SUBSURFACE INVESTIGATION REPORT

KARTA CORPORATION
1013-1017 LOWER SOUTH STREET
PEEKSKILL, NEW YORK

PREPARED FOR:

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1.0 INTRODUCTION

HydroEnvironmental Solutions, Inc. (HES), on behalf of the City of Peekskill, has performed a Subsurface Investigation (SI) of the Karta Corporation property located at 1013-1017 Lower South Street in Peekskill, New York. This SI was prepared in conformance with HES' September 9, 2010 work scope and New York State Department of Environmental Conservation (NYSDEC) guidelines and regulations. HES conducted a site visit of the property on September 13, 2010 and all SI fieldwork was conducted by HES in late September and early October 2010.

To evaluate the property, HES recommended that subsurface investigation work be conducted at the site. HES prepared a detailed work scope to conduct the SI and provided it to the City of Peekskill for review and approval. The following field activities were completed:

- Drilling and installation of four 1-inch temporary groundwater monitor wells at selected locations;
- Collection of soil samples during drilling from thirteen Geoprobe borings for logging and field screening using a photo-ionization detector and the headspace method;
- Submittal of soil samples from thirty-nine locations across the site for a variety of inorganic and organic analyses;
- Collection of groundwater samples from the four temporary monitor wells and surface water samples from an indoor pit, a zipper drain and ponding water at the site;
- Preparation of this report.

The site consists of two adjacent parcels designated Parcel B and C located on Lower South Street; to the west of NY Route 9 and south of Travis Lane. The property is situated in an industrial zone in the southwestern portion of Peekskill, New York. A Site Location Map is presented as **Figure 1**.

2.0 PURPOSE

The purpose of this SI was to identify, via subsurface investigation techniques, any soil or groundwater contamination that exists beneath the site from historical uses of the property. This report was prepared to detail the work conducted during this phase of work, evaluate findings, provide conclusions and recommendations for future work at the site, if necessary.

3.0 BACKGROUND

3.1 Physical Setting and Geology

The site is located on the U.S. Geological Survey (USGS) 7.5 Minute Topographic Map Series Peekskill, New York Map with an elevation between 35 and 70 feet above sea level on Parcels B and C. As viewed from NY Route 9, the site is moderately sloped with most drainage flowing to the west towards the Hudson River (see **Figure 1**).

According to the Surficial Geologic Map of New York, Lower Hudson Street (Cadwell et. al., 1989), the surface geology beneath the site consists of till overlying bedrock. The following description is provided: variable texture (e.g. clay, silt-clay, boulder clay), usually poorly sorted diamict, deposition beneath glacier ice, relatively impermeable (loamy matrix), variable clast content – ranging from abundant well-rounded diverse lithologies in valley tills to relatively angular, more limited lithologies in upland tills, tends to be sandy in areas underlain by gneiss or sandstone, potential land instability on steep slopes, thickness variable (1-50 meters).

According to the Geologic Map of New York, Lower Hudson Sheet (Fisher, Donald W. et. al., 1970), the bedrock geology beneath the site is classified as Upper Ordovician Cortland and Smaller Mafic Complexes consisting of hornblende norite, in which the hornblende is poikilitic.

4.0 FIELD ACTIVITIES

4.1 Work Plan

Based on the Professional Services Proposal provided by the City to HES on August 31, 2010, the following subsurface investigation plan was executed. The objective of the plan was to determine, to the extent feasible, if subsurface contamination is present. The plan was developed with a focus on the definition of the extent and magnitude of the contamination (if any) including a determination of where the mass of contamination is present (i.e. where on-site and which phase – adsorbed, vadose, and/or dissolved phase).

Considering the fact that, to our knowledge, no test borings or monitor wells have ever been installed on this property, the following activities were completed:

- Geophysical survey to locate any buried anomalies and underground utilities.
- Excavation of test pits at identified anomaly locations designated during the geophysical survey.
- Installation of soil borings and temporary monitor wells (where possible) across

the site to determine impacts to soil and groundwater in the subsurface.

- Collection of soil, groundwater and surface water samples for laboratory analysis. Laboratory analyses conducted on the samples were specified based on the recognized environmental conditions and included the following methods: EPA Method 8260 for volatile organic compounds (VOCs), EPA Method 8270 for semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs) and Total RCRA Metals.

- Collection of field and trip blank samples to accompany the soil and groundwater samples to the laboratory as a Quality Assurance/Quality Control (QA/QC) check. The field and trip blank samples were analyzed for VOCs by EPA Method 8260.

4.2 Geophysical Survey

On September 17, 2010 Master Locators of Boothwyn, Pennsylvania mobilized on the site to conduct a geophysical survey. The objective of the survey was to locate any anomalies (underground storage tanks, drums, etc...) on the property as well as buried utilities prior to the scheduled subsurface investigation drilling. The technician used both ground penetrating radar (GPR) and a magnetometer to scan the ground in a grid-like manner to cover the indoor and outdoor surfaces on Parcels B and C. White paint was used to locate areas where an anomaly was located and would require further investigation. Paint was also used to locate buried utilities across the site. As required by New York State Code Rule 753, the Dig Safely New York service was notified of HES' intent to excavate and drill test borings at the site; therefore, several utilities were marked by this service along the street. However, they are prohibited from marking private property. This fieldwork was completed in one day.

4.3 Test Pit Excavation

On September 24, 2010, two track excavators operated by Dutchess Environmental Construction (Dutchess) of Mahopac, New York mobilized to the site to excavate seven anomalies identified during the geophysical survey. Three anomalies were identified on Parcel B in the vicinity of the lower repair garage/office and four anomalies were identified on Parcel C in the vicinity of Building 3. The test pit locations were designated TP-1 through TP-7 and are located on **Figure 2**. One excavator was equipped with a hydraulic hammer and the other excavator was equipped with a bucket for excavating. The equipment worked simultaneously to excavate through thick reinforced concrete (6-12 inches) at the above referenced anomaly locations. This fieldwork was completed in one day. The field observations made during test pit excavation activities are included on **Table 1**.

4.4 Borehole Pre-clearing

Upon completion of the geophysical survey, underground utility locating and test pit excavation, HES prepared to install an array of test borings across Parcels B and C, both indoors and out. However, according to the results of the geophysical survey, the reinforced concrete located indoors in Buildings 3 and 6 was up to 11-inches in thickness. Therefore, on September 27, 2010, one truck-mounted air-rotary drill rig operated by Aquifer Drilling & Testing, Inc. (ADT) of Troy, New York was mobilized to the site. The purpose of using this drilling method was to pre-clear boreholes through the thick concrete floors for the scheduled drilling of soil borings and collection of soil samples. This work was completed in one field day.

4.5 Test Borings

On September 28, 29 and October 4, 2010, HES installed a total of thirty-nine test borings (GB-1 through GB-39) on Parcels B and C. The borings were installed using the direct-push drilling method and a Geoprobe® 54DT track mounted drill rig. Each boring was drilled using a 2.125-inch diameter steel macro-core sampler. A 4-foot sampler was advanced; using a hydraulic hammer to collect continuous undisturbed sediment samples. Drilling using this technique continued at each location until the hole penetrated into the inferred depth that groundwater was encountered to the top of presumed bedrock or refusal after three attempts, whichever came first.

An HES geologist/hydrogeologist was on-site throughout the drilling activities to descriptively log the sediments encountered and to record other pertinent information about the borings, including the presence or absence of VOC or SVOC odors and the inferred depth to groundwater. Copies of the completed Geologic Logs, including the results of the PID screening, are included as **Appendix 1**. **Figure 3** shows the location of each of the boring/monitor wells and sampling locations at the site.

4.6 Chemical Testing Plan

The City's chemical testing plan called for the collection of up to forty soil samples, up to 20 groundwater/surface water samples and up to 10 blank samples for laboratory analysis. All soil samples were specified to be collected at the water table interface or from the interval that contained the highest PID assay or from the bottom of the boring. The sampling location selection was left to the HES geologist/hydrogeologist overseeing the drilling. Groundwater and surface water samples were specified to be collected from all newly installed monitor wells and surface water locations in accordance with New York State Department of Environmental Conservation (NYSDEC) protocols and industry accepted methods. All groundwater, surface water and soil samples collected from the site were specified to be submitted for various analyses in accordance with the analytical matrix presented below:

Sample ID	EPA 8260	EPA 8270	PCBs	Total RCRA Metals
TP-1 (6 - 7.5 ftbg)	S	S	NA	NA
TP-2 (4 - 6 ftbg)	S	S	NA	NA
TP-3 (1 - 2 ftbg)	S	S	NA	NA
TP-4 (7.5 - 8 ftbg)	S	S	NA	NA
TP-6 (6 ftbg)	NA	NA	NA	S
TP-7 (6 - 8 ftbg)	S	S	NA	NA
GB-1 (4 - 8 ftbg)	S	S	NA	NA
GB-4 (4 - 8 ftbg)	NA	NA	NA	S
GB-6 (0 - 4 ftbg)	S	S	NA	NA
GB-8 (4 - 8 ftbg)	S	S	NA	S
GB-10 (4 - 8 ftbg)	S	S	NA	NA
GB-11 (4 - 8 ftbg)	S	S	NA	NA
GB-12 (4 - 8 ftbg)	NA	NA	NA	S
GB-14 (4 - 8 ftbg)	S	S	NA	NA
GB-16 (2 - 6 ftbg)	S	S	S	S
GB-19 (0 - 4 ftbg)	S	S	NA	NA
GB-20 (2 - 4 ftbg)	S & GW	S & GW	NA	NA
GB-24 (0 - 4 ftbg)	S	S	NA	NA
GB-26 (0 - 4 ftbg)	S	S	NA	NA
GB-28 (8 - 11 ftbg)	S	S	NA	NA
GB-29 (8 - 11 ftbg)	S	S	NA	S
GB-30 (8 - 12 ftbg)	S & GW	S & GW	NA	S
GB-31 (5 - 7 ftbg)	S	S	NA	NA
GB-32 (2 - 4 ftbg)	S	S	NA	S
GB-33 (4 - 6 ftbg)	S	S	NA	NA
GB-34 (3 - 4 ftbg)	S	S	NA	S
GB-35 (6.5 ftbg)	S	S	NA	NA
GB-36 (2.5 ftbg)	S	S	NA	NA
GB-37 (6 - 7 ftbg)	S	S	S	S
GB-38 (2 - 3.5 ftbg)	S	S	NA	NA
GB-39 (7 ftbg)	S	S	NA	NA
Standing Water	SW	SW	NA	NA
Zipper Drain	SW	SW	NA	NA
Pit Water	SW	SW	NA	NA
Field Blank (09/28/10)	W	NA	NA	NA
Field Blank (09/29/10)	W	NA	NA	NA

Sample ID	EPA 8260	EPA 8270	PCBs	Total RCRA Metals
Field Blank (10/01/10)	W	NA	NA	NA
Field Blank (10/04/10)	W	NA	NA	NA
Trip Blank (09/28/10)	W	NA	NA	NA
Trip Blank (10/04/10)	W	NA	NA	NA

Notes: GB = Geoprobe Boring S=Soil/Sediment SW = Surface Water NA=Not analyzed GW=Groundwater ftbg=feet below grade W = Deionized Water

4.7 Monitoring Well Installations

At locations designated GB-20, GB-23, GB-24 and GB-30, a temporary monitor well was installed in the borehole due to the presence of groundwater. The wells were constructed of 1-inch schedule 40 PVC using 20-slot well screen. The well screen was installed straddling the inferred depth to groundwater noted during drilling activities. The monitor wells were set as temporary wells for immediate groundwater sampling purposes. Copies of the completed Geologic Logs which include well construction details are included as **Appendix 1**.

Fine particulates introduced into the formation during drilling and/or well installations were removed by developing the new wells. All new wells were developed using dedicated disposable polyethylene bailers. This was performed to hydraulically connect the aquifer and the well, allowing for more accurate determination of *in situ* conditions. Development water was discharged onto the ground surface.

4.8 Surface Water Sampling

HES collected three surface water (standing) samples from three locations located on Parcel B. One sample was collected from standing water ponding in the lower portion of Building 6 and designated *Standing Water*. A second water sample was collected from the lagoon located inside Building 6 and designated *Pit Water*. The third water sample was collected from the drain located in the driveway of the lower repair garage located near the office and designated *Zipper Drain*. The grab samples were placed in appropriately labeled glassware using a dedicated polyethylene bailer.

4.9 Sampling, Chemical Analyses and Methods

4.9.1 Soil Sampling

During drilling activities, soil samples from the water table interface or from the interval that contained the highest PID assay or the bottom of the boring were collected for laboratory analysis at each test boring location. The on-site HES geologist/hydrogeologist placed only the selected samples in appropriate glassware. Samples were sent to Northeast Analytical, Inc. (NEA); a New York State certified laboratory located in Schenectady, New York. Collected samples were relinquished by HES to the laboratory on ice on October 6, 2010. Analyses were selected for the soil samples by HES based on the work plan, field observations and location. These analyses included EPA Method 8260 for VOCs, EPA Method 8270 for SVOCs, Polychlorinated Biphenyls (PCBs) by EPA Method SW 8082 and Total RCRA Metals by EPA Method 6010 (EPA Method SW 7471 for Mercury), as outlined above.

4.9.2 Groundwater and Surface Water

On September 29 and October 1, 2010 HES was on-site to collect groundwater samples from the four monitor wells located at the GB-20, GB-23, GB-24 and GB-30 as well as the surface water samples. Prior to the collection of groundwater samples, each monitoring well was developed by purging and bailing approximately three well volumes from the well in order to remove sediment and ensure groundwater movement into the well. Following gauging and purging activities, the groundwater samples were collected in appropriate glassware. Surface water samples were collected as grab samples from standing surface water. All aqueous samples were submitted to NEA for analysis in accordance with the chemical testing plan provided in **Section 4.6**.

4.9.3 Field and Trip Blanks

Field and trip blank samples were collected as Quality Assurance/Quality Control (QA/QC) samples for analysis in accordance with NYSDEC guidelines. The field and trip blanks were analyzed for VOCs by EPA Method 8260.

5.0 PRESENTATION AND EVALUATION OF RESULTS

5.1 Work Plan

No significant deviations from the work plan were made during the SI.

5.2 Geophysical Survey

The results of the geophysical survey indicate that seven anomalies were located and marked for excavation. Three of the anomalies were located on Parcel B in the driveway area of the lower repair garage/ office and the other four anomalies were located on Parcel C in the parking area and to the rear of Building 3. The anomaly locations are shown on **Figure 2**.

5.3 Test Pit Excavation

Upon completion of the geophysical survey and the demarcation of seven identified anomalies, construction debris and historic fill was encountered at six of the seven test pit locations. Test pit locations TP-1, TP-2 and TP-7, contained significant pieces of scrap metal such as re-bar staircase hand railings, piping, fencing and wire. In addition, other materials found at these locations included lumber, tree stumps, bricks, concrete and asphalt. Test pit locations designated TP-4, TP-5 and TP-6 contained a significant amount of historic fill consisting of incinerator ash, broken glass and glass bottles intact. A layer of fine to medium sand was encountered at all three locations at depths of approximately 6-7 ftbg (feet below grade).

During the excavation of the test pit designated TP-3, a large piece of steel post was discovered within the top 2 ftbg. Additionally, black free-phase petroleum was encountered floating on the groundwater. A petroleum hydrocarbon source was not observed and further excavation was postponed at the time. Based on this observation, the NYSDEC Spill Hotline was notified (as required by New York State Navigation Law Article 12) and Spill Number 1007976 was assigned to the property.

5.4 Borehole Pre-clearing

During borehole pre-clearing activities, a total of 22 boreholes were drilled by ADT using the air-rotary drilling method. The boreholes were drilled through the concrete surface to a depth ranging from 18 to 20 inches on Parcels B and C and both indoors and outdoors of Buildings 3 and 6. HES confirmed the thickness of the reinforced concrete floors at the indoor locations to be up to 11.5-inches.

5.5 Test Borings

Upon HES' completion of three days of drilling, a total of 39 test borings were installed across Parcels B and C. A total of 19 borings were installed indoors at Buildings 3 and 6 and the remaining 20 borings were installed outdoors across the site.

5.6 Geologic Setting

Review of the Geologic Logs compiled by HES in the field indicate that the subsurface materials are comprised of the following sediments:

- Between the surface to approximately 6-8 ftbg, construction and demolition (C&D) debris and historic fill was observed during test pit excavation on Parcels B and C.

- With depth, this material began to include more fill material consisting of sandy silt and gravel.

- Boring refusal was noted during drilling at a majority of the 39 test boring locations. These refusals were assumed to be on either local bedrock or historic backfill.

5.7 Hydrogeologic Conditions

Depth to groundwater measurements that were collected at the four well locations revealed that the depth to static water levels ranged from 1.68 ftbg at GB-20 to 12.78 ftbg at GB-30. Temporary groundwater monitor wells installed in the boreholes designated GB-23 and GB-24 did not contain any measurable groundwater. No groundwater elevation survey and contour map was completed for the subject site.

5.8 Analytical Data

5.8.1 PID Screening of Soil Samples

As described above, during drilling of the test borings and test pit excavation, the on-site HES geologist/hydrogeologist screened the collected soil samples for the presence of detectable hydrocarbon vapors with a PID. The field screening results show that the test pit with the highest PID measurement was TP-3 which contained a maximum reading of 82.1 parts per million (ppm) in the soil sample collected from approximately 1.5 ftbg. Soil borings designated GB-1, GB-16, GB-20, GB-37 and GB-39 contained PID concentrations ranging from 4.1 ppm to 15 ppm. The remaining soil boring locations contained only background concentrations of volatile organic vapors of less than 2 ppm. The PID assay data can be found on **Table 1** and on each Geologic Log included in **Appendix 1.**

5.8.2 Soil Quality Results

The soil laboratory analytical results indicate that the soil samples collected at a majority of the test pit and boring locations contained concentrations of VOCs detected above laboratory method detection limits (MDLs). BTEX compounds (benzene, toluene, ethylbenzene and xylenes) were detected above laboratory MDLs at sampling locations TP-3, GB-6, GB-16, GB-26, GB-28, GB-32, GB-33, GB-36 and GB-37. All of the detected VOC concentrations did not exceed their respective NYSDEC Recommended Soil Cleanup Objectives (RSCOs) in accordance with the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) #4046 except for concentrations of acetone. Concentrations of acetone were detected above laboratory MDLs at sampling locations designated TP1, TP-2, TP-3, TP-4, GB-1, GB-6, GB-8, GB-10, GB-11, GB-14, GB-16, GB-19, GB-20, GB-26, GB-28, GB-33, GB-36, GB-37 and GB-39. Only at locations designated TP-3 (6,270 µg/Kg [micrograms per Kilogram]), TP-4 (257 µg/Kg), GB-28 (272 µg/Kg), GB-10 (250 µg/Kg), GB-16 (265 µg/Kg), GB-20 (206 µg/Kg), GB-33 (298 µg/Kg), GB-36 (231 µg/Kg) and GB-37 (298 µg/Kg), did contain concentrations that exceeded their respective NYSDEC-RSCO of 200

µg/Kg. The VOC laboratory analytical results are summarized on **Table 2** and the laboratory analytical report is included in **Appendix 2.**

The soil laboratory analytical results indicate that the soil samples collected at a majority of the test pit and boring locations contained concentrations of SVOCs detected above laboratory MDLs. Most of the detected SVOC concentrations did not exceed their respective NYSDEC-RSCOs except for at test boring location GB-37. At this location, concentrations of fluoranthene (97,300 µg/Kg), phenanthrene (98,900 µg/Kg), pyrene (80,400 µg/Kg) and total SVOCs (537,800 µg/Kg) exceeded their respective NYSDEC-RSCOs of 50,000 µg/Kg and 500,000 µg/Kg, respectively. The SVOC laboratory analytical results are summarized on **Table 3** and the laboratory analytical report is included in **Appendix 2.**

The results of soil quality analysis indicate that the soil samples collected from the boring locations designated GB-16 (0.232 µg/Kg) and GB-37 (0.597 µg/Kg) contained trace concentrations of PCBs above laboratory MDLs but below NYSDEC-RSCOs. The PCB analytical results are included in the soil quality results summarized on **Table 4** and the laboratory analytical report is included in **Appendix 2**.

The soil samples collected from locations designated TP-1, GB-4, GB-8, GB-12, GB-16, GB-29, GB-30, GB-32, GB-34 and GB-37 were analyzed for the presence of RCRA metals. Metals were detected above laboratory MDLs in soil samples collected at locations designated TP-6, GB-29, GB-34 and GB-37. At TP-6, concentrations of arsenic (27 mg/Kg [milligrams per Kilogram]) and chromium (15.3 mg/Kg) exceeded their NYSDEC-RSCOs of 7.7/SB (site background) and 10/SB, respectively. At GB-29, only chromium (15.4 mg/Kg) exceeded its respective NYSDEC-RSCO of 10/SB. Soil collected from the soil boring location designated GB-37 contained barium (661 mg/Kg), cadmium (3.44 mg/Kg), chromium (22.3 mg/Kg), lead (670 mg/Kg) and mercury (1.28 mg/Kg), all exceeding their NYSDEC-RSCOs of 300/SB mg/Kg, 1/SB mg/Kg, 10/SB mg/Kg, 200-500 mg/Kg and 0.1 mg/Kg, respectively. The RCRA metals analytical results are included in the soil quality results are summarized on **Table 4** and the laboratory analytical report is included in **Appendix 2.**

5.8.3 Groundwater/Surface Water Sampling Results

Groundwater and surface water samples were collected from sample locations designated GB-20GW, GB-30GW, Standing Water (located in the lower portion of Building 6), Zipper Drain (located in the driveway are of the lower repair garage/office building) and Pit Water (located in Building 6). The groundwater/surface water laboratory analytical results indicate that the groundwater/surface water samples collected at these locations all contained dissolved concentrations of VOCs above laboratory MDLs except for GB-30GW. None of the groundwater/surface water samples collected at these locations exceeded their respective NYSDEC Groundwater Quality Standards (GWQS) except for at the location designated Pit Water. Dissolved concentrations of toluene (84.4 µg/Kg) and total xylenes (5.26 µg/Kg) exceeded their NYSDEC-GWQS of 5 µg/Kg. None of the groundwater/ surface

water samples contained any dissolved concentrations of SVOCs above laboratory MDLs. The groundwater/surface water analytical results are included in the soil quality results and are summarized on **Table 5**. The laboratory analytical report is included in **Appendix 2**.

5.8.4 Field and Trip Blank Analyses

The laboratory analytical results of the four field blanks and two trip blanks indicate that no VOCs or SVOCs were detected above laboratory MDLs. The laboratory analytical results are summarized on **Table 5** and the laboratory analytical report is included in **Appendix 2**.

6.0 CONCLUSIONS

The SI was conducted in accordance with HES' September 9, 2010 work scope and NYSDEC protocols, rules and regulations. No significant deviations to the work practice occurred during any portion of this investigation. Based on the information collected during this investigation, sampling locations which exceeded their respective NYSDEC standards are included on **Figure 4** and the following conditions below at this site exist and have been designated by HES as Areas of Concern (AOC) which are included on **Figure 5**. Additionally, **Figure 6** includes photographs taken during all on-site field activities.

1. AOC #1 exists to the rear of Building 3 on Parcel C. Sampling completed in this vicinity included TP-3, GB-20 and GB-20GW. Based on field observations, free-phase product exists on the groundwater. The product appears to be fuel oil or waste oil; however, this has not yet been confirmed. Laboratory analytical results of the soil sample collected at this location also indicates a significantly high concentration of acetone (6,270 µg/Kg).

2. AOC #2 exists on the roadway adjacent to Building 3 on Parcel C. An elevated level of chromium (15.4 mg/Kg) was detected in soil collected from this location designated as GB-29.

3. AOC #3 exists on Parcel C along the northern property boundary. At this location, elevated levels of acetone were detected in soil samples collected at locations GB-36 (231 µg/Kg) and GB-37 (298 µg/Kg). SVOC concentrations of fluoranthene (97,300 µg/Kg), phenanthrene (98,900 µg/Kg), pyrene (80,400 µg/Kg), total SVOCs (537,800 µg/Kg) as well as the heavy metals including barium (661 mg/Kg), cadmium (3.44 mg/Kg), chromium (22.3 mg/Kg), lead (670 mg/Kg) and mercury (1.28 mg/Kg) were also detected in soil collected at GB-37. All of the acetone, SVOC and heavy metal concentrations detected above laboratory MDLs exceeded their respective NYSDEC-RSCOs.

4. AOC #4 exists in the driveway area of the lower repair garage and office building. At this location, TP-4 and TP-6 soil samples were collected for laboratory analysis and

arsenic (27 mg/Kg); chromium (15.3 mg/Kg) and acetone (257 µg/Kg) were detected above laboratory MDLs and exceeded their respective NYSDEC-RSCOs.

5. AOC #5 exists indoors and is located in Building 6 on Parcel B. The stagnant water located in the pit towards the back of the main work area contained dissolved concentrations of toluene (84.4 µg/Kg) and xylenes (5.26 µg/Kg). Water quality other than VOCs and SVOCs is currently unknown at the Pit Water sampling location; however, it is likely that additional constituents exist at this location.

7.0 RECOMMENDATIONS

Based on the results of the subsurface investigation detailed above, HES recommends that additional environmental work be completed at the site. Further investigation activities, including additional sampling and delineation activities as well as soil excavation and disposal should be completed to fully address the five AOCs described in Section **6.0**. All investigation and remedial activities should be completed in full compliance with all applicable NYSDEC protocols, rules and regulations. These actions will be required to comply with New York State laws and to formally close the NYSDEC Spill Number assigned to the property as it relates to the free-phase petroleum observed at the TP-3 location. As per the original scope of work, HES has compiled a Remedial Action Workplan (RAW) and Cost Estimate outlining all of the additional environmental work that needs to be completed at the subject site. The RAW and Cost Estimate will be sent to the City of Peekskill under separate cover.

8.0 REFERENCES

Cadwell, Donald H., Editor, 1989, Surficial Geologic Map of New York, Lower Hudson Sheet, New York State Museum – Geological Survey, Map and Chart Series #40.

Fisher, Donald W., Y.W. Isachsen and L.V. Richard, 1970, Geologic Map of New York, Lower Hudson Sheet, New York State Museum and Science Service, Map and Chart Series #15.

TABLES

TABLE 1

KARTA CORPORATION
1013-1017 LOWER SOUTH STREET
PEEKSKILL, NEW YORK

Summary of PID Field Screening Results - Test Pit Excavation
September 24, 2010

Sample No.	Depth	PID Reading	Notes
TP-1	6-7.5	8.3	C&D debris consisting of concrete, brick, wood, lumber, piping, fencing, re-bar, stairway railings, asphalt and wire.
TP-2	4	7.0	C&D debris consisting of concrete, brick, wood, lumber, piping, fencing, re-bar, stairway railings, asphalt and wire.
TP-3	1.5	82.1	Steel post detected by magnetometer. Groundwater at 19-inches below grade with free-phase petroleum.
TP-4	2	33.6	Historic fill consisting of incinerator ash, scrap metal, broken glass, whole glass bottles, brick with brown medium sand layer 6-8 ftbg.
TP-5	8-9	3.4	Historic fill consisting of incinerator ash, scrap metal, broken glass, whole glass bottles, brick with brown medium sand layer 6-8 ftbg.
TP-6	10	1.8	Historic fill consisting of incinerator ash, scrap metal, broken glass, whole glass bottles, brick with brown medium sand layer 6-8 ftbg. Medium-large boulders encountered.
TP-7	8	4.1	C&D debris consisting of concrete, brick, wood, lumber, piping, fencing, re-bar, stairway railings, asphalt and wire.

PID (photoionization detector) readings in parts per million, calibration gas equivalents
Depth in feet below grade
Highest PID reading was recorded above

TABLE 2

KARTA CORPORATION
1013-1017 LOWER SOUTH STREET
PEEKSKILL, NEW YORK

Summary of Soil Quality Results – Volatile Organics

EPA Method 8260

Sample	Depth (ftbg)	Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	n-Butylbenzene	MTBE	Total VOCs
TP-1	6-7.5	09/24/10	ND	ND	ND	ND	ND	ND	17.9
TP-2	4-6	09/24/10	ND	ND	ND	ND	ND	ND	21.2
TP-3	1-2	09/24/10	ND	54.1	10.9	24.26	ND	ND	312.36
TP-4	7.5-8	09/24/10	ND	ND	ND	ND	ND	ND	292.19
TP-7	6-8	09/24/10	ND	ND	ND	ND	ND	ND	ND
GB-1	4-8	09/28/10	ND	ND	ND	ND	ND	ND	75.7
GB-6	4-8	09/28/10	ND	ND	ND	7.63	ND	ND	139.64
GB-8	0-4	09/28/10	ND	ND	ND	ND	ND	ND	343.54
GB-10	4-8	09/28/10	ND	ND	ND	ND	ND	ND	268.5
GB-11	4-8	09/28/10	ND	ND	ND	ND	ND	ND	31.8
GB-14	4-8	09/28/10	ND	ND	ND	ND	ND	ND	38.4

TABLE 2

KARTA CORPORATION
1013-1017 LOWER SOUTH STREET
PEEKSKILL, NEW YORK

Summary of Soil Quality Results – Volatile Organics

EPA Method 8260

GB-16	2-6	09/28/10	ND	ND	11.4	15.89	ND	ND	495.1
GB-19	0-4	09/28/10	ND	ND	ND	ND	ND	ND	40.5
GB-20	2-4	09/28/10	ND	ND	ND	ND	ND	ND	206
GB-24	0-4	09/29/10	ND	ND	ND	ND	ND	ND	ND
GB-26	0-4	09/29/10	ND	ND	ND	5.04	ND	ND	60.88
GB-28	8-11	09/29/10	ND	ND	8.66	32.5	ND	ND	760.17
GB-29	8-11	09/29/10	ND	ND	ND	ND	ND	ND	ND
GB-30	8-12	09/29/10	ND	ND	ND	ND	ND	ND	82.01
GB-31	5-7	09/29/10	ND	ND	ND	ND	ND	ND	ND
GB-32	2-4	09/29/10	ND	ND	ND	5.96	ND	ND	103.4
GB-33	4-6	09/29/10	ND	17.4	43.2	151.7	ND	24.2	1,061.3
GB-34	3-4	10/04/10	ND	ND	ND	ND	ND	ND	ND
GB-35	6.5	10/04/10	ND	ND	ND	ND	ND	ND	ND

TABLE 2

KARTA CORPORATION
1013-1017 LOWER SOUTH STREET
PEEKSKILL, NEW YORK

Summary of Soil Quality Results – Volatile Organics

EPA Method 8260

GB-36	2.5	10/04/10	ND	ND	48	14.19	ND	ND	529.54
GB-37	6-7	10/04/10	7.22	10.8	85.7	221.8	ND	37.3	1,915.97
GB-38	2-3.5	10/04/10	ND	ND	ND	ND	ND	ND	ND
GB-39	7	10/04/10	ND	ND	ND	ND	ND	ND	85.74
NYSDEC Rec. Cleanup Objectives (TAGM 4046)			**60**	**1,500**	**5,500**	**1,200**	**10,000**	**120**	**10,000**

Results in µg/Kg (micrograms per kilogram)
ND = Not Detected
ftbg = feet below grade
BOLD = Exceeds NYSDEC-RSCOs

700 1,000 240 12,000 930

TABLE 3

KARTA CORPORATION
1013-1017 LOWER SOUTH STREET
PEEKSKILL, NEW YORK

Summary of Soil Quality Results – Semivolatile Organics

EPA Method 8270

Sample	Depth (ftbg)	Date	Acenaphthene	Anthracene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total SVOCs
TP-1	6-7.5	09/24/10	ND	ND	6,870	ND	3.24	4,640	5,610	28,983.24
TP-2	4-6	09/24/10	2,700	2,880	15,100	ND	ND	12,500	11,100	74,800
TP-3	1-2	09/24/10	ND	ND	9,980	ND	137	7,220	7,480	43,927
TP-4	7.5-8	09/24/10	ND	ND	ND	ND	5.04	ND	ND	5.04
TP-7	6-8	09/24/10	ND	ND	2,690	ND	ND	2,520	2,040	7,250
GB-1	4-8	09/28/10	ND	ND	2,770	ND	ND	2,270	2,330	7,370
GB-6	4-8	09/28/10	ND	ND	ND	5,320	16	4,260	3,600	13,196
GB-8	0-4	09/28/10	3,430	8,450	24,900	2,730	20	20,500	15,600	122,380
GB-10	4-8	09/28/10	ND	ND	7,580	ND	ND	3,610	5,670	26,870
GB-11	4-8	09/28/10	3,720	8,190	38,500	2,200	ND	ND	23,800	187,350
GB-14	4-8	09/28/10	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3

KARTA CORPORATION
1013-1017 LOWER SOUTH STREET
PEEKSKILL, NEW YORK

Summary of Soil Quality Results – Semivolatile Organics

EPA Method 8270

GB-16	2-6	09/28/10	ND	1,970	11,500	ND	34.5	6,320	9,000	56,830
GB-19	0-4	09/28/10	ND	ND	ND	ND	ND	ND	ND	ND
GB-20	2-4	09/28/10	ND	ND	1,250	ND	19.2	ND	818	2,087.2
GB-24	0-4	09/29/10	ND	880	5,490	ND	ND	3,820	4,990	30,870
GB-26	0-4	09/29/10	ND	ND	8,050	ND	4.26	5,230	6,160	32,600
GB-28	8-11	09/29/10	3,220	4,180	15,700	2,380	3,250	15,900	206	66,127.4
GB-29	8-11	09/29/10	ND	ND	1,270	ND	ND	ND	939	2,209
GB-30	8-12	09/29/10	ND	ND	ND	ND	ND	ND	ND	ND
GB-31	5-7	09/29/10	ND	ND	1,330	ND	ND	1,160	1,010	5,573
GB-32	2-4	09/29/10	2,070	2,090	10,200	ND	87.2	6,300	8,460	44,570
GB-33	4-6	09/29/10	ND	ND	4,920	ND	92.7	3,530	3,060	11,602.7
GB-34	3-4	10/04/10	ND	ND	ND	ND	ND	ND	ND	ND
GB-35	6.5	10/04/10	ND	ND	792	ND	ND	ND	ND	792

TABLE 3

KARTA CORPORATION
1013-1017 LOWER SOUTH STREET
PEEKSKILL, NEW YORK

Summary of Soil Quality Results – Semivolatile Organics

EPA Method 8270

GB-36	2.5	10/04/10	3,420	4,850	19,400	2,410	371	11,700	20,500	115,401
GB-37	6-7	10/04/10	17,500	27,400	**97,300**	15,500	10,700	**98,900**	**80,400**	**537,800**
GB-38	2-3.5	10/04/10	ND	ND	5,420	ND	6.92	3,060	3,530	19,306.92
GB-39	7	10/04/10	ND	ND	1,040	ND	ND	ND	911	1,951
NYSDEC Rec. Cleanup Objectives (TAGM 4046)			**50,000**	**50,000**	**50,000**	**50,000**	**13,000**	**50,000**	**50,000**	**500,000**

Results in µg/Kg (micrograms per kilogram)
ND = Not Detected
ftbg = feet below grade
BOLD = Exceeds NYSDEC-RSCOs

TABLE 4

KARTA CORPORATION
1013-1017 LOWER SOUTH STREET
PEEKSKILL, NEW YORK

PPM

Summary of Soil Quality Results – Total RCRA Metals and PCBs

EPA Method 200.7 & EPA Method 8082

Sample	Arsenic	Barium	Cadmium	Chromium	Lead	Selenium	Silver	Mercury	PCBs
TP-6	27	214	0.743	15.3	343	5.41	1.49	0.139	NA
GB-4	ND	ND	ND	ND	ND	ND	ND	ND	NA
GB-8	ND	ND	ND	ND	ND	ND	ND	ND	NA
GB-12	ND	ND	ND	ND	ND	ND	ND	ND	NA
GB-16	ND	ND	ND	ND	ND	ND	ND	ND	0.232
GB-29	6.87	115	0.281	15.4	102	4.34	1.19	0.104	NA
GB-30	ND	ND	ND	ND	ND	ND	ND	ND	NA
GB-32	ND	ND	ND	ND	ND	ND	ND	ND	NA
GB-34	3.45	62.9	0.220	7.89	9.96	4.22	1.16	0.0454	NA
GB-37	6.38	661	3.44	22.3	670	5.03	1.38	1.28	0.597
NYSDEC Rec. Cleanup Objectives (TAGM 4046)	**7.5/SB**	**300/SB**	**1/SB**	**10/SB**	**200-500**	**2/SB**	**SB**	**0.1**	**10**

Results in ppm (parts per million)
ND = Not Detected (above laboratory MDLs)
NA = Not Analyzed
SB = Site Background
BOLD = Exceeds NYSDEC-RSCO

1.3 / 16 | 350 | 2.5 | 30 | 63 | 3.9 | 2 | 0.18 | 0.1 | Unrestricted
400 | ~~43~~ | ~~36~~ 110 | 400 | ~~180~~ | 180 | 0.81 | 1 | Rest-Res
16 | 400 | 9.3 | | 1,000 | | | 2.8 | | Commercial

TABLE 5

KARTA CORPORATION
1013-1017 LOWER SOUTH STREET
PEEKSKILL, NEW YORK

Summary of Groundwater and Surface Water Quality Results
September-October 2010

	1	5	EPA Method 8260 5		5	10	
Sample	**Benzene**	**Toluene**	**Ethylbenzene**	**Total Xylenes**	**n-Butylbenzene**	**MTBE**	**Total VOCs**
GB-20GW	ND	ND	ND	ND	ND	ND	6.67
GB-30GW	ND	ND	ND	ND	ND	ND	ND
Standing Water	ND	ND	ND	ND	ND	ND	5.82
Zipper Drain	ND	ND	ND	ND	ND	ND	7.02
Pit Water	ND	~~84.4~~	2.77	~~5.26~~	ND	ND	126.9
Field Blank 09/28/10	ND	ND	ND	ND	ND	ND	ND
Field Blank 09/29/10	ND	ND	ND	ND	ND	ND	ND
Field Blank 10/01/10	ND	ND	ND	ND	ND	ND	ND
Field Blank 10/04/10	ND	ND	ND	ND	ND	ND	ND
Trip Blank 09/29/10	ND	ND	ND	ND	ND	ND	ND
Trip Blank 10/04/10	ND	ND	ND	ND	ND	ND	ND
NYSDEC Groundwater Quality Standards	**0.7**	**5**	**5**	**5**	**5**	**10**	–

Results in µg/L (micrograms per liter)
ND = Not Detected
BOLD = Exceeds NYSDEC-GWQS

TABLE 5

KARTA CORPORATION
1013-1017 LOWER SOUTH STREET
PEEKSKILL, NEW YORK

Summary of Groundwater and Surface Water Quality Results
September-October 2010

EPA Method 8270

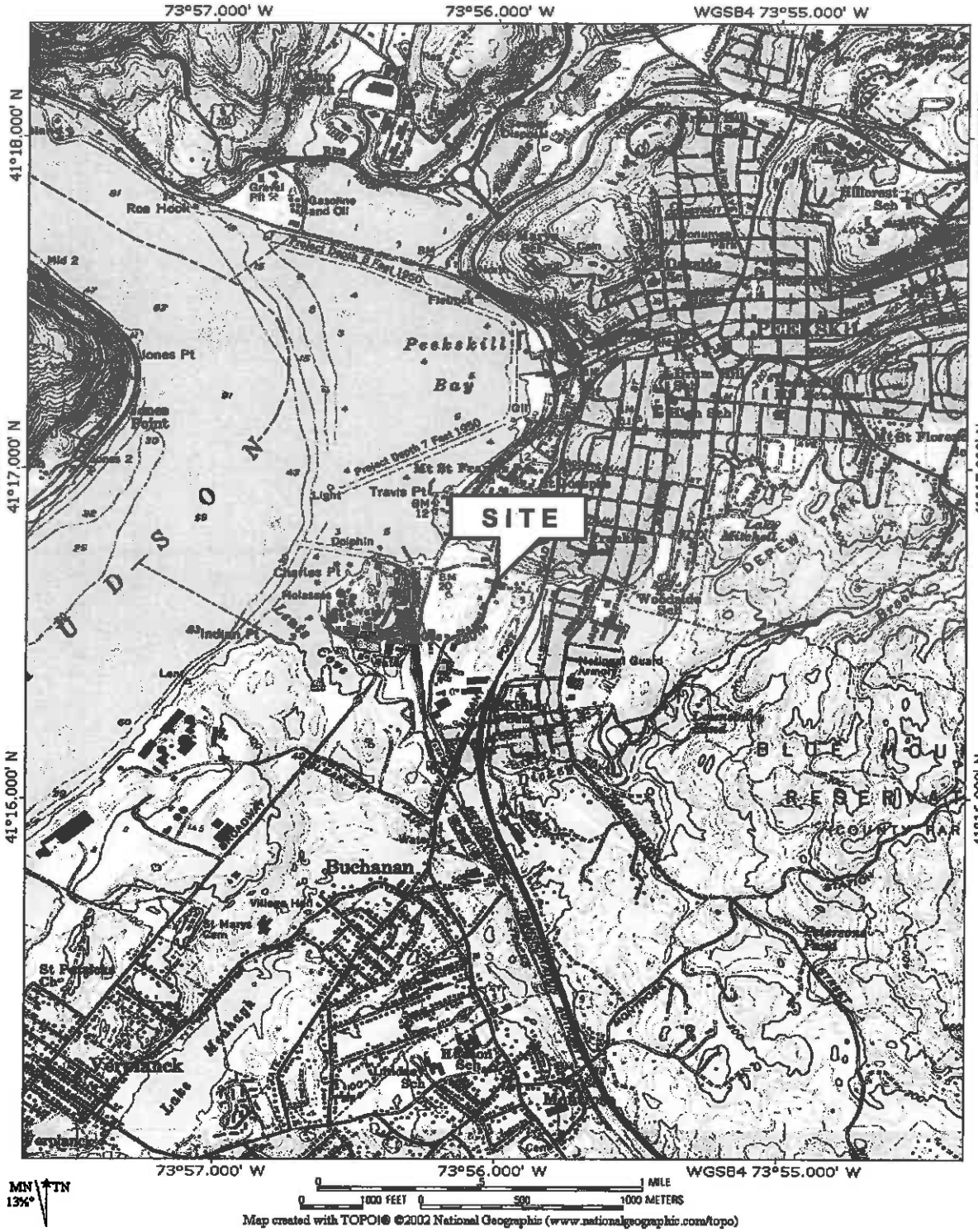
Sample	Acenaphthene	Anthracene	Fluoranthene	Fluorene	Naphthalene	Phenanthrene	Pyrene	Total SVOCs
GB-20GW	ND	ND	ND	ND	ND	ND	ND	ND
GB-30GW	ND	ND	ND	ND	ND	ND	ND	ND
Standing Water	ND	ND	ND	ND	ND	ND	ND	ND
Zipper Drain	ND	ND	ND	ND	ND	ND	ND	ND
Pit Water	ND	ND	ND	ND	2.65	ND	ND	ND
Field Blank 09/28/10	ND	ND	ND	ND	ND	ND	ND	ND
Field Blank 09/29/10	ND	ND	ND	ND	ND	ND	ND	ND
Field Blank 10/01/10	ND	ND	ND	ND	ND	ND	ND	ND
Field Blank 10/04/10	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank 09/29/10	ND	ND	ND	ND	ND	ND	ND	ND
Trip Blank 10/04/10	ND	ND	ND	ND	ND	ND	ND	ND
NYSDEC Groundwater Quality Standards	**20**	**5**	**5**	**5**	**10**	**5**	**5**	**--**

Results in µg/L (micrograms per liter)
ND = Not Detected
BOLD = Exceeds NYSDEC-GWQS

FIGURES

FIGURE 1
SITE LOCATION MAP

1013-1017 Lower South Street
Peekskill, New York



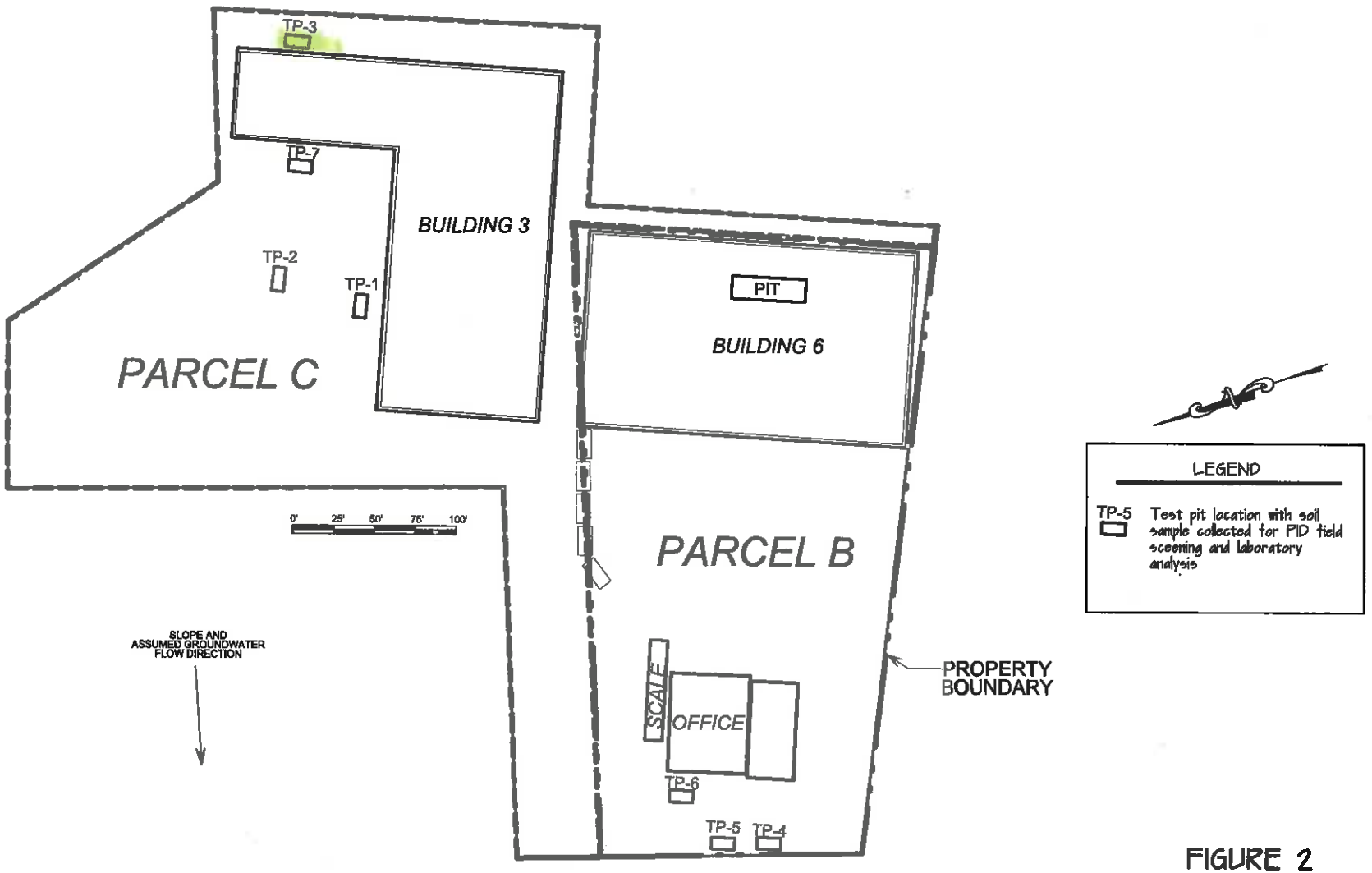


FIGURE 2

KARTA CORPORATION 1013-1017 LOWER SOUTH STEET PEEKSKILL, NEW YORK	GENERALIZED SITE PLAN SHOWING PARCEL LOCATIONS AND TEST PIT LOCATIONS	OCTOBER 2010 SUBSURFACE INVESTIGATION	HydroEnvironmental SOLUTIONS, INC. One Deans Bridge Road Somers, New York 10589

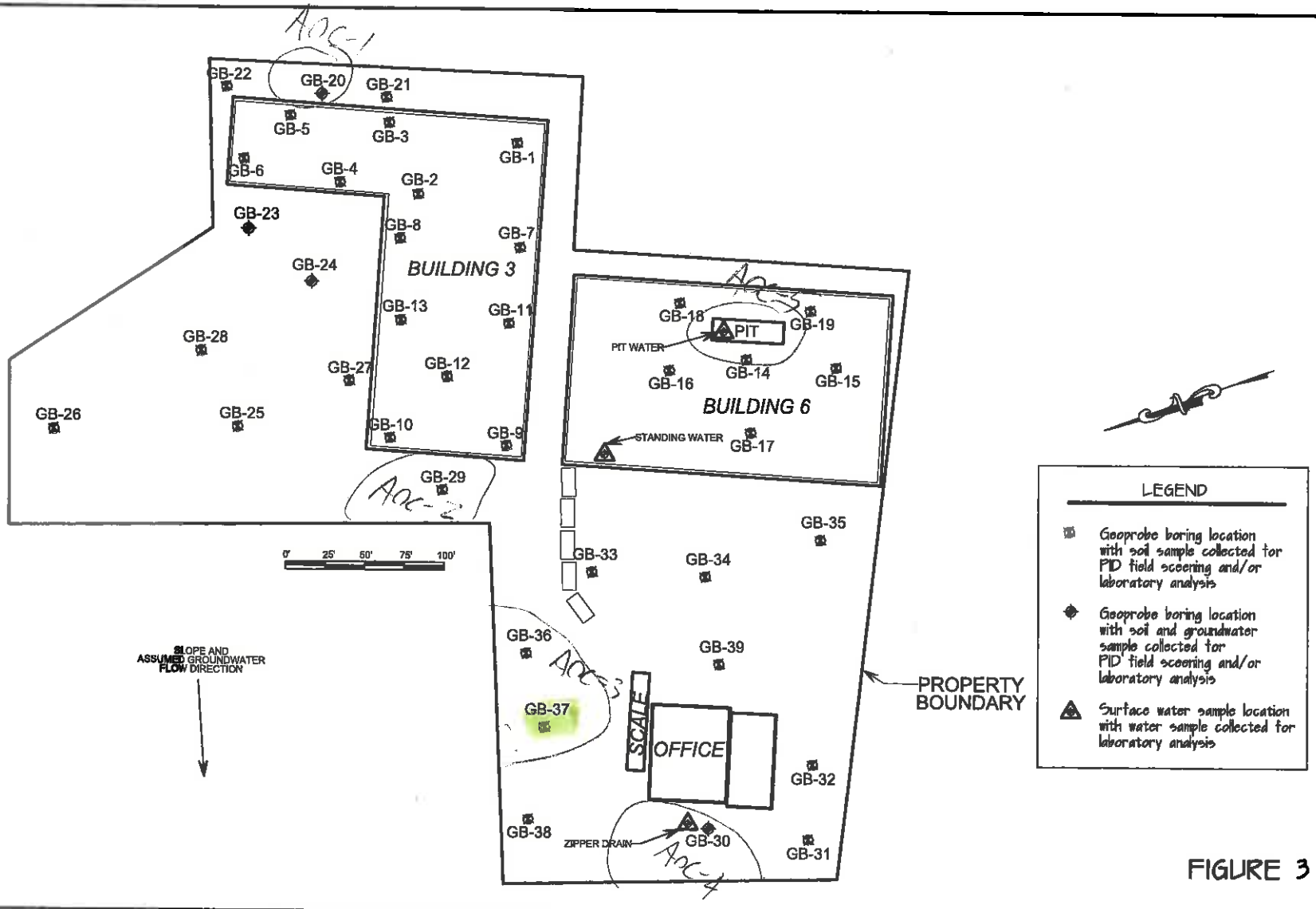


FIGURE 3

KARTA CORPORATION 1013-1017 LOWER SOUTH STEET PEEKSKILL, NEW YORK	GENERALIZED SITE PLAN SHOWING GEOPROBE BORING LOCATIONS	OCTOBER 2010 SUBSURFACE INVESTIGATION	HydroEnvironmental SOLUTIONS, INC. One Deans Bridge Road Somers, New York 10589