HILLMANN
ENVIRONMENTAL
GROUP, LLC

LIMITED PHASE II INVESTIGATION

144-148 Barrow Street
150 Barrow Street
New York, New York 10014

Project No. N6-1649

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Prepared for:

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Executive Summary

As requested, Hillmann Environmental Group, LLC (Hillmann) conducted a limited Phase II subsurface investigation for 144-148 and 150 Barrow Street, in Manhattan, New York.

The Phase II soil investigation was conducted to evaluate the potential environmental impact to the site from former underground storage tanks (USTs). The investigation included the collection of soil samples from borings cored through the concrete basement floor slab at three separate locations. The samples were collected on December 5, 2007 utilizing a Geoprobe® drill rig. To determine the overall extent and magnitude of potential contamination results from the former site use, the New York State Department of Environmental Conservation (NYSDEC) selected the general sample types and locations. All soil and groundwater samples were analyzed at an accredited laboratory for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and lead. All analytical sample results were compared to New York state standards.

1.0 Introduction

As requested, Hillmann Environmental Group, LLC (Hillmann) conducted a limited Phase II subsurface investigation for 144-148 and 150 Barrow Street, in Manhattan, New York. The investigation was conducted in response to a New York State Department of Environmental Conservation (NYSDEC) directive dated September 24, 2007 for additional subsurface work. The purpose of the investigation was to determine if the former operations on the site had caused an impact to the environment. Details of the site, activities and findings are provided in the following sections.

2.0 Site Description and Background

The site is located at the corner of Barrow Street and the West Side Highway. 150 Barrow Street is occupied by a six story hotel building, and 144-148 Barrow Street is occupied by a single story garage building. The entire property was utilized as a coal yard in the late nineteenth and early twentieth centuries. Also, the property has reportedly been the location of the Keller Hotel, residential apartments and an auto repair shop. The surrounding area is comprised of mixed commercial, retail, and residential facilities. The facility was most recently utilized for residential apartments.

Hillmann previously conducted a limited Phase II investigation on the property, and prepared a report based on the findings dated January 2007. The investigation included the sampling and analysis of soil and groundwater from the garage bays and hotel basement. This report was submitted to the NYSDEC, which requested additional subsurface work to further delineate the potential subsurface contamination identified.

3.0 Areas of Concern

The following areas of concern were identified in the NYSDEC directive, which were addressed in the limited Phase II subsurface investigation. All boring locations referred to below are from Hillmann's previous Phase II report dated January 2007.

1. Additional groundwater delineation within the garage in the vicinity of BAR1-GW (location from Hillmann's previous Phase II report).

2. Additional soil borings in the western quarter of the basement, southeastern quarter of the basement and southeast of boring B-4.

4.0 Initial Scope of Work

Hillmann will employ direct push boring equipment (a.k.a Geoprobe®) to advance subsurface borings in selected areas around the subject property. The Geoprobe® unit consists of a vehicle mounted hydraulic ram that forces four foot long barrel shaped probes into the ground with a pneumatic hammer. The probes will collect continuous four foot sections of earth in an acetate liner to examine for contamination and extract a soil sample for laboratory analysis. As approved by the NYSDEC, Hillmann will advance three borings into the local water table to facilitate groundwater sample collection. Groundwater samples will be collected via one (1) inch PVC temporary wells. The borings will be advanced in the vicinity of BAR1-GW to collect three groundwater samples. All samples will be analyzed at an accredited laboratory for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and lead and compared to applicable New York state regulatory limits for groundwater, as listed in the Technical Administrative Guidance Memorandum (TAGM).

Hillmann will advance three borings through the concrete slab within the basement of the hotel building utilizing hand operated electric core drilling equipment. After the slab has been cored through, a soil sample will be collected utilizing a hand auger. One soil sample will be collected from each boring for a total of three samples. All samples will be analyzed at an accredited laboratory for VOCs, SVOCs and lead, and compared to New York state regulatory limits for soil, as listed in the TAGM.

5.0 Summary of Field Activities

On December 5, 2007, a total of three (3) borings were completed utilizing Geoprobe® equipment in the east garage bay. Boring B1 was advanced in the center east of the garage; boring B2 was advanced in the south of the garage, and boring B3 was advanced in the center west of the garage. These boring locations were previously approved by the NYSDEC. Each of the three borings were advanced to the depth of groundwater. A PVC temporary well was installed at twenty (20) feet below ground surface (bgs) in each well. Groundwater samples were collected from each temporary well and analyzed at an accredited laboratory for VOCs, SVOCs and lead.

On December 5, 2007, a total of three (3) borings were completed through the concrete slab within the basement of the hotel building utilizing hand operated concrete coring equipment. As requested by the NYSDEC, boring C1 was advanced in the southeast vicinity of the basement; boring C2 was advanced in the northeast vicinity of the basement, and boring C3 was advanced in the northern vicinity of the basement. Hillmann utilized a hand auger to collect one soil sample from each boring. All soil samples were analyzed at an accredited laboratory for VOCs, SVOCs and lead.

6.0 Applicable Standard

Individual compounds detected were compared to the soil or groundwater criteria listed in the NYSDEC Technical and Administrative Guidance Memorandum (TAGM).The applicable standards are listed under the column titled "Standard."

7.0 Analytical Results

Table 1. Barrow Street Groundwater Sample Results

	B1	B2	B3	TAGM Standard
Benzene	ND	**194**	**23.2**	0.7
Toluene	**40.5**	**6790**	**6.9**	5
Ethylbenzene	**553**	**2180**	**22.7**	5
Total Xylenes	**2670**	**11,000**	**38.7**	5
Naphthalene	**67.5**	**79.2**	0.837	10
2-Methylnapthalene	24.7	22.7	ND	50
Acenaphthene	0.284	1.2	ND	20
Fluorene	0.596	0.57	ND	50
Phenanthrene	0.568	2.26	ND	50
Anthracene	0.162	0.345	ND	50
Carbazole	ND	0.963	ND	NA
Fluoranthene	0.378	0.764	ND	50
Pyrene	0.3654	0.629	ND	50
Benzo(a)anthracene	**0.24 J**	**0.198**	ND	0.002
Chrysene	**0.116 J**	ND	ND	0.002
Lead	94.9 J	109 J	0.837	NA

All groundwater results in parts per billion (ug/L)
ND = No detection
NA = Not applicable

Table 2. Barrow Street Soil Sample Results

	C1	C2	C3	TAGM Standard
Naphthalene	ND	2.73	0.206 J	13
2-Methylnaphthalene	ND	1.46	ND	36.4
Acenaphthylene	ND	0.223 J	ND	41
Acenaphthene	ND	1.85	ND	50
Dibenzofuran	ND	1.26	ND	6.2
Fluorene	ND	1.35	ND	50
Phenanthrene	ND	10.6	0.149 J	50
Anthracene	ND	3.73	ND	50
Carbazole	ND	0.721	ND	NA
Fluoranthene	ND	10.7	ND	50
Pyrene	ND	11.4	ND	50
Benzo(a)anthracene	ND	**8.13**	ND	0.224
Chrysene	ND	**7.95**	ND	0.4
Benzo(b)fluoranthene	ND	**5.49**	ND	1.1
Benzo(k)fluoranthene	ND	**4.41**	ND	1.1
Benzo(a)pyrene	ND	**8.57**	ND	0.061
Indeno(1,2,3-cd)pyrene	ND	**4.18**	ND	3.2
Dibenz(a,h)anthracene	ND	**3.54**	ND	0.014
Benzo(g,h,i)perylene	ND	6.43	ND	50
Lead	111	153	105	NA

All results in mg/kg (ppm)
ND = No Detection
NA = Not Available
SB = Background levels for lead vary widely. Average levels in undeveloped, rural areas may range from 4-61 ppm. Average background levels in metropolitan or suburban areas or near highways are much higher and typically range from 200-500 ppm.

7.1 Summary of Analytical Results

Groundwater samples B1, B2 and B3 were collected from the east garage bay. In each sample, several compounds were detected in concentrations above the New York State regulatory limits as listed in TAGM.

Samples C1, C2 and C3 were collected from the hotel basement. Several compounds in Sample C2 were detected in concentrations above the New York state regulatory limits, as listed in TAGM for sample C2. The concentrations of all compounds analyzed for in samples C1 and C3 were either below the New York state regulatory limits or not detected.

8.0 Evaluation of Environmental Impact

The laboratory results for groundwater collected in the east garage bay indicate the presence of contamination that may have resulted from the former gasoline USTs associated with the property.

Due to the presence of building basements, foundations and other subsurface obstacles, groundwater movement beneath the subject property is limited. The analytical results indicate that the contamination identified may be limited to the section underneath the east garage bay. (See Laboratory Results for complete details.)

The laboratory results for soil collected from the basement indicate the presence of contamination in the vicinity of C2, in the north area of the basement near the stairs. The types of compounds detected indicate the contamination is most likely a result of historic fill. Compounds were below standards or not detected in samples collected from C1 and C3.

8.1 Contaminant Delineation

The fill materials encountered below the hotel basement and garage slab at every boring location consisted of brick fragments and coal ash. This would indicate that historic fill might underlie the entire footprint of the structure. As with most areas in New York City, the historic fill typically contains levels of heavy metals and polycyclic aromatic hydrocarbons (PAHs) above current NYCDEC regulatory limits for reuse. This would require all surplus soils generated through a reconstruction process to be characterized and disposed of properly at a licensed transfer station or recycling facility, and not reused off site as clean fill.

Groundwater sampled in the each of the three borings in the east garage bay contains elevated levels of benzene, toluene, ethylbenzene and xylene (BTEX), which are constituents of gasoline.

8.2 Local Usage of Groundwater

Local groundwater is not used for potable purposes. Therefore, any contamination potentially originating from the subject property will not affect the local drinking water supply.

8.3 Evaluation of Ecological Receptors

The only ecological receptor in the vicinity of the subject property is the Hudson River, which is located 400 feet to the west. It is not anticipated that the levels of contamination identified within this site could impact the Hudson River.

8.4 Impact to Utility Conduits

The nearest major utility conduits run along Barrow Street and the West Side Highway. These include the sanitary and storm sewer lines, and utility lines for gas, telephone and electricity. It is not anticipated that the levels of contamination identified within this site could significantly impact the adjacent utilities

9.0 Conclusions

To assess the potential impact of the former USTs located on site, Hillmann has completed a limited phase II investigation at 144-148 and 150 Barrow Street. The scope of work was specified by the NYSDEC and included the advancement of subsurface borings utilizing a Geoprobe® in the east garage bay, and the advancement of subsurface borings utilizing a core drill throughout the basement area. Three groundwater samples were collected from the garage (one from each boring) via temporary well. Three soil samples were collected from the basement (one from each boring). All groundwater and soil samples were analyzed at an accredited laboratory for VOCs, SVOCs and lead. The following has been concluded from this investigation:

1. The results of the investigation have identified the presence of contamination which could be attributed to past site usage. The environmental concerns identified through laboratory and field observations are as follows:

- The presence of historic fill beneath the basement floor in the northeast area near the stairs.

- The existence of petroleum contamination in groundwater located beneath the east garage bay.

2. Area reconnaissance determined an ecologically sensitive receptor in the area of the subject property. The subject property is located in a mixed commercial, retail, and residential area of Manhattan. Groundwater is not used for potable purposes in the area of the site. The Hudson River is in the vicinity of the property. The petroleum contamination has impacted the local environment, due to the subsurface conditions present at and around the subject property, but does not currently threaten the public health.

10.0 Certification of Responsible Party

As owner/agent of 144-148 and 150 Barrow Street, Manhattan, New York, I have read this report and acknowledge its content. I hereby confirm that the content is true to the best of my knowledge.

Signature: Date:

Name:

Title:

Organization: