg. 47 during the January 2005 investigation, identified elevated concentrations of

select metals in excess of the NYS Restricted Residential SCO's. Examination of the tabulated data revealed:

- Arsenic was detected at the G-2 location at a concentration of 16.1 ug/kg. The concentration exceeded the Soil Cleanup Objective of 16.0 ug/kg.
- Cadmium was detected at the G-2 location at a concentration of 14.7 ug/kg. The concentration exceeded the Soil Cleanup Objective of 4.3 ug/kg..
- Lead was detected at the G-2 location at a concentration of 2,360 ug/kg. The concentration exceeded the Soil Cleanup Objective of 400 ug/kg..
- Mercury was detected at the G-2 location at a concentration of 1.31 ug/kg. The concentration exceeded the Soil Cleanup Objective of 0.81 ug/kg.

7.6. Groundwater Sample Results

Groundwater samples were collected and analyzed from five permanent wells that comprised the Site monitoring well network during the May 2006 subsurface investigation. A fifth sample, collected during the 2007 investigation at the newly installed temporary monitoring well (MW-Temp) was used to supplement the tabulated data shown on Table 3-4. It should be noted that groundwater data for monitoring wells MW-1 through MW-5 is considered to be more representative of Site groundwater conditions. Whereas the groundwater sample collected at the 2007 MW-Temp well location is considered atypical due to negative impacts attributed to poor well yield and recharge.

The laboratory analytical results for groundwater samples are summarized in Tables 3-4 and 7-4. Only those parameters for which a concentration greater than the laboratory detection limit were tabulated and compared to the NYS Class "GA" Groundwater Quality Standards (GWQS). The data identified concentrations of VOCs, pesticides and metals that exceeded the NYS Class "GA" GWQS.

VOCs

As shown on Tables 3-4 and 7-4, eight VOCs (methylene chloride, acetone, 2-butanone, 4-methyl-2-pentanone, and 1,2,4-trichlorobenzene, 1,2 dichloroethylene, chloroform, and PCE) were detected in the groundwater samples. Only methylene chloride was detected at a concentration (19µg/L) that exceeded the NYSDEC Class GA Groundwater Standard of 5 µg/L. Based on the persistence of methylene chloride detected in samples collected during the 2007 investigation, the VOC detection is attributed to laboratory artifact carryover.

Metals

Groundwater samples collected during previous investigations and the RI were analyzed for total (T) and dissolved (D) TAL inorganics (metals).

Cursory examination of Tables 3-4 and 7-4 reveal a total of 5 metals that were detected at concentrations in excess of NYSDEC Class GA Groundwater Standards within the Site monitoring well network. More specifically, the elevated concentrations of antimony, iron, magnesium, manganese and sodium were identified in the groundwater regime across the Site and therefore are considered to be more representative. Conversely, a total of 11 metals were identified in the groundwater sample collected from the temporary monitoring well MW-Temp at concentrations in excess of NYSDEC Class GA Groundwater Standards. Inorganic analytical results from the monitoring wells MW-1 through MW-5 and MW-Temp are compared to the Class GA GWQS standards in Tables 3-4 and 7-4. The following observations were made based on these comparisons:

- Antimony was detected at elevated concentrations that exceed the Class GA GWQS standard (3.0 µg/L) at the common Site monitoring well locations MW-1 (4.14 J ug/L Diss), MW-2 (7.08 J ug/L Tot), MW-3 (5.62 ug/L Diss), MW-5 (11.8 J ug/L Tot, 4.84 J ug/L Diss), and MW-Temp (8.3B µg/L in the total metals sample and 6.7B µg/L in the dissolved sample).
- Iron was detected at elevated concentrations that exceed the Class GA GWQS standard (300 µg/L) at the common Site monitoring well locations MW-1 (347 ug/L Tot), MW-2 (548 ug/L Tot), MW-4 (668 ug/L Tot), MW-5 (1,100 ug/L Tot, and MW-Temp (71,800 µg/L in the total metals sample and 550 µg/L in the dissolved sample).
- Magnesium was detected at elevated concentrations that exceed the Class GA GWQS standard (35,000 µg/L) at monitoring well locations MW-3 (42,700 ug/L Tot, 45,500 ug/L Diss), MW-5 (52,700 ug/L Tot, 50,400 Diss), and MW-Temp (86,500 µg/L in the total metals sample and 65,200 µg/L in the dissolved sample).
- Manganese was detected at elevated concentrations that exceed the Class GA GWQS standard (300 µg/L) at the common site monitoring well locations MW-4 (709 ug/L Tot, 623 ug/L Diss), MW-5 (528 ug/L Tot, 432 ug/L Diss) and MW-Temp (23,000 µg/L in the total metals sample and 19,400 µg/L in the dissolved sample).
- Sodium was detected at elevated concentrations that exceed the Class GA GWQS standard (20,000 µg/L) in both the total and dissolved aliquots at each of site monitoring well locations: MW-1 (192,000 ug/L Tot, 196,000 Diss), MW-2 (92,800 ug/L Tot, 86,000 ug/L Diss), MW-3 (56,600 ug/L Tot, 60,200 ug/L Diss), MW-4 (138,000 ug/L Tot, 126,000 ug/L Diss), MW-5 (182,000 ug/L Tot, 172,00 Diss) and MW-Temp (397,000 µg/L in the total metals sample and 457,000 µg/L in the dissolved sample).

Inorganics detected in MW-Temp Only

- Arsenic was detected at an elevated concentration that exceeds the Class GA GWQS standard of 25 µg/L. Examination of analytical results shown on Table 7-4 indicate a concentration of 29.6 µg/L in the total metals sample. Arsenic was not detected in the dissolved sample.
- Cadmium was detected at an elevated concentration that exceeds the Class GA GWQS standard of 5 µg/L. Examination of analytical results shown on Table 7-4 indicate a concentration of 12.3 µg/L in the total metals sample and 10.6 µg/L in the dissolved sample.
- Chromium was detected at an elevated concentration that exceeds the Class GA GWQS standard of 50 µg/L. Examination of analytical results shown on Table 7-4 indicate a concentration of 126 µg/L in the total metals sample. Chromium was not detected in the dissolved sample.
- Copper was detected at an elevated level that exceeds the Class GA GWQS standard (200 µg/L) at 456 µg/L in the total metals sample. Copper was not detected in the dissolved sample.
- Lead was detected at an elevated concentration that exceeds the Class GA GWQS standard of 25 µg/L. Examination of analytical results shown on Table 7-4 indicate a concentration of 1,780 µg/L in the total metals sample and 430 µg/L in the dissolved sample.
- Nickel was detected at an elevated concentration that exceeds the Class GA GWQS standard of 100 µg/L. Examination of analytical results shown on Table 7-4 indicate a concentration of 245 µg/L in the total metals sample and 112 µg/L in the dissolved sample.
- Mercury was detected at an elevated level that exceeds the Class GA GWQS standard (0.7 µg/L) at 5.0 µg/L in the total metals sample. Mercury was not detected in the dissolved sample.

Pesticides

Concentrations of the pesticides hepatachlor and hepatachlor epoxide were detected in the groundwater sample from the temporary monitoring well at concentrations of 0.1µg/L and 0.19 µg/L, respectively. These values exceed the respective Class GA QWQS standards of 0.04 µg/L for hepatachlor and 0.03 µg/L for hepatachlor epoxide. The pesticide results were qualified as an estimated value, or flagged as detected above instrument detection limits, but below the contract required detection limits (CRDLs).

Trace concentrations of alpha-BHC (0.11 µg/L), endrin aldehyde (0.11 µg/L), and gamma-chlordane (0.11 µg/L) were also detected in the groundwater sample collected from the temporary monitoring well during the August 2007 sampling event. These values were below Class GA GWQS standards for the respective analytes.

8. Human Health Evaluation

This section presents a qualitative evaluation of the potential for exposure and adverse human health effects associated with chemicals detected in sampled environmental media at the Former Teutonia Hall Site (Site) in Yonkers, Westchester County, New York. The human health evaluation (HHE) supports the Brownfield Cleanup Program (BCP) Supplemental Remedial Investigation (RI) performed at the Site in August 2007.

As shown on Figure 1-1 and Figure 1-2, the Site is 0.75 acres located along the west side of Buena Vista Avenue. The Site comprises five contiguous parcels identified as #41, #45, #47, #51 and #53 (see Figure 1-3). The Site is currently bordered to the north by a vacant building with planned new rental lofts, to the south by residential property, to the east by Buena Vista Avenue, and to the west by the Metro North/Amtrak railroad corridor. The south-flowing Hudson River is approximately 500 feet west of the Site. The immediate Site vicinity is occupied by residential buildings, vacant lots, parking lots, and commercial establishments such as restaurants, retail businesses, and auto repair shops. A day care center with an outdoor playground is located south of the Site, near the corner of Buena Vista Avenue and Prospect Street.

The existing structures on the Site can be generally characterized as vacant, multi-story brick and concrete building structures. A former auto repair shop is located at 53 Buena Vista Avenue (i.e., parcel #53). The parcels designated #41, #45, #47, and #51 were admitted into the New York State BCP in 2005. The original BCP Agreement was amended to include #53 in November 2006.

8.1. Overview

Although qualitative, the HHE follows the four-step process typically used to assess potential human health risk. This consists of:

Data Evaluation: relevant investigation sample data are compiled and evaluated to determine the usability of the data and to select chemicals of potential concern (COPC) representative of the environmental conditions at the Site.

Exposure Assessment: actual and/or potential chemical release mechanisms and migration pathways are evaluated and potentially exposed human populations, possible exposure pathways, and potential exposure routes are identified.

Toxicity Assessment: qualitative toxicity information is presented for each COPC identified for the Site.

Risk Characterization: the potential for adverse human health effects, in terms of both non-carcinogenic hazard and carcinogenic risk, is evaluated, currently and for the future scenario, in the absence of remedial action. The uncertainty in this qualitative evaluation is also briefly discussed.

8.2. Data Evaluation

The data evaluation focuses on the compilation of useable analytical data to assess the potential for human exposure and the selection of COPC.

Surface and subsurface soil/fill samples, soil gas, and groundwater samples were collected at the Site in accordance with the *Brownfield Cleanup Program Supplemental Remedial Investigation Work Plan, Former Teutonia Hall Site* (RI Work Plan) (Malcolm Pirnie, Inc., 2007). In addition, historical surface and subsurface soil/fill, soil gas, sediment, and groundwater data are available from the following investigations performed at the Site:

- Combined Phase I and II Environmental Site Assessment (ESA) for parcels #41-51 (January 2005).
- Supplemental Soil Gas Investigation for parcels #41-51 (June 2005).
- Supplemental Subsurface Investigation for parcels #41-51 (May 2006).
- Combined Phase I and II ESA for parcels #53 (July 2006).

A brief summary of these prior investigations and their pertinent findings is presented in Section 3.0 of this RI Report. The entire data sets for the samples collected in August 2007 for the Supplemental RI are presented in Appendix C of this report. Data summary tables that include the historical data and the Supplemental RI data were organized to facilitate the data evaluation for this HHE. The data summary tables also present the screening criteria used to select COPC or to evaluate the detected concentrations in each environmental medium, as discussed below. This process identifies those COPC that, if exposed to, may pose potential risk to human health.

Selection of Media of Concern: The subsurface investigation performed in May 2006 revealed the fill thickness ranges from 2 to 6 feet across the Site. Surface and subsurface soil/fill were identified as environmental media of concern because they are or may become, in the future, readily available for human contact. Soil gas was identified as an environmental medium of concern because of the potential for volatile organic compounds (VOC) detected in soil/fill to migrate into indoor air of current and future buildings on and possibly off the Site. Table 8-1 presents a list of all available surface and subsurface soil/fill and soil gas samples included in the data evaluation for this HHE. Figure 4-1 depicts all of the sampling locations at the Site.

TABLE 8-1
Summary of Samples Included in Human Health Evaluation
Former Teutonia Hall Site
Yonkers, New York

Investigation Date	Exposure Medium	Sample ID / Location	Sample Depth (feet)	Included in Data Evaluation ?			Note/Comment
				Surface soil/fill	All soil/fill	Subsurface soil vapor	
January 2005	surface soil/fill	HB-1	0-2	no	yes	--	collected from outside building, beneath impervious surface; no surface soil exposure
	surface soil/fill	HB-3	0-2	no	yes	--	collected from outside building, beneath impervious surface; no surface soil exposure
	subsurface soil/fill		2-4	--	yes	--	
	subsurface soil/fill	HB-4	4-6	--	yes	--	
	surface soil/fill	HB-6	0-2	no	yes	--	collected from inside building; no surface soil exposure
	subsurface soil/fill	HB-7	8-10	--	yes	--	
	surface soil/fill	HB-8	0-2	no	yes	--	collected from inside building; no surface soil exposure
	subslab soil gas	HB-5SG	--	--	--	yes	
June 2005	subslab soil gas	2SG-1	--	--	--	yes	
	subslab soil gas	2SG-2	--	--	--	yes	
	subslab soil gas	2SG-3	--	--	--	yes	
	subslab soil gas	2SG-4	--	--	--	yes	
	subslab soil gas	2SG-5	--	--	--	yes	
	subslab soil gas	2SG-6	--	--	--	yes	
	subslab soil gas	2SG-7	--	--	--	yes	
	subslab soil gas	2SG-8	--	--	--	yes	
May 2006	surface soil/fill	SB-1	0-2	no	yes	--	collected from outside building, beneath impervious surface; no surface soil exposure
	surface soil/fill	SB-2	0-0.5	yes	yes	--	collected from pervious surface, outside building
	surface soil/fill	SB-3	0-0.5	yes	yes	--	collected from pervious surface, outside building
	subsurface soil/fill		8-10	--	yes	--	
	surface soil/fill	SB-4	0-0.5	yes	yes	--	collected from pervious surface, outside building
	subsurface soil/fill		8-10	--	yes	--	
	subsurface soil/fill	SB-5	8	--	yes	--	
	subsurface soil/fill		10-12	--	yes	--	
	surface soil/fill	SB-6	0-0.5	no	yes	--	collected from outside building, beneath impervious surface; no surface soil exposure
	surface soil/fill	SB-7	0-0.5	no	yes	--	collected from outside building, beneath impervious surface; no surface soil exposure
	surface soil/fill	SB-8	0-0.5	yes	yes	--	collected from pervious surface, outside building
	surface soil/fill	SB-9	0-0.5	yes	yes	--	collected from pervious surface, outside building
	subslab soil gas	3SG-1	--	--	--	yes	
	subslab soil gas	3SG-2	--	--	--	yes	
	subslab soil gas	3SG-3	--	--	--	yes	
	subslab soil gas	3SG-4	--	--	--	yes	
	subslab soil gas	3SG-5	--	--	--	yes	
	subslab soil gas	3SG-6	--	--	--	yes	
	subslab soil gas	3SG-7	--	--	--	yes	
	subslab soil gas	3SG-8	--	--	--	yes	
	subslab soil gas	3SG-9	--	--	--	yes	
	subslab soil gas	3SG-10	--	--	--	yes	
July 2006	subslab soil gas	4SG-1	--	--	--	yes	
	subslab soil gas	4SG-2	--	--	--	yes	
	subslab soil gas	4SG-3	--	--	--	yes	
	subslab soil gas	4SG-4	--	--	--	yes	
	subslab soil gas	4SG-5	--	--	--	yes	
	subslab soil gas	4SG-6	--	--	--	yes	
August 2007	surface soil/fill	SS-1	0-0.5	yes	yes	--	collected from pervious surface, outside building
	surface soil/fill	SS-2	0-0.5	yes	yes	--	collected from pervious surface, outside building
	surface soil/fill	SS-3	0-0.5	yes	yes	--	collected from pervious surface, outside building
	surface soil/fill	SS-4	0-0.5	yes	yes	--	collected from pervious surface, outside building
	surface soil/fill	SS-5	0-0.5	yes	yes	--	collected from pervious surface, outside building
	surface soil/fill	SS-6	0-0.5	yes	yes	--	collected from pervious surface, outside building
	surface soil/fill	SS-7	0-0.5	yes	yes	--	collected from pervious surface, outside building
	surface soil/fill	SS-8	0-0.5	yes	yes	--	collected from pervious surface, outside building
	subsurface soil/fill	SB-1	10.5-11	--	yes	--	
	subsurface soil/fill	SB-2	7-7.5	--	yes	--	
	subsurface soil/fill	SB-3	10-10.5	--	yes	--	
	subsurface soil/fill	SB-4D	8.5-9	--	yes	--	
	subsurface soil/fill		31-32	--	yes	--	
	subsurface soil/fill	SB-5	11.5-12	--	yes	--	
	subsurface soil/fill	SB-6	9-10	--	yes	--	
	subsurface soil/fill	SB-7D	10-15	--	yes	--	
	subsurface soil/fill		30-35	--	yes	--	
	subsurface soil/fill	SB-8	3-5	--	yes	--	sample results are represented by average of duplicate and original samples
	subsurface soil/fill	SB9	7-10	--	yes	--	
	subsurface soil/fill	SB-10	13-14	--	yes	--	
	subsurface soil/fill	SB-11	8-10	--	yes	--	
	subsurface soil/fill	SB-13	14-16	--	yes	--	
	subsurface soil/fill		3-5	--	yes	--	
	surface soil/fill	SB-14	0.5-1.5	no	yes	--	collected from inside building; no surface soil exposure
	surface soil/fill	SB-15	1-3	no	yes	--	collected from inside building; no surface soil exposure
	subsurface soil/fill	SB-16	6-8	--	yes	--	
	subsurface soil/fill	SB-17D	13-15	--	yes	--	
	subsurface soil/fill		25-30	--	yes	--	
	subsurface soil/fill	SB-18	7-9	--	yes	--	
	surface soil/fill	SB-19D	1-3	no	yes		collected from inside building; no surface soil exposure
	subsurface soil/fill		20-25	--	yes	--	
	subsurface soil/fill	SB-20	5-7	--	yes	--	sample results are represented by average of duplicate and original samples
	subsurface soil/fill	SB-21	14-16	--	yes	--	
	subsurface soil/fill	SB-22D	11-12	--	yes	--	
	subsurface soil/fill		25-30	--	yes	--	
	subsurface soil/fill	SB-23	4-5	--	yes	--	
	subsurface soil/fill	SB-24	3-5	--	yes	--	
	surface soil/fill	MW-4	1-3	no	yes		collected from outside building, beneath impervious surface; no surface soil exposure
	subsurface soil/fill		25-30	--	yes	--	
	subsurface soil/fill	MW-5	25-30	--	yes	--	
	subsurface soil/fill		3-5	--	yes	--	
	subsurface soil/fill	MW-6	20-23	--	yes	--	
	subsurface soil/fill		6-7	--	yes	--	
August 2007	subslab soil gas	SG-1	--	--	--	yes	
	subslab soil gas	SG-2	--	--	--	yes	
	subslab soil gas	SG-3	--	--	--	yes	
	subslab soil gas	SG-4	--	--	--	yes	
	subslab soil gas	SG-5	--	--	--	yes	
	subslab soil gas	SG-6	--	--	--	yes	
	subslab soil gas	SG-7	--	--	--	yes	
	subslab soil gas	SG-8	--	--	--	yes	
	subslab soil gas	SG-9	--	--	--	yes	
	subslab soil gas	SG-10	--	--	--	yes	
	subslab soil gas	SG-11	--	--	--	yes	
	subslab soil gas	SG-12	--	--	--	yes	
	subslab soil gas	SG-13	--	--	--	yes	
	soil gas	SG-14	--	--	--	yes	
				Surface soil/fill	All soil/fill	Subsurface soil vapor	
			Total Samples Included	13	62	39	

Notes
-- = Not Applicable

Sediment was not included as an environmental medium of concern in this HHE, because human exposure to chemicals in sediment is unlikely. Two sediment samples were collected during the Combined Phase I and II ESA (January 2005). Sample G-1 was collected from soil/sediment adjacent to an inactive above-ground storage tank encapsulated in a vault in the basement of the building on parcel #51. Sample G-2 was collected from a floor drain in the basement of the building on parcel #47.

Groundwater was not included as an environmental medium of concern in this HHE, because human exposure to chemicals in groundwater is unlikely. Potable groundwater is provided to the Site by the City of Yonkers. In addition, the depth to groundwater at the Site ranges from 44 feet below ground surface (bgs) at the southern end of the Site to 30 feet bgs at MW-4. It is not expected that construction/utility workers would have direct contact exposure to groundwater at these depths during future construction or excavation activities.

As indicated above, the Site is located approximately 500 feet east of the south-flowing Hudson River. Chemicals detected in shallow groundwater at the Site are expected to attenuate before discharging to surface water of the Hudson River. Therefore, surface water and sediment of the Hudson River were not identified as environmental media of concern for the Site.

Selection of COPC: The following sub-sections describe the surface soil/fill, subsurface soil/fill, and soil gas data and identify the COPC in each environmental medium.

COPC in soil/fill were selected by comparing the maximum detected chemical concentrations to the NYSDEC's soil cleanup objectives (SCO) for restricted-residential land use (NYSDEC, 2006). The restricted-residential SCOs are chemical-specific, risk-based concentrations in soil derived to be protective of residential receptors (adults and children) in multi-family housing on Sites with restrictions that prohibit single-family housing and vegetable gardens. The SCOs consider the ingestion, inhalation, and dermal contact exposure routes and are based on an excess lifetime cancer risk of 10-6 (i.e., one in a million) and a noncancer hazard quotient of 1. The SCOs also consider background concentrations of chemicals in rural soils and maximum acceptable levels of chemicals in soils (e.g., the soil saturation concentration). Chemicals with maximum detected concentrations greater than the corresponding SCOs were selected as COPC. Chemicals without a corresponding SCO were also selected as COPC. Inorganic chemicals regarded as essential nutrients (i.e., calcium, magnesium, potassium, and sodium) were categorically eliminated as COPC.

New York State does not have criteria or guidance values to evaluate concentrations of VOCs in soil gas. Instead, the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH, 2006) recommends evaluation of soil gas data in conjunction with indoor and outdoor air data. The soil gas data can also be directly compared to air

guideline values derived by the New York State Department of Health (NYSDOH); however, this is a conservative approach that assumes no attenuation, and guidelines are only available for four chemicals (Table 3.1; NYSDOH, 2006). Since the NYSDOH does not advocate the use of a risk-based, screening-level approach for evaluating soil gas data, all detected VOCs in soil gas are retained as COPC. However, semi-site-specific screening levels are presented in the data summary table to benchmark the detected VOC concentrations in soil gas.

8.2.1. Surface Soil/Fill

For the purposes of this HHE, surface soil/fill is identified as samples collected between the depths of 0-2 feet bgs. Twenty-four of the 62 total soil/fill samples collected at the Site were from within the 0-2 foot depth range (see Table 8-1). However, eleven of these samples were collected from soil/fill beneath impervious surfaces on the Site and were therefore not included in the surface soil/fill dataset.

Table 8-2 presents a summary of the remaining 13 surface soil/fill samples for the Site, with the frequency of detection and range of detected concentrations for each detected chemical. The five surface soil/fill samples collected in May 2006 were analyzed for Target Compound List (TCL) semi-volatile organic compounds (SVOC), and Target Analyte List (TAL) metals. The eight surface soil/fill samples collected in August 2007 were collected around a possible manhole cover, as shown on Figure 4-1, and were analyzed for TCL VOCs/SVOCs and TAL metals. The screening criteria are the NYSDEC's SCOs for restricted-residential soil (NYSDEC, 2006), as described above.

The following chemicals were selected as COPC in surface soil/fill:

- SVOCs - benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, di-n-butylphthalate, diethylphthalate, bis(2-ethylhexyl)phthalate, indeno(1,2,3-cd)pyrene, and 2-methylnaphthalene.
- Metals - aluminum, antimony, arsenic, cadmium, chromium, cobalt, copper, iron, lead, mercury, thallium, and vanadium.

The following chemicals were included as COPC due to the lack of screening criteria: di-n-butylphthalate, diethylphthalate, bis(2-ethylhexyl)phthalate, 2-methylnaphthalene, aluminum, antimony, cobalt, iron, thallium, and vanadium.

8.2.2. All Soil/Fill

For the purposes of this HHE, subsurface soil/fill is identified as samples collected at depths greater than 2 feet bgs. However, the data summary table comprises surface and subsurface soil/fill and is therefore termed "all soil/fill". The all soil/fill data set is composed of the following samples:

TABLE 8-2
Surface Soil Data Summary and Comparison to Screening Values
Former Teutonia Hall Site
Yonkers, New York

	Frequency of Detection	Range of Detected Concentrations	NYSDEC BCP Soil Cleanup Objectives	
Volatile Organic Compounds (ug/Kg)				
Methylene chloride	7 / 8	5 J - 18	100,000	
Tetrachloroethylene	1 / 8	25 J	19,000	
Semi-Volatile Organic Compounds (ug/Kg)				
Acenaphthene	5 / 13	350 J - 10,000	100,000	
Acenaphthylene	1 / 13	200 J	100,000	
Anthracene	9 / 13	720 J - 26,000	100,000	
Benzo(a)anthracene	10 / 13	**1,300 J - 32,000**	1,000	
Benzo(a)pyrene	10 / 13	**1,400 J - 23,000**	1,000	
Benzo(b)fluoranthene	11 / 13	910 J - **28,000**	1,000	
Benzo(g,h,i)perylene	10 / 13	850 J - 10,000	100,000	
Benzo(k)fluoranthene	5 / 13	650 J - **10,000**	3,900	
Chrysene	10 / 13	1,200 J - **26,000**	3,900	
Dibenzo(a,h)anthracene	5 / 13	310 J - **3,600 J**	330	
Dibenzofuran	5 / 13	270 J - 13,000	59,000	
Di-n-butylphthalate	3 / 13	**1,000 - 3,300**	NA	
Diethyl phthalate	2 / 13	**470 J - 570 J**	NA	
bis(2-Ethylhexyl)phthalate	6 / 13	**1,200 J - 9,000**	NA	
Flouranthene	12 / 13	78 J - 72,000	100,000	
Fluorene	4 / 13	410 J - 14,000	100,000	
Indeno(1,2,3-cd)pyrene	10 / 13	**590 J - 9,900**	500	
2-Methylnaphthalene	4 / 13	**120 J - 6,700**	NA	
4-Methylphenol	1 / 13	560 J	100,000	
Naphthalene	5 / 13	270 J - 16,000	100,000	
Phenanthrene	9 / 13	3,400 - 94,000	100,000	
Pyrene	11 / 13	77 J - 49,000	100,000	
Metals (mg/Kg)				
Aluminum	13 / 13	**4,670 - 147,000**	NA	
Antimony	13 / 13	**0.904 - 4,550**	NA	
Arsenic	13 / 13	1.25 - **33.9**	16	
Barium	13 / 13	42.4 - 354	400	
Beryllium	13 / 13	0.166 - 1.4	72	
Cadmium	13 / 13	0.035 - **11.4**	4.3	
Calcium*	13 / 13	2,090 - 11,200	NA	
Chromium	13 / 13	9.97 - **141**	110; 180	a
Cobalt	13 / 13	**1.19 - 33.6**	NA	
Copper	13 / 13	21.6 - **2,180**	270	
Iron	13 / 13	**5,460 - 163,000**	NA	
Lead	13 / 13	61 - **44,200**	400	
Magnesium*	13 / 13	1,290 - 6,050	NA	
Manganese	13 / 13	127 - 765	2,000	
Mercury	13 / 13	0.146 - **2.8**	0.81	b
Nickel	13 / 13	10.3 - 91.2	310	
Potassium*	13 / 13	552 - 1,700	NA	
Selenium	7 / 13	0.361 - 2.5 B	180	
Silver	13 / 13	0.084 - 56.7	180	
Sodium*	13 / 13	80.4 B - 510	NA	
Thallium	5 / 13	**0.558 - 586**	NA	
Vanadium	13 / 13	**13.1 - 36.9**	NA	
Zinc	13 / 13	36.6 - 2,710	10,000	

Notes
Bold type indicates chemical is selected as a COPC.
* Indicates analyte is an essential nutrient and categorically eliminated as a COPC.
NYSDEC BCP = New York State Department of Environmental Conservation Brownfields Cleanup Program
Soil Cleanup Objectives (SCO) are for restricted-residential use.
J (for organics) = indicates an estimated value.
B (for inorganics) = indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.
NA = Not available
a = SCOs for chromium are for hexavalent and trivalent chromium, respectively.
b = SCO is for total mercury and is the lower of the SCOs for elemental mercury and mercury, inorganic salts.

- Seven samples collected in January 2005, all of which were analyzed for TCL VOCs, one of which was analyzed for selected TCL SVOCs (i.e., polycyclic aromatic hydrocarbons) and two of which were analyzed for Resource Conservation and Recovery Act metals.
- Twelve samples collected in May 2006, all of which were analyzed for TCL VOCs/SVOCs and TAL metals.
- The eight surface soil/fill samples collected in August 2007 around a possible manhole cover during the Supplemental RI and analyzed for TCL VOCs/SVOCs and TAL metals.
- Thirty-five soil/fill samples collected in August 2007 as part of the subsurface investigation during the Supplemental RI, all of which were analyzed for TCL VOCs/SVOCs, polychlorinated biphenyls, pesticides, and TAL metals. Results of two duplicate samples collected during the Supplemental RI were averaged with those of the corresponding original samples (SB-8-3-5 and SB-20-5-7).

Table 8-3 presents a summary of all soil/fill data for the Site, with the frequency of detection and range of detected concentrations for each detected chemical. The screening criteria are the NYSDEC's soil cleanup objectives for restricted-residential soil (NYSDEC, 2006).

The following chemicals were selected as COPC in subsurface soil/fill:

- SVOCs - benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, di-n-butylphthalate, di-n-octylphthalate, bis(2-ethylhexyl)phthalate, indeno(1,2,3-cd)pyrene, and 2-methylnaphthalene.
- Pesticides - gamma-chlordane, endrin aldehyde, heptachlor epoxide, and methoxychlor.
- Metals - aluminum, antimony, arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, thallium, and vanadium.

The following chemicals were included as COPC due to the lack of screening criteria: di-n-butylphthalate, di-n-octylphthalate, bis(2-ethylhexyl)phthalate, 2-methylnaphthalene, gamma-chlordane, endrin aldehyde, heptachlor epoxide, methoxychlor, aluminum, antimony, cobalt, iron, thallium, and vanadium.

While there are no screening criteria for other detected chemicals, they were eliminated as COPC based on a low frequency of detection (i.e., detected in less than 5% of total samples where the total sample number is equal to or greater than 20). These chemicals are: isopropylbenzene, methylcyclohexane, butylbenzylphthalate, carbazole, diethylphthalate, and endrin ketone.

TABLE 8-3
All Soil Data Summary and Comparison to Screening Values
Former Teutonia Hall Site
Yonkers, New York

	Frequency of Detection	Range of Detected Concentrations	NYSDEC BCP Soil Cleanup Objectives	
Volatile Organic Compounds (ug/Kg)				
Acetone	14 / 62	5 J - 750 J	100,000	
2-Butanone (methyl ethyl ketone)	1 / 62	8 J	100,000	
Ethylbenzene	2 / 62	18 J - 44 J	41,000	
Isopropylbenzene	2 / 62	6,700 DJ - 14,000 DJ	NA	
Methylcyclohexane	2 / 62	2 J - 5 J	NA	
Methylene chloride	37 / 62	5 J - 97 J	100,000	
Tetrachloroethene	5 / 62	3 J - 12,000	19,000	
Toluene	13 / 62	1 J - 14	100,000	
1,2,4-Trimethylbenzene	2 / 62	7 - 11	52,000	
1,3,5-Trimethylbenzene	2 / 62	9 - 16	52,000	
Xylenes, total	2 / 62	7,100 DJ - 14,000 DJ	100,000	
Semi-Volatile Organic Compounds (ug/Kg)				
Acenaphthene	12 / 56	25 J - 10,000	100,000	
Acenaphthylene	6 / 56	8 J - 750 J	100,000	
Anthracene	18 / 56	29 J - 26,000	100,000	
Benzo(a)anthracene	32 / 56	8 J - **32,000**	1,000	
Benzo(a)pyrene	23 / 56	8 J - **23,000**	1,000	
Benzo(b)fluoranthene	26 / 56	8 J - **28,000**	1,000	
Benzo(g,h,i)perylene	23 / 56	12 J - 10,000	100,000	
Benzo(k)fluoranthene	15 / 56	7 J - **10,000**	3,900	
Butylbenzylphthalate	1 / 55	228 J	NA	
Carbazole	1 / 55	3,500	NA	
Chrysene	25 / 56	8 J - **26,000**	3,900	
Dibenzo(a,h)anthracene	14 / 56	12 J - **3,600 J**	330	
Dibenzofuran	11 / 55	12 J - 13,000	59,000	
Di-n-butyl phthalate	4 / 55	**430 J - 3,300**	NA	
Diethyl phthalate	2 / 55	470 J - 570 J	NA	
Di-n-octyl phthalate	19 / 55	**8 J - 90 J**	NA	
bis(2-Ethylhexyl)phthalate	10 / 55	**950 J - 9,000**	NA	
Fluoranthene	26 / 56	9 J - 72,000	100,000	
Fluorene	10 / 56	34 J - 14,000	100,000	
Indeno(1,2,3-cd)pyrene	22 / 56	7 J - **9,900**	500	
2-Methylnapthalene	12 / 55	**15 J - 6,700**	NA	
4-Methylphenol	3 / 55	38 J - 560 J	100,000	
Naphthalene	15 / 56	38 J - 35,000	100,000	
Phenanthrene	23 / 56	11 J - 94,000	100,000	
Phenol	1 / 55	34 J	100,000	
Pyrene	25 / 56	10 J - 49,000	100,000	
Polychlorinated Biphenyls (ug/Kg)				
Aroclor 1248	10 / 35	14 - 230	NA	
Aroclor 1260	2 / 35	5.8 J - 17 J	NA	
Polychlorinated biphenyls, total	11 / 35	5.8 J - 230	1,000	
Pesticides (ug/Kg)				
beta-BHC	1 / 35	0.78 J	360	
delta-BHC	1 / 35	0.73 J	100,000	
gamma-Chlordane	14 / 35	**0.44 J - 10 J**	NA	
4,4'-DDD	4 / 35	0.76 J - 140	13,000	
4,4'-DDE	11 / 35	0.77 J - 27 B	8,900	
4,4'-DDT	13 / 35	1.5 J - 40	7,900	
Endosulfan I	1 / 35	0.51 J	24,000	a
Endosulfan II	2 / 35	3.8 J - 5.1 J	24,000	a
Endosulfan sulfate	1 / 35	10 J	24,000	a
Endrin	2 / 35	0.97 J - 1.2 J	11,000	
Endrin aldehyde	4 / 35	**1.1 J - 9.7**	NA	
Endrin ketone	1 / 35	0.86 J	NA	
Heptachlor epoxide	2 / 35	**0.53 J - 3.5 J**	NA	
Methoxyclor	4 / 35	**2.1 - 79 J**	NA	
Metals (mg/Kg)				
Aluminum	55 / 55	**3,460 - 147,000**	NA	
Antimony	23 / 55	**0.344 - 4,550**	NA	
Arsenic	57 / 57	0.411 - **33.9**	16	
Barium	57 / 57	23.6 - 354	400	
Beryllium	55 / 55	0.07 J - 1.4	72	
Cadmium	27 / 57	0.035 - **11.4**	4.3	
Calcium*	55 / 55	386 - 50,300	NA	
Chromium	57 / 57	6.3 - **184**	110; 180	b
Cobalt	55 / 55	**1.19 - 33.6**	NA	
Copper	55 / 55	7.5 - **2,180**	270	
Iron	55 / 55	**5,050 - 163,000**	NA	
Lead	57 / 57	0.68 J - **44,200**	400	
Magnesium*	55 / 55	1,290 - 30,500	NA	
Manganese	55 / 55	108 - **4,110**	2,000	
Mercury	31 / 57	0.006 J - **3.3**	0.81	c
Nickel	54 / 55	5.6 - 91.2	310	
Potassium*	55 / 55	476 J - 3,110	NA	
Selenium	21 / 57	0.357 - 2.5 B	180	
Silver	23 / 57	0.083 - 56.7	180	
Sodium*	55 / 55	67.7 J - 1,550	NA	
Thallium	13 / 55	**0.552 - 586**	NA	
Vanadium	55 / 55	**8.1 - 173**	NA	
Zinc	55 / 55	12.3 - 2,710	10,000	

Notes

Bold type indicates chemical is selected as a COPC.

* Indicates analyte is an essential nutrient and categorically eliminated as a COPC.

NYSDEC BCP = New York State Department of Environmental Conservation Brownfields Cleanup Program

Soil Cleanup Objectives (SCO) are for restricted-residential use.

J (for organics) = indicates an estimated value.

D (for organics) = compound was identified in an analysis at the secondary dilution factor.

B (for organics) = indicates compound was detected in the associated blank as well as the sample.

J or B (for inorganics) = indicates a value greater than or equal to the instrument detection limit, but less than the quantitation limit.

NA = Not available

a = SCO applies to the sum of Endosulfan I, Endosulfan II, and Endosulfan sulfate.

b = SCOs for chromium are for hexavalent and trivalent chromium, respectively.

c = SCO is for total mercury and is the lower of the SCOs for elemental mercury and mercury, inorganic salts.

8.2.3. Soil Gas

A total of 38 subslab soil gas samples were collected at the Site and analyzed for VOCs using EPA Methods TO-14A, TO-14, or TO-15. One soil gas sample (SG-14) was collected from outside the buildings and was analyzed for VOCs using EPA Method TO-15. For the purposes of this HHE, all 39 samples were evaluated as one soil gas data set.

Table 8-4 presents a summary of the soil gas data, with the frequency of detection and range of detected concentrations for each detected VOC. The NYSDOH air guideline values for tetrachloroethene (PCE) and trichloroethene (TCE) are also presented. It should also be noted that the matrices presented in the New York State vapor intrusion guidance document (NYSDOH, 2006) both indicate that mitigation is recommended for Sites where VOC concentrations in subslab soil gas are greater than 1,000 µg/m3, regardless of the indoor air concentrations. Matrix 2, which is applicable to PCE, recommends mitigation where the VOC concentrations are greater than 250 µg/m3, regardless of the indoor air concentrations. Since the NYSDOH (2006) does not advocate the use of a risk-based, screening-level approach for evaluating soil gas data, all detected VOCs are retained as COPC.

Semi-site-specific screening levels are presented in Table 8-4 to benchmark the detected VOC concentrations in soil gas. The screening levels are target soil gas concentrations from the U.S. Environmental Protection Agency's (USEPA) *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* (USEPA, 2002). The screening levels are semi-site-specific in that they are based on an attenuation factor of 0.002, which corresponds to a sample depth of 3 feet bgs and a sandy soil type, most representative of the Site fill material. The range of target soil gas concentrations, based on target cancer risks from 10-6 to 10-4 and a target noncancer hazard quotient of 1, is presented for each detected VOC. As shown in Table 8-4, the maximum detected concentrations of the majority of the detected VOCs are well below the semi-site-specific USEPA screening levels. However, the maximum detected concentrations of 1,3-butadiene, PCE, and TCE are greater than one or both of the semi-Site-specific screening levels.

8.3. Exposure Assessment

Table 8-5 presents a summary of the COPC in each environmental medium. The objective of the exposure assessment is to estimate the type of and potential for human exposure to the COPC that are present in, or migrating from, the environmental media of concern identified in Section 8.2. The exposure assessment consists of the consideration of human populations that have the potential for exposure to conditions at the Site, currently and in the future, and an analysis of the pathways and routes by which receptors may be exposed to COPC at the Site.

TABLE 8-4
Soil Gas Data Summary and Comparison to Screening Values
Former Teutonia Hall Site
Yonkers, New York

	Frequency of Detection	Range of Detected Concentrations	NYSDOH Air Guideline Value [1]	Semi-site-specific [2] Target Soil Gas Concentration [3]	
				@ 10^{-6} target cancer risk and target HQ = 1	@ 10^{-4} target cancer risk and target HQ = 1
Volatile Organic Compounds (ug/m^3)					
Acetone	13 / 39	17.2 - 430	NA	180,000	180,000
Benzene	8 / 39	1.3 - 54	NA	160	16,000
1,3-Butadiene	2 / 39	3.3 - **38**	NA	4.3	430
2-Butanone (methyl ethyl ketone)	10 / 39	1.9 - 120	NA	500,000	500,000
Carbon disulfide	2 / 39	2.53 - 8.87	NA	350,000	350,000
Chloroform	2 / 39	19 - 22.5	NA	53	5,300
Cyclohexane	6 / 39	2.8 - 41	NA	NA	NA
1,2-Dichloroethene	2 / 39	19 - 4,400	NA	NA	NA
cis-1,2-Dichloroethene	4 / 39	19 - 4,400	NA	18,000	18,000
Ethylbenzene	8 / 39	1.7 - 21.2	NA	1,100	110,000
4-Ethyltoluene	6 / 39	1.2 - 54.9	NA	NA	NA
n-Heptane	2 / 39	1.8 - 9.57	NA	NA	NA
n-Hexane	6 / 39	2.3 - 29	NA	100,000	100,000
Isopropanol	5 / 39	9.25 - 190	NA	NA	NA
Methyl tert-butyl ether	2 / 39	3.66 - 54	NA	1,500,000	1,500,000
Propylene	1 / 39	1.92 - 1.92	NA	NA	NA
Styrene	2 / 39	2.17 - 5.2	NA	500,000	500,000
Tetrachloroethene	38 / 39	29 - **190,000**	100	410	41,000
Toluene	26 / 39	1.1 - 149	NA	200,000	200,000
1,1,1-Trichloroethane	13 / 39	2.6 - 180	NA	1,100,000	1,100,000
Trichloroethene	16 / 39	5.47 - **9,100**	5	11	1,100
Trichloroflouromethane	3 / 39	1.1 - 5.71	NA	350,000	350,000
1,2,4-Trimethylbenzene	13 / 39	2.5 - 145	NA	3,000	3,000
1,3,5-Trimethylbenzene	3 / 39	2.5 - 12.5	NA	3,000	3,000
2,2,4-Trimethylpentane	1 / 39	20 - 20	NA	NA	NA
m-&p-Xylenes	14 / 39	1.77 - 38	NA	3,500,000	3,500,000
o-Xylene	9 / 39	2.21 - 23.9	NA	3,500,000	3,500,000

Notes

All detected VOCs are selected as COPCs, regardless of comparison to the target soil gas concentrations.

Bold concentrations are greater than one or both of the semi-site-specific target soil gas concentrations.

(1) New York State Department of Health Air Guideline Values (Table 3.1; NYSDOH, 2006)

(2) Semi-site-specific attenuation factor = 0.002 for sand substrate and 3' sample depth (Figure 3a; USEPA, 2002)

(3) *Draft Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils* (USEPA, 2002).

HQ = Hazard quotient for adverse, noncancer health effects

NA = Not Available

TABLE 8-5
Summary of COPCs per Environmental Medium
Former Teutonia Hall Site
Yonkers, New York

	Surface Soil/Fill	All Soil/Fill	Soil Gas
Volatile Organic Compounds			
Acetone	ND	O	X
Benzene	ND	ND	X
1,3-Butadiene	ND	ND	X
2-Butanone (methyl ethyl ketone)	ND	O	X
Carbon disulfide	ND	ND	X
Chloroform	ND	ND	X
Cyclohexane	ND	ND	X
1,2-Dichloroethene	ND	ND	X
cis-1,2-Dichloroethene	ND	ND	X
Ethylbenzene	ND	O	X
4-Ethyltoluene	ND	ND	X
n-Heptane	ND	ND	X
n-Hexane	ND	ND	X
Isopropanol	ND	ND	X
Methyl tert-butyl ether	ND	ND	X
Propylene	ND	ND	X
Styrene	ND	ND	X
Tetrachloroethene	O	O	X
Toluene	ND	O	X
1,1,1-Trichloroethane	ND	ND	X
Trichloroethene	ND	ND	X
Trichloroflouromethane	ND	ND	X
1,2,4-Trimethylbenzene	ND	O	X
1,3,5-Trimethylbenzene	ND	O	X
2,2,4-Trimethylpentane	ND	ND	X
m-&p-Xylenes	ND	O	X
o-Xylene	ND	O	X
Semi-Volatile Organic Compounds			
Benzo(a)anthracene	X	X	N/A
Benzo(a)pyrene	X	X	N/A
Benzo(b)fluoranthene	X	X	N/A
Benzo(k)fluoranthene	X	X	N/A
Chrysene	X	X	N/A
Dibenzo(a,h)anthracene	X	X	N/A
Di-n-butyl phthalate	X	X	N/A
Diethyl phthalate	X	O	N/A
Di-n-octyl phthalate	ND	X	N/A
bis(2-Ethylhexyl)phthalate	X	X	N/A
Indeno(1,2,3-cd)pyrene	X	X	N/A
2-Methylnapthalene	X	X	N/A
Pesticides			
gamma-Chlordane	N/A	X	N/A
Endrin aldehyde	N/A	X	N/A
Heptachlor epoxide	N/A	X	N/A
Methoxyclor	N/A	X	N/A
Metals			
Aluminum	X	X	N/A
Antimony	X	X	N/A
Arsenic	X	X	N/A
Cadmium	X	X	N/A
Chromium	X	X	N/A
Cobalt	X	X	N/A
Copper	X	X	N/A
Iron	X	X	N/A
Lead	X	X	N/A
Manganese	O	X	N/A
Mercury	X	X	N/A
Thallium	X	X	N/A
Vanadium	X	X	N/A

Notes
All detected VOCs in subsurface soil vapor are considered COPCs.
X - Selected as COPC
O - Detected but not selected as COPC
ND - Not detected
N/A - Not analyzed

The exposure assessment is based on a Site visit/field survey that was conducted on October 31, 2007 and is facilitated through the development of a conceptual Site model (CSM), presented in Figure 8-1. The CSM is a graphic illustration that outlines chemical source areas, release mechanisms, environmental media that currently show or may show the presence of chemicals in the future, possible exposure pathways to potentially-exposed human populations, and potential exposure routes. It considers current Site conditions and surrounding land use, as well as the most likely future conditions and land use based on the proposed redevelopment of the Site.

Planned redevelopment of the Site is as a mixed-use residential and commercial development consisting of a multi-story building with parking space. The majority of the Site will be covered by concrete slab, concrete sidewalks, or asphalt driveways and parking lots. Landscaped areas are not planned at this time due to the small size of the Site.

8.3.1. Potential Human Receptors

8.3.1.1. Current/Future Scenario

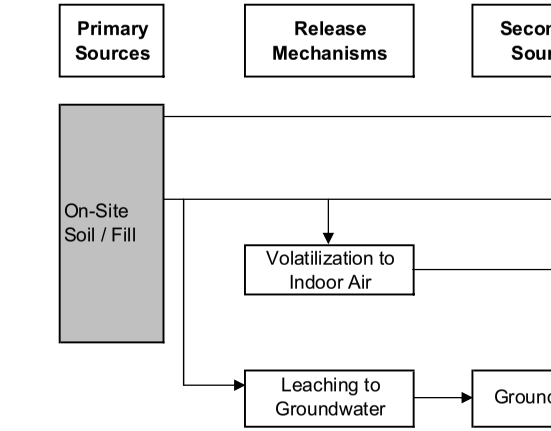
The current/future scenario addresses the current Site conditions that may exist into the future, in the event of no Site redevelopment and no Site remediation. Based on current Site conditions and surrounding land uses in the vicinity of the Site, the following potential human receptor populations were identified:

- Trespasser: adults who may access parcels #41-51. There is anecdotal evidence of trespassing on this portion of the Site.
- Off-site Resident: adults and children who may live in the residential structures located adjacent to the Site's southern and southeastern boundaries. Based on PCE soil gas contours depicted in Figure 7-1, it is likely that a soil gas plume has migrated off site in those directions.

8.3.1.2. Future Scenario

The future scenario addresses the Site conditions that may exist in the event of no Site remediation but with the planned redevelopment of the Site for future mixed residential and commercial use. The following potential human receptor populations under the future scenario were identified:

- Construction/Utility Worker: adults whose work may require excavation at the Site while improving and/or maintaining the Site for future use.
- Site Worker: adults who may perform area supervisory or security activities or work within future commercial structures on the Site.
- On-site Resident: adults and children who may live in the residential structures anticipated as part of the redevelopment of the Site.



Exposure Media	Exposure Routes	Current: Trespasser	Current: Off-site Resident	Future: Construction/ Utility Worker	Future: Site Worker	Future: On-site and Off-site Residents
Surface Soil / Fill	Ingestion	⊕		⊕		
	Dermal Contact	⊕		⊕		
	Inhalation	⊕		⊕		
Subsurface Soil / Fill	Ingestion			⊕		
	Dermal Contact			⊕		
	Inhalation			⊕		
Indoor Air	Inhalation	⊕	⊕		⊕	⊕
Groundwater	Ingestion					
	Dermal Contact					
	Inhalation					

MALCOLM PIRNIE

CONCEPTUAL SITE MODEL
Human Health Evaluation
Former Teutonia Hall Site
Yonkers, New York

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FIGURE 8-1

- Off-site Resident: adults and children who may live in the residential structures located adjacent to the Site's southern and southeastern boundaries. Based on PCE soil gas contours depicted in Figure 7-1, it is likely that a soil gas plume has migrated off site in those directions.

8.3.2. Exposure Pathways

Chemical release mechanisms, in the absence of remedial action, that are used in determining potential exposure pathways from COPC in environmental media of concern to potential human receptors at the Site, are summarized in Table 8-6. Potentially complete exposure pathways are noted, with descriptions justifying their inclusion.

8.3.2.1. Current/Future Scenario

The following exposure scenarios were evaluated based on the current Site conditions and surrounding land uses in the vicinity of the Site.

Trespassers: Anecdotal evidence indicates trespassing occurs on the portion of the Site occupied by parcels #41-51. The lot behind the buildings on parcels #41-51 is not fully covered with impervious surface, and there are some areas of exposed soil. As shown on Figure 8-1, the following exposure pathways are identified as potentially complete:

- Dermal contact with and incidental ingestion of COPC; inhalation of particulate COPC in surface soil/fill.
- Inhalation of VOCs in soil gas that migrates to indoor air.

Off-site Residents: Residential buildings are located directly south and southeast of the Site. Based on PCE soil gas contours depicted in Figure 7-1, it is likely a soil gas plume has migrated off-site in those directions. The off-site extent of the soil gas plume is unknown. While it is not expected that off-site residents would access the Site for any purpose, there is the potential for inhalation of VOCs that migrate from soil gas to indoor air of off-site residences.

8.3.2.2. Future Scenario

The following exposure scenarios were evaluated based on the planned future residential and commercial use of the Site and in the absence of Site remediation. The future scenario includes foreseeable events such as construction and maintenance activities.

Construction/Utility Workers: During future improvements to or maintenance of the Site by construction/utility workers, the following exposure pathways are identified as potentially complete:

- Dermal contact with and incidental ingestion of COPC; inhalation of volatile and particulate COPC in surface soil/fill.
- Dermal contact with and incidental ingestion of COPC; inhalation of volatile and particulate COPC in subsurface soil/fill.

TABLE 8-6
Chemical Release Mechanisms and Exposure Pathways in the Absence of Site Remediation
Former Teutonia Hall Site
Yonkers, New York

Source Media	Release Mechanism	Exposure Media	Site Conditions	Viable Current Exposure Pathway?	Viable Future Exposure Pathway?
On-Site Soil/Fill	--	Surface Soil/Fill (0-2' bgs)	The site is approximately 0.75 acres in a predominantly commercial/residential area of Yonkers. Surrounding land uses include restaurants, retail businesses, auto repair shops, residences, vacant lots, and parking lots. The site is comprised of five contiguous parcels (#41, 45, 47, 51 and 53). The majority of parcels #41-51 are occupied by vacant buildings while #53 is occupied by a currently active auto repair shop. Fill thicknesses range from 2-6 feet across the site.	Yes - Surface soil/fill samples were collected; data are considered representative of conditions across the site. COPC have been identified in surface soil/fill. While site workers at the auto repair shop are not expected to contact COPC in surface soi/fill, anecdotal evidence suggests trespassing may occur on the vacant portion of the site (parcels #41-51). Therefore, there is the potential for trespassers to contact COPC in surface soil/fill where soil/fill is exposed at the surface.	Yes - Site redevelopment will result in the site being almost 100% covered with either buildings, sidewalks or asphalt-paved parking lots. Therefore, the only potential human receptors that may contact COPC in surface soil/fill are construction/utility workers improving or maintaining the site. Such exposure would be limited to the duration of construction/utility work.
	--	Subsurface Soil/Fill (> 2' bgs)	See description above for "Surface Soil/Fill."	No - Subsurface soil/fill samples were collected; data are considered representative of conditions across the site. COPC have been identified in subsurface soil/fill. However, it is not expected that site workers or trespassers would contact COPC in subsurface soil/fill. Therefore, there are no potentially complete exposure pathways.	Yes - Site redevelopment will result in the site being almost 100% covered with either buildings, sidewalks or asphalt-paved parking lots. Therefore, the only potential human receptors that may contact COPC in subsurface soil/fill are construction/utility workers improving or maintaining the site. Such exposure would be limited to the duration of construction/utility work.
	Leaching	Groundwater	See descriptions of "Surface Soil/Fill" above. Saturated conditions were encountered at 44 feet below grade in the southern portion of the site (#53) and at 30 feet below grade near MW-4. The site is 500 feet east of the south-flowing Hudson River. Potable groundwater is provided to the site by the City of Yonkers.	No - Groundwater samples were collected. However, groundwater was not identified as an environmental medium of concern for the site, because it is not expected that humans would encounter groundwater. Potable groundwater is provided to the site by the City of Yonkers.	No - Groundwater samples were collected. However, groundwater was not identified as an environmental medium of concern for the site, because it is not expected that humans would encounter groundwater. Potable groundwater is provided to the site by the City of Yonkers. Due to the depth to groundwater across the site, it is not expected that construction/utility workers would encounter groundwater during future construction or excavation activities.
Soil Gas	Migration	Indoor Air	See description above for "Surface Soil/Fill."	Yes - Soil gas samples were collected; data are considered representative of conditions across the site. COPC were identified in soil gas. Therefore, there is the potential for soil gas to migrate to indoor air of buildings on the site, and there are potentially complete exposure pathways to site workers and trespassers. In addition, there is the potential for indoor air vapor intrusion to residential buildings located south and southeast of the site.	Yes - Soil gas samples were collected; data are considered representative of conditions across the site. COPC were identified in soil gas. Therefore, there is the potential for soil gas to migrate to indoor air of future structures on the site, and there are potentially complete exposure pathways to future site workers and residents. In addition, there is the potential for indoor air vapor intrusion to residential buildings located south and southeast of the site.

Notes
COPC = Chemicals of Potential Concern

Site Workers: Since the future redevelopment of the Site includes space for commercial and residential use, Site workers are expected to be present. However, the majority of the Site will be covered by concrete slab, concrete sidewalks, or asphalt for parking. Therefore, it is not expected that Site workers would directly contact COPC in surface or subsurface soil/fill. As shown on Figure 8-1, the only potentially complete exposure pathway identified for Site workers is the potential for inhalation of VOCs in soil gas that migrates to indoor air of future on-site buildings.

On-site Residents: Since the future redevelopment of the Site includes space for commercial and residential use, residents (adults and children) are expected to be present. However, as indicated above, the majority of the Site will be covered by concrete slab, concrete sidewalks, or asphalt for parking. Therefore, it is not expected that residents would directly contact COPC in surface or subsurface soil/fill. As shown on Figure 8-1, the only potentially complete exposure pathway identified for residents is the potential for inhalation of VOCs in soil gas that migrates to indoor air of future on-site buildings.

Off-site Residents: It is expected that the residential buildings located directly south and southeast of the Site will remain there into the future, despite redevelopment of the Site. Therefore, the potential for indoor air vapor intrusion, identified above, will persist into the future.

8.4. Toxicity Assessment

For each COPC, critical non-carcinogenic and carcinogenic health effects, for oral and inhalation exposures, are presented in Table 8-7 and Table 8-8, respectively. The critical health effects presented are those used by the USEPA (2008) to derive reference doses and reference concentrations (to assess the potential for chronic non-carcinogenic health effects) and slope factors (to assess carcinogenic risk), which are typically used in the quantification of human health risks.

8.5. Risk Characterization

Based on Site conditions, observations, and the fact that the Site will be redeveloped, the likelihood of exposure and the potential for adverse human health effects are discussed for the identified receptor populations, below. The potential for exposure is classified as "Not Expected", "Possible", or "Likely". Table 8-9 provides a summary of the qualitative HHE.

8.5.1. Current/Future Scenario

The potential for exposure to COPC via the pathways and routes described in Section 8.3 is discussed below for each receptor population identified in the current/future scenario, under the assumption that there will be no remediation and no Site redevelopment. Based

TABLE 8-7
Non-carcinogenic Health Effects of Chemicals of Potential Concern
Former Teutonia Hall Site
Yonkers, New York

Chemical of Potential Concern	CAS #	Non-carcinogenic Oral Critical Effect	Non-carcinogenic Inhalation Critical Effect
Volatile Organic Compounds			
Acetone	67-64-1	Nephropathy	--
Benzene	71-43-2	Decreased lymphocyte count	Decreased lymphocyte count
1,3-Butadiene	106-99-0	--	Ovarian atrophy
2-Butanone (methyl ethyl ketone)	78-93-3	Decreased pup body weight	Developmental toxicity (skeletal variations)
Carbon disulfide	75-15-0	Fetal toxicity/malformations	Peripheral nervous system dysfunction
Chloroform	67-66-3	Moderate/marked fatty cyst formation in the liver and elevated Serum Glutamic Pyruvic Transaminase (SGPT)	--
Cyclohexane	110-82-7	--	Reduced pup weights in the F1 and F2 generations
1,2-Dichloroethene	540-59-0	--	--
cis-1,2-Dichloroethene	156-59-2	--	--
Ethylbenzene	100-41-4	Liver and kidney toxicity	Developmental toxicity
4-Ethyltoluene	622-96-8	--	--
n-Heptane	142-82-5	--	--
n-Hexane	110-54-3	--	Peripheral neuropathy (decreased mean cell volume at 12 weeks)
Isopropanol	67-63-0	--	--
Methyl tert-butyl ether	1634-04-4	--	Increased absolute and relative liver and kidney weights and increased severity of spontaneous renal lesions (females), increased prostration (females), and swollen periocular tissue (males and females)
Propylene	115-07-1	--	--
Styrene	100-42-5	Red blood cell and liver effects	Central nervouse system effects
Tetrachloroethene	127-18-4	Hepatotoxicity in mice, weight gain in rats	--
Toluene	108-88-3	Increased kidney weight	Neurological effects in occupationally-exposed workers
1,1,1-Trichloroethane	71-55-6	Reduced body weight; reduced body weight gain	Liver histopathologic changes; performance on neurobehavioral tests
Trichloroethene	79-01-6	--	--
Trichlorofluoromethane	75-69-4	Survival and histopathology	--
1,2,4 - Trimethylbenzene	95-63-6	--	--
1,3,5 - Trimethylbenzene	108-67-8	--	--
2,2,4-Trimethylpentane	540-84-1	--	--
m,p-Xylene	--	See below for Xylenes, total	
o-Xylene	--	See below for Xylenes, total	
Xylenes, total	1330-20-7	Decreased body weight; increased mortality	Impaired motor coordination (decreased rotarod performance)
Semivolatile Organic Compounds			
Benzo(a)anthracene	56-55-3	--	--
Benzo(a)pyrene	50-32-8	--	--
Benzo(b)fluoranthene	205-99-2	--	--
Benzo(k)fluoranthene	208-08-9	--	--
Chrysene	218-01-9	--	--
Dibenzo(a,h)anthracene	53-70-3	--	--
Di-n-butyl phthalate	84-74-2	Increased mortality	--
Diethyl phthalate	84-66-2	Decreased growth rate, food consumption and altered organ weights	--
Di-n-octyl phthalate	117-84-0	--	--
bis(2-Ethylhexyl)phthalate	117-81-7	Increased relative liver weight	--
Indeno(1,2,3-cd)pyrene	193-39-5	--	--
2-Methylnaphthalene	91-57-6	Pulmonary alveolar proteinosis	--
Pesticides			
gamma-Chlordane (chlordane, technical)	12789-03-6	Hepatic necrosis	Hepatic effects
Endrin aldehyde	7421-93-4	--	--
Heptachlor epoxide	1024-57-3	Increased liver-to-body weight ratio in both males and females	--
Methoxychlor	72-43-5	Excessive loss of litters	--
Inorganics			
Aluminum	121-82-4	--	--
Antimony	7440-36-0	Longevity, blood glucose, and cholesterol	--
Arsenic	7440-38-2	Hyperpigmentation, keratosis and possible vascular complications	--
Cadmium	7440-43-9	Significant proteinuria	--
Chromium (as Chromium III)	16065-83-1	No effects observed	--
Chromium (as Chromium VI)	18540-29-9	None reported	Nasal septum atrophy; lactate dehydrogenase in bronchioalveolar lavage fluid
Cobalt	7440-48-4	--	--
Copper	7440-50-8	--	--
Iron	7439-89-6	--	--
Lead	7439-92-1	--	--
Manganese	7439-96-5	Central nervous system effects (other effect: Impairment of neurobehavioral function)	Impairment of neurobehavioral function (other effect: Impairment of neurobehavioral function)
Mercury (as mercuric chloride)	7487-94-7	Autoimmune effects	--
Thallium (as thallium chloride)	7791-12-0	Increased levels of serum glutamic oxalocetic transaminase (SGOT) and lactate dehydrogenase (LDH)	--
Vanadium	7440-62-2	--	--

Notes
Source: Integrated Risk Information System (IRIS) (USEPA, 2008)
-- = Not Available

TABLE 8-8
Carcinogenic Health Effects of Chemicals of Potential Concern
Former Teutonia Hall Site
Yonkers, New York

Chemical of Potential Concern	CAS #	Oral Cancer Type	Inhalation Cancer Type	Weight-of-Evidence Characterization *
Volatile Organic Compounds				
Acetone	67-64-1	--	--	--
Benzene	71-43-2	Leukemia	Leukemia	A
1,3-Butadiene	106-99-0	--	Leukemia	--
2-Butanone (methyl ethyl ketone)	78-93-3	--	--	--
Carbon disulfide	75-15-0	--	--	--
Chloroform	67-66-3	--	Hepatocellular carcinoma	B2
Cyclohexane	110-82-7	--	--	--
1,2-Dichloroethene	540-59-0	--	--	--
cis-1,2-Dichloroethene	156-59-2	--	--	D
Ethylbenzene	100-41-4	--	--	D
4-Ethyltoluene	622-96-8	--	--	--
n-Heptane	142-82-5	--	--	D
n-Hexane	110-54-3	--	--	--
Isopropanol	67-63-0	--	--	--
Methyl tert-butyl ether	1634-04-4	--	--	--
Propylene	115-07-1	--	--	--
Styrene	100-42-5	--	--	--
Tetrachloroethene	127-18-4	--	--	--
Toluene	108-88-3	--	--	--
1,1,1-Trichloroethane	71-55-6	--	--	--
Trichloroethene	79-01-6	--	--	--
Trichlorofluoromethane	75-69-4	--	--	--
1,2,4 - Trimethylbenzene	95-63-6	--	--	--
1,3,5 - Trimethylbenzene	108-67-8	--	--	--
2,2,4-Trimethylpentane	540-84-1	--	--	--
m,p-Xylene	--	See below for total xylenes		--
o-Xylene	--	See below for total xylenes		--
Xylenes, total	1330-20-7	--	--	--
Semivolatile Organic Compounds				
Benzo(a)anthracene	56-55-3	--	--	B2
Benzo(a)pyrene	50-32-8	Forestomach, squamous cell papillomas and carcinomas; forestomach, larynx and esophagus, papillomas and carcinomas (combined)	--	B2
Benzo(b)fluoranthene	205-99-2	--	--	B2
Benzo(k)fluoranthene	208-08-9	--	--	B2
Chrysene	218-01-9	--	--	B2
Dibenzo(a,h)anthracene	53-70-3	--	--	B2
Di-n-butyl phthalate	84-74-2	--	--	D
Diethyl phthalate	84-66-2	--	--	D
Di-n-octyl phthalate	117-84-0	--	--	--
bis(2-Ethylhexyl)phthalate	117-81-7	Hepatocellular carcinoma and adenoma	--	B2
Indeno(1,2,3-cd)pyrene	193-39-5	--	--	B2
2-Methylnaphthalene	91-57-6	--	--	--
Pesticides				
gamma-Chlordane (chlordane, technical)	12789-03-6	Hepatocellular carcinoma	Hepatocellular carcinoma	B2
Endrin aldehyde	7421-93-4	--	--	--
Heptachlor epoxide	1024-57-3	Hepatocellular carcinomas	Hepatocellular carcinoma	B2
Methoxychlor	72-43-5	--	--	D
Inorganics				
Aluminum	121-82-4	--	--	--
Antimony	7440-36-0	--	--	--
Arsenic	7440-38-2	Skin cancer	Lung cancer	A
Cadmium	7440-43-9	--	Lung, trachea, bronchus cancer deaths	B1
Chromium (as Chromium III)	16065-83-1	--	--	D
Chromium (as Chromium VI)	18540-29-9	--	Lung cancer	A
Cobalt	7440-48-4	--	--	--
Copper	7440-50-8	--	--	D
Iron	7439-89-6	--	--	--
Lead	7439-92-1	--	--	B2
Manganese	7439-96-5	--	--	D
Mercury (as mercuric chloride)	7487-94-7	--	--	C
Thallium (as thallium chloride)	7791-12-0	--	--	D
Vanadium	7440-62-2	--	--	--

Notes
Source: Integrated Risk Information System (IRIS) (USEPA, 2008)
-- = Not Available
* USEPA Weight-of-Evidence Classifications
A: Human carcinogen
B1: Probable human carcinogen; limited human data are available
B2: Probable human carcinogen; sufficient evidence in animals and inadequate or no evidence in humans
C: Possible human carcinogen
D: Not classifiable as to human carcinogenicity
--: Not evaluated

TABLE 8-9
Summary of Human Health Evaluation Risk Characterization
Former Teutonia Hall Site
Yonkers, New York

Scenario Timeframe	Receptor Population	Environmental Medium of Concern	Exposure Routes Evaluated			Likelihood of Exposure		
						Not Expected	Possible	Likely
Current	Site Worker	Soil Vapor - Indoor Air			Inhalation			X
	Trespasser	Surface Soil/Fill	Ingestion	Dermal Contact	Inhalation		X	
		Soil Vapor - Indoor Air			Inhalation		X	
	Off-site Resident	Soil Vapor - Indoor Air			Inhalation		X	
Future	Construction / Utility Worker	Surface Soil/Fill	Ingestion	Dermal Contact	Inhalation			X
		Subsurface Soil/Fill	Ingestion	Dermal Contact	Inhalation			X
	Site Worker	Soil Vapor - Indoor Air			Inhalation		X	
	On-site Resident	Soil Vapor - Indoor Air			Inhalation		X	
	Off-site Resident	Soil Vapor - Indoor Air			Inhalation		X	

on current Site conditions and land use, the potential human receptor populations are trespassers and off-site residents.

Trespasser:

Dermal contact with and incidental ingestion of COPC; inhalation of particulate COPC in surface soil/fill (parcels #41-51)

COPC have been identified in surface soil/fill and there are some areas of exposed soil/fill in the lot behind the structures located at parcels #41-51. There is anecdotal evidence that trespassing occurs on these parcels, but this has not been confirmed. Therefore, dermal contact with and incidental ingestion of COPC in surface soil/fill, and inhalation of particulate COPC adsorbed to fugitive dust released from surface soil/fill, are possible.

Inhalation of volatile COPC that migrate from soil gas to indoor air (parcels #41-51)

VOCs were detected in soil gas samples, and all detected VOCs were considered COPC in soil gas. There is anecdotal evidence that trespassing occurs on parcels #41-51, but this has not been confirmed. Therefore, inhalation exposure by trespassers to VOCs in soil gas that migrates to indoor air of the vacant buildings on the Site is possible.

Off-site Resident:

Inhalation of volatile COPC that migrate from soil gas to indoor air of off-site residences

Off-site residences are located directly south and southeast of the Site. Based on PCE soil gas contours depicted on Figure 7-1, it is likely a soil gas plume has migrated off-site in those directions. The off-site extent of the soil gas plume is unknown. Therefore, inhalation exposure by off-site residences to VOCs in soil gas that migrates to indoor air of off-site residential buildings is possible.

8.5.2. Future Scenario

The potential for exposure to COPC via the pathways and routes described in Section 8.3 is discussed below for each receptor population identified in the future scenario, under the assumption that there will be redevelopment but no remediation at the Site. Based on the planned redevelopment of the Site for mixed residential and commercial use, the following human receptor populations for the future scenario are: construction/utility workers, Site workers, on-site residents, and off-site residents.

Construction/Utility Worker:

Dermal contact with and incidental ingestion of COPC; inhalation of particulate COPC in surface soil/fill

Site improvement and/or maintenance-related excavation or grading work could lead to contact with surface soil/fill. Therefore, dermal contact with and incidental ingestion of COPC in surface soil/fill, and inhalation of windblown or mechanically driven COPC adsorbed to fugitive dust released from surface soil/fill, are likely. Such exposure would be limited to the construction/maintenance period.

Dermal contact with and incidental ingestion of COPC; inhalation of volatile and particulate COPC in subsurface soil/fill

Site improvement and/or maintenance-related excavation or grading work could lead to contact with subsurface soil/fill. Therefore, dermal contact with and incidental ingestion of COPC in subsurface soil/fill, and inhalation of volatile and windblown or mechanically driven COPC adsorbed to fugitive dust released from subsurface soil/fill, are likely. Such exposure would be limited to the construction/maintenance period.

Site Worker:

Inhalation of volatile COPC that migrate from soil gas to indoor air of future on-site buildings

VOCs were detected in soil gas samples, and all detected VOCs were considered COPC in soil gas. The planned redevelopment of the Site is for a mixed use development with commercial retail, residential, and parking space. Therefore, inhalation exposure by Site workers to VOCs in soil gas that migrates to indoor air is possible.

On-site Resident:

Inhalation of volatile COPC that migrate from soil gas to indoor air of future on-site buildings

VOCs were detected in soil gas samples, and all detected VOCs were considered COPC in soil gas. The planned redevelopment of the Site is for a mixed use development with commercial retail, residential, and parking space. Therefore, inhalation exposure by on-site residents to VOCs in soil gas that migrates to indoor air is possible.

Off-site Resident:

Inhalation of volatile COPC that migrate from soil gas to indoor air of off-site residences

Off-site residences are located directly south and southeast of the Site. Based on PCE soil gas contours depicted on Figure 7-1, it is likely a soil gas plume has migrated off-site in those directions. The off-site extent of the soil gas plume is unknown. Therefore, inhalation exposure by off-site residences to VOCs in soil gas that migrates to indoor air of off-site residential buildings is possible.

8.6. Uncertainty Analysis

Uncertainty is inherent in the process of conducting a HHE. In qualitative evaluations, information and assumptions regarding the likelihood, frequency, and magnitude of exposure, and information on the toxicity of the detected chemicals at a Site are used to infer the potential for exposure and health risk. By design, the evaluations rely on simple and conservative assumptions with the sole intent of identifying and eliminating from concern those scenarios that are unlikely to result in exposure and health risk and highlighting those scenarios that, depending on actual circumstances, could possibly result in exposure and health risk. Uncertainty is associated with each component of this process, including environmental sampling and analysis, chemical fate and transport analysis, exposure assessment, and the toxicological information used to characterize potential human health risks. Uncertainty in any of these components could alter the conclusions regarding the likelihood of exposure and health risk for a given receptor population.

8.6.1. Sampling and Analysis

Uncertainty associated with environmental sampling is generally related to the limitations of the sampling in terms of the number and distribution of samples, while uncertainty associated with the sample analysis is generally associated with systematic or random errors (e.g., false positive or false negative results). Thus, the potential for exposure may be overstated or understated depending on how well each environmental medium was characterized.

8.6.2. Exposure Assessment

Aspects of the human exposure assessment generally result in overstatement of the potential for long-term exposure. Specifically, this evaluation assumes the maximum detected concentration is representative of conditions across the Site. In addition, the release mechanisms for COPC in surface and subsurface soil/fill may have been overstated.

8.6.3. Toxicological/Screening Criteria

Screening values are not available for all chemicals that were detected in samples collected at the Site. Based on the lack of available screening values and associated toxicological criteria for some chemicals that were deemed COPC by default, the potential for adverse human health effects as a result of exposure to those chemicals,

should exposure occur, was uncertain. In addition, in most cases, the critical effects listed for the COPC are for laboratory animals, not humans. Differences in toxicity may exist between laboratory animals and humans.

8.7. Summary and Discussion

This qualitative HHE provides an indication as to the potential for exposure and adverse human health effects associated with chemicals detected in sampled environmental media at the Site. The evaluation is based on the most relevant potential exposure pathways, the most likely human receptors, and current land use as well as the proposed redevelopment of the Site in the absence of remedial action. Table 8-9 provides a summary of the HHE findings.

Based on the comparison of the maximum detected concentration to chemical- and medium-specific screening values, a number of VOCs, SVOCs, pesticides, and metals were identified in surface and subsurface soil/fill. In addition, all VOCs detected in subsurface vapor samples collected at the Site were identified as COPC. Groundwater was not included as an environmental medium of concern in this HHE, because human exposure to chemicals in Site groundwater is unlikely.

Trespassers and off-site residents (adults and children) were identified as potential human receptors for the current/future land use scenario, based on the current Site conditions and land uses in the vicinity of the Site. The potential for trespasser exposure to COPC in surface soil/fill on the Site and to volatile COPC in soil gas that migrates to indoor air of the vacant buildings on parcels #41-51 are possible. In addition, the potential for exposure of off-site residents to volatile COPC in soil gas that migrates to indoor air of off-site residential buildings is possible.

Based on the proposed redevelopment of the Site for mixed residential and commercial use, construction/utility workers, Site workers, and on-site and off-site residents (adults and children) were identified as potential human receptors for the future land use scenario. The majority of the Site will be covered by a concrete slab, concrete sidewalks, or asphalt driveways and parking lots. Landscaped areas are not planned at this time due to the small size of the Site. As such, it is not expected that Site workers or on-site residents would directly contact COPC in surface or subsurface soil/fill.

The risk characterization indicated that the potential for construction/utility worker exposure to COPC in surface and subsurface soil/fill during future redevelopment and maintenance of the Site is likely. Such exposure would be limited to the duration of construction/utility work. The potential for Site worker and on-site residential exposure to volatile COPC in soil gas that migrates to indoor air of future buildings on the Site is possible. In addition, the potential for exposure of off-site residents to volatile COPC in soil gas that migrates to indoor air of off-site residential buildings is possible.

9. Conclusions and Recommendations

9.1. Conclusions

The Remedial Investigation of the Former Teutonia Hall Site provided an environmental characterization of on-site soil vapor, surface and subsurface soil/fill, and groundwater sufficient to evaluate their potential impact to human health and the environment. A summary of conclusions is provided below by medium evaluated:

9.1.1. Indoor Air

The maximum VOC concentrations detected from the 39 soil vapor samples collected across the Site included PCE as high as 190,000 ug/m^3, and TCE as high as 9,100 ug/m^3 These exceed both the USEPA target soil gas concentrations and the NYSDOH guidance criteria. The human health evaluation indicated there is the potential risk to current trespassers and off-site residents as well as to future Site workers and residents, given the proposed Site redevelopment plan that includes the construction of a multi-story building with residential and parking space.

The presence of on-site buildings and foundations may provide a stratigraphic trapping mechanism for VOC impacted soil vapor to accumulate beneath the on-site buildings with a potential to migrate to off site areas. Demolition of the on-site buildings would eliminate the trapping mechanism. Additionally, the point source of the soil vapor contamination, i.e. impacted soil or groundwater, was not found during the RI. The selective excavation and disposal of impacted soil materials would remove the source of soil vapor contamination. Redevelopment of the Site with installation and monitoring of a sub-slab soil vapor ventilation system as part of new building construction would protect potential human receptors.

9.1.2. Surface and Subsurface Soil/Fill

Evaluation of analytical results for surface and subsurface soil/fill samples identified four on-site locations in which elevated concentrations of PAHs and select metals were detected. Two of the impacted soil areas are located outside and west of Buildings #45 and #47 in the vicinity of the potential dry well (identified as the GPR anomaly) and the area surrounding the possible manhole cover. The surface soil sample collected at boring SB-8 located between Bldgs #41 and #43 also detected PAH and metals that exceeded NYS soil cleanup objectives. A fourth location was identified along the westernmost extent of Bldg. #53 in subsurface samples collected at the SB-13 location.

As shown on Table 7-3 and discussed in Section 7.0, only two of the PAH compounds (benzo(a) pyrene and chrysene) were detected at concentrations that exceed both the NYS

Restricted Residential SCO's and the upper range PAH concentrations typically found in Urban Background soils. Chromium and mercury were also present at concentrations above both the NYS SCO values and the accepted upper range in eastern US background soils.

VOCs, pesticides, and PCBs were not detected in any of the subsurface soil/fill samples at concentrations above NYS SCO for restricted residential use.

9.1.3. Groundwater

Slightly elevated concentrations of one VOC and two pesticides were identified in the groundwater sample collected during the RI. It should be noted that surface and shallow groundwater flow discharge to the Hudson River located west of the Site; therefore, the analyte concentrations detected in the historic groundwater sample collected at the MW-5 location is presumed to represent groundwater conditions that are hydraulically upgradient. Conversely, the elevated VOC, pesticide(s) and metals concentrations detected at the MW-Temp groundwater sample location are assumed to representative downgradient conditions.

Although qualified as estimated values, concentrations of two pesticide analytes Heptachlor and Heptachlor epoxide were detected above Class "GA" standards in the groundwater sample collected from the MW-Temp well location. As shown on Table 3-4, all but seven TAL metals were detected above the Class "GA" groundwater standards at the downgradient sampling location. However for purposes of comparison, it should be noted that five metals (antimony, iron, magnesium, manganese, and sodium) were detected above groundwater standards in one or more groundwater samples.

Based on the saturated conditions that were measured at depths greater than 30' bgs during the RI drilling and sampling program, a drilling program designed to characterize the groundwater regime in the southernmost portion of the site may be warranted. The drilling program would require demolition of elements of the Buena Vista building complex. Direct contact with site groundwater is highly unlikely during planned redevelopment of the Site.

9.2. Recommendations

Results of this and previous environmental studies at the Site confirm that the Former Teutonia Hall Site is suitable for re-development as a residential development provided that certain remedial actions and precautions are taken to limit exposure to VOCs in soil vapor and PAHs and metals in the surface and subsurface soil/fill material.

- **Site Buildings Demolition-** The buildings must be demolished to allow for proper characterization of the Site groundwater and removal of Site soils. Demolition of the

Site buildings would remove any trapping mechanism provided by the existing building foundations/floors for underlying VOC contaminated soil vapors.

- **Removal of known ASTs/USTs** - Removal of all on-site fuel storage tanks should be completed in conjunction with building demolition.
- **Groundwater Characterization** – Characterization of the Site groundwater regime should be completed by implementing a drilling program designed to install three new monitoring wells on the site now occupied by the Bldg. #53 property.
- **Soil Removal** - The applicant has not finalized redevelopment plans but the anticipated construction is expected to require the excavation and disposal of a significant volume of soil resulting in an overall Site-wide grade reduction of between eight and 20 feet. The planned soil removal action will likely remove the source of soil vapor contamination.
- **Confirmatory Sampling** – Subsequent to Site building demolition and excavation of the uppermost soil/fill materials, Post-excavation confirmatory soil samples will be collected for contaminants of concern.

Depending on the results of post excavation sampling, the following potential precautions may be warranted during and after Site development:

- Placement and/or maintaining of documented clean soil, asphalt, or concrete over the surface following or during Site development to minimize the potential for exposure to impacted soil/fill following Site redevelopment.
- Establishment of health and safety protocols for specific re-development activities to minimize exposure to potential contaminants.
- Development of a soil/fill management plan for dealing with excavated fill material during development activities and when digging as required to maintain or enhance utilities following completion of site redevelopment. The soil/fill management plan should include health and safety requirements and excavated soil handling/disposal requirements.
- Installation of a sub-slab ventilation system for the building to essentially eliminate the future potential for exposure to organic vapors within the building if it is determined that they are migrating into the building air space.

As discussed in the qualitative human health evaluation in Section 8.0, implementation of these actions will be sufficient to protect human health and the environment.

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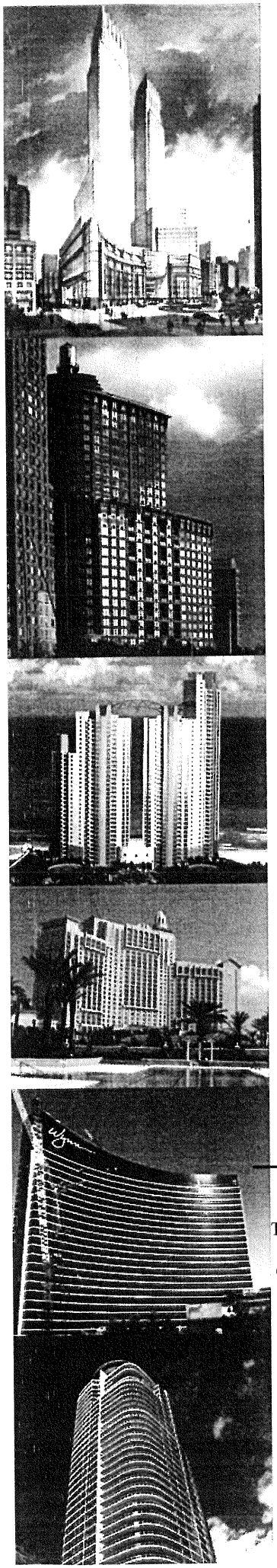

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

65, 68, & 72 Buena Vista Avenue
Three (3) 3,700 SF Rooming Houses
Yonkers, New York

Prepared for:
DW Capital
Yonkers, New York

Prepared by:

IVI Due Diligence Services, Inc.
IVI Project No.: 70823503
September 18, 2007

PROPERTY CONDITION & ENVIRONMENTAL
DUE-DILIGENCE

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September 18, 2007

Mr. Eric Wolf
DW Capital
92 Main Street
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(914) 410-9091 (tel)
(914) 410-9093 (fax)
ewolf@dwcap.com

Re: Phase I Environmental Site Assessment
65, 68, & 72 Buena Vista Avenue
Three (3) 3,700 SF Rooming Houses
Yonkers, New York 10701
IVI Project No.: 70823503

Dear Mr. Wolf:

IVI Due Diligence Services, Inc. ("IVI") is pleased to submit this copy of our Phase I Environmental Site Assessment on the above-referenced property. This report outlines the findings of IVI's site reconnaissance, historical land use research, review of governmental records, interviews, and our Pre-survey Questionnaire.

I declare that, to the best of my professional knowledge and belief, I meet the definition of *environmental professional* as defined in § 312.10 of 40 CFR 312 and 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*. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Please call the undersigned at **914.694.9600 (x-333)** should you have any questions.

Sincerely,

IVI Due Diligence Services, Inc.

DRAFT

Michael Kennedy
Environmental Professional

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This report documents IVI's findings from our Phase I Environmental Site Assessment on the Three (3) 3,700 SF Rooming Houses (the "Subject"), located at 65, 68, & 72 Buena Vista Avenue, Yonkers, New York. The property, which is situated in an urban area characterized by residential and commercial development, consists of a group of three (3) approximately 121-year-old ±11,000-SF 3-story rooming houses. The existing buildings were constructed in approximately 1886.

The purpose of this Phase I Environmental Site Assessment was to assess existing site conditions and render an opinion as to the identified or potential presence of recognized environmental conditions in connection with the property within the scope and limitations of the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E 1527-05 and the limitations identified herein. Exceptions to or deletions from the scope of work are described in Section 2.0.

This assessment has revealed no evidence of recognized environmental conditions in connection with the Subject except for the following:

Underground Storage Tanks (USTs)

According to Mingo Garcia, the superintendent, two 275-gallon Number 2 heating oil USTs are currently active at 65 Buena Vista Avenue. Mr. Garcia, who has been with the properties for the past 15 years, is not aware of the construction type or age of the USTs. Inasmuch as the tanks are likely of single wall bare steel construction and are likely over 15 years old, they have exceeded their expected useful life and may have leaked and contaminated site soil and groundwater. IVI recommends that the tanks either be replaced; or, should they continue to be used, they should be tightness tested to determine their integrity.

Also, according to Mr. Garcia, two 275-gallon Number 2 heating oil USTs were removed from the site (72 Buena Vista Avenue) in 2006 and he was unaware if closure testing was conducted and it is unknown if the surrounding soils and/or groundwater are impacted with petroleum. IVI recommends that tank closure documentation be provided to us for our review. In lieu of this documentation, IVI would recommend that a subsurface investigation be conducted in the location of the former USTs to determine if they had a significant negative environmental impact on the Subject.

In addition, the following items of environmental concern are worthy of mention:

Asbestos-Containing Material (ACM)

IVI observed friable suspect ACM on the Subject in the form of glued-on ceiling tile assemblies, pipe insulation, and pipe elbows; and non-friable suspect ACM in the form of resilient floor finish assemblies, wallboard assemblies, textured ceiling finishes, plaster, caulkings, mastics, asphalt shingles, and built-up roofing system materials. These materials were observed to be in good to damaged condition. IVI recommends that all

damaged suspect ACM be characterized for asbestos content. Should the damaged materials be determined to be asbestos-containing, abatement of same is warranted. Abatement alternatives include removal, repair, encapsulation, or enclosure. All activities involving ACM should be conducted in accordance with applicable federal, state and local regulations. The remaining post-abatement ACM should be maintained in-place in good condition under an Asbestos Operations and Maintenance (O&M) Program.

Lead-Based Paint (LBP)

Based upon the age of the building, the use of LBP is suspected. Painted surfaces were observed in good to damaged condition with some evidence of significant peeling or flaking. IVI recommends all damaged painted surfaces be characterized for lead content. Should the damaged painted surfaces be determined to be lead-based, abatement of same is warranted. All activities involving LBP should be conducted in accordance with HUD guidelines, as well as the OSHA Lead in Construction regulations (CFR Part 1926.62) and RCRA guidelines. Furthermore, IVI recommends that clearance testing be conducted prior to re-occupancy of the abated areas. The remaining post-abatement LBP should be maintained in-place in good condition under an LBP O&M Program.

2.1 General

IVI was retained by DW Capital to prepare a Phase I Environmental Site Assessment, in conformance with the American Society for Testing and Materials (ASTM) Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process E1527-05 on the Subject in accordance with our Agreement dated August 27, 2007.

2.2 Purpose and Scope

2.2.1 Purpose

The purpose of this report is to identify Recognized Environmental Conditions in connection with the property, using the methodology recommended by the American Society for Testing and Materials (ASTM) in order to qualify for the innocent landowner defense to CERCLA liability and/or to help understand potential environmental conditions that could materially impact the operation of the business associated with the Subject. Specifically, this methodology is referred to as *Standard Practice for Environmental Site Assessments: Phase l Environmental Site Assessment Process* Designation: E 1527-05.

The term Recognized Environmental Conditions is defined by the American Society for Testing and Materials (ASTM) Standard E 1527-05 as "...the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies."

2.2.2 Scope

In general, the scope of this assessment consisted of reviewing readily available information and environmental data relating to the property; interviewing readily available persons knowledgeable about the site; reviewing readily available maps, aerial photographs and records maintained by federal, state, and local regulatory agencies; and conducting a site visit.

Of importance, DW Capital is advised that federal, state, and local laws may impose environmental assessment obligations beyond the scope of this practice. DW Capital is also notified that there are likely to be other legal obligations with regard to hazardous substances or petroleum products discovered on the Subject that are not addressed in this practice and that may pose risks of civil and/or criminal sanctions for non-compliance.

The specific scope of this assignment included the following:

2.2.2.1 Performing a site reconnaissance to characterize on-site conditions and assess the site's location with respect to surrounding property uses and natural surface features. In addition, IVI conducted a reconnaissance of the surrounding roads and readily accessible adjacent properties to identify obvious potential environmental conditions on neighboring properties. Photographs taken as part of the site reconnaissance are provided in Appendix A.

The site visit was conducted on September 5, 2007, by Jessica Piacente representing IVI. The site was represented by Eric Wolf, the Site Contact, and Mingo Garcia, the Building Superintendent. It was sunny and the temperature was approximately 80° F at the time of our site survey. IVI conducted the site reconnaissance in a systematic manner focusing initially on the exterior, which was surveyed in a grid pattern. IVI also surveyed a representative sampling of the interior spaces in a systematic manner.

2.2.2.2 Interviewing persons familiar with the property to obtain information on present and previous on-site activities potentially resulting in the environmental degradation of the site or adjoining properties. A Pre-survey Questionnaire to be filled out and returned to IVI by someone knowledgeable about the site was provided to Mr. Eric Wolf. A copy of the Pre-survey Questionnaire is provided in Appendix B.

The following table presents a summary of the individuals contacted or to whom requests for documentation were made as part of this assessment:

Name	Affiliation	Telephone No.
John P. Meyer, P.E.	Yonkers Department of Housing and Buildings	(914) 377-6500

Name	Affiliation	Telephone No.
Norman Shaw	Westchester County Department of Health	(914) 813-5161
Ruth Earl	Department of Environmental Conservation	(518) 402 - 8000
Records Access Officer	Department of Environmental Conservation Region 3	(845) 256-3052
Anthony Pagano – Fire Commissioner	Fire Department	(914) 377 – 7500
Tim Cawly-Environmental Manager	Consolidated Edison	(914) 925 – 6104
Mingo Garcia	Building Superintendent	N/A
Eric Wolf	Site Contact	(914) 410 - 9090

2.2.2.3 If provided, reviewing of information such as previously prepared appraisals, building plans and specifications, and environmental reports.

2.2.2.4 Reviewing readily available historical documents, such as topographic maps, aerial photographs, city directories, Sanborn Fire Insurance Maps and atlases, to identify previous activities on and in the vicinity of the Subject. Copies of these documents are included in Appendix C.

2.2.2.5 Reviewing readily available environmental databases maintained by federal, state, and local agencies within the approximate minimum search distances as described within the Regulatory Review Section 6.0 of this report. A copy of the Computerized Environmental Report, provided by Environmental Data Resources, Inc. can be referenced in Appendix D.

2.2.2.6 Conducting a visual survey of readily accessible common areas to identify suspect asbestos containing materials (ACM).

THIS LIMITED SURVEY IS NOT TO BE CONSTRUED AS A COMPREHENSIVE ASBESTOS SURVEY, WHICH OFTEN ENTAILS DESTRUCTIVE TESTING OR THE SURVEY OF AREAS BEHIND WALLS, ABOVE CEILINGS, IN TENANT SPACES AND IN OTHER TYPICALLY INACCESSIBLE AREAS. MOREOVER, IVI DOES NOT WARRANT THAT ALL ACMs AT THE SUBJECT HAVE BEEN IDENTIFIED.

2.2.2.7 Reviewing published radon occurrence maps to determine whether the site is located in an area with a propensity for elevated radon concentrations.

2.2.2.8 An analysis of mold and/or mold issues was beyond the scope of this report.

2.2.2.9 Assessing the age of the Subject to determine whether it is predisposed to contain lead-based paint. During our walkthrough survey, IVI noted the condition of the paint observed.

2.3 Data Gaps

According to § 3.3.20 of ASTM Standard E 1527-05 a data gap is a lack of or inability to obtain information required by the ASTM Standard despite good faith efforts to gather same. Data gaps may result from incompleteness in any of the activities required by the by the ASTM Standard. The following data gaps occurred in connection with this report:

Data Gap	Explanation	Significance of Gap
Site History	History not conducted back to a time when the site was undeveloped land (See § 5)	Low - not likely to alter Report's conclusions
Site History	Site history not conducted in 5-year intervals (See § 5)	Low - not likely to alter Report's conclusions
User Interview	Pre-Survey and AAI User Questionnaires not returned to IVI	Unknown. However, if receipt of questionnaires alters Report's conclusion, DW Capital will be notified
Former Owner or Operator Interview	Unable to interview former site owner or operator due to inability to locate	Low - not likely to alter Report's conclusions
Governmental Records	FOIAs not returned (See § 8.4)	Unknown. However, if receipt of FOIAs alters Report's conclusion, DW Capital will be notified

IVI Project No.:	70823503
Project Name:	Three (3) 3,700 SF Rooming Houses
Street Address:	65, 68, & 72 Buena Vista Avenue
City, State and Zip:	Yonkers, New York 10701
Primary Use:	Apartment Buildings
Year Built and Age of Improvements:	~1886; ~121
Site Area:	65 Buena Vista Avenue: 0.18 Acre 68 Buena Vista Avenue: ~0.08 Acre 72 Buena Vista Avenue: ~0.08 Acre Total: ~ 0.34 Acre
Building Size:	~ 11,100 SF Total
Reported Number of Units:	65 Buena Vista Avenue: 7 rooms 68 Buena Vista Avenue: 12 rooms 72 Buena Vista Avenue: 3 rooms
Number of Buildings:	3

4.1 Property Location

The site is located at 65, 68, & 72 Buena Vista Avenue in Yonkers, Westchester County, New York. Local tax maps identify the property as: 65 Buena Vista Avenue, Section 1 Block 512 and Lot 23; 68 Buena Vista Avenue as Section 1 Block 511 and lot 25; and 72 Buena Vista Avenue as Section 1 Block 511 Lot 24. Refer to the Site Plan provided within Appendix C.

4.2 Surrounding Land Use

The property is located in an urban setting characterized by residential and commercial development. The following is a tabulation of surrounding property usage:

Direction	Adjacent Properties	Surrounding Properties
North	Residential Development	Quality Automotive Repairs, two vacant buildings and a parking lot followed by commercial and residential development
South	To the southwest, Queens Daughter Day Care; and to the southeast, residential development.	Residential Development
East	Residential Development	Residential, commercial and retail development
West	Metro north Hudson Line Rail Road tracks	Apartment buildings followed by the Hudson River

4.3 Physical Site Setting

4.3.1 Size and Shape of Parcel

All three properties are rectangular in shape and total 0.34-acre in size.

4.3.2 Topography

The site is essentially level; however, properties to the east are at a higher topographic elevation. The topography of the area is best described as gently sloping. According to the United States Geological Survey (USGS) *Yonkers, N.Y.-N.J.* 7.5 Minute Series topographic map, the Subject's topographic elevation is approximately 42' above mean sea level (msl).

4.3.3 Surface Waters and Wetlands

Surface Waters

There are no surface water bodies or streams on or adjacent to the Subject. The closest open surface water to the Subject is the Hudson River, which is located less than 0.10 mile to the west.

Wetlands

IVI did not observe any areas suspected to be wetlands on-site.

4.3.4 Soils, Geology and Groundwater

Soils

The soils at the site are classified as Urban Land. Urban Land complex are those soils in which the soil's original structure and content have been so altered by human activities it has lost its original characteristics and is thus unidentifiable.

Geology

There are no predominant geological surface features such as rock outcroppings on the Subject. According to the *Soil Survey of Putnam and Westchester Counties,* bedrock beneath the Subject is classified as Manhattan Formation, consisting of well foliated and banded, gray to silver schist and gneiss. These rocks, which are fairly dense, impermeable and non-porous, were formed in the late Paleozoic, approximately 400 million years ago. During the Wisconsin glaciation, which ended approximately 15,000 years ago, layers of glacial drift were transported across the subject area. These glacial deposits can consist of deposits of pebble to boulder-sized rocks erratically mixed with a fine clay soil matrix. This glacial till can also consist of finely bedded outwash deposits of sand and gravel from glacial melt water.

Groundwater

Groundwater is contained within the till, outwash and bedrock formations in Westchester County, New York. Deposits of till are characterized by their low permeability and except where it contains sand lenses, till yields only a few gallons of water per minute. Deposits of outwash are restricted to large valleys such as the Hudson, Sawmill, and Croton River valleys. The outwash consists mostly of sand and gravel but in some places is largely comprised of clay and silt. The sand and gravel deposits can yield large amounts of water due to their high permeability. Groundwater occurs within

the fractures of bedrock formations. The availability of groundwater depends on the number, size, and interconnectedness of the fractures intercepted by a well. Generally bedrock is a dependable aquifer for domestic supplies but not for public or industrial uses.

Under natural, undisturbed conditions, shallow groundwater flow generally follows the topography of the land surface and on this basis, the topography suggests that groundwater flow across the site is in a westerly direction. However, localized conditions can alter flow direction and thus the presumed flow may not coincide with the actual in the subject area. Shallow groundwater in the vicinity of the site is anticipated to be encountered at a depth of approximately more then 10' below ground surface.

4.4 Site Improvements

4.4.1 Utilities

The Subject is served with the following utilities:

Water:	City of Yonkers
Sanitary Sewer:	City of Yonkers
Storm Sewer:	City of Yonkers
Electric:	Consolidated Edison
Natural Gas:	Consolidated Edison

Potable water is provided to the Subject via underground tunnels and pipes by the City of New York, which derives it from surface reservoirs in the Croton, Catskill, and Delaware watersheds.

Stormwater runoff collected by catch basins is discharged into the municipal stormwater management system.

4.4.2 Building Description

The Subject is improved with a group of three (3) approximately 121-year-old ±11,000-SF 3-story rooming houses. Site improvements include three (3) separate buildings and ancillary site work.

Construction consists of wood framing with an exterior wall system predominantly of vinyl siding. Roofing consists of an asphalt shingle system.

Interior finishes include floor coverings of carpet, resilient floor tile, sheet vinyl, ceramic tile, and hardwood; walls of painted and papered

gypsumboard and painted plaster and ceilings typically consist of painted drywall, textured plaster and glued on ceiling tiles.

Each apartment is centrally heated with hot water radiators (no air conditioning is provided). The Subject is without elevators.

4.5 Current Property Use

The subject property is developed with three rooming houses. Based on the operations currently conducted at the Subject, significant quantities of hazardous waste are not generated. The current on-site activities are not suspected to have degraded the environmental quality of the subject site.

4.6 Environmental Permits

Based on our research, no environmental permits such as wastewater discharge, National Pollutant Discharge Elimination System (NPDES), air emissions, or petroleum bulk storage (PBS) tank registrations are required at the Subject.

4.7 Plans and Specifications

Neither building drawings nor specifications were provided for our review.

5.1 Historical Summary

The existing residential buildings were constructed in or prior to 1886.

5.2 Topographic Maps

IVI reviewed the USGS *Yonkers, N.Y.-N.J.* 7.5 Minute Series topographic map of the Subject area, which is based on aerial photography taken in 1966, and was last revised in 1998. The topographic map does not identify individual buildings or development on the subject property due to the concentration of structures in the highly urbanized Yonkers area, but rather shows the area to be shaded denoting urbanized land use, and identifies only landmarks as distinct structures. Nevertheless, the topographic map does not identify any industrial complexes, landfills or wetlands on or adjacent to the subject site.

5.3 Historical Maps

Sanborn Fire Insurance Maps (Sanborn Maps)

Sanborn Maps constitute a source of prior site uses of real property for many cities and towns in the United States. The maps were originally created to assist insurance underwriters in understanding the potential fire risk of structures requiring insurance; however, they are also useful in determining the previous uses of a property. Sanborn Maps often contain information relating to uses of individual structures, location of certain petroleum and chemical storage tanks, and the storage of other potentially toxic substances. Sanborn Maps begin their coverage in 1867 and continue through the 1990s.

IVI had a search conducted for Sanborn Maps, which reference the property. The findings of this review are summarized below:

Year	Subject Property	Adjacent and Surrounding Properties
1886	All three parcels of the Subject are improved with 2 and 3 story dwellings.	Surrounding properties to the north and east are characterized by residential development. Southern and western properties are no depicted on the Sanborn map.
1898	No significant changes have occurred to the Subject property.	Surrounding properties are characterized by residential development. A sugar refinery is located further to the northwest of the Subject.
1917	No significant changes have occurred to the Subject property.	No significant changes have occurred except that farther north properties are now depicted as Prospect House Settlement, stables, furniture ware house and auto repair and storage.

Year	Subject Property	Adjacent and Surrounding Properties
1942	Garages are now depicted behind the dwellings at 65 and 72 Buena Vista Avenue	No significant changes have occurred on the Subject site except surrounding northern properties are now depicted as Buena Vista Garage and National Sugar Refining Company.
1951	No significant changes have occurred to the Subject property.	No significant changes have occurred to the adjacent and surrounding properties.
1956	No significant changes have occurred to the Subject property.	No significant changes have occurred to the adjacent and surrounding properties.
1957	No significant changes have occurred to the Subject property.	No significant changes have occurred to the adjacent and surrounding properties.
1971	No significant changes have occurred to the Subject property.	No significant changes have occurred to the adjacent and surrounding properties.
1973	No significant changes have occurred to the Subject property.	No significant changes have occurred to the adjacent and surrounding properties.
1978	No significant changes have occurred to the Subject property.	The southern adjacent property located at 71 Buena Vista Avenue is now developed with a Day Care Center.
1989	No significant changes have occurred to the Subject property.	No significant changes have occurred to the adjacent and surrounding properties.
1991	No significant changes have occurred to the Subject property.	No significant changes have occurred to the adjacent and surrounding properties.

5.4 Aerial Photographs

Aerial photographs frequently provide visual documentation of site conditions at the time of the photographs. Activities such as dumping or industrial use of a site can often be discerned through the examination of aerial photographs. IVI reviewed historic aerial photographs provided by Google Earth. The following is a synopsis of the aerial photographs reviewed:

Year	Subject Property	Adjacent and Surrounding Properties
2007	The Subject is developed with the current improvements.	Surrounding properties are developed with the current improvements, characterized by residential and commercial development.

5.5 Chain-of-Ownership

A copy of the Subject's Chain-of-Title has not been provided to IVI for review.

5.6 Previous Reports

Although requested, no previously prepared environmental reports such as Phase I or II Environmental Site Assessments, lead-based paint surveys, lead-in-water surveys, asbestos surveys or geotechnical reports were provided for our review.

5.7 City Directories

Historical Cole Criss-Cross Directory City Directories provided by EDR were reviewed. These directories provide site occupant listings by address. The directories reviewed were dated 1976, 1980, 1985, 1990, 1996, and 2001. There are residential listings for the Subject and surrounding properties for these directories. Please refer to Appendix F for a copy of the City Directories.

5.8 Interviews

According to Eric Wolf, a representative of DW Capital, the subject site has always been used as residential development.

According to Mingo Garcia, the superintendent, who has been involved with the property for the past 15 years, the Subject has always been used as residential development. Also according to Mr. Garcia, two approximately 275-gallon fuel oil USTs were removed from the driveway of 72 Buena Vista Avenue and were replaced with two ASTs that are beneath the porch. Mr. Garcia stated that the reason for the removal was due to the age of the USTs.

A copy of regulatory database information contained within a Computerized Environmental Report (CER) provided by Environmental Data Resources, Inc. (EDR) appears in Appendix D. The CER is a listing of sites identified on select federal and state standard source environmental databases within the approximate minimum search distance specified by ASTM Standard Practice for Environmental Site Assessments E 1527-05. IVI reviewed each environmental database to determine if certain sites identified in the CER are suspected to represent a material negative environmental impact to the Subject. The following table lists the number of sites by regulatory database within the prescribed minimum search distance appearing in the CER.

Databases Reviewed	Approximate Minimum Search Distance (AMSD)	Number of Sites Within AMSD
Federal National Priorities List (NPL) Site List	One-Mile	0
Federal Delisted NPL Site List	One-Half Mile	0
Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	One-Half Mile	1
Federal CERCLIS No Further Remedial Action Planned (NFRAP) Sites	One-Half Mile	0
Federal Resource Conservation and Recovery Information System (RCRIS) Treatment, Storage, and Disposal (TSD) List	One-Half Mile	0
Federal RCRIS Generators List	On-Site and Adjoining Properties	0
Federal Corrective Action Tracking System (CORRACTS)	One-Mile	0
Federal Emergency Response Notification System (ERNS) List	On-Site	0
Federal Institutional/Engineering Control Registries	On-Site	0
New York and Tribal Lists of NPL Equivalent Hazardous Waste Sites Identified for Investigation and/or Remediation	One-Mile	0
New York and Tribal Lists of CERCLIS Equivalent Hazardous Waste Sites Identified for Investigation and/or Remediation	One-Half Mile	0
New York and Tribal Landfills or Solid Waste Facilities List	One-Half Mile	1
New York and Tribal Petroleum Bulk Storage Tank List	On-Site and Adjoining Properties	0
New York and Tribal Leaking UST/Spill List	One-Half Mile	54

Databases Reviewed	Approximate Minimum Search Distance (AMSD)	Number of Sites Within AMSD
New York and Tribal Institutional/Engineering Control Registries	On-Site	0
New York and Tribal Voluntary Cleanup Sites	One-Half Mile	2
New York and Tribal Brownfields Sites	One-Half Mile	1

The CER identified 43 "Orphan Sites". "Orphan Sites" are those sites that could not be mapped or "geocoded" due to inadequate address information. Refer to the CER for a list of these "Orphan Sites". IVI attempted to locate these sites via a review of street maps, vehicular reconnaissance and/or interviews with people familiar with the area. "Orphan Sites" that were identified in this manner were analyzed in their respective regulatory database below.

A description of the databases reviewed by IVI and an analysis of sites identified within the prescribed search area are presented below.

6.1 Federal Databases

NPL

The NPL database is a listing of the most serious uncontrolled or abandoned hazardous waste sites identified for possible long-term remedial action under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or "Superfund"). A site must be on the NPL to receive money from the Trust Fund for Remedial Action.

Analysis/Comment: The CER did not identify NPL sites within the AMSD.

Delisted NPL Site List

The EPA may delete a final NPL site if it determines that no further response is required to protect human health or the environment. Under Section 300.425(e) of the National Contingency Plan (55 FR 8845, March 8, 1990). Sites that have been deleted from the NPL remain eligible for further Superfund-financed remedial action in the unlikely event that conditions in the future warrant such action. Partial deletions can also be conducted at NPL sites.

Analysis/Comment: The CER did not identify Delisted NPL sites within the AMSD.

CERCLIS

CERCLIS is the USEPA's system for tracking potential hazardous-waste sites within the Superfund program. A site's presence on CERCLIS does not imply a level of federal activity or progress at a site, nor does it indicate that hazardous conditions necessarily exist at the location. Within one year of being entered into CERCLIS, the USEPA performs a preliminary assessment of a site. Based upon the results of the preliminary assessment, the USEPA may conduct additional investigation, which could lead to a site being listed on the NPL.

Analysis/Comment: The CER identified the following CERCLA site within the AMSD:

Property Name/ Address	Distance (Mile)	Direction	Presumed Hydrogeologic Relationship	Regulatory Status
Patclin Chemical Co. Inc 66 Alexander Street	0.41	North-Northeast	Downgradient	Not a Federal Facility

The above tabulated CERCLIS site is located a sufficient distance (a minimum of 1/8-mile) from the Subject so as not to be reasonably suspected of having impacted same. Further, inasmuch as this CERCLIS site is located at a lower topographic elevation than the Subject, IVI does not suspect that this CERCLIS site has had a significant negative environmental impact upon the Subject.

CERCLIS No Further Remedial Action Planned (NFRAP) Sites

As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from the CERCLIS list. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to warrant Federal Superfund Action or NPL consideration.

Analysis/Comment: The CER did not identify CERCLA NFRAP sites within the AMSD.

RCRIS TSD

The RCRIS TSD contains information pertaining to those facilities that treat, store, or dispose of hazardous waste. While these facilities represent some form of hazardous waste activity, they are most significant if determined to be out of compliance or to have violations.

Analysis/Comment: The CER did not identify RCRIS TSD facilities within the AMSD.

RCRIS Generators

IVI reviewed the list of sites, which have filed notification with the USEPA in accordance with RCRA requirements. These sites include generators of hazardous waste regulated under RCRA. Under RCRA, hazardous waste generators are classified by the quantity of hazardous waste generated in a calendar month into the following categories: Large Quantity Generator, greater than 1,000 kilograms (kg); Small Quantity Generator, 100 to 1,000 kg; and Conditionally-Exempt Small Quantity Generator, less than 100 kg. RCRA Generators, while they represent some form of hazardous waste activity, are most significant if they are determined to have Class I Violations or to be non-compliant.

Analysis/Comment: The CER did not identify RCRA Generators within the AMSD.

Corrective Action Tracking System (CORRACTS)

CORRACTS is a list of facilities that are found to have had hazardous waste releases and require RCRA corrective action activity, which can range from site investigations to remediation.

Analysis/Comment: The CER did not identify CORRACTS sites within the ASMD.

ERNS

The ERNS is a database of notifications of oil discharges and hazardous substance releases made to the Federal government. These notifications are used by "On-Scene Coordinators" to determine an emergency response and release prevention. When a call is made to the National Response Center or one of the 10 USEPA Regions, a report is created containing all of the release information that the caller provided. This report is transferred to an appropriate agency to evaluate the need for a response and the records are electronically transferred to the ERNS database. As such, if a reported release of oil or a hazardous substance is deemed to require a response, it should also be listed in the appropriate federal or state environmental database such as CERCLIS, state equivalent CERCLIS, or state leaking underground storage tank or spills lists.

Analysis/Comment: The CER did not identify the Subject on the ERNS database.

Federal Institutional Control/Engineering Control Registries

These Federal registries contain listings of those sites which have either engineering and/or institutional controls in place. Engineering controls include various physical control devices such as fences, caps, building slabs, paved areas, liners and treatment methods to eliminate pathways for regulated substances to enter the environment or effect human health. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions (Activity and Use Limitations) are generally required as part of institutional controls.

Analysis/Comment: The CER did not identify the Subject on the Federal Institutional or Engineering Control registries.

6.2 New York State Department of Environmental Conservation (NYSDEC) and Tribal Databases

New York and Tribal NPL Equivalent Hazardous Waste Sites (HWS)

The State HWS is an inventory of dumps, landfills, and other toxic sites listed by Environmental and Health Authorities. The Tribal NPL Equivalent HWS list is an inventory of toxic sites listed by Tribal Environmental and Health Authorities. These sites are either under remediation, or are currently under evaluation for further action, if necessary.

Analysis/Comment: The CER did not identify New York and/or Tribal NPL Equivalent Hazardous Waste sites within the AMSD.

Registry of Inactive Hazardous Waste Disposal Sites (IHWDS) and Tribal CERCLIS Equivalent Hazardous Waste Sites (HWS)

The IHWDS and Tribal CERCLIS Equivalent HWS list is an inventory of toxic sites listed by New York and/or Tribal Environmental and Health Authorities. These sites are either under remediation, or are currently under evaluation for further action, if necessary.

Analysis/Comment: The CER did not identify IHWDS and/or Tribal CERCLIS Equivalent Hazardous Waste sites within the AMSD.

New York and/or Tribal Solid Waste Facilities (SWF) List

The SWF list is an inventory of landfills, incinerators, transfer stations, and other sites that manage solid wastes.

Analysis/Comment: The CER identified the following SWF site within the AMSD:

Property Name/ Address	Distance (Mile)	Direction	Presumed Hydrogeologic Relationship	Regulatory Status
Danny's Towing 98-100 Warburton Avenue	0.42	Northeast	Crossgradient	Active

According to the CER, the above tabulated site located at 98-100 Warburton Avenue is used by a towing company for vehicle dismantling. Of note this site is located crossgradient and a significant distance away from the Subject as not to be reasonably suspected of having impacted same. As such, IVI does not suspect this site to be or a negative environmental concern upon the Subject site.

Petroleum Bulk Storage (PBS) Tanks List and/or Tribal Registered Storage Tanks (RST) Facility List

The PBS Tank list is an inventory of registered liquid bulk storage tanks maintained either by the county or the NYSDEC. Inclusion of a site on the PBS Tank list does not necessarily constitute environmental contamination, but instead merely indicates the presence of registered bulk storage tanks.

Analysis/Comment: The CER did not identify PBS Tank sites within the AMSD.

New York Leaking Underground Storage Tanks (LUST) and Spill Lists

The LUST list is an inventory of spills and leaks, both active and inactive reported to regulatory authorities. They include stationary and non-stationary source spills reported to state and federal agencies, including remediated and contaminated leaking UST sites. The Spills list is a compilation of data collected on spills and reported to the NYSDEC pursuant to either Article 12 of the Navigation Law, or 6 NYCRR Section 595.2.

Analysis/Comment: The CER identified 54 LUST/Spill sites within the prescribed search radius. Of the 54 sites, 49 are located over one-eighth mile away from the Subject and based on the dense urban setting of the Subject, are therefore not considered a significant environmental concern. Of the remaining 5 LUST/Spill sites, all have been granted a "Case Closed" status, indicating that the releases have been cleaned up or remediated to the satisfaction of the NYSDEC. These sites are, therefore, not suspected to pose a significant environmental concern to the Subject.

New York and Tribal Institutional Control/Engineering Control Registries

According to the NYSDEC website, Institutional Controls shall mean any non-physical means of enforcing a restriction on the use of real property that limits human or environmental exposure, restricts the use of groundwater, provides notice to potential owners, operators, or members of the public, or prevents actions that would interfere with the effectiveness of a remedial program or with the effectiveness and/or integrity of operation, maintenance, or monitoring activities at or pertaining to a brownfield site.
Engineering Control shall mean any physical barrier or method employed to actively or passively contain, stabilize, or monitor hazardous waste or petroleum, restrict the movement of hazardous waste or petroleum to ensure the long-term effectiveness of a remedial program, or eliminate potential exposure pathways to hazardous waste or petroleum. Engineering controls include, but are not limited to, pavement, caps, covers, subsurface barriers, vapor barriers, slurry walls, building ventilation systems, fences, access controls, provision of alternative water supplies via connection to an existing public water supply, adding treatment technologies to such water supplies, and installing filtration devices on private water supplies.

Features and Requirements of Institutional Controls:

- If an IC/EC is used as a component of a site cleanup plan, the Remedial Work Plan must include: a complete description of the IC/ECs and the mechanisms that will be used to implement, maintain, monitor, and enforce such restrictions and controls, both by the applicant and by any state and local government, and an evaluation of the reliability, viability, and costs of the long-term implementation, maintenance, monitoring, and enforcement of any IC/EC.
- Financial assurance for the long-term maintenance, monitoring, and enforcement of IC/ECs may be required.
- Any EC must be used in conjunction with an IC.
- The final remediation report must include a certification that any IC/ECs are included in an environmental easement that has been duly recorded.
- An annual certification that the IC/ECs are in place and protective of public health and the environment must be submitted to the NYSDEC.
- The NYSDEC must create, update, and maintain a data base available to the public of sites using IC/ECs.
- Any proposal for a change in site use must include an evaluation of the impacts of the change on the viability, reliability, and effectiveness of any IC/ECs.

Analysis/Comment: The CER did not identify the Subject on the New York and Tribal Institutional or Engineering Control registries.

New York and Tribal Voluntary Cleanup Program Sites

New York established its Voluntary Cleanup Program (VCP) to address the environmental, legal and financial barriers that often hinder the redevelopment and reuse of contaminated properties. New York's Voluntary Cleanup Program is a cooperative approach among the NYSDEC, lenders, developers and prospective purchasers to investigate and/or remediate contaminated sites. Under the VCP, a volunteer performs remedial activities pursuant to one or more NYSDEC approved work plans. The volunteer agrees to remediate the site to a level which is protective of public health and the environment for the present or intended use of the property. Investigation and remediation is carried out under the oversight of the NYSDEC and the New York State Department of Health (DOH) and the volunteer pays the State's oversight costs. When the volunteer completes work, a release from liability from the NYSDEC is provided with standard reservations. Once the required remedial actions have been completed, the NYSDEC issues a letter declaring that it agrees that the volunteer has met their obligations and that, barring an event triggering a reopener, the Department does not contemplate further action will need to be taken at the site. Non-PRP volunteers also receive a release that covers natural resource damages. All of the volunteer's successors and assigns (except the site's PRPs) benefit from the release given to the volunteer. The NYSDEC's release binds only itself, and does not bind private parties harmed, does not bind the State's Attorney General, the State's Comptroller, and does not bind the USEPA.

The Release is subject to the following reservations for further investigation or remediation the NYSDEC deems necessary due to:

- Off-site migration of contamination causing significant impacts if the Volunteer is a PRP;
- Environmental conditions or information related to the Site that were unknown when the Release was issued and that indicate that site conditions under the Contemplated Use are not sufficiently protective of human health and the environment;
- Failure to comply with the VCA (e.g., not completing OM&M, not paying State costs, not maintaining use restrictions, etc.);
- Fraud committed by the Volunteer in entering into or implementing the VCA;
- A release, discharge or threat thereof after the effective date of the VCA; or
- A change of use where the new use requires a lower level of residual contamination.

Analysis/Comment: The CER identified the following VCP site within the AMSD:

Property Name/ Address	Distance (Miles)	Direction	Presumed Hydrogeologic Relationship	Regulatory Status
Former Teutonia Hall Site 41-51 Buena Vista Avenue	0.07	North-northeast	Downgradient	Active
185-187 Riverdale Avenue	0.47	South-southeast	Crossgradient	Active

Operations conducted at these facilities have significantly impacted the soil and groundwater with petroleum compounds, chlorinated solvents, heavy metals, and PCBs. All three facilities are currently undergoing remediation under the supervision of the NYSDEC. Based on the assumed hydraulic positions and dense urban development of the area, it is unlikely that contamination existing at these sites has migrated onto the Subject. Furthermore, responsible parties have been identified and the groundwater within the city of Yonkers is not used as a source of potable water. As such, IVI concludes that these facilities do not represent recognized environmental conditions to the Subject.

New York and Tribal Brownfield Sites

According to the NYSDEC website, brownfields are abandoned, idled, or under-used properties where expansion or redevelopment is complicated by real or perceived environmental contamination. They typically are former industrial or commercial properties where operations may have resulted in environmental contamination. Brownfields often pose not only environmental, but legal and financial burdens on communities. The impediments to contaminated site redevelopment in New York are complex. The existing liability scheme may hold all owners of contaminated property liable for cleanup costs, regardless of when or how the property was acquired. The potential cost of cleanup, which may not be known for certain at the time of purchase, is also a deterrent to parties wishing to build, relocate, or expand businesses. Lenders have been reluctant to extend credit for the purchase and cleanup of contaminated sites, fearing future liability issues.

A Brownfield Cleanup Agreement (BCA) is required for all parties who wish to participate in the Brownfield Cleanup Program. By executing a BCA, an Applicant makes a commitment to undertake certain remedial activities under the NYSDEC's oversight.

Analysis/Comment: The CER identified the following Brownfield site within a one-half mile radius of the Subject.

Property Name/ Address	Distance (Miles)	Direction	Presumed Hydrogeologic Relationship	Regulatory Status
Glenwood Power Station 45 Water Grant Way	0.12	West	Downgradient	Active

The Glenwood Power Station located at 45 Water Grant Way on the Hudson River, was used from approximately 1905 through 1964 as a power plant providing electrical power for Consolidated Edison and the near by railroad. Information also suggests that manufactured gas plant operations may have also occurred on site at this time. The site was later converted in to a coal plant until 1978 when Consolidated Edison sold the site to Glen Place Equities and currently the site is undeveloped. Contamination may include semi-volatile and poly aromatic hydrocarbons associated with the manufacturing of gas, heavy metals, inorganics and petroleum. As of this time the Department of Health does not have sufficient information to evaluate the potential for human exposures.

However, based the facility's location and downgradient hydraulic position, all existing contamination would migrate into the Hudson River and not towards the Subject. As such, IVI concludes that the facility does not represent a recognized environmental condition to the Subject.

7.1 Chemical Storage and Usage

With the exception of chemicals customarily used for routine building maintenance and cleaning, IVI did not observe any hazardous chemicals stored on-site. For the most part, the maintenance chemicals are stored in the basement. Of note, floor drains were observed in the vicinity of the chemical storage areas. In addition, housekeeping was generally considered satisfactory. The chemicals, which are stored in their original containers, do not appear to represent an impact to the environmental quality of the site provided that they are used as intended, properly handled, and the regulations pertaining to their usage are followed.

7.2 Bulk Storage Tanks

Underground Storage Tanks (USTs)

The following UST was identified on-site:

Location	Capacity (Gallons)	Reported Construction Type	Product	Age (years)
65 Buena Vista Avenue	275 (two)	Unknown	No. 2 Heating Oil	Unknown

According to Mingo Garcia, the superintendent, two 275-gallon Number 2 heating oil USTs are currently active at 65 Buena Vista Avenue. Mr. Garcia, who has been familiar with the properties for the past 15 years, is not aware of the construction type or age of the USTs. Inasmuch as the tanks are likely of single wall bare steel construction and are likely over 15 years old, they have exceeded their expected useful life and there is a potential for leakage.

Tanks per the following schedule were reportedly removed at the subject site:

Location	Tank Disposition	Capacity (Gallons)	Product	Date Removed	Testing Conducted	Contamination Identified
72 Buena Vista Avenue – Driveway	Reportedly Removed	275 (two)	No. 2 Heating Fuel Oil	2006	Unknown	Unknown

According to Mr. Garcia, two 275-gallon Number 2 heating oil USTs were removed from the site in 2006 and he was unaware if closure testing was conducted. Accordingly, it is unknown if the surrounding soils and/or groundwater are impacted with petroleum.

Aboveground Storage Tanks (ASTs)

ASTs per the following schedule were observed:

Tank No.	Location	Capacity (Gallons)	Product	Visible Condition	Secondary Containment
2	68 Buena Vista Avenue	275 (two)	No. 2 Heating Oil	Satisfactory	No
2	72 Buena Vista Avenue	275 (two)	No. 2 Heating Oil	Satisfactory	No

Four ASTs were observed on-site. The tanks appear to be in satisfactory condition. Accordingly, IVI has no significant environmental concerns regarding these ASTs.

7.3 Site Waste and Wastewater

Solid Waste

Non-hazardous solid waste is disposed of in dumpsters and is removed from the Subject on a regular basis by the municipality. Potential sources of contamination, such as waste oil or automobile batteries, were not observed in the vicinity of the dumpsters.

Sanitary Sewage

Sanitary sewage disposal is provided by the municipality. IVI did not observe any sources of wastewater or liquid discharge into the sewer other than sanitary sewage.

Hazardous Waste

No hazardous waste was observed or reported to be generated on the Subject. Furthermore, IVI's review of the USEPA's database of sites regulated under RCRA did not identify the Subject as a generator of hazardous waste.

7.4 Stained Soil, Stained Pavement, or Stressed Vegetation

There was no evidence of significant soil staining, stained pavement, or stressed vegetation observed on-site.

7.5 Liquid Discharges

No visible evidence of liquid discharges, suspected to represent an environmental concern were observed during our survey.

7.6 Pools of Liquid

IVI did not observe significant standing surface water or pools containing liquids likely to be hazardous substances or petroleum products.

7.7 Pits, Ponds, or Lagoons

IVI did not observe any pits, ponds, or lagoons on the Subject.

7.8 Wells

IVI did not identify on-site dry wells, irrigation wells, injection wells, observation wells, monitoring wells, potable water wells, recovery wells or abandoned wells.

7.9 On-Site Fill

Based on our observations, it does not appear that fill has been imported onto the subject property.

7.10 Drums and Containers for Storing Waste

With the exception of non-hazardous solid waste containers, IVI did not identify containers suspected of storing waste. With respect to the non-hazardous solid waste containers, no significant environmental concerns were noted.

7.11 Floor Drains and Sumps

IVI did not identify any floor drains or sumps that were stained, emitting foul odors, or connected to an on-site sewage disposal system, or located adjacent to chemical storage areas.

7.12 Odors

IVI did not identify strong, pungent, or noxious odors suspected to represent an environmental concern.

7.13 Air Emissions

IVI did not identify processes or equipment that emit noticeable vapors or fumes.

7.14 Polychlorinated Biphenyls (PCBs)

No electrical transformers, capacitors, hydraulic systems or other potentially PCB-containing equipment were observed on-site.

7.15 Asbestos-Containing Material (ACM)

Based on the age of the site improvements, the potential on-site use of asbestos containing materials exists. Based upon our visual survey of the readily accessible building areas, IVI noted suspect ACM in the following areas:

Material	Location	Condition	Potential For Disturbance	Friable (Y/N)	Asbestos Containing?
Resilient Floor Finish Assemblies	Throughout	Good-Damaged	Low	No	Suspect
Wallboard Assemblies	Throughout	Good-Damaged	Low	No	Suspect
Textured Ceiling Finish	Throughout	Good-Damaged	Low	No	Suspect
Plaster	Throughout	Good-Damaged	Low	No	Suspect
Glued-on Ceiling Tile	Throughout	Good-Damaged	Low	Yes	Suspect
Pipe Insulation	Throughout	Good-Damaged	Low	Yes	Suspect
Pipe Elbows	Throughout	Good-Damaged	Low	Yes	Suspect
Caulkings	Throughout	Good-Damaged	Low	No	Suspect
Mastics	Throughout	Good-Damaged	Low	No	Suspect
Asphalt Shingles	Roofs	Good-Damaged	Low	No	Suspect
Built-Up Roofing System Materials	Roofs	Good	Low	No	Suspect

The above-tabulated materials were observed to be in good to damaged condition at the time of our site walkthrough.

7.16 Lead-in-Drinking Water

Based on information provided by the City of Yonkers, the water at the Subject is not expected to contain elevated levels of lead.

7.17 Radon

Based on statistical information maintained within the New York State Department of Health (NYS DOH)'s *Short Term Basement Radon Measurements by Town,* dated August 2007, radon concentrations in the City of Yonkers average 2.12 picocuries per liter (pCi/L), which is below the 4.00 pCi/L action level

established by the USEPA. Based solely on this data, it is unlikely that radon represents an environmental concern at this time.

7.18 Lead-Based Paint (LBP)

Based upon the age of the building, the use of LBP is suspected. Painted surfaces were observed in good to damaged condition with some evidence of significant peeling or flaking.

8.1 Present Owners

IVI sent a Pre-survey Questionnaire and an AAI User Questionnaire to the site contact and the User, respectively. The purpose of these questionnaires was to disclose any previous or existing hazardous waste or toxic material conditions, which may not have been apparent at the time of our site reconnaissance and to satisfy the User interview all appropriate inquiry requirements. As of this writing, the site contact nor the User have returned the completed questionnaires. IVI recommends that copies of the completed questionnaires be obtained.

8.2 User

8.2.1 Title Records

A copy of the Subject's Chain-of-Title has not been provided to IVI for review.

8.2.2 Environmental Clean Up Liens and Activity and Use Limitations (AULs)

The User has not returned the AAI User Questionnaire. However, worthy of note, IVI ordered an Environmental Lien Search Report from IVI. According to this report, no Environmental Clean Up Liens or AULs were found for the Subject.

8.2.3 Specialized Knowledge

The User has not returned the AAI User Questionnaire.

8.2.4 Relationship of Purchase Price to Fair Market Value Due to Contamination in Connection with the Subject

The User has not returned the AAI User Questionnaire.

8.2.5 Common Knowledge or Reasonably Ascertainable Information

The User has not returned the AAI User Questionnaire.

8.2.6 Purpose for Conducting the Phase I Environmental Site Assessment

The User has not returned the AAI User Questionnaire.

8.2.7 Proceedings Involving the Property

The User has not returned the AAI User Questionnaire.

8.3 Key Site Manager

8.3.1 Historic Site Use

According to Mingo Garcia, the superintendent, who has been involved with the property for the past 15 years, the site has always been improved with residential buildings and used for residential purposes to his knowledge.

8.3.2 Proceedings Involving the Property

Mingo Garcia had no knowledge of pending, threatened, or past litigation, administrative proceedings, or notices from governmental agencies regarding violations of environmental laws regarding hazardous substances or petroleum products.

8.4 Occupants

Although the Subject site is improved with three residential buildings, no on site occupants were readily available at the time of the site reconnaissance.

8.5 Past Owners

Brian Murray is the current owner of the three parcels. According to Mr. Murray, who has owned the properties for the past four years, the site has always been used for residential purposes to his knowledge.

8.6 Local Regulatory Agency Interviews and/or File Reviews

Fire Department

IVI has sent a request to the City of Yonkers Corporation Council's Office for environmental information such as underground storage tank registration pertaining to the subject property. As of this writing, the Fire Department has not responded to our request. Should receipt of a response from the Fire Department change the conclusions of this report, DWC will be notified in writing by IVI.

Health Department

IVI has sent a request to the local Health Department for environmental information pertaining to the subject property. As of this writing, the Health Department has not responded to our request. Should receipt of a response from the Health Department change the conclusions of this report, DWC will be notified in writing by IVI.

Tax Assessor

According to files maintained by The City of Yonkers Assessors office, the properties are identified on local tax maps as:

65 Buena Vista Avenue – 1-512-23
68 Buena Vista Avenue – 1-511-25
72 Buena Vista Avenue – 1-511-24

New York State Department of Environmental Conservation (NYSDEC)

As of this writing, IVI has sent a "Freedom of Information Act" request to the NYSDEC for information regarding spills, leaking USTs, etc., at the subject property. Should receipt of a response from the NYSDEC change the conclusions of this report, GVA will be notified in writing by IVI.

IVI has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Standard Practice E1527-05 of the Three (3) 3,700 SF Rooming Houses, located at 65, 68, & 72 Buena Vista Avenue, Yonkers, New York. Any exceptions to, or deletions from, the standard practice are described within Section 2.0 of this report.

This assessment has revealed no evidence of recognized environmental conditions in connection with the Subject except for the following:

Underground Storage Tanks (USTs)

According to Mingo Garcia, the superintendent, two 275-gallon Number 2 heating oil USTs are currently active at 65 Buena Vista Avenue. Mr. Garcia, who has been with the properties for the past 15 years, is not aware of the construction type or age of the USTs. Inasmuch as the tanks are likely of single wall bare steel construction and are likely over 15 years old, they have exceeded their expected useful life and may have leaked and contaminated site soil and groundwater. IVI recommends that the tanks either be replaced; or, should they continue to be used, they should be tightness tested to determine their integrity.

Also, according to Mr. Garcia, two 275-gallon Number 2 heating oil USTs were removed from the site (72 Buena Vista Avenue) in 2006 and he was unaware if closure testing was conducted and it is unknown if the surrounding soils and/or groundwater are impacted with petroleum. IVI recommends that tank closure documentation be provided to us for our review. In lieu of this documentation, IVI would recommend that a subsurface investigation be conducted in the location of the former USTs to determine if they had a significant negative environmental impact on the Subject.

In addition, the following items of environmental concern are worthy of mention:

Asbestos-Containing Material (ACM)

IVI observed friable suspect ACM on the Subject in the form of glued-on ceiling tile assemblies, pipe insulation, and pipe elbows; and non-friable suspect ACM in the form of resilient floor finish assemblies, wallboard assemblies, textured ceiling finishes, plaster, caulkings, mastics, asphalt shingles, and built-up roofing system materials. These materials were observed to be in good to damaged condition. IVI recommends that all damaged suspect ACM be characterized for asbestos content. Should the damaged materials be determined to be asbestos-containing, abatement of same is warranted. Abatement alternatives include removal, repair, encapsulation, or enclosure. All activities involving ACM should be conducted in accordance with applicable federal, state and local regulations. The remaining post-abatement ACM should be maintained in-place in good condition under an Asbestos Operations and Maintenance (O&M) Program.

Lead-Based Paint (LBP)

Based upon the age of the building, the use of LBP is suspected. Painted surfaces were observed in good to damaged condition with some evidence of significant peeling or flaking. IVI recommends all damaged painted surfaces be characterized for lead content. Should the damaged painted surfaces be determined to be lead-based, abatement of same is warranted. All activities involving LBP should be conducted in accordance with HUD guidelines, as well as the OSHA Lead in Construction regulations (CFR Part 1926.62) and RCRA guidelines. Furthermore, IVI recommends that clearance testing be conducted prior to re-occupancy of the abated areas. The remaining post-abatement LBP should be maintained in-place in good condition under an LBP O&M Program.

10.1 This report has been prepared in compliance with the ASTM standard entitled "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" E1527-05.

10.2 The observations described in this report were made under the conditions stated herein. The conclusions presented in the report were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services within the constraints imposed by the client. The work described in this report was carried out in accordance with the Terms and Conditions of the contract.

10.3 In preparing this report, IVI has relied on certain information provided by federal, state, and local officials and other parties referenced therein, and on information contained in the files of governmental agencies, that were readily available to IVI at the time of this assessment. Although there may have been some degree of overlap in the information provided by these various sources, IVI did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this site assessment. Observations were made of the site and of the structures on the site as indicated in this report. Where access to portions of the site or to structures on the site was unavailable or limited, IVI renders no opinion as to the presence of direct or indirect evidence relating to petroleum substances, hazardous substances, or both, in that portion of the site and structure. In addition, IVI renders no opinion as to the presence of indirect evidence relating to hazardous material or oil, where direct observation of the ground surface, interior walls, floors, ceiling or a structure is obstructed by objects or materials, including snow, covering on or over these surfaces.

10.4 As part of this assessment, IVI submitted requests for information via the Freedom of Information Act (FOIA) to various governmental agencies. As of the preparation of this report these requests may not have been fulfilled. The conclusions of this report are subject to change upon receipt of a response from these FOIA requests.

10.5 IVI does not represent that the site referred to herein contains no petroleum or hazardous or toxic substances or other conditions beyond those observed by IVI during the site walkthrough.

10.6 IVI has produced this document under an agreement between IVI and DW Capital. All terms and conditions of that agreement are included within this document by reference. Any reliance upon this document, or upon IVI's performance of services in preparing this document, is conditioned upon the relying party's acceptance and acknowledgement of the limitations, qualifications, terms, conditions and indemnities set forth in that agreement, and property ownership/management disclosure limitations, if any. It is not to be relied upon by any party other than DW Capital nor used for any purpose other than that specifically stated in our Agreement or within this Report's Introduction section without IVI's advance and express written consent.

10.7 TIME LIMITATION TO ENACT CLAIM AGAINST IVI If in the opinion of the client, or any third party claiming reliance on IVI's report or services, that IVI was negligent or in breach of contract, such aforementioned parties shall have one year from the date of IVI's site visit to make a claim.

10.8 Mold and indoor air quality issues are excluded from the scope of this report.

PHASE I ENVIRONMENTAL SITE ASSESSMENT
FOR
BLOCK 511, LOT 27
66 BUENA VISTA AVENUE
CITY OF YONKERS
WESTCHESTER COUNTY COUNTY, NEW YORK

Prepared for:

Teutonia Buena Vista, LLC.
92 Main Street
Yonkers, New York 10701

Attention: Mr. Eric Wolf

Prepared by:

EcolSciences, Inc.
75 Fleetwood Drive, Suite 250
Rockaway, New Jersey 07866
(973) 366-9500

Lanny Katz, PhD.
Vice President

James M. Klinder
Senior Project Manager

December 16, 2009

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ATTACHMENTS

1. INTRODUCTION

EcolSciences, Inc. was retained by Teutonia Buena Vista LLC. to conduct a Phase I Environmental Site Assessment of the property located at 66 Buena Vista Avenue in the City of Yonkers, Westchester County, New York. This Phase I Environmental Site Assessment Report characterizes the existing environmental conditions on the subject property and assesses potential environmental concerns. This assessment has been conducted in accordance with the American Society of Testing and Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM Designation E 1527-05). This report is exclusively for the use of Valley National Bank, and is not for the use, nor may it be relied upon by any other person or entity. Findings of this assessment are based primarily upon a site inspection conducted on November 5, 2009 and on subsequent background research conducted by EcolSciences, Inc. This background research included:

- Review of available title and deed records if available, examination of site-specific historical aerial photographs, historical fire insurance maps, if available, and review of past land use practices to characterize pre-existing conditions;

- Review of readily-available local records to document potential environmental concerns on and in the immediate vicinity of the subject property; and

- Identification of known or suspected hazardous waste sites, permitted hazardous waste facilities, active or inactive solid waste facilities, and nearby spill sites with respect to the subject property.

A description of the regional site location and physical features, including a brief description of the current site conditions and operations, appears in Section 2. Ownership and operation history are discussed in Section 3. A detailed description and analysis of environmental conditions based on the inspection of the property appears in Section 4. Documented hazardous waste and spill case sites that could potentially impact the environmental quality of the subject property are discussed in Section 5. Section 6 summarizes the findings and conclusions of this assessment and makes any necessary recommendations. Section 7 presents any exceptions, deletions or data gaps and Section 8 presents the Environmental Professional Statement.

As indicated in Section 9 (Limitations) of this report, it should be noted that this report does not represent a warranty or guarantee of the environmental condition of the subject property. No soil, air, or water samples were collected as part of this Phase I Environmental Assessment.

2. SITE DESCRIPTION

The following sections describe the environmental setting of the subject property. This site description includes the regional location and physical features of the subject property. Figures 1 and 2 in Attachment A present the regional site location map and the general site layout, respectively.

2.1 Regional Location

The location of the subject property is as follows:

- **County** – Westchester County, New York
- **Municipality** – City of Yonkers
- **Block** – 511
- **Lot** – 27
- **Street Address** – 66 Buena Vista Avenue
- **Nearest Cross Street** – The subject property is located north of the intersection of Prospect Street and Buena Vista Avenue.

2.2 Physical Features

The physical features of the subject property, including a brief description of the onsite improvements and exterior grounds, are summarized below:

- **Acreage** – 0.05-acre
- **Property Configuration** – The property is rectangular in shape with approximately 20 feet of roadway frontage along Buena Vista Avenue.
- **Structures** – The property is improved with a four-story (including basement) eight family boarding house.
- **Current Ownership** – Tax records indicate that Mavis West and Gary Jones currently own the subject property.
- **Topography** – The subject property slopes downward from the east to the west and has an approximate elevation of 50 feet above mean sea level.

- **Drainage** – Surface runoff from the subject property flows overland toward catch basins in Buena Vista Avenue.

- **Surrounding Land Use** – The surrounding properties consist of residential properties.

3. HISTORY

Available information pertaining to site history was reviewed by EcolSciences to identify potential areas of environmental concern resulting from past operations and land use practices on and in the vicinity of the subject property. The site history was compiled by reviewing municipal files, interviewing municipal officials, reviewing available deed/title information, and examining historical aerial photographs, maps, and directories, if readily available. This information was supplemented by discussions with Mr. Leroy Jones (property owner representative). The following sections describe the findings of EcolSciences' historical review.

3.1 Sanborn Fire Insurance

Sanborn Fire Insurance Maps, produced by the Sanborn Map Company, are maps that depict general building construction and usage, fire protection measures, heating methods, hazardous material storage areas, and certain underground storage tanks. These maps have been prepared nationwide for most historically urbanized areas. Sanborn Fire Insurance Maps available for the site included coverage for the years 1886, 1898, 1917, 1942, 1951, 1956, 1957, 1971, 1973, 1978, 1989, 1991, and 2004. Copies of the Sanborn maps are presented in Attachment B. These maps show a three-story residence onsite. The footprint and building description did not change from 1886 to 2004.

3.2 Aerial Photography

Historical aerial photographs for the years 1931, 1954, 1966, 1974, 1980, 1987, 1995, 2004, and 2006 were reviewed by EcolSciences to identify past operations on the subject property. These photographs show one structure onsite. The footprint did not change from 1931 to 2006.

3.3 Ownership and Operational History

Based on review of records on file at the Yonkers City Hall, Mavis West and Gary Jones have owned the subject property since 2001. The previous owner was Lee Fallon. Based on review of available historic information (i.e. Sanborn Maps, aerial photographs, city directories, review of municipal records, etc.), a residential building was located onsite from some time prior to 1886 to present.

3.4 Previous Environmental Studies

According to a letter from the State of New York Department of Health dated August 20, 2009 (provided by the property owner), the New York State Department of Environmental Conservation (NYSDEC) collected an air sample inside and outside the onsite building to assess

the potential for chlorinated solvents (TCE, PCE, and their degradation products) to enter the building from contaminated groundwater. Two samples were collected on March 18, 2009. One sample was collected from the basement and the other sample was collected outside the building. The results of laboratory analysis indicated that neither TCE or PCE were detected in the building and NYSDEC determined that no further action was needed to address potential exposure related to soil vapor intrusion onsite.

4. SITE ASSESSMENT

EcolSciences' personnel conducted a site inspection on November 5, 2009 to identify potential areas of environmental concern resulting from past or present land use practices and/or facility operations. Visual observations were supplemented by conversations with Mr. Leroy Brown, the property owner representative, concerning known site history, knowledge of environmental conditions, documents associated with previous environmental investigations, current and past operations, hazardous material use, and waste disposal practices. Inquiry was made with the User (Valley National Bank) and borrower concerning any specialized knowledge with regard to environmental concerns associated with current or former operations and to consider whether a disparity, if any, between the fair market value of the property and the purchase price may be the result of adverse environmental conditions onsite. In addition, the User was requested to provide information regarding any environmental cleanup liens. EcolSciences was not made aware of any specialized knowledge of environmental concerns, market value disparities, or environmental cleanup liens by the User or borrower.

Existing conditions were characterized by visually inspecting accessible areas of the subject property. Attachment C contains representative photographs of onsite features noted during the site inspection. Figure 2, presented in Attachment A, depicts the general site layout. The following subsections provide a discussion of site-specific potential areas of concern identified during EcolSciences' inspection.

4.1 Existing Site Conditions and Current Operations

The subject property is improved with a three-story eight-unit residential building with a basement. The basement contains a boiler/utility room and an apartment unit. The building encompasses the majority of the lot. A small yard is located in back of the building. A concrete sidewalk is located in front and along the south side of the building.

4.2 Utilities

Utilities serving the subject property were identified where possible through visual observation and discussions with site representatives, municipal officials, and utility company officials. Onsite production or potable wells, sewage disposal systems (current or former septic systems, dry wells, or seepage pits), potential sources of polychlorinated biphenyls (PCBs), and current/former heating systems and their associated fuel source were identified if present and visually apparent on the subject property. A description of the utilities serving the subject property is as follows:

- **Water Supply** – The subject property is connected to the municipal potable water supply. No potable or production wells were observed on the subject property.

- **Wastewater** – The subject property is connected to the municipal sewer system. No visually apparent evidence of septic systems was observed on the subject property.

- **Electric Service** – The subject property is connected to the regional electric grid provided by Con Edison Company of New York. No pole-mounted or pad-mounted transformers were observed on the subject property.

- **Heating** – The subject property is currently heated by an oil-fired boiler. Heating oil is currently stored in an aboveground storage tank located in the basement. Heating oil was stored in an underground storage tank that was located in the rear yard prior to 2006. Further discussion regarding the underground storage tank follows below.

4.3 Storage Tanks

The identification of existing or former underground or aboveground storage tanks and other bulk storage areas including but not limited to silos, rail cars, and tanker trucks, is based upon visual evidence of such storage areas (i.e. fill pipes, vent pipes, feed/return lines), from historical records, and from historical fire insurance maps when available.

Review of the New York Underground Storage Tank (UST) and Above Ground Storage Tank (AST) lists indicated that no tanks are registered on the subject property. Heating oil is located in a 275-gallon aboveground heating oil tank located in the basement. According to Mr. Jones, a 550-gallon underground storage tank was filled and abandoned in place in 2006. According to Mr. Jones, the tank is located in the northwestern portion of the rear yard adjacent to the building. No soil samples were collected at that time to document the integrity of the tank.

4.4 Oil and Hazardous Materials

Practices pertaining to current and former oil and hazardous material use, storage, and disposal practices were identified as part of this Phase I Assessment. Areas of particular concern include, but are not limited to, storage pads, cabinets, and closets, dumpsters, loading/unloading areas, compressor vent discharges, air discharges, surface impoundments, and lagoons. In addition, the buildings and grounds were visually inspected for evidence of potential contamination, such as stained or discolored soils, stressed vegetation, floor staining, unusual odors, illegal dumping, land filling, and ground water monitoring wells.

Oil and hazardous materials observed onsite during EcolSciences' site inspection included heating oil in an aboveground storage tank and various commercially packaged household cleaning products. No staining or evidence of spills was observed during EcolSciences' site inspection.

4.5 Asbestos

Asbestos is a group of fibrous, naturally occurring silicate minerals including chrysotile, crocidolite, amosite, anthophyllite, tremolite, and actinolite. By USEPA definition, asbestos-containing materials are those materials or products that contain more than one percent asbestos by volume. The three general categories of asbestos-containing building materials include surfacing materials, thermal systems insulation and miscellaneous materials such as floor tiles, ceiling tiles, roofing shingles, tar, and felt, concrete-based piping, wallboard, outdoor siding, and fabrics.

Potential asbestos-containing materials observed during EcolSciences' inspection included plaster ceilings and walls, and roofing materials. It should be noted that EcolSciences' Phase I Environmental Assessment is not a detailed asbestos survey; it is possible that asbestos materials may be present within some building areas (e.g. beneath carpet, behind permanent fixtures or walls, material inside equipment, under floors, and in areas hidden from view), which were not apparent and/or accessible to EcolSciences' personnel during the site inspection.

4.6 Lead-Based Paint

Lead is a heavy metal that has historically been added to a variety of paint mediums due to its durability and resistance to corrosion and weathering. Lead-based paint has been proven to be a major contributor to childhood lead poisoning and, was therefore banned from residential use in 1978. Lead-based paint is generally defined as paint or other surface coating material with a lead concentration equal to or greater than 1.0 mg/cm^2 or in excess of 0.5 percent by weight.

Given the date of building construction (pre-1886) it is possible that lead-based paint was used onsite. Painted surfaces appeared in good condition with no significant peeling, cracking or chipping observed at the time of EcolSciences' site inspection.

5. REGULATORY REVIEW

A regulatory review was conducted to assess past and present land use and operations on, and in the vicinity of, the subject property that could potentially impact the environmental quality of the subject property. This regulatory review included a visual survey of current adjacent land use, a review of Federal and State databases that list hazardous waste sites and spill cases, and contact with local regulatory agencies.

5.1 Survey of Adjacent Land Use

EcolSciences' personnel conducted a visual survey of the adjacent property to identify sites that could impact the environmental quality of the subject property. A summary of the current adjacent land use is as follows:

- **North** – Residential building
- **South** – Residential building
- **East** – Residential building
- **West** – Buena Vista Avenue

5.2 Hazardous Waste Sites and Spill Records

Federal and State database listings of hazardous waste and spill case sites were provided by Environmental Data Resources (EDR). The Federal and State databases provide a permanent record of environmental regulatory compliance, suspected and documented hazardous waste sites, and spill case sites. These database listings were reviewed by EcolSciences to identify hazardous waste and spill sites in the general vicinity, and to assess whether any of the sites listed in those databases could adversely impact the environmental quality of the subject property. The regulatory database report is contained in Attachment D, and includes the release dates for each database and a radius map. Search distances for this database report were based upon guidelines established under the American Society of Testing Materials (ASTM) *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM Designation E 1527-05).

The following subsections summarize information listed for known or suspected hazardous waste sites and spill cases in the immediate vicinity of the property. If necessary, Federal, State, or local regulatory officials were contacted regarding the status of database listings on or adjacent to the property.

National Priorities List
The subject property is not listed on the *NPL*. There are no *NPL List* sites located within a one-mile radius of the subject property.

Delisted NPL
The subject property is not listed as a *Delisted NPL* site. There are no *Delisted NPL* sites located within a 0.5-mile radius of the subject property.

Comprehensive Environmental Response, Compensation and Liability Information System List
The subject property is not listed as a *CERCLIS* site. There are no *CERCLIS* sites listed within a 0.5-mile radius of the subject property.

Comprehensive Environmental Response, Compensation and Liability Information System "No Further Remedial Action Planned" (CERCLIS-NFRAP) List
The subject property is not listed on the *CERCLIS-NFRAP List.* There are no *CERCLIS-NFRAP* sites listed within a 0.5-mile radius of the subject property.

Resource Conservation and Recovery Act - Corrective Action Sites List (CORRACTS)
The subject property is not listed as a *CORRACTS List* site. There are no *CORRACTS List* sites listed within a one-mile radius of the subject property.

Resource Conservation and Recovery Act - Treatment, Storage and Disposal Facilities Report
The subject property is not listed in the *RCRA-TSD Report*. There are no *RCRA-TSD* facilities listed within a 0.5-mile radius of the subject property.

Resource Conservation and Recovery Act - Large Quantity Generators
Neither the subject property nor the adjacent properties are listed on the *RCRA-LG Report*.

Resource Conservation and Recovery Act - Small Quantity Generators
Neither the subject property nor the adjacent properties are listed on the *RCRA-SG Report*.

Resource Conservation and Recovery Act – Conditionally Exempt Small Quantity Generators
Neither the subject property nor any adjacent property is listed on the *RCRA-CESQG Report.*

Resource Conservation and Recovery Act – Non Generators
Neither the subject property nor any adjacent property is listed on the *RCRA-NonGen Report*.

USEPA - Engineering Controls Site List
The subject property is not listed on the *USEPA Engineering Controls Site* list.

USEPA - Institutional Controls List
The subject property is not listed on the *USEPA Institutional Controls Site* list.

US Brownfields Database
The subject property is not listed in the *US Brownfields Database*. There are two *Brownfields* sites listed within a 0.5-mile radius of the subject property. These sites are located topographically downgradient or are greater than 0.25-mile from the subject property. Given the distance and gradient factors, impact on the subject property from these sites is not likely.

Emergency Response Notification System Report
The subject property is not listed on the *ERNS List*.

State Hazardous Waste Sites
The subject property is not listed as a *SHWS*. There are no *SHWS* sites listed within a one-mile radius of the subject property.

Permitted Solid Waste Landfills, Incinerators, or Transfer Stations
The subject property is not listed on the *New York Solid Waste Landfill List*. There are no sites on the *New York Solid Waste Landfill List* (*NYSWL*) within a 0.5-mile radius of the subject property.

NYSDEC Underground Storage Tank List
The subject property is not listed on the *UST List*. No adjacent properties are listed on the *UST List*.

NYSDEC Leaking Storage Tank List
The subject property is not listed on the *LTANKS List*. A total of 46 *LTANKS List* sites are located within 0.5 mile of the subject property. The majority of these cases were closed by the NYDEC. The remaining sites are either located topographically downgradient or at least 0.25-mile from the subject property. Given the case status, gradient factors, and/or distance of these *LTANKS* sites, adverse environmental impact to the subject property is not anticipated.

NYSDEC Aboveground Storage Tank (AST) List
The subject property and adjacent properties are not listed on the *NYSDEC AST List*.

NYSDEC - Engineering Controls List
The subject property is not listed on the *NYSDEC - Engineering Controls List*.

Voluntary Cleanup Program Sites

The subject property is not listed on the *VCP Sites* list. There are no *VCP* sites listed within a 0.5-mile radius of the subject property.

New York Spills List

The subject property is not listed on the *New York Spills List*.

5.3 Local Regulatory Agency Contacts

EcolSciences reviewed the Yonkers Building Department files for the subject property on November 5, 2009. No information concerning storage tanks, spills, or violations was on file.

6. FINDINGS AND RECOMMENDATIONS

EcolSciences, Inc. has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Standard Practice for Environmental Site Assessments (Designation E 1527-05) for the property located at 66 Buena Vista Avenue in the City of Yonkers, Westchester County, New York. Any exceptions to, or deletions from, this practice are described in Section 7 of this report. Major findings and recommendations of EcolSciences' Phase I Environmental Site Assessment for the subject property are summarized below.

6.1 Findings

The findings of EcolSciences Phase I Environmental Site Assessment are as follows:

- **Site Description** – The subject property is improved with a three-story eight-unit residential building with a basement. The basement contains a boiler/utility room and an apartment unit. The building encompasses the majority of the lot. A small yard is located in back of the building. A concrete sidewalk is located in front and along the south side of the building.

- **Historical Background** – A three-story apartment building has been located onsite since some time prior to 1886.

- **Utilities** – The subject property is connected to the municipal water and sewer systems, and the regional electric grid. An oil-fired boiler is used to heat the building.

- **Storage Tanks** – Review of the New York UST and AST lists indicated that no tanks are registered on the subject property. Heating oil is located in a 275-gallon aboveground heating oil tank located in the basement. According to Mr. Jones, a 550-gallon underground storage tank was filled and abandoned in place in 2006. According to Mr. Jones, the tank is located in the northwestern portion of the rear yard adjacent to the building. No soil samples were collected at that time to document the integrity of the tank.

- **Oil and Hazardous Materials** – Oil and hazardous materials observed onsite during EcolSciences' site inspection included heating oil in an aboveground storage tank and various commercially packaged household cleaning products. No staining or evidence of spills was observed during EcolSciences' site inspection.

- **Asbestos** – Potential asbestos-containing materials observed during EcolSciences' inspection included plaster ceilings and walls, and roofing materials. It should be noted that EcolSciences' Phase I Environmental Assessment is not a detailed asbestos survey; it is possible that asbestos materials may be present within some building areas (e.g. beneath carpet, behind permanent fixtures or walls, material inside equipment, under floors, and in areas hidden from view), which were not apparent and/or accessible to EcolSciences' personnel during the site inspection.

- **Regulatory Assessment** – Based on a review of applicable Federal and State databases, the subject property is not listed on any of the databases searched. No adverse environmental impacts to the subject property are anticipated from the surrounding sites. EcolSciences' review of the Yonkers Building Department files for the subject property revealed no pertinent information.

6.2 Recommendations

EcolSciences has performed a Phase I Environmental Site Assessment in conformance with ASTM Practice E1527-05 for the subject property. Any exceptions or deletions from this practice are described in Section 7 of this report. This assessment has revealed the following recognized environmental condition in connection with the Property:

- **Underground Storage Tank** – Soil samples should be collected adjacent to the abandoned in place underground heating oil tank to assess subsurface conditions or the tank should be removed with post-excavation soil sampling to document the integrity of the tank and subsurface conditions.

6.3 Non-Scope Considerations

EcolSciences makes the following recommendations outside the scope of ASTM Standard Practice E1527-05.

- **Asbestos and Lead-Based Paint** – Potential asbestos and lead-based paint should be repaired and/or replaced as part of a routine maintenance program. Applicable notifications should be provided if future tenants will include sensitive receptors (i.e., children).

7. EXCEPTIONS DELETIONS AND DATA GAPS

7.1 Exceptions and Deletions

There were no exceptions or deletions from the ASTM Practice E1527-05, in the performance of this assessment.

7.2 Data Gaps

During the preparation of this assessment EcolSciences was unable to document the site history to five-year increments. Although this level of historical documentation was not available, it is EcolSciences' professional opinion that this data gap does not qualify a data failure as defined by ASTM Practice E1527-05. EcolSciences believes that the historical information available was sufficient.

8. ENVIRONMENTAL PROFESSIONAL STATEMENT

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR 312.

We have the specific qualifications based on education, training, and experience to assess a property of the nature, history and setting of the subject property. We have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Qualifications of the Environmental Professionals are presented in Attachment E.

9. LIMITATIONS

- Findings of a Phase I Environmental Site Assessment are based on the conditions existing at the site on the date of the inspection. Past conditions were approximated based on available records, interviews, and conversations with others. No soil, water, or air sampling was conducted on the subject property as part of this Phase I Environmental Site Assessment. It is possible that past contamination may remain undiscovered. The recommendations provided in a Phase I Environmental Site Assessment do not guarantee that additional problems will not arise in the future.

- The results of this Phase I Environmental Site Assessment are based on information provided to EcolSciences and on observations made during the site investigation. EcolSciences does not warrant or guarantee the environmental conditions of the property or certify the property as clean.

- This Phase I Environmental Site Assessment is not a regulatory audit and does not address regulatory compliance regarding off-site disposal of waste materials.

- This Phase I Environmental Site Assessment is based on the current regulatory environment and current regulations. Regulatory agency interpretations, future regulatory changes, and/or policy or attitude changes may affect the environmental status of the subject property.

- No wetland delineation, methane gas survey, lead-based paint survey, indoor air quality sampling, or radon sampling was performed as part of this Phase I Environmental Site Assessment.

- This Phase I Environmental Site Assessment is not an engineering or structural report.

- EcolSciences' Phase I Environmental Site Assessment is not a detailed asbestos survey. It is not meant to quantify the amount of asbestos containing materials nor should it be used to estimate the costs of asbestos abatement. It is possible that asbestos-containing materials are present within some areas that were not apparent or accessible to EcolSciences' personnel during the site reconnaissance.

PHASE I ENVIRONMENTAL SITE ASSESSMENT

61 Buena Vista Property
61 Buena Vista Avenue
Yonkers, New York 10701

Prepared for:

TEUTONIA BUENA VISTA, LLC (METRO PARTNERS)

Prepared by:

Tim Miller Associates, Inc.
10 North Street
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Issue Date: October 18, 2010

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT
61 Buena Vista Avenue Property
Yonkers, New York 10701

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1.0 SUMMARY

TIM MILLER ASSOCIATES, Inc. (TMA) completed a Phase I Environmental Site Assessment (ESA) of the 61 Buena Vista Avenue Property (Property) at the request of Teutonia Buena Vista, LLC (Metro Partners), during the month of October 2010. The Property consists of one (1) tax map parcel of land totaling approximately 0.16 acres located on Buena Vista Avenue in the City of Yonkers, New York. The parcel is listed as Tax Map number: Section 1, Block 512, Lot 21. The subject property is shown in Figure 1 – Site Location Map.

This Phase I Environmental Assessment was prepared for Teutonia Buena Vista, LLC (Metro Partners) in accordance with the standard Phase I Environmental Assessment protocol promulgated by the American Society for Testing and Materials (ASTM E-1527-05).

The key elements of this Phase I assessment involved an investigation into the history and physical setting of the Property and adjacent areas including: current and past land uses and activities, disposal practices, available utilities, and a review of available historic and contemporary mapping to determine past or current land uses which may impact the Property. In addition, regulatory agency documents are reviewed to determine spills, petroleum bulk storage, hazardous waste generators, and hazardous waste remediation sites in the vicinity of the Property.

Review of potential subsurface contamination focused primarily upon past and present residential and commercial activities associated with the storage and handling of bulk quantities of chemicals, petroleum products, and waste products. Specifically, the presence of underground or aboveground tanks is investigated, as well as Property and area disposal practices.

The investigation revealed one recognized environmental condition on or near the subject Property that has the potential to affect the subject Property. An underground storage tank (UST) was observed to be present and in use at the site. Further discussion regarding the tank is provided within the report.

2.0 INTRODUCTION

2.1 PURPOSE

The purpose of this investigation was to provide a preliminary evaluation of the potential environmental risks associated with the Property. The investigation was performed in general accordance with ASTM E 1527-05 “Environmental Site Assessments”, in order to provide “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice.”

2.2 SCOPE

TMA performed the following tasks within the scope of this investigation:

1. Reviewed available maps, aerial photographs, and property records to establish the land use history of the Property as well as the environmental and hydrogeological setting of the property.
2. Reviewed information regarding the environmental condition and history of the Property and abutting properties from federal, state, and local sources.

3. Performed a site reconnaissance for observable evidence, indicating the possible use, storage or dumping of hazardous materials or wastes on the Property or adjacent properties.
4. Interviewed Mr. Paul Pavelchak, current Property owner, regarding any environmental issues that he may be aware of regarding the Property.
5. Prepared a Phase I Environmental Site Assessment Report summarizing the findings and conclusions of this investigation.

2.3 SIGNIFICANT ASSUMPTIONS

The conclusions found in this report are based, in part, on studies, data, and background information provided by others. Tim Miller Associates makes no guarantees as to the accuracy or completeness of this information.

In order to determine whether certain environmental conditions may impact the subject Property, TMA makes reasonable assumptions regarding the probable (inferred) groundwater flow direction. These assumptions are based on information provided by standard United States Geologic Survey Topographic maps, other topographic surveys and on-site drainage conditions. These sources do not include groundwater elevations or gradients. In order to determine actual groundwater elevations and flow directions, site specific hydrogeologic testing is required, such as the installation of monitoring wells and groundwater gradient mapping. Such activities are beyond the scope of a Phase 1 ESA performed in accordance with ASTM E 1527-05. Groundwater conditions may also vary due to seasonal changes, precipitation, well influences, and variations in soil and bedrock geology.

2.4 LIMITATIONS & EXCEPTIONS

This report has been prepared for the exclusive use of Teutonia Buena Vista, LLC (Metro Partners) for specific application to the listed Property with the sole purpose of providing a preliminary evaluation of the potential environmental risks associated with the property. No other warranty, expressed or implied, is made as to the professional advice included in this report. This investigation is intended to provide the user with a preliminary evaluation of the Property's environmental conditions.

The scope of services associated with this Phase I Environmental Site Assessment did not include items such as the performance of environmental soil and water sampling and testing, asbestos sampling or testing, wetland delineation, or the investigation of environmental issues regarding radon.

2.5 SPECIAL TERMS & CONDITIONS

Our professional services have been performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable geologists and environmental scientists practicing in this or similar situations.

2.6 USER RELIANCE

Reasonable care has been taken by TMA in checking information arrived at through interviews and any other secondary sources of data. However, TMA disclaims any and all liability for errors, omissions, or inaccuracies in such information and for any consequences arising therefrom or from errors, omissions, or inaccuracies arising from circumstances

connected with the subject project that cannot be ascertained through standard visual reconnaissance techniques.

Any and all liability on the part of TMA shall be limited solely to the cost of this survey report. TMA shall have no liability for any other damages, whether consequential, compensatory, punitive, or special, arising out of, incidental to, or as a result of, this survey and report. Tim Miller Associates assumes no liability for the use of this survey or report by any person or entity other than the individual or institution for whom it has been prepared.

We represent that observations made in this report are accurate to the best of our knowledge, and that no findings or observations concerning the potential presence of hazardous substances have been withheld or amended. The research and inspections have been carried to a level that meets accepted industry and professional standards. Nevertheless, TMA shall have no liability or obligation to any party other than to Teutonia Buena Vista, LLC (Metro Partners) and TMA's obligations and liabilities are limited to fraudulent statements made, or negligent or willful acts or omissions.

3.0 SITE DESCRIPTION

3.1 LOCATION & LEGAL DESCRIPTION

The Property consists of one (1) tax parcel located in Westchester County in the City of Yonkers, New York and is designated as Tax Map Section 1, Block 512, Lot 21. The Property is accessed from Buena Vista Avenue and is approximately 0.16 acres in size, as shown in Figure 2.

The Property is located west of Buena Vista Avenue and was observed to contain a two-story residential structure and garage encompassing most of the property. The property owner is listed in the Town tax records as: Mr. Paul Pavelchak.

3.2 PROPERTY & VICINITY GENERAL CHARACTERISTICS

The current topographic map [YONKERS, NY, 1998 (Scale: 1:24,000)] shows the Property as located in a highly developed area. The site is located east of the Hudson River and the Metro North Railroad Hudson Line. Commercial and residential properties abut the site to the north, south and east. Industrial and vacant properties are also located near the site. The Property is generally level with a slope located on the western portion of the Property, sloping down towards the Metro North Railroad located to the west of the site. A current topographic map is provided in Figure 1.

The Property is adjacent and west of Buena Vista Avenue. The site extends west and abuts the Metro North Railroad, located to the west of the Property. An aerial photograph is provided as Figure 2. According to the City of Yonkers the subject Property is zoned DW “Downtown Waterfront”.

3.3 CURRENT USE OF PROPERTY

The Property is presently used as a residential property with a wood framed, 3-family residence occupying the majority of the site. The site is accessed from the western side of Buena Vista Avenue by a single residential driveway, the driveway is located on the southern side of the residential building. The western portion of the property is used as a garden and abuts the Metro North Railroad Hudson Line. The Property was not identified as a hazardous materials generator or storage site in the environmental regulatory database

review.

3.4 CURRENT USES OF ADJOINING PROPERTIES

The properties adjoining the Property are a primarily residential and commercial. During the site reconnaissance, TMA noted the following adjacent property uses:

- **North:** The Property is bordered to the north by an abandoned former industrial/commercial property now known as the Teutonia Buena Vista site.
- **South:** The Property is bordered to the south by a residence and further to the south by a daycare facility known as Queens Daughters Daycare.
- **East:** The Property is bordered to the east by Buena Vista Avenue and further to the east by residential properties.
- **West:** The Property is bordered to the west by the Metro North Railroad Hudson Line and further to the west are residential buildings and the Hudson River.

The surrounding developments appear consistent with existing zoning.

4.0 CLIENT PROVIDED INFORMATION

4.1 ENVIRONMENTAL LIENS OR ACTIVITY & USE LIMITATIONS

The client did not provide any deed information to assist in the evaluation of possible environmental liens or restrictions on the Property. In addition, no documentation was found during this investigation that any such conditions exist.

4.2 SPECIALIZED KNOWLEDGE

The client did not provide any specialized knowledge about the Property. At this time, there is no reason to believe any relevant information exists.

4.3 VALUATION REDUCTION FOR ENVIRONMENTAL ISSUES

The client did not provide any information regarding any valuation reduction of the Property for environmental reasons.

4.4 REASON FOR PERFORMING PHASE 1 ESA

The investigation was performed in accordance with ASTM E 1527-05 “Environmental Site Assessments”, in order to provide “all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice.”

5.0 RECORDS REVIEW

5.1 TITLE RECORDS

A title search was not requested or performed for this Environmental Assessment. The information listed here was gathered from the City of Yonkers Assessor’s Office. The Property is designated as one (1) parcel with the tax designation: Section 1, Block 512, Lot 21. The current owner is listed as Mr. Paul Pavelchak.

5.2 ENVIRONMENTAL DATABASE REPORT

Environmental Data Resources, Inc. (EDR) conducted a search of available environmental records for the Property and ASTM specified areas surrounding the property. The search met the specific requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-05. The report containing the findings of this search is attached to this report (see Appendix A).

The following types of databases were plotted within the ASTM E 1257-05 search radii:

National Priorities List (NPL) and Proposed NPL Sites

The NPL List, also known as the Superfund List, is a USEPA listing of uncontrolled or abandoned hazardous waste sites. The list is primarily based on a score that the Property receives from the EPA's Hazardous Ranking System. These sites are targeted for possible long-term remedial action under the Superfund Act. *According to the ASTM standard, the minimum search distance is one-mile from the subject property.*

One (1) NPL sites were identified within the 1.0-mile search radius from the Property.

Hudson River PCBs, Hudson River – The Hudson River is located west, northwest of the subject Property, approximately 504 feet. This river is subject to a superfund cleanup in relation to the Polychlorinated Biphenyls (PCBs) that were discharged to the river by General Electric more then 30 years ago. These discharges impacted a 40 miles stretch from Mechanicville, NY to Fort Edward, NY. However, the PCBs site does include a 200 mile stretch of the river from the Village of Hudson Falls to the Battery in New York City. The impacted areas of the river stretched downstream due to sediment laden with PCBs being washed downstream. This site will not impact the subject Property due to the difference in elevation from the site and the fact that the PCBs are located below the sediments of the river and not readily accessible to human contact.

Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)

The CERCLIS list is a compilation of known and suspected uncontrolled or abandoned hazardous waste sites. These sites have been investigated, or are currently under investigation by the EPA, for the release, or threatened release of hazardous substances. Once a site is placed on the CERCLIS report, it may be subjected to several levels of review and evaluation, and ultimately placed on the National Priorities List. *According to the ASTM standard, the minimum search distance is 0.5-mile from the subject property.*

Two (2) No CERCLIS sites were identified within the 0.5-mile search radius from the Property.

Hudson River PCBS, Hudson River – See discussion above under NPL.

Patclin Chemical Co. Inc., 66 Alexander Street – This facility is listed on the CERCLIS list but has not been designated as a National Priorities List site (NPL). It is located approximately 1,647 feet north, northeast of the Property. The Site ID number is 1000990039 and the property representatives are currently requesting

removal from the list. Due to the inactivity at the site and its distance from the subject Property, this site does not present an environmental concern for the site.

NYS Hazardous Waste Disposal Site Registry (SHWS)

State hazardous waste lists are the state's equivalent to CERCLIS described above. This is a state listing of sites that can pose environmental or public health hazards requiring investigation or cleanup. *According to the ASTM standard, the minimum search distance is one-mile from the subject property.*

No NYS Hazardous Waste Disposal sites were identified within the 1.0-mile search radius from the Property.

Emergency Response Notification System (ERNS)

ERNS is a national computer database system that is used to store information on the release of hazardous substances into the environment. The ERNS reporting system contains preliminary information on specific releases, including the spill location, the substance released, and the responsible party. *According to the ASTM standard, the minimum search distance is the subject property.*

The subject Property is not listed on the ERNS reporting system.

NYS Solid Waste Facility/Landfill Sites Register (SWF/LF)

The NYS Solid Waste Facility Register is a comprehensive listing of all permitted solid waste landfills and processing facilities currently operating within New York State. *According to the ASTM standard, the minimum search distance is 0.5-mile from the subject property.*

One (1) NYS Solid Waste Facility was identified within the 0.5-mile search radius from the Property.

Danny's Towing, 98-100 Warburton Avenue – This facility is listed as an active SWF/LF site and is located approximately 2,161 feet northeast of the Property. The Site ID number is S108145800 and the site is used as a vehicle dismantling facility. Due to its distance from the subject Property this site dies not present an environmental impact to the project site.

Resource Conservation and Recovery Information System (RCRIS)
RCRA Hazardous Waste Data Management System

The USEPA's Resource Conservation and Recovery Information System (RCRIS) report of large, small quantity generators and conditionally exempt small quantity generators (LQG, SQG and CESQG); treatment, storage, and disposal (TSD) facilities; and transporters contains information pertaining to those facilities that are required to register their hazardous waste activity under the Resource Conservation and Recovery Act. Such facilities are of concern when they are *not* RCRA-compliant. *According to the ASTM standard, the minimum search distance for transporters, storers and disposal of hazardous wastes is one-mile from the subject property. For generators, the minimum search distance is the property and adjoining properties.*

No RCRA hazardous waste treatment storage disposal facilities (TSD) were identified within the ASTM search radius from the Property. However, one (1) large quantity generator (LQG), three (3) small quantity generators (SQG), and two (2) conditionally exempt small quantity generators (CESQG) and were identified within the ASTM search radius from the Property and are listed below.

Hudson River PCBS, Hudson River – See discussion above under NPL.

Yonkers Pier Development Inc, 71 Water Grant Way – This facility is listed as a SQG and is approximately 298 feet west, southwest of the subject Property. The EPA ID number is NYR000134577 and currently does not have any violations reported.

Sayegh Auto Body, 41 Hudson Street – This facility is listed as a SQG and is approximately 546 feet east, northeast of the subject Property. The EPA ID number is NYR000025346 and currently does not have any violations reported.

Main Street Lofts, LLC., 66 Main Street – This facility is listed as a SQG and is located approximately 664 feet northeast of the subject Property. The EPA ID number is NYR000133116 and currently does not have any violations reported.

Yonkers Public School Facilities, 1 Larkin Center – This facility is listed as a CESQG and is located approximately 946 feet north, northeast of the subject Property. The EPA ID number is NYN008019929 and currently does not have any violations reported.

Philipse Manor Hall State Hist., 29 Warburton Avenue – This facility is listed as a CESQG and is located approximately 1,302 feet northeast of the subject Property. The EPA ID number is NYR000168294 and currently does not have any violations reported.

NYS Registered Storage Tanks

Underground storage tanks (USTs) are regulated under RCRA and must be registered with the state department responsible for administering the UST program. *According to the ASTM standard, the minimum search distance for registered USTs is the subject property and adjoining properties.*

Thirteen (13) locations with NYSDEC registered underground storage tanks (USTs) and nine (9) locations with registered aboveground storage tanks (ASTs) were identified within a 0.25-mile radius from the Property. The locations were reviewed and are not expected to have had an environmental impact to the subject Property. The records show that each of the facilities has been registered and monitored correctly.

New York Chemical Bulk Storage Tanks/New York Major Oil Storage Facilities Database (MOSF)

The New York Chemical Bulk Storage Report contains information pertaining to facilities that store regulated substances in aboveground storage tanks (ASTs) with capacities of 185 gallons or greater, and/or underground storage tanks of any size. The New York Major Oil Storage Facilities Database contains information on facilities that may be onshore or vessels with petroleum storage capacities of 400,000 gallons or greater. *According to the*

ASTM standard, the minimum search distance for bulk storage tanks is 0.25-mile from the subject property.

No Chemical Bulk Storage tanks were listed within 0.25-mile of the subject Property. One (1) Major Oil Storage Facility is located within 0.25-miles of the site.

> A.Tarricone Inc., 91 Alexander Street – This facility is listed as a MOSF and is located approximately 1,758 feet north, northeast of the subject Property. Five (5) storage units are used for fuel oil and diesel fuel. This facility has a capacity of 40,000 gallons daily throughput. One (1) New York State Department of Environmental Conservation (NYSDEC) spill case number was opened. The spill was remediated and closed by the NYSDEC. This site does not present environmental issues of concern for the subject Property due to the distance of this facility to the project site its regulatory status, and given that the spill case on the property is closed.

NY Brownfields Sites

The New York Brownfields list is a list of sites that under the Environmental Restoration Program the State provides grants to reimburse costs for site investigation and remediation activities. Once the site is remediated it can be reused for commercial, industrial, residential, or public uses. *The search distance available within the historic environmental report is 0.5-miles from the subject Property.*

Six (6) NY Brownfields sites and nine (9) US Brownfields sites are listed within a 0.5-mile radius of the subject Property. The site directly north of the subject Property, known as the Former Teutonia Hall property, is currently part of the Brownfields program as site #C360085. As of March 2008 Malcolm Pirnie has submitted a Remedial Investigation Report (RIR) to the NYSDEC. According to John Hilton from Malcolm Pirnie and the EDR report, the NYSDEC and the New York State Department of Health (NYSDOH) have monitored nearby residences for indoor air problems in relation to this Brownfields site. The NYSDEC, NYSDOH, and the current Property owner were contacted to inquire about the results of these 2009 and 2010 indoor air sampling investigations. Mr, Nate Walz of the NYSDOH was contacted, via phone on October 18, 2010, and he stated that indoor air quality was tested for PCE and TCE at the subject Property, TCE and PCE being the main soil vapor compounds on the Former Teutonia Hall property. There were no TCE or PCE compounds detected in the indoor air quality sampling for the subject Property. Soil vapor samples were not collected below the slab of the house. Tim Miller Associates has contacted the current owner to receive a copy of the air quality sampling report that was conducted by the NYSDEC and the NYSDOH.

New York Leaking Storage Tanks /New York Spills List

The New York State Leaking Storage Report is a comprehensive listing of all leaking storage tanks reported to the New York State Department of Environmental Conservation. In New York State, spills are also listed on Leaking Underground Storage Tank list. *According to the ASTM standard, the minimum search distance for leaking underground tanks is 0.5-mile and the minimum search distance for New York State Spills is 0.125-miles.*

Forty-Nine (49) leaking tank locations with associated spill case numbers were reported within a 0.5-mile radius from the Property and five (5) NYSDEC spill cases, which are

reported within a 0.125-mile radius of the Property. The leaking tanks within a 0.25-mile radius are described below, the remaining cases beyond the 0.25-mile radius were reviewed by TMA and did not have the potential to environmentally impact the Property. The five (5) NYSDEC spill cases are all described below in Table 1.

Table 1 – Leaking Tanks and Spill Number List

Address	Spill Number	Distance-Direction/ Elevation	Material Reported to be Spilled	Resource Affected	Date of Release	Cause/ Closure Date
Buena Vista Garage 53 Buena Vista Avenue	9212573	94 feet – North/ Higher	Gasoline	Not Reported	02-04-1993	Unknown/ 04-05-1993
Not Reported 23 Water Grant Street	9507586	244 feet – West/ Lower	Unknown Material	Not Reported	04-01-1995	Unknown/ 10/11/1995
Apartment Building 5 Hawthorne Avenue	9200442	343 feet – Northeast/ Higher	Unknown Material	Sewer	04-11-1992	Deliberate/ 04-15-1992
City of Yonkers 55-57 Hudson Street	0107061	357 feet – Northeast/ Lower	#2 Fuel Oil	Soil	10-08-2001	Tank Failure/ 11-23-2001
Pole #4 44 Hudson Street	9805555	490 feet – East, Northeast/ Lower	Transformer Oil	Not Reported	08-04-1998	Equipment Failure/ 08-04-1998
Metro North Buena Vista Avenue	8701720	505 feet – North/ Lower	Unknown Petroleum	Water Effected – Saw Mill River	06-01-1987	Tank Overfill/ 05-02-1988
	9010500	616 feet – North, Northeast/ Lower	#2 Fuel Oil	Not Reported	12-28-1990	Tank Overfill/ 01-15-1991
Not Reported 86 Main Street	0104928	614 feet – Northeast/ Lower	#2 Fuel Oil	Soil	08-07-2001	Tank Failure/ 01-16-2002
Yonkers City Pier 23 Water Grant Street	8906646	563 feet – North, Northwest/ Lower	Diesel	Not Reported	10-05-1989	Unknown/ 10-16-1989
Post Office 79 Main Street	0308550	659 feet – Northeast/ Lower	#2 Fuel Oil	Not Reported	11-12-2003	Tank Failure/ 11-13-2003
Public School #10 60 Hawthorne Avenue	9500916	797 feet – South, Southeast/ Higher	#2 Fuel Oil	Not Reported	04-22-1995	Tank Test Failure/ 09-22-1995
Dan Bernsteine Co. 47 Main Street	8909519	852 feet – East, Northeast/ Lower	#2 Fuel Oil	Water Effected – Nepperheim Creek	12-27-1989	Tank Failure/ 05-10-2004
Roadway 23 Hudson Street	0410953	868 feet – East/ Lower	Diesel	Not Reported	01-07-2005	Tank Overfill/ 01-22-2005
NYNEX 40 Main Street	8805747	896 feet – East, Northeast/ Lower	#2 Fuel Oil	Not Reported	09-23-1988	Tank Test Failure/ 02-10-1992

Not Reported 16-18 Warburton Avenue	0306607	1,121 feet – East, Northeast/ Lower	#2 Fuel Oil	Soil	09-22-2003	Tank Failure/ 03-23-2004
Yonkers City Hall Bldg. 40 South Broadway	8805915	1,142 feet – East, Southeast/ Higher	#2 Fuel Oil	Not Reported	10-12-1988	Tank Overfill/ 10-12-1988
	8911572		#2 Fuel Oil	Not Reported	03-08-1990	Tank Test Failure/ 02-07-1991
Office Building 30 South Broadway	9610233	1,158 feet – East/ Higher	#4 Fuel Oil	Not Reported	11-15-1996	Tank Test Failure/ 08-07-1997
Service Box 532 53 South Broadway	9200221	1,192 feet – East, Southeast/ Higher	#6 Fuel Oil	Not Reported	04-07-1992	Tank Failure/ 07-13-1992
ATI Terminal Alexander Street	8912251	1,207 feet – Northeast/ Lower	#6 Fuel Oil	Water Effected – Hudson River	03-14-1990	Tank Failure/ 02-14-2006
Commercial Property 20 South Broadway	0512725	1,228 feet – East/ Higher	#4 Fuel Oil	No Impact	02-01-2006	Tank Overfill/ 02-26-2007
National West Minister Bank 20 South Broadway	8802655	1,228 feet – East/ Higher	#2 Fuel Oil	Not Reported	06-23-1988	Tank Test Failure/ 04-15-2005
NYS Office Of Pubic Record 29 Warburton Avenue	0412125	1,302 feet – Northeast/ Lower	#2 Fuel Oil	Not Reported	02-14-2005	Tank Test Failure/ 05-03-2005

The NYSDEC spill case numbers listed above have been closed, indicating that the spill cases no longer have clean-up requirements or regulatory involvement with the NYSDEC. Tim Miller Associates has reviewed the location and circumstances of the leaking tanks and spill cases, as reported in the database. Due to the distance of the reported spill locations from the site, and their closed status it is highly unlikely that the listed spills have environmentally impacted the subject Property.

Unplottable Sites

The regulatory agency database review includes a listing of sites, which cannot be plotted on a map due to limited information on their geographic location. As part of this review, TMA has reviewed this list to determine whether any of these sites represent a potential hazard to the subject Property. Following the review, it is highly unlikely that the listed unplottable sites have impacted the subject Property.

5.3 PHYSICAL SETTING SOURCES

Historic Topographic Maps

Historic and current topographic maps were obtained from Environmental Data Resources Inc. (EDR). Each map that shows the property is summarized as follows, and copies are provided in Appendix B.

1897 The topographic map from 1897, the Harlem Quadrangle Map, shows the Property to be developed and located within an urban/city setting. The local area surrounding the Property appears to be highly developed. The railroad shown as the New York Central and Hudson River, is shown located west of the Property.

1947, 1966 The topographic maps from 1947 and 1966, the Yonkers Quadrangle Map, shows the Property to be developed in an urban area, much like the previous map. However, more development has occurred north of the Site and further east of the Site.

1979, 1998 The topographic maps from 1979 and 1998, the Yonkers Quadrangle Map, shows the Property in the same condition as the previous map. This map resembles the previous 1947 and 1966 maps except there is further development shown to the west of the Property.

Historic Aerial Photographs

Historic aerial photographs were available for the property from EDR. Each photograph is summarized as follows, and copies are provided in Appendix C. Historic aerial photographs are available from 1954, 1962, 1966, 1974, 1976, 1984, 1989, 1992, 1994, and 2006. The photographs for years 1976, 1984, and 1992 were not legible. The remaining photographs were reviewed and showed that the site has been occupied by the same or similar building that currently occupies it today. The area surround the subject Property has remained similar to the current conditions as well. However, the property to the west has changed in uses and buildings. From 1954 to 1989 the property to the west of the Site was empty with only two buildings located on the north portion of the site and the southern portion of the site. As of 1994, the previous buildings were no longer present. As of 2006, new buildings were constructed and are a mix of commercial and residential uses.

Sanborn Maps

Sanborn Maps were available for the subject Property. A copy of this report is provided in Appendix D. Sanborn Maps were available for the Property for 1886, 1898, 1917, 1942, 1951, 1956, 1957, 1971, 1973, 1978, 1989, 1991, and 2004. The site is depicted on each of these Sanborn maps as having a dwelling located on the Property, similar to or the same as is currently. No owner was listed on the Sanborn Maps for the subject Property.

Local Setting

The Property contains generally level topography with a slope located in the western portion of the Property, which leads down to the Metro North Railroad Hudson Line. The site contains a two-story residential structure on the Property, with three (3) apartments.

Regional bedrock geology in the area that includes the Property is identified as Fordham Gneiss as shown on the Geologic Map of New York, Lower Hudson Sheet, Fisher, 1970.

Regional surficial geology on the Property is identified on the State Surficial Geology map as glacially deposited till material of variable texture (e.g. clay, silt-clay, boulder-clay) (Surficial Geologic Map of New York, Lower Hudson Sheet, Cadwell, 1989).

6.0 SITE RECONNAISSANCE

The subject Property and environs were inspected on October 8, 2010, by Jon Dahlgren of TMA. The purpose of the site visit was to review the physical use and appearance of the Property and neighboring properties as well as activities on the adjacent to the Property. Photos taken during the site visit are contained in Appendix E.

The Property currently contains a two-story wood framed residence and a separate concrete block garage. The property is mostly paved or covered by structures. An asphalt driveway along the south side of the lot provide access to the garage and concrete sidewalks are provided at the south, east and north sides of the residence. A small yard is located at the rear or west side of the residence. A garden is located on the slope between the garage and the western property line, which borders the metro north tracks.

According to the property owner, the residence contains three apartments and a common basement area which is only used for storage and utility access. The basement area was inspected for this Phase 1 assessment. The furnace for the building, and a hot water heater was observed in the basement. Fuel oil lines which feed the furnace were observed entering the basement wall. According to the property owner, the furnace utilizes fuel oil from a 550 gallon underground tank that is located at the north side of the residence, below the sidewalk. A fill port and vent pipe were observed in the sidewalk. The residence also uses natural gas piped from Buena Vista Avenue, for cooking stoves. No storage of hazardous materials or waste was observed on the property.

Utilities

Public utilities are available to the subject Property including electric, gas and telephone along Buena Vista Avenue. Currently, water and sewer utilities have an easement through the site.

Petroleum/Chemical Bulk Storage

The NYSDEC tank registry indicates that no petroleum or chemical bulk storage tanks are located on the Property or adjoining the Property (see Section 5.0 Environmental Records Review).

Based upon an inspection of the property and an interview with the owner, a 550 gallon fuel oil tank is located at the north side of the residence, under the sidewalk between the residence and the northern property line. According to Mr. Pavelchak, the tank has been in use since prior to 1956, as long as he has lived in the house.

Septic Systems, Leach Beds, or Other Subsurface Structures

No septic systems, leach beds or other subsurface structures were observed on the Property.

Drums or Containers

No drums are containers were observed on the Property during the site visit.

Waste Disposal Practices

Since the subject site is residential, only residential waste is generated. That waste is collected by the City of Yonkers.

Polychlorinated Biphenyl (PCB) Survey

The inspector conducted a visual survey for the presence of PCB's or PCB-containing equipment, e.g., transformers, capacitors, and hydraulic equipment. PCBs were widely used in such equipment until 1979 when U.S. EPA banned such use. Many utilities have since acted to replace PCB containing transformers and capacitors with other substances.

No suspect PCBs or PCB-containing equipment was observed during the site walk-through.

Surface Water, Impoundments, and Other Land Uses

No evidence of surface water or ponds were present on the site.

Dumping

No evidence of organized illicit dumping was observed on the Property during the site visit.

7.0 INTERVIEWS

7.1 PROPERTY OWNER

Mr. Paul Pavelchak is listed as the current owner of the Property and he was interviewed for this Phase 1 assessment. Mr. Pavelchak provided information regarding the underground fuel oil storage tank, but otherwise was not aware of any other environmental issues of concern regarding the project site.

Mr. Pavelchak was contacted at a later date regarding the letter report related to the air quality sampling conducted by NYSDOH and the NYSDEC. Mr. Pavelchak has not yet responded at the time of this writing.

7.2 GOVERNMENT OFFICIALS

The records review was conducted at the City of Yonkers Tax Assessors Office and Building Department. These records provided no indication of environmental concerns associated with the Property. During the review of the EDR report it was found that air quality testing was conducted on the subject Property in connection with the Former Teutonia Hall property. The Former Teutonia Hall Brownfields site is located directly north of the subject Property. The NYSDEC and the NYSDOH, as well as the current Property owner, were contacted. Information regarding the air quality sampling was acquired during a phone conversation with Mr. Nate Walz of the NYSDOH and is summarized above in Section 5.0.

8.0 FINDINGS

This Environmental Site Assessment (ESA) involved a multi-task investigation to establish current and historic environmental conditions on the Property. The specific findings of this Environmental Site Assessment are, as follows:

1. The subject Property reviewed for this assessment consists of one (1) tax parcel, consisting of approximately 0.16 acres. The Property is listed as Tax Map number Section 1, Block 512, Lot 21. The Property can be accessed by Buena Vista Avenue in the City of Yonkers, New York.

2. The subject site is currently occupied by a residential building that contains 3 apartments. The topography on the Property is generally flat with a steep slope occupying the western property boundary. This slope, borders the Metro North Railroad Hudson Line property.

3. According to City Assessor's records Mr. Paul Pavelchak is the current owner of the Property.

4. The subject Property and environs were inspected on October 8, 2010, by Jon Dahlgren of TMA. The purpose of the site visit was to review the physical use and appearance of the Property and neighboring properties as well as activities on and adjacent to the Property. The Property currently contains a two-story wood framed residence with three apartments and a common basement. The site is nearly completely covered with impervious surface, including buildings and pavement, with the exception of a small yard and garden area located on the west side of the residence.

5. The subject Property contains one (1) 550 gallon underground storage tank, which is used to store fuel oil to heat the building onsite.

6. No evidence of organized illicit dumping was observed on the Property during the site visit.

7. A search of regulatory agency databases was performed as part of this environmental review. The subject Property is not listed on the National Priorities List or the Emergency Response Notification System. The Property does not appear to be subject to any current regulatory enforcement actions by Federal, State, or local regulatory agency.

8. No sites that store, transport or dispose of hazardous waste materials were identified on the subject Property or adjoining properties. However, a Brownfields site is located directly adjacent and north of the subject Property.

   Forty-nine (49) leaking tanks with associated NYS spill case numbers as well as five (5) NYS Spill number are located within the ASTM search radius of the Property and are described in Section 5.2. The listed spill locations are not expected to have had an environmental impact on the subject Property due their distance from the site and the closed status of the majority of locations.

9.0 OPINIONS

A recognized environmental condition was identified on the subject Property during this Phase 1 assessment that has the potential to impact the Property. The fuel oil UST has not been tested for tightness, and therefore the tank has the potential to impact the subsurface with fuel oil.

10.0 CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-05 for the Property identified as Tax Map number Section 1 Block 512, Lot 21 in the City of Yonkers New York. Any exceptions to, or

deletions from, this practice are described in Section 12.0 of this report. This assessment has revealed that there is an untested fuel oil UST on the subject Property.

11.0 RECOMMENDATIONS

Based on the findings of this Phase 1 ESA, TMA recommends that the fuel oil UST be tested for tightness.

12.0 DEVIATIONS & ADDITIONAL SERVICES

There were no deviations from ASTM E 1527-05 included in this report, and no additional services were provided for this Phase I Assessment.

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Figure 1 - Site Location Map

61 Buena Vista Avenue Property
City of Yonkers, Westchester County, New York
Source: Terrain Navigator

File 09044 Fig - JD File 10/18/2010

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File 09044 Fig 2 - JD 10/18/2010

Figure 2 - Aerial Photograph
61 Buena Vista Avenue
City of Yonkers, Westchester County, New York
Source: NYS Clearinghouse

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