41 Saxon Ave., Bay Shore

SUFFOLK COUNTY, NEW YORK

Final Engineering Report

NYSDEC Site Number: V00338-01

Prepared for:

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SECTION 1.0
INTRODUCTION AND DESCRIPTION OF THE REMEDIAL PROGRAM

1.1 Introduction

This Final Engineering Report (FER) has been prepared as an element of the remedial program at 41 Saxon Avenue, Bay Shore, New York (hereinafter referred to as the "Site") under the New York State Voluntary Cleanup Program (VCP) administered by the New York State Department of Conservation (NYSDEC). The Site is in the process of being remediated in accordance with Voluntary Cleanup Agreement (VCA) No. V00338-1.

Saxon Avenue Enterprises, LLC entered into a VCA with the NYSDEC to investigate and remediate the 1.9-acre property located in Bay Shore, New York on May 22, 2001. The Site location and boundaries of the 1.9-acre property are provided in Figure 1.

This FER has been prepared by Dermody Consulting in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, and the guidelines provided by NYSDEC.

As the result of the presence of tetrachloroethylene and its degradation products in the soil, soil vapor, and groundwater at the Site, a remediation system, consisting of air sparging (AS) and soil vapor extraction (SVE), was installed at the Site and has been operating since October 10, 2009.

1.2 Site Background

This Site is located at 41 Saxon Ave. in the Town of Islip, County of Suffolk, New York. The Site is bound by Saxon Avenue to the east, the Long Island Rail Road tracks to the north, residential apartments to the west, and a gasoline service station to the south. A 30,000-square-foot building is present on the northwestern portion of the Site. An asphalt parking area exists on the southern portion of the Site, a thin swath of grass and trees exists to the west of the building, a grass and degraded asphalt area exists to the north of the building, and a parking area exists at the northeast portion of the Site. The Site building is subdivided and contains several tenants: A sports training facility

[formerly Doggie U (dog training)], a church (which has expanded into an area formerly occupied by Century Tire), an area for kitchen cabinet storage, and a medial office. Chain-link fencing exists along the northern and western property boundaries. In addition, casual access to the area along the exterior area along the north wall is prevented by locked fencing.

1.3 Site History

The Site was previously occupied by Staver Corp., a manufacturer of electronic and metal parts that were sold, in part, to the defense industry. Staver Corp. operated at the Site from the mid-1950s to the mid-1990s. The Site was then vacant until approximately 2003 when the Site was sold to Dali Picasso Realty, Inc., who subdivided the building. Tenants (other than the current tenants) that have occupied the Site since 2003 include an indoor skateboard park, a gambling company, a real estate office, and a newspaper distributor.

SECTION 2.0
GEOLOGIC CONDITIONS

The regional geology of the Site area consists of a base of Precambrian crystalline bedrock predominantly composed of schist and gneiss overlain by the Lloyd Sand Member of the Cretaceous Raritan Formation. The clay member of the Raritan Formation overlies the Lloyd Sand Member, and acts as a confining unit. Overlying the Raritan Formation is the Cretaceous Magothy Formation which, in the Site area, is overlain by the Pleistocene Gardiners Clay. The Gardiners Clay is a marine interglacial deposit and consists of dark-colored clay with lenses of green silt, very fine sand, and thin layers of fine gravel. The Gardiners Clay is overlain by the Upper Pleistocene glacial outwash deposits (Upper Glacial Deposits) that are composed of stratified medium to coarse-grained sand and gravel. The Upper Glacial deposits are estimated to be 100 to 200 feet thick in the Site area. The soils in the Site area are classified by the US Department of Agriculture as consisting mostly of urban land soils, which contain a mix of sand, gravel, silt, clay, and fill material.

Site-specific geology was recorded during subsurface soil sample collections and monitoring well installations. The Site geology generally consists of brown to tan, fine to coarse-grained sand with some gravel and pebbles to a depth of at least 60 feet below grade. However, based on continuous Geoprobe borings to evaluate the shallow geology in the southern parking lot, it was found that a low permeability silt and silty clay layer was noted on the southwestern portion of the Site that occurs from approximately five to eight feet below grade. Figure 2 shows the area of low permeability soil.

The depth to groundwater at the Site varies from approximately four to five feet below grade. The Site-specific groundwater flow direction is to the south-southeast.

SECTION 3.0
REMEDIAL INVESTIGATION FINDINGS

Numerous investigations were performed to evaluate the nature and extent of soil, sediment, groundwater, and soil vapor contamination emanating from the Site. The following summarizes the pertinent sample results and findings.

3.1 Soil and Sediment Sampling

Subsurface investigations performed at the Site concluded that soil or sediment contamination was present at the Site in four areas: in the area of the former degreaser, in the area of the former scrap metal loading dock, in the area to the west of the building where a former evaporation pool existed, and in the stormwater leaching pool at the base of the loading dock along the eastern wall of the building (see Figure 3 for the identified areas of soil and sediment contamination).

The former degreaser was used to clean metal parts using tetrachloroethylene. The tetrachloroethylene apparently leaked onto the concrete below the degreaser and percolated to the subsurface. The spent tetrachloroethylene that was removed from the degreaser was reported to have been dumped onto the soil on the north side of the building at the edge of the former scrap metal loading dock (which was a wooden platform adjacent to the bay door in what is now the kitchen cabinet storage unit) and resulted in significant contamination of the soil. The soil in the area of the former evaporation pond was found to contain relatively minor concentrations of tetrachloroethylene and its degradation products. Finally, the stormwater leaching pool at the base of the loading dock on the east side of the building was found to contain elevated concentrations of copper and chromium.

3.2 On-Site Groundwater

Due to the presence of soil contamination consisting of tetrachloroethylene and its degradation products, a groundwater plume was identified at the Site that emanates from the area of the former scrap metal loading dock and continues in the south-southeast direction to the southern property boundary. Figure 4 shows the locations of the 24 former and existing on-Site groundwater monitoring wells (which includes the four wells

at each well cluster location) as well as the approximate boundaries of the on-Site groundwater plume.

Table 1 summarizes the pre-remediation system startup groundwater sampling results (the groundwater sampling was performed in September, 2009 and the remediation system commenced operation on October 10, 2009).

The groundwater sampling results show that the wells containing the highest concentrations of volatile organic compounds (VOC) are at WC-1. In the four multi-depth wells within this cluster, the primary VOC was tetrachloroethylene and it was detected at 370 micrograms per liter (ug/l) at 5-10 feet; 690 ug/l at 20-25 feet; 2,800 ug/l at 35-40 feet; and, 1,200 ug/l at 50-55 feet below grade. Relatively minor concentrations of tetrachloroethylene degradation products, as well as 1,1,1-trichloroethane, were also detected. For the downgradient on-Site area, the highest VOC concentrations were detected in the shallow groundwater at WC-2 (5-10 feet) (and showed, among other VOCs, cis-1,2-dichloroethylene at 1,900 ug/l), and at MW-4, where cis-1,2-dichloroethylene was detected at 990 ug/l. Tetrachloroethylene was detected at relatively minor concentrations in the downgradient on-Site area. This indicates that tetrachloroethylene is undergoing degradation as it migrates downgradient in the groundwater. Also, the results for MW-12 show minor detections of VOCs and show no evidence of a significant plume in this area.

3.3 Off-Site Groundwater

Due to the presence of a VOC plume migrating to the south-southeast and off-Site, off-Site Geoprobe groundwater sampling investigations were performed. Figure 5 shows the off-Site groundwater sampling locations for samples obtained in 2002 and 2005. Table 2 summarizes the off-Site Geoprobe groundwater chemical analytical results. The sample obtained in 2002 at GP-15, indicated that VOCs, primarily cis-1,2-dichloroethylene (detected at 1,500 ug/l at a depth of 10-12 feet below grade), were present in the off-Site downgradient area. Therefore, in 2005, a follow-up Geoprobe investigation was performed to determine the downgradient extent of the contamination. Samples were obtained from GP-16 though GP-19 at shallow (ranging between 6 and 11 feet below grade) and deeper samples (ranging between 21 and 24 feet below grade). The only location at which halogenated VOCs were detected was GP-16 in the deeper

sample. GP-16 contained, primarily, 89 ug/l of cis-1,2-dichloroethylene. All other sample locations contained no detectable VOCs or relatively minor concentrations of petroleum constituents. The petroleum constituents appear to be related to a known petroleum release that emanates from the gasoline service station located adjacent and south of the subject Site.

Based on these findings, two permanent groundwater wells were installed in the downgradient area near the south side of Union Boulevard. The wells are known as MW-A (which is screened from 9 to 14 feet below grade) and MW-B (which is screened from 19 to 24 feet below grade). The depth to groundwater is approximately four feet below grade in this area. The well locations are shown in Figure 6 and the results are summarized in Table 3. The results show that no chlorinated VOCs were detected in either well (although petroleum constituents, ostensibly from the gasoline station adjacent and south of the Site, were detected).

Based on this information, although chlorinated VOCs were detected in the past in the off-Site area, they no longer appear to be present.

3.4 On-Site Indoor Air and Subslab Soil Vapor Sampling Results

Due to the presence of chlorinated VOC soil contamination beneath the building, as well as in two exterior locations adjacent to the building, soil vapor intrusion sampling was conducted.

Indoor air and subslab soil vapor samples were collected from within and beneath the building at the Site during 2005, 2006, and 2007. Figure 7 shows the sampling locations. Table 4 summarizes the indoor air chemical analytical results.

The indoor air results show that several VOCs, including tetrachloroethylene and some of its degradation products (as well as other compounds) were detected in the samples during 2005, 2006, and 2007. However, only two exceedances of the New York State Department of Health (NYSDOH) Indoor Air guidance value were noted: the tetrachloroethylene concentration (115.35 ug/m3) at Doggie U was above the guidance value of 100 ug/m3 in 2007 and trichloroethylene (6.01 ug/m3) was above the guidance value of 5 ug/m3 in the former degreaser room (kitchen cabinet storage unit), also in 2007. The NYSDOH guidance values at the time of the sampling have since been

changed. The current guidance value for tetrachloroethylene is 30 ug/m3 and for trichloroethylene, it is 2 ug/m3.

Seven subslab soil vapor sampling point locations exist within the building at the Site. Table 5 summarizes the subslab soil vapor chemical analytical results. Numerous VOCs were detected in the subslab soil vapor. Tetrachloroethylene was detected at a maximum concentration of 207,000 ug/m3 at AM-3 (Doggie U) in 2006 and at significantly elevated concentrations at other locations, primarily AM-4 and AM-5. However, samples obtained 18 days after the remediation system start up (October 28, 2009) showed significant decreases in soil vapor concentrations (with the exception of AM-7, which showed an increase) indicating that the system is functioning effectively and the points at which the vapor decreases occurred are within the area of influence of the SVE portion of the system.

In addition to the subslab samples, one exterior soil vapor sample was obtained to the west of the building in a grassy area in the vicinity of the former evaporation pool (a previous soil sample in this area had showed relatively minor concentrations of tetrachloroethylene). The sample, identified as "Soil Vapor-West," showed significant concentrations of tetrachloroethylene (33,247 ug/m3) and its degradation products, as well as 1,1,1-trichloroethane at concentrations of 163,770 ug/m3. Therefore, a leg of the SVE system was installed in this area.

3.5 Off-Site Indoor Air and Subslab Soil Vapor Sampling Results

Due to the presence of significant subslab soil vapor at the Site, a soil vapor intrusion investigation was performed at the adjacent Chatham Square Apartments in April, 2008. The sampling was performed in the apartment unit closest to the site (Unit 31). Figure 8 shows the adjoining property sample locations, and Table 6 summarizes the chemical analytical results.

For the indoor air sample obtained from the first floor (which consists of a garage/office although the owner reported that no cars were ever stored in the garage), there were detections of several petroleum-related compounds. Tetrachloroethylene and its degradation products were not detected in the indoor air sample collected from the adjoining apartment unit.

For the subslab soil vapor sample (SS-1) from beneath the concrete garage floor, relatively minor concentrations of tetrachloroethylene (25.32 ug/m3) and its degradation products were detected, in addition to 1,1,1-trichloroethane at 141.90 ug/m3.

3.6 Summary of Interim Remedial Measures

Interim Remedial Measures (IRMs) were implemented at the Site and included the 2004 removal of soil contaminated with tetrachloroethylene and its degradation products from the area adjacent to the former scrap metal loading dock. Soil was removed from an area approximately 10 feet long, five feet wide, and five feet deep (groundwater was encountered at five feet below grade). The soil was excavated with a backhoe and screened with a photoionization detector (PID). Clean and contaminated soil were stockpiled separately, and 11.05 tons of contaminated soil was subsequently disposed as hazardous waste. The excavation was then backfilled with the clean stockpiled soil and with clean sand. The purpose of the soil excavation was to remove the most contaminated soil from the area and then addressing the remaining contamination with SVE.

A leaching pool at the base of the loading dock along the eastern wall of the building was also remediated due to exceedances of copper and chromium detected in initial sediment sample results. Approximately two feet of sediment was removed from the leaching pool and disposed as non-hazardous waste. Endpoint samples were collected subsequent to remediation and laboratory analysis results showed no exceedances of the Suffolk County Department of Health Services (SCDHS) Pumpout Guideline concnetrations. Therefore, no further remediation was required for this leaching pool.

The manifests for the waste disposal for the former scrap metal loading dock soil and the leaching pool sediment are presented in Appendix A.

3.7 Site Remedy

The Site investigations were used to determine the nature and extent of soil, groundwater, soil vapor contamination at in the vicinity of the Site. Based on these investigations, it was determined that these issues could be effectively addressed using AS to address the groundwater contamination, and SVE to control and remove the vapors generated by the sparging system, control and remove the soil vapors generated by the

volatization of the soil contamination, remove the soil contamination, and create a negative pressure beneath the building to prevent soil vapor from entering the building.

To accomplish this, a pilot test was performed, followed by the full-scale installation and operation of the system.

3.8 Remaining Contamination

The remaining contamination at the Site is the tetrachloroethylene (and its degradation products) in the soil to the north of the building near the former scrap metal loading dock which could not be physically removed from the Site due to groundwater intrusion and the close proximity to the Site building's footing. The remaining contamination has impacted the groundwater beneath and downgradient of the Site. The remaining contamination is located approximately five feet below grade is covered by five feet of clean sand. This area is protected by a locked eight-foot high chain-link fence with barbed wire, which also houses the remediation shed. Additional locked chain-linked fencing and wood stockade fencing surrounds the northern alley way surrounding the area of remaining contamination.

Groundwater contamination remains at the Site, however, the AS/SVE system has removed significant amounts of contamination.

Soil vapor is likely to remain in the area beneath the building, however, the AS/SVE is likely to have removed most of the soil vapors.

SECTION 4.0
PILOT TESTING AND FULL-SCALE INSTALLATION

4.1 Pilot Test Components and Results Summary

To perform the pilot testing for the AS/SVE system at the Site, a subslab SVE component was installed along with five subslab soil vapor monitoring points, a segment of the SVE system in the south parking lot, two sparging wells, and two test wells.

The subslab SVE component location is shown in Figure 9 (which shows both the pilot test components and the full-scale installation components) and shows that the system components were installed in the former degreaser unit (now known as the kitchen cabinet storage room). The system components were installed by saw-cutting trenches in the concrete, removing approximately one foot of soil from the trench, installing the piping, backfilling the trench, and sealing the saw-cut area with concrete.

The pipes installed are two-inch PVC laid horizontally (due to the shallow water table). There were three system legs installed in this area: L-7, L-8, and L-9. Each leg contains a screened interval and a riser pipe to route the extracted vapors. At the proximal terminus of the subslab piping, PVC elbows and riser pipes were installed to allow access to the legs during the pilot testing.

The soil vapor and pressure monitoring points (AM-1 through AM-5) locations were shown in Figure 8 and were installed to determine the radius of the SVE influence and for vapor sampling.

For the exterior SVE pilot testing in the south parking lot, the central leg (L-2) of the system was installed by saw-cutting a trench in the asphalt, removing the soil to a depth of approximately two feet, installing and pitching a screened length of pipe, and backfilling the soil into the trench. An asphalt patch was then installed over the trench. The location of SVE segment L-2 is shown in Figure 10 (which shows both the pilot test components and the full-scale installation components).

Two sparging wells (AS-3 and AS-4) with two-inch diameter PVC pipe were installed to a depth of 22.5 feet below grade (17.5 feet below the water table) with two-foot screens at the base of the wells. Finally, two test wells were installed to evaluate both the radius of influence of the sparging wells by measuring changes in water table

elevation and dissolved oxygen, as well as to obtain magnehelic gauge readings to determine the radius of influence of the SVE system. The test wells were installed to a depth of 10 feet below grade (five feet below the water table) and contain screened intervals from 3 to 10 feet below grade.

The pilot test was performed by withdrawing vapor from the subslab legs (L-7, L-8, and L-9) at a rate of 100 cubic feet per minute (cfm). The results showed acceptable magnehelic gauge influence at AM-1, AM-2, AM-4, and AM-5. However, the influence at AM-3 was insufficient. Therefore, an additional system leg was installed in the area of AM-3 during the full-scale installation.

For the exterior SVE system test, the SVE temporary blower was operated at a rate of 50 cfm and the results showed that the SVE system influence was well beyond the maximum expected area of influence of the sparging system.

For the sparging pilot test, the tests showed a radius of influence of at least 20 feet based on changes in dissolved oxygen concentrations. Based on the report of these findings, the NYSDEC requested the installation of the full-scale system.

4.2 Full-Scale System Installation

The full-scale installation of the AS/SVE remediation system consisted of additions to the components installed for the pilot test. For the northern portion of the Site, these additions included an air sparging well, a test well, three additional interior and exterior legs of the SVE system, and a remediation compound to house the blower and compressor (as shown in Figure 9).

The air sparging well (AS-1) was installed in the area of the previously excavated soil adjacent to the former scrap metal loading dock. The purpose of AS-1 is to address the groundwater contamination in this area. Also, due to the known existence of contamination at deeper depths in this area, AS-1 was installed deeper, to a depth of 37.5 feet below grade (with a screen from 35 to 37.5 feet below grade), than the southern parking lot sparging wells. The boring and well construction logs for wells AS-1 through AS-5 are presented in Appendix B.

A test well (TW-3) was installed approximately 8 feet from AS-1 to provide visual evidence of the point at which sufficient pressure was devoted to AS-1 such that sparging air bubbles could be seen.

Three additional SVE legs were installed in this area. L-4 consists of a 30-foot-long, four-inch diameter PVC screen installed horizontally in the area of the former evaporation pool where elevated concentrations of chlorinated VOCs were detected in the soil vapor. L-5 consists of a 30-foot-long, four-inch diameter PVC screen installed horizontally and in the area of the former scrap metal loading dock where the residual concentrations (following the previous soil excavation) of chlorinated VOCs were expected to be the highest of anywhere on the Site. L-5 also functions to remove vapors generated by sparging well AS-1. The legs were installed at the base of a two-foot-deep trench. For exterior legs L-4 and L-5, which were installed in areas where exposed soil is present at the surface, a ten-foot wide section of plastic liner was installed over the screened section of pipe to prevent the infiltration of precipitation and to reduce short-circuiting. The plastic liner was installed at approximately one foot below grade in a convex shape to prevent ponding above the liner. Leg L-6 was installed in the Doggie U unit to collect soil vapor present in this area that may not be within the area of influence of legs L-7, L-8, and L-9. Leg L-6 was installed vertically to a depth of just over three feet. It consists of a three-foot-long, four-inch-diameter screen, backfilled with No. 1 Morie gravel and sealed at grade with concrete. The solid riser pipe then runs above ground, north, along the east wall of Doggie U and then enters the kitchen cabinet storage unit through a perforation in the wall, and then runs northward through a perforation in the north wall where it is then connected to the remediation compound.

In the southern parking lot area (see Figure 10), a trench was created and additional SVE legs L-1 and L-3 were installed at a depth of two feet below grade. All horizontal screens installed at the Site were pitched downward at their distal ends to reduce the potential for moisture from entering the system. Each leg is 30 feet in length. The line of SVE legs was installed in a zig-zag configuration as the result of the need to avoid subsurface utilities in this area. The vapor withdrawn from legs L-1, L-2, and L-3 is routed to a subsurface vault where the legs are manifolded and then a single four-inch PVC pipe exits the north end of the vault, exits the ground at the base of the building

wall, and then runs upward along the building wall, then northward across the building, then downward along the north wall of the building where it is connected to the remediation compound. Also, within the vault, on the influent side of the manifold, are individual valve controls for each leg. In addition, on the influent side of each leg's valve is a sampling port. Following installation of all system components in the south parking lot, a new layer of asphalt was laid in the entire south parking lot to prevent infiltration of precipitation and to prevent short circuiting of the SVE components.

In addition, to the SVE components in the south parking lot area, two additional sparging wells were installed (for a total of four). The four sparging wells, AS-2 through AS-5, were all installed to a depth of 22.5 feet below grade feet with 2.5 foot screens at their base. The sparge wells are approximately 25 feet apart. Each sparging well was connected to a two-inch trunk line and contains individual valving to adjust the air flow to each sparging well. The sparging well also passes through the vault and runs across the building's roof where it is connected to the remediation compound.

The remediation compound is an 8 by 12 foot shed along the north exterior wall of the building. The shed contains a sparge compressor and an SVE blower. The sparge compressor is a Becker KDT 3.100 rotary vane oil-less 10 horsepower (hp) compressor rated at 69 scfm (standard cfm) at 18 psi (pounds per square inch). The SVE blower is a Rotron 10 hp Environmental Blower rated at 400 scfm at 0 inches H2O. Additional details for the blower and compressor, including system diagrams, are presented in Appendix C.

The SVE discharge is directed to two drums of activated carbon connected in series. The drums are located adjacent and east of the remediation shed and are fitted with drum warmers to prevent freezing of any liquid that may enter the drums. The final discharge from the drums is directed to a point approximately three feet above the building's roofline.

The system contains a moisture knockout tank. The system also contains a high water level automatic shutoff for the moisture knockout tank, as well as a high temperature automatic shutoff for the blower and compressor.

A six-foot locked chain link fence with barbed wire was installed around the immediate area of the remediation compound.

4.3 Remedial Action Objectives

The purpose of the installation of the AS/SVE system is to address the remaining soil contamination at the Site, the on-Site groundwater contamination, and the soil vapor beneath the building.

The remaining soil contamination exists in three areas: the subslab area in the vicinity of the former degreaser, the residual contamination in the area of the former scrap metal loading dock, and the area adjacent and west of the building where soil vapor was detected in the area of the former evaporation pool. Each of these areas is currently being remediated by SVE.

For the on-Site groundwater, the configuration of the on-Site plume has been identified (as was presented in Figure 4). The goal is to address the area of highest levels of groundwater contamination, which occur in the area of the former scrap metal loading dock. A sparge well and associated SVE was installed in this area to address this issue. Also, for the downgradient area, four AS wells were installed at approximately 25-foot intervals generally in an east-west line and perpendicular to the long axis of the plume. The sparging wells were designed to have intersecting radii of influence and have a total area of influence of a minimum of 105 feet in the east-west direction (assuming a radius of influence of at least 15 feet for each AS well). The three SVE legs (L-1, L-2, and L-3) were installed to withdraw the vapors generated by the AS wells.

For the soil vapor beneath the building, the migration of these vapors will be controlled, and the vapors will be removed by the subslab SVE legs at L-6, L-7, L-8, and L-9.

The remedial action at the Site will be considered complete when monitoring indicates that the remedy has achieved the remedial action objectives Remedial Action Objectives (RAOs).

The AS/SVE system will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the AS/SVE system is no longer required, a proposal to discontinue the system will be submitted by Dermody Consulting on behalf of the property owner. Conditions that warrant

discontinuing the AS/SVE system include contaminant concentrations in groundwater that: (1) reach levels that are consistently below the NYSDEC ambient water quality standards, (2) have become asymptotic to a low level over an extended period of time as accepted by the NYSDEC, or (3) the NYSDEC has determined that the AS/SVE system has reached the limit of its effectiveness.

For the soil, if it is determined that no further significant contamination is present in the areas that are currently undergoing remediation, Dermody Consulting will propose soil sampling in those areas. Upon approval of the NYSDEC, the samples will be obtained and the results will be compared to the 6 NYCRR Subpart 375-6 guidelines. If the results show no exceedances of the guidelines, this information will be used as a component in the consideration of whether to discontinue the system operation.

The AS/SVE system in operation at the Site contains vapor withdrawal points that were installed beneath the Site buildng's slab.. Therefore, the SVE system is also functioning as a Sub-Slab Depressurization System (SSDS). In the event that monitoring data indicates that SSDS is no longer required, a proposal to discontinue the system will be submitted to the NYSDEC and the NYSDOH. The criteria for determining that the SSDS is no longer required will be based on the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (2006) and the indoor air/sub-slab vapor matrices.

SECTION 5.0
REMEDIAL SYSTEM OPERATION

5.1 Remediation System Startup

The remedial system commenced operation on October 10, 2009. Following the commencement of the operation of the system, the flow rates for each leg of the SVE components were adjusted. The total flow rate was determined be 290 cfm. The adjusted flow rates for each leg are presented in Table 7.

For the AS wells, the valves were adjusted to determine the pressure at which breakthrough (the point at which air bubbles were emitted from the screen of the AS wells) occurred. At well AS-1, breakthrough occurred at a delivery pressure of 10 psi. At AS-1, breakthrough was confirmed through the visual observation bubbles entering test well TW-3 (which is a two-inch PVC pipe that was installed with a hand auger to approximately six inches below the water table). Due to the shallow water table, at breakthrough, the bubbles could clearly be seen in the well.

For wells AS-2 through AS-5, breakthrough was noted at 8.5 psi for each well. Breakthrough was observed in wells TW-1 as well as the through the base of the north end of the valve vault. Well AS-2 is 15 feet from the point within the valve vault at which the bubbles were noted, therefore, it was concluded that the AS wells have a radius of influence of at least 15 feet.

On October 22, 2009, 12 days after system startup, in-line vapor samples were collected to determine initial concentrations (the system was given 12 days to generate vapors from the sparging of the groundwater so that representative initial samples could be obtained) in each of the nine SVE legs. To obtain the samples, the remediation system was temporarily shut down. Then, a length of polyethylene tubing with a purging port was connected to a six liter Summa Canister and to the valve stem of each leg. At each leg, the pipe valve was closed and 120 cubic centimeters of vapor was withdrawn from the purging port using a Teflon graduated syringe. The Summa Canister valve was then opened and a sample obtained from the piping on the influent side of each leg's valve over a period of approximately 30 seconds. The samples were sent to the laboratory for analysis of VOCs by Method TO-15.

The sample results are summarized in Table 8. The results show that tetrachloroethylene and its degradation products, as well as 1,1,1-trichoroethane, were detected in all samples. The primary compound detected at all locations was tetrachloroethylene. The highest concentrations were found at L-9 (97,539 ug/m3) and L-7 (79,397 ug/m3). The lowest concentrations of tetrachloroethylene were found in the three SVE legs associated with the sparging wells in the south parking lot. The concentrations of tetrachloroethylene detected at L-1, L-2, and L-3 ranged from 1,932 to 5,519 ug/m3.

PID readings were also obtained from each SVE leg on five occasions from prior to startup on October 10, 2009 to February 1, 2010. The results are presented in Table 9 and show that the highest readings were obtained from L-5 three days after startup [485 ppm (parts per million)]. However, the results also show that the concentrations of soil vapor in the system have significantly decreased since system startup.

SECTION 6.0
SYSTEM MONITORING

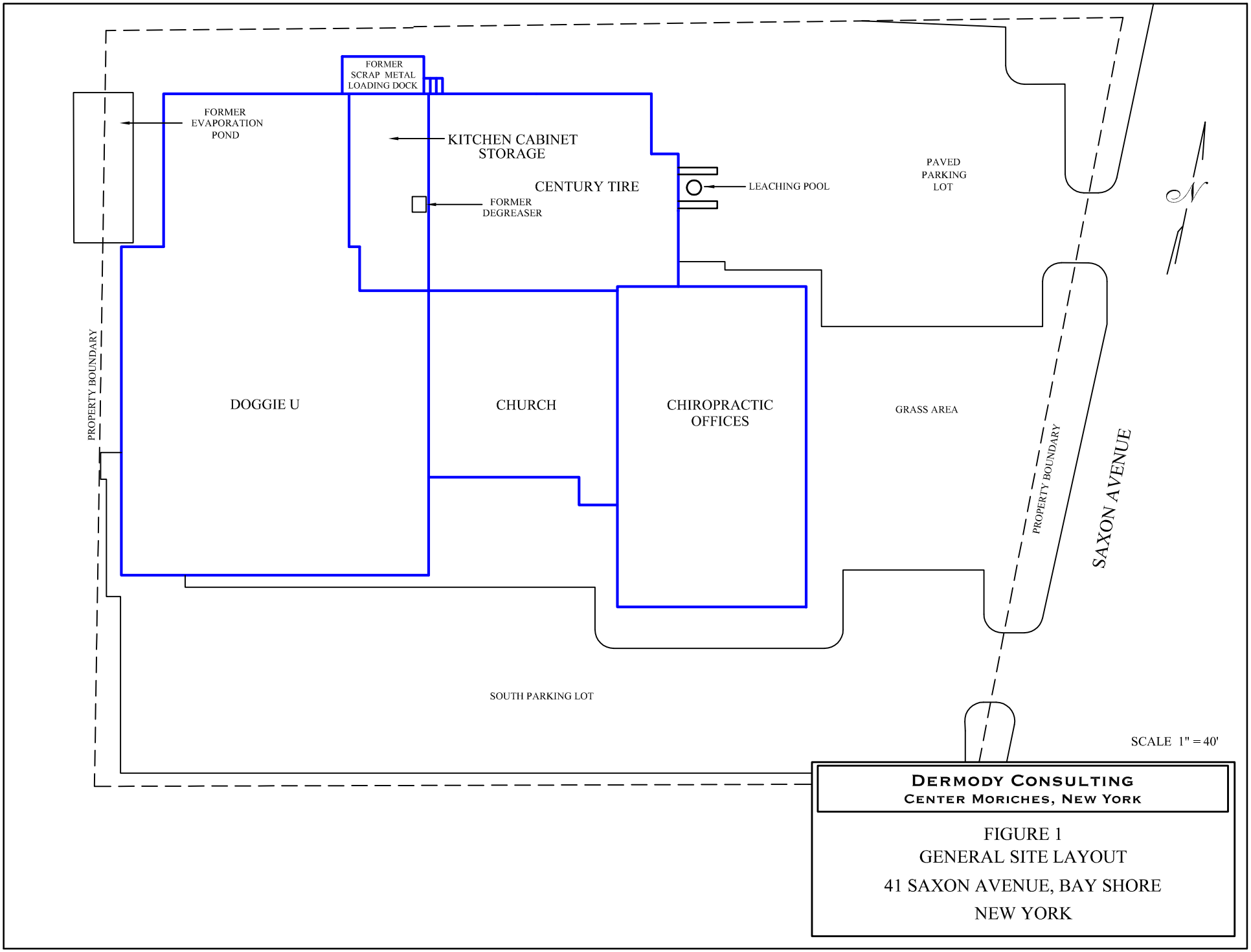
Periodic sampling of the groundwater has been performed since the commencement of operation of the remedial systems. The groundwater wells that have been sampled include WC-1, WC-2, WC-3, MW-4, MW-8D, MW-9, and off-Site wells MW-A and MW-B. In addition, PID readings have been obtained from the legs of the SVE system have been obtained to determine the changes in concentrations of VOCs in the soil vapor over time.

The results of the sampling and monitoring have shown a significant reduction in the concentrations of remaining contamination in the groundwater and soil.

The most recent groundwater monitoring and system monitoring reports are provided in Appendix D.

6.1 Deviations from the RAWP

There were no significant deviations from the RAWP.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CENTURY TIRE
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SAXON AVENUE
SOUTH PARKING LOT
SCALE 1" = 40'
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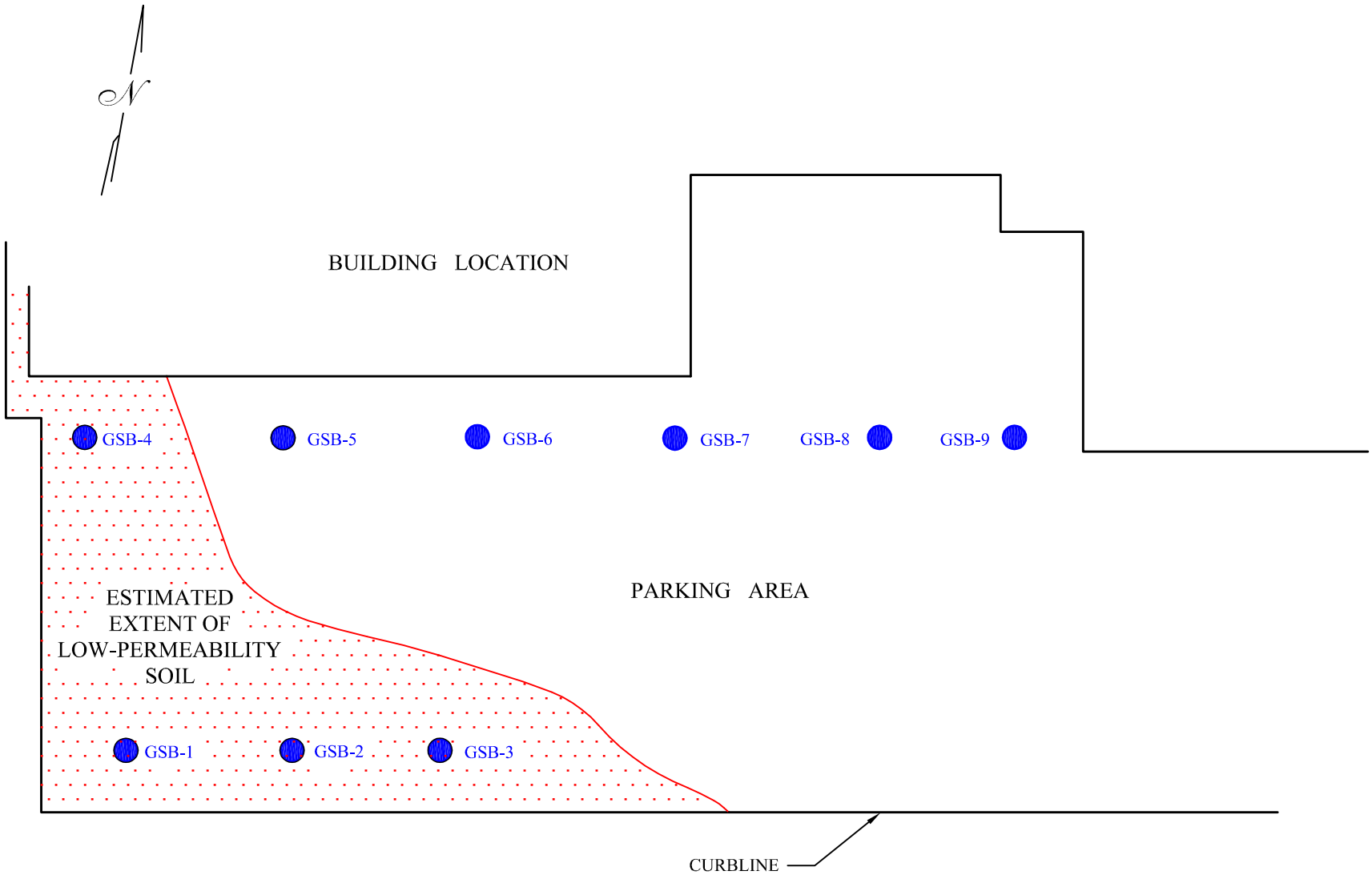
FIGURE 1
GENERAL SITE LAYOUT
41 SAXON AVENUE, BAY SHORE
NEW YORK



LEGEND

GSB-1 GEOPROBE BORING LOCATION

APPROXIMATE SCALE: 1" = 20'

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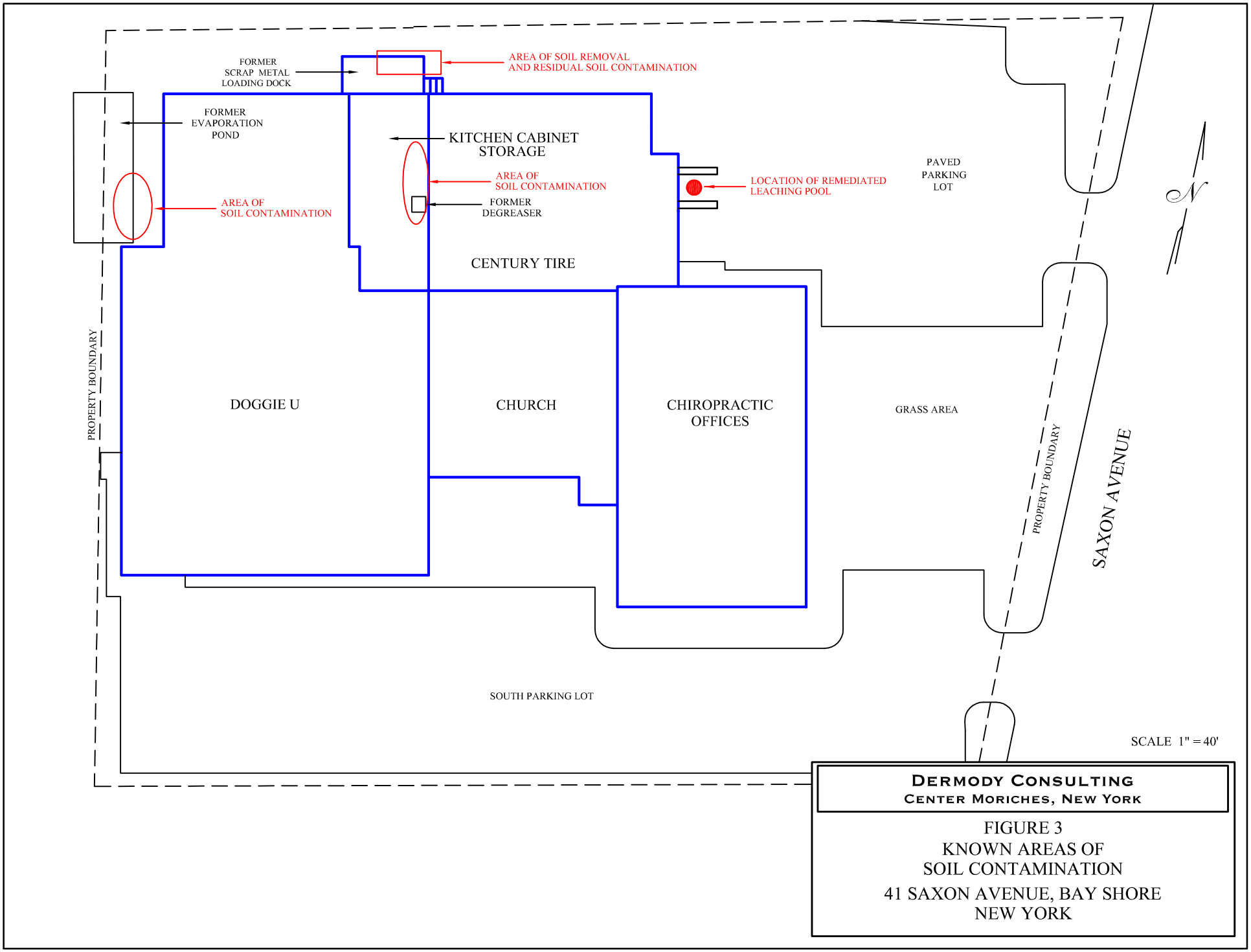
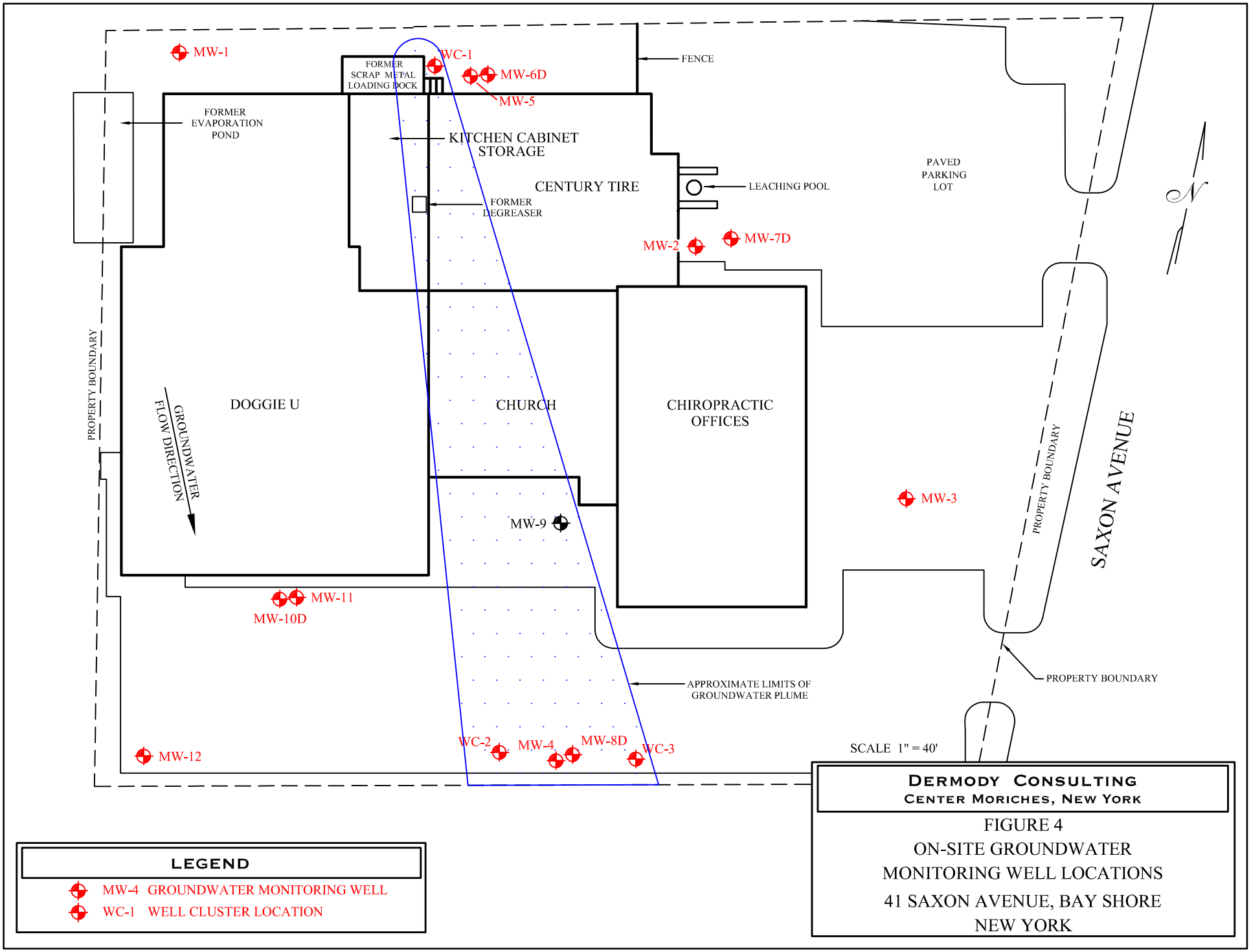
CENTER MORICHES, NEW YORK

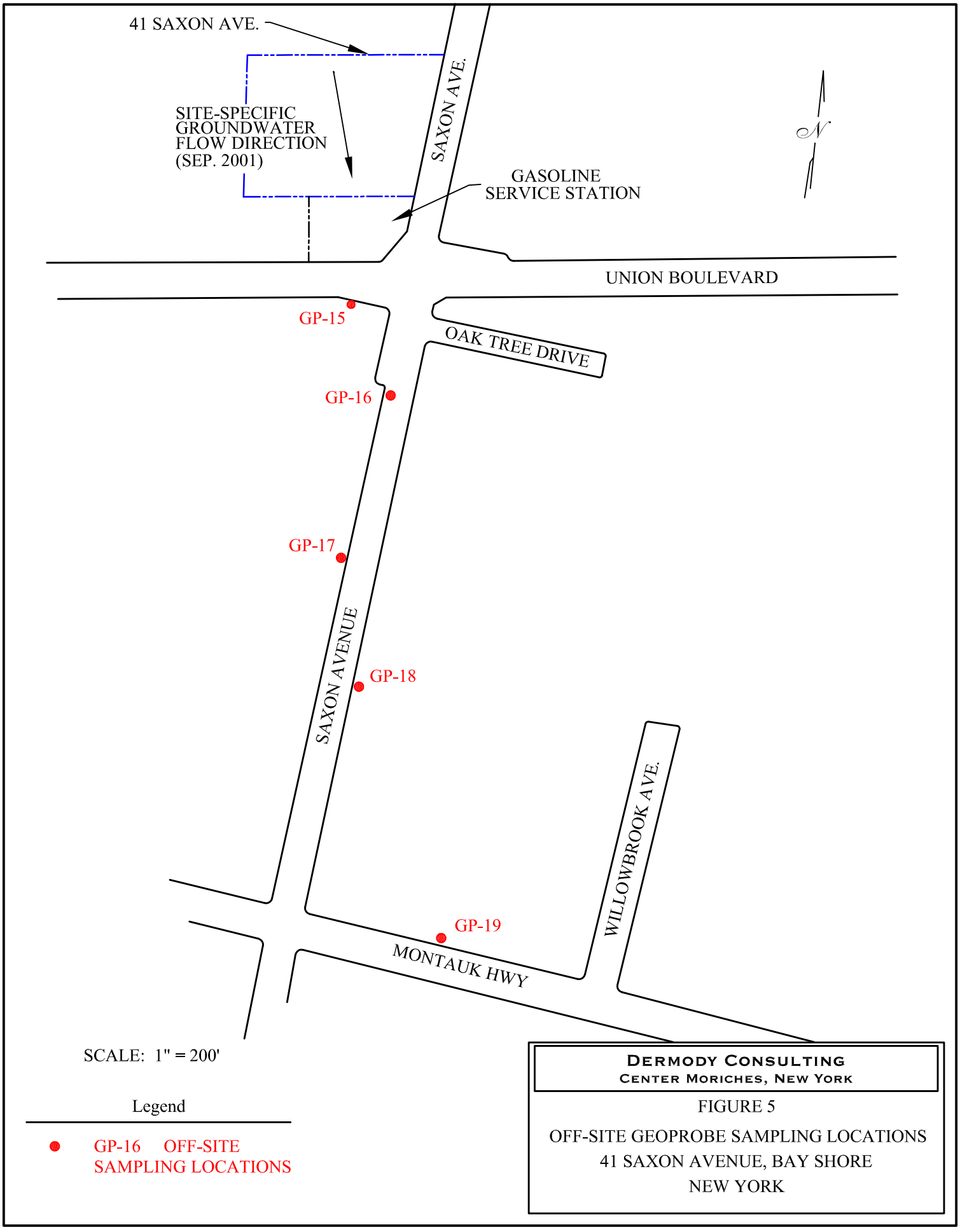
FIGURE 2

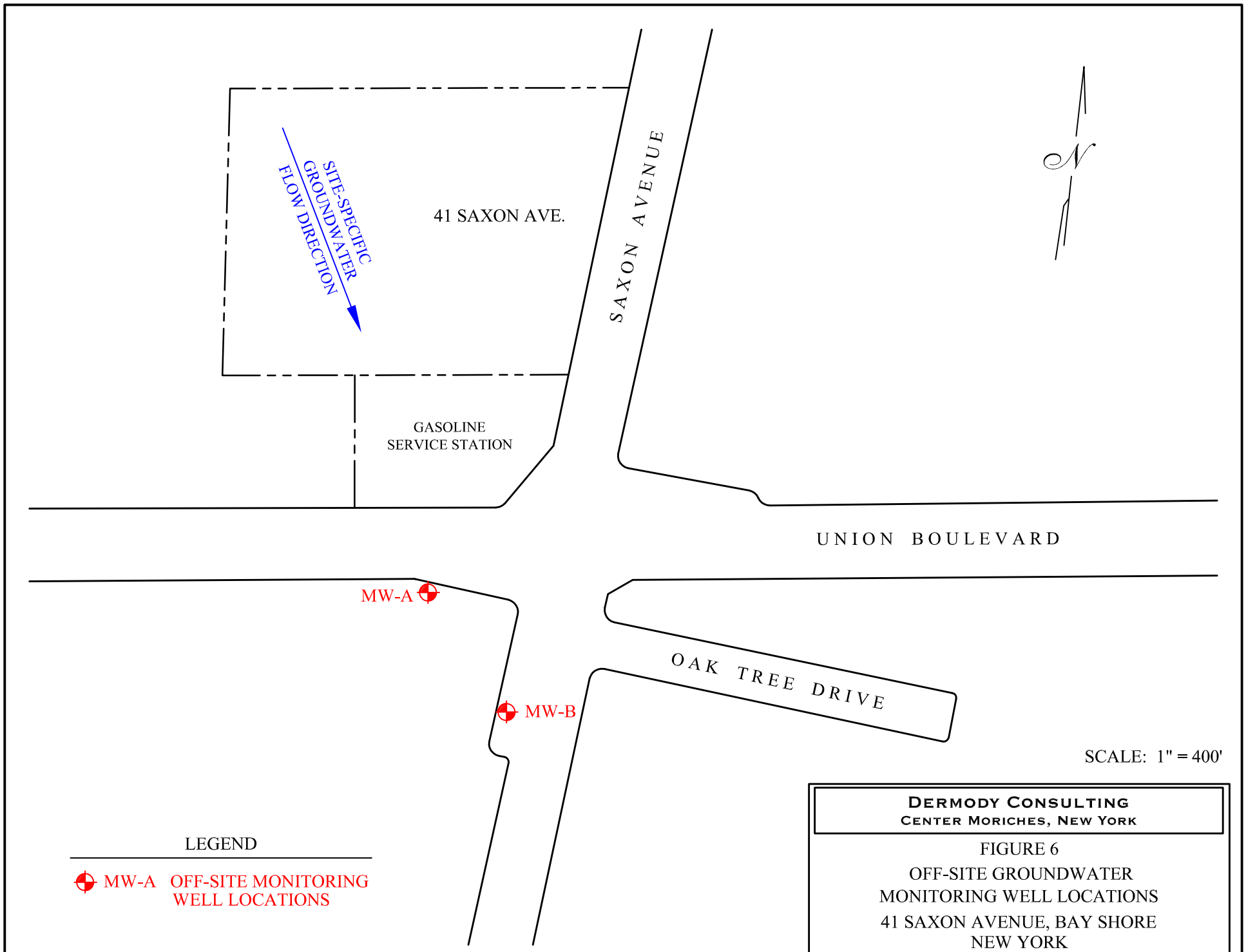
LOCATIONS OF SOUTH PARKING LOT GEOLOGICAL BORINGS

41 SAXON AVENUE, BAY SHORE
NEW YORK


FORMER
SCRAP METAL
LOADING DOCK
AREA OF SOIL REMOVAL
AND RESIDUAL SOIL CONTAMINATION
FORMER
EVAPORATION
POND
KITCHEN CABINET
STORAGE
AREA OF
SOIL CONTAMINATION
FORMER
DEGREASER
LOCATION OF REMEDIATED
LEACHING POOL
PAVED
PARKING
LOT
AREA OF
SOIL CONTAMINATION
CENTURY TIRE
PROPERTY BOUNDARY
DOGGIE U
CHURCH
CHIROPRACTIC
OFFICES
GRASS AREA
PROPERTY BOUNDARY
SAXON AVENUE
SOUTH PARKING LOT
SCALE 1" = 40'
DERMODY CONSULTING
CENTER MORICHES, NEW YORK
FIGURE 3
KNOWN AREAS OF
SOIL CONTAMINATION
41 SAXON AVENUE, BAY SHORE
NEW YORK


MW-1
WC-1
MW-6D
MW-5
FORMER SCRAP METAL LOADING DOCK
FENCE
FORMER EVAPORATION POND
KITCHEN CABINET STORAGE
CENTURY TIRE
FORMER DEGREASER
LEACHING POOL
PAVED PARKING LOT
MW-2
MW-7D
PROPERTY BOUNDARY
DOGGIE U
CHURCH
CHIROPRACTIC OFFICES
GROUNDWATER FLOW DIRECTION
MW-3
MW-9
SAXON AVENUE
PROPERTY BOUNDARY
MW-11
MW-10D
APPROXIMATE LIMITS OF GROUNDWATER PLUME
PROPERTY BOUNDARY
MW-12
WC-2
MW-4
MW-8D
WC-3
SCALE 1" = 40'
N
LEGEND
MW-4 GROUNDWATER MONITORING WELL
WC-1 WELL CLUSTER LOCATION
DERMODY CONSULTING
CENTER MORICHES, NEW YORK
FIGURE 4
ON-SITE GROUNDWATER
MONITORING WELL LOCATIONS
41 SAXON AVENUE, BAY SHORE
NEW YORK


41 SAXON AVE.
SITE-SPECIFIC
GROUNDWATER
FLOW DIRECTION
(SEP. 2001)
SAXON AVE.
GASOLINE
SERVICE STATION
N
UNION BOULEVARD
GP-15
OAK TREE DRIVE
GP-16
GP-17
SAXON AVENUE
GP-18
WILLOWBROOK AVE.
GP-19
MONTAUK HWY
SCALE: 1" = 200'
Legend
GP-16 OFF-SITE
SAMPLING LOCATIONS
DERMODY CONSULTING
CENTER MORICHES, NEW YORK
FIGURE 5
OFF-SITE GEOPROBE SAMPLING LOCATIONS
41 SAXON AVENUE, BAY SHORE
NEW YORK


41 SAXON AVE.
SITE-SPECIFIC GROUNDWATER FLOW DIRECTION
SAXON AVENUE
N
GASOLINE SERVICE STATION
UNION BOULEVARD
MW-A
MW-B
OAK TREE DRIVE
SCALE: 1" = 400'
LEGEND
MW-A OFF-SITE MONITORING WELL LOCATIONS
DERMODY CONSULTING
CENTER MORICHES, NEW YORK
FIGURE 6
OFF-SITE GROUNDWATER MONITORING WELL LOCATIONS
41 SAXON AVENUE, BAY SHORE
NEW YORK

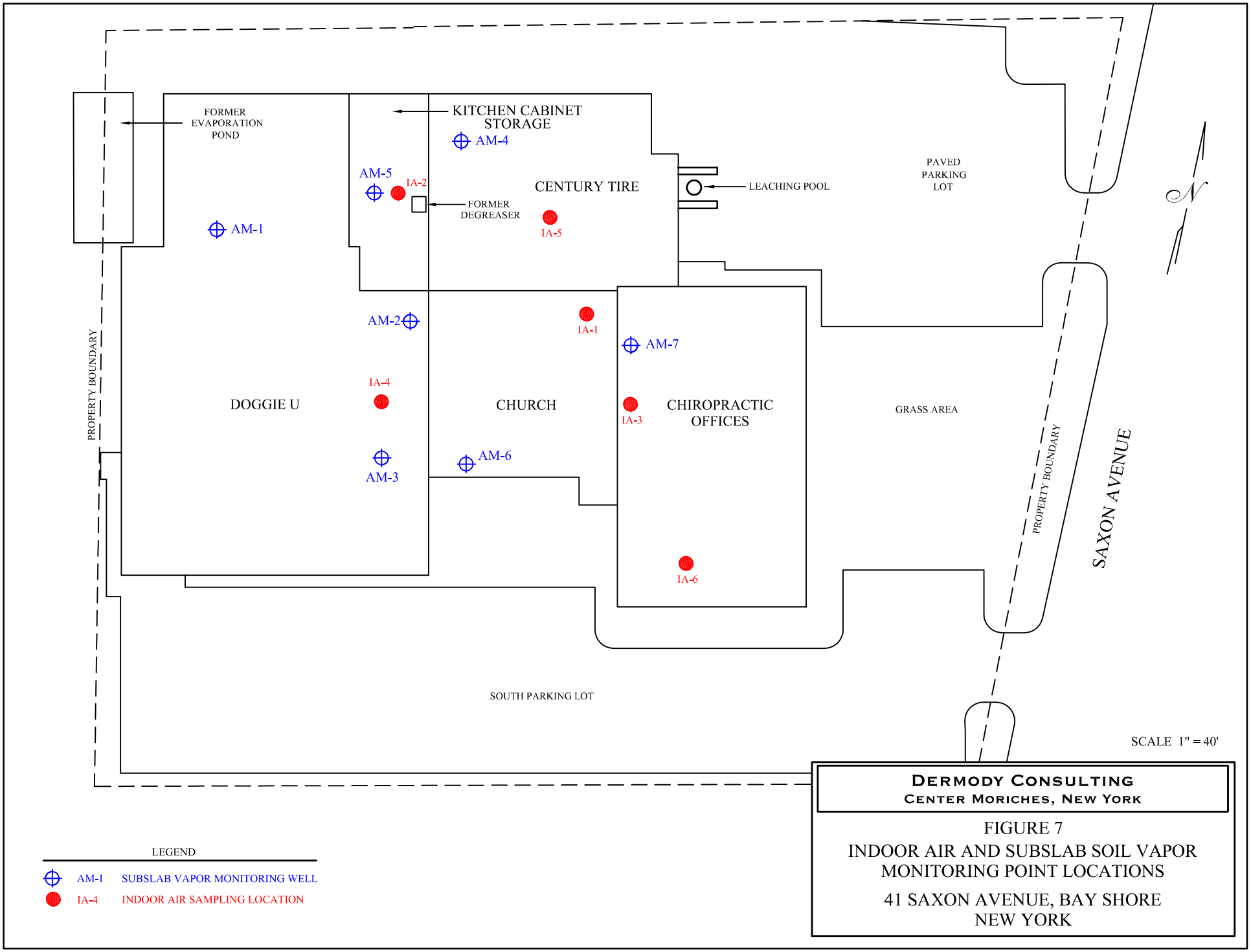


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FIGURE 7
INDOOR AIR AND SUBSLAB SOIL VAPOR MONITORING POINT LOCATIONS

41 SAXON AVENUE, BAY SHORE
NEW YORK

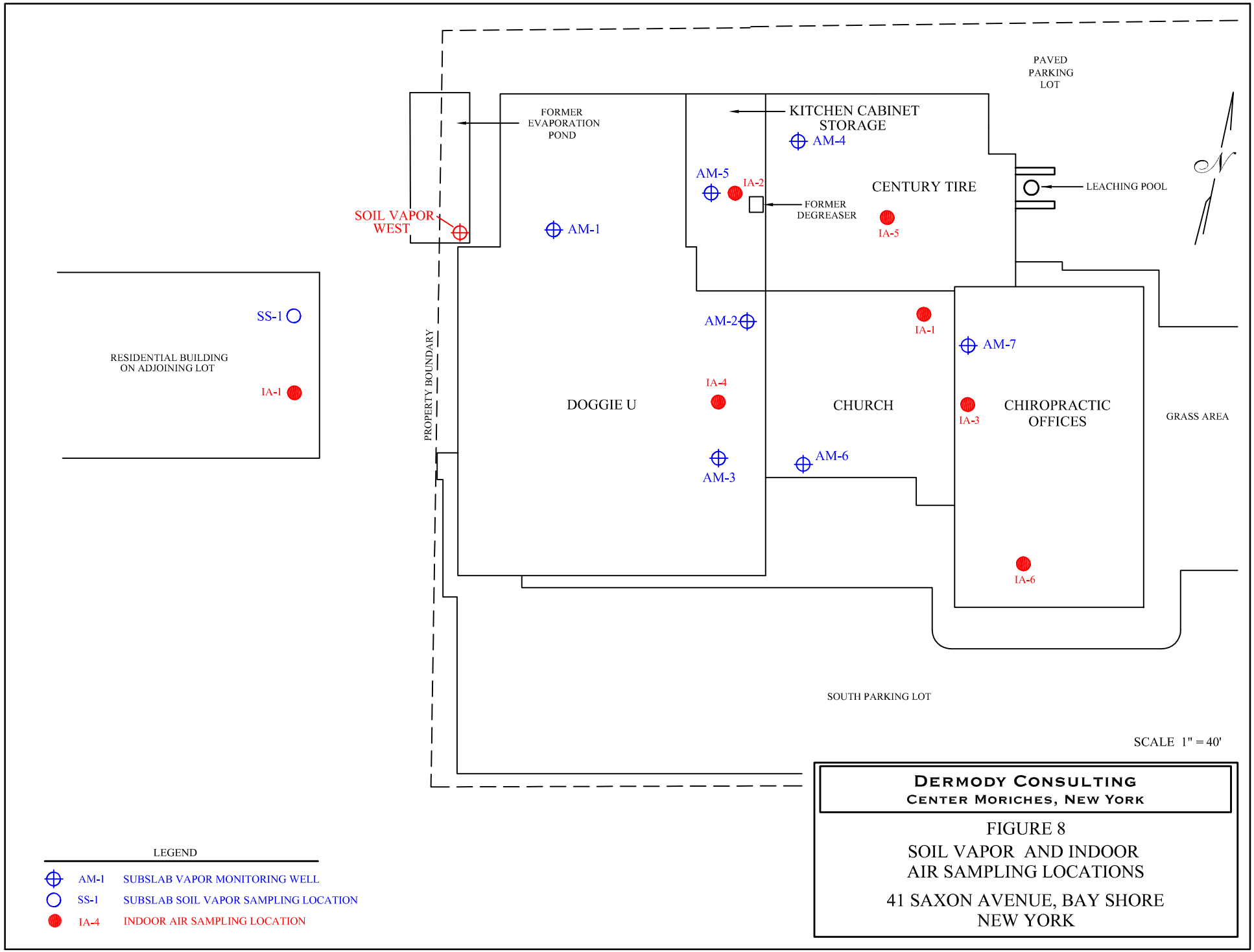

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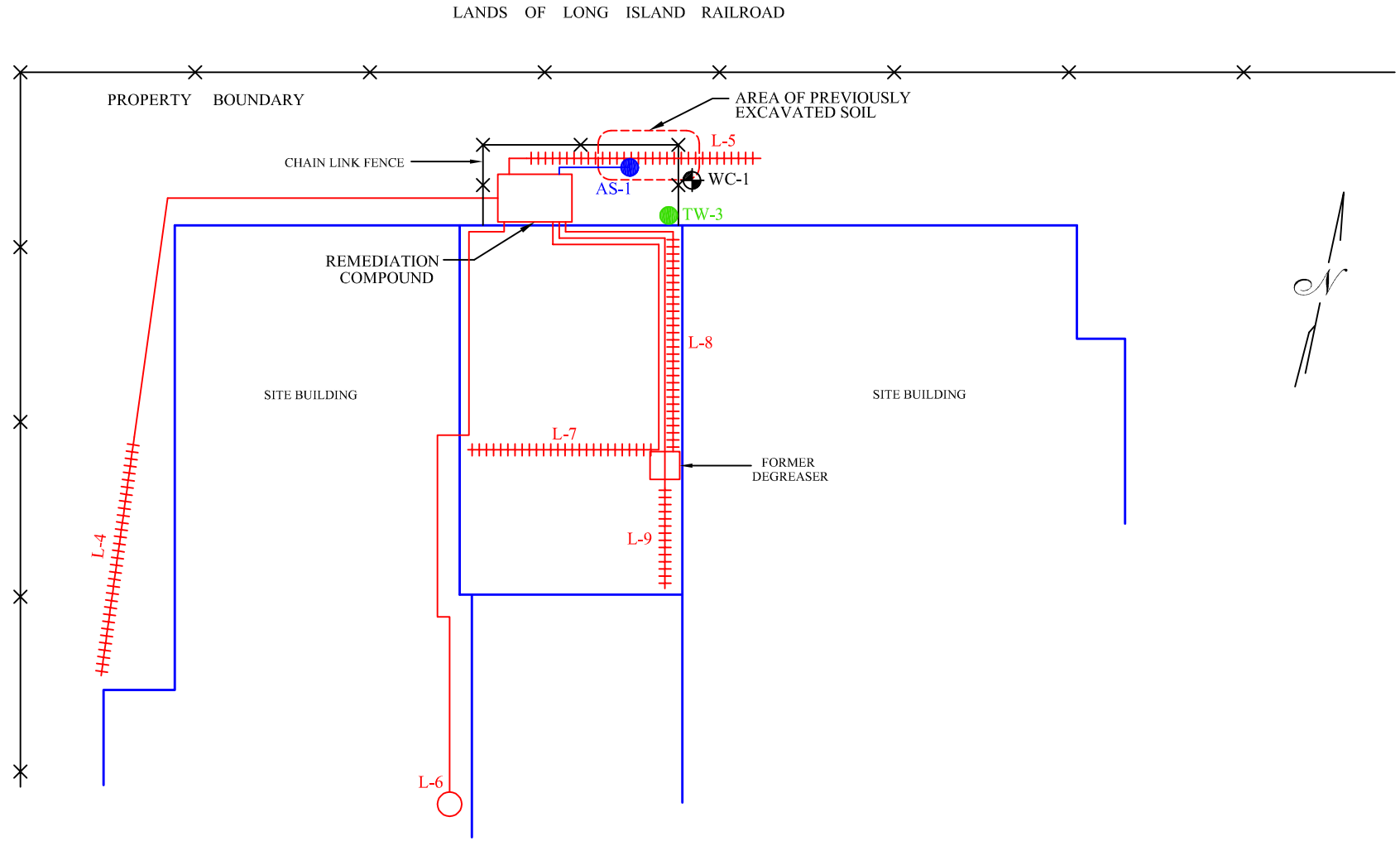
FIGURE 8
SOIL VAPOR AND INDOOR AIR SAMPLING LOCATIONS

41 SAXON AVENUE, BAY SHORE
NEW YORK



SCALE 1" = 16'

LEGEND

⊕	WC-1	WELL CLUSTER LOCATION
●	AS-1	AIR SPARGING POINT
++++++++++	L-4	SVE LEG (SCREENED PORTION)
○	L-6	VERTICAL SVE LEG
●	TW-3	OBSERVATION WELL FOR SPARGING SYSTEM

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FIGURE 9
NORTHERN PORTION OF
REMEDIATION SYSTEM
41 SAXON AVENUE, BAY SHORE
NEW YORK

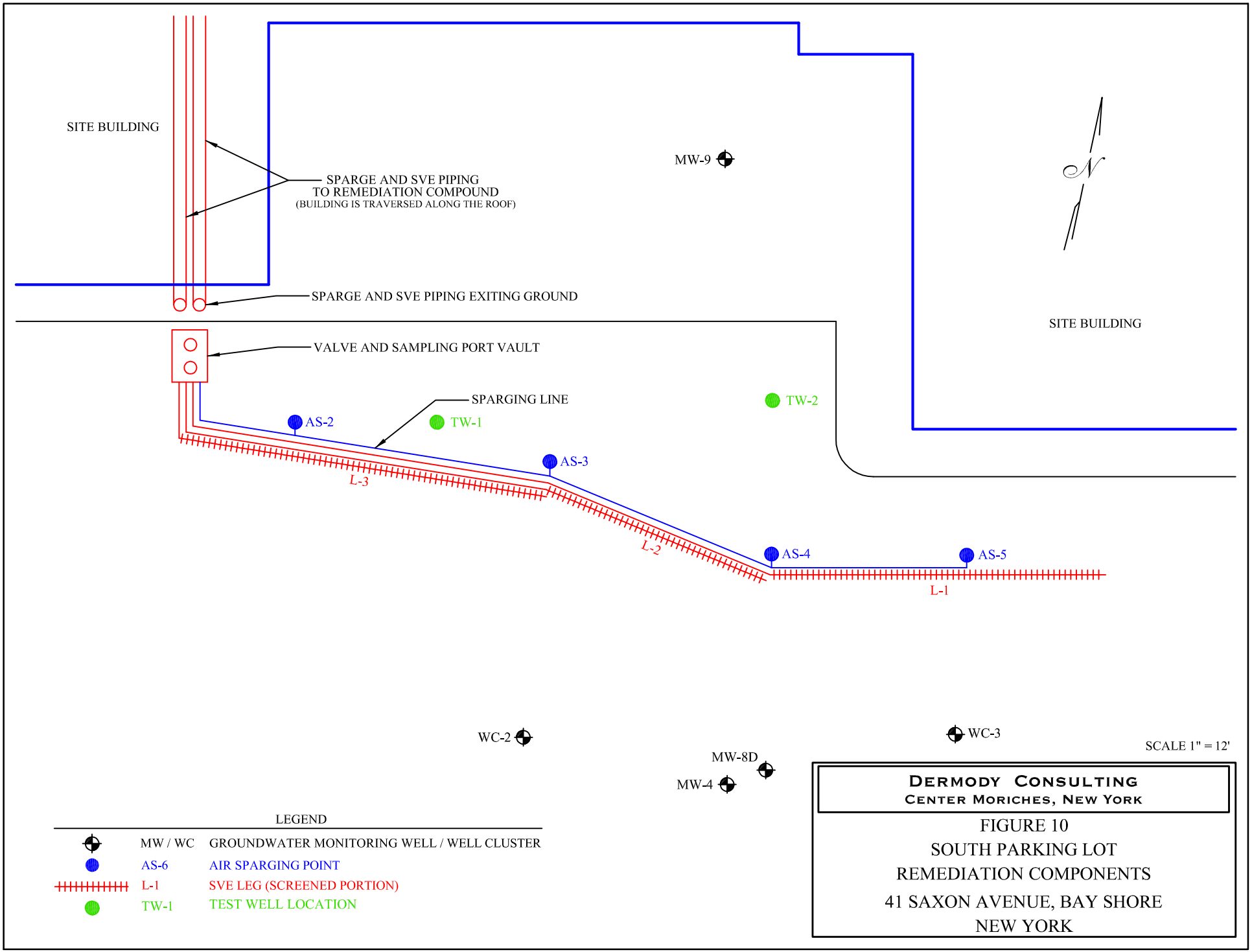

SITE BUILDING
SPARGE AND SVE PIPING
TO REMEDIATION COMPOUND
(BUILDING IS TRAVERSED ALONG THE ROOF)
SPARGE AND SVE PIPING EXITING GROUND
MW-9
N
SITE BUILDING
VALVE AND SAMPLING PORT VAULT
SPARGING LINE
AS-2
TW-1
TW-2
AS-3
L-3
L-2
AS-4
AS-5
L-1
WC-2
WC-3
MW-8D
MW-4
SCALE 1" = 12'
LEGEND
MW / WC GROUNDWATER MONITORING WELL / WELL CLUSTER
AS-6 AIR SPARGING POINT
L-1 SVE LEG (SCREENED PORTION)
TW-1 TEST WELL LOCATION
DERMODY CONSULTING
CENTER MORICHES, NEW YORK
FIGURE 10
SOUTH PARKING LOT
REMEDIATION COMPONENTS
41 SAXON AVENUE, BAY SHORE
NEW YORK

Table 1
On-Site Monitoring Well Groundwater Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample Location	WC-1 (5'-10')	WC-1 (20'-25')	WC-1 (35'-40')	WC-1 (50'-55')	NYSDEC Class GA Ambient Water Quality Standards
Volatile Organic Compounds ***(in microgram per liter)***					
Chlorobenzene	ND	ND	ND	ND	5*
Chloroethane	ND	ND	ND	ND	5*
1,1-Dichloroethane	ND	**6**	ND	ND	5*
1,2-Dichloroethane	ND	ND	**12**	**6**	0.6
1,1-Dichloroethylene	ND	ND	ND	ND	5*
cis-1,2-Dichloroethylene	ND	**49**	**98**	**50**	5*
trans-1,2-Dichloroethylene	ND	ND	ND	ND	5*
Methylene Chloride	ND	ND	ND	ND	5*
Methyl tertiary butyl ether	ND	ND	ND	ND	10
Tetrachloroethylene	**370**	**690**	**2,800**	**1,200**	5*
Toluene	ND	ND	ND	ND	5*
1,1,1-Trichloroethane	**33**	**66**	**150**	**88**	5*
Trichloroethylene	5	**51**	**87**	**58**	5*
1,2,4-Trimethylbenzene	ND	ND	ND	ND	5*
Vinyl Chloride	ND	ND	ND	ND	2

Table 1 *(continued)*
On-Site Monitoring Well Groundwater Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample Location	WC-2 (5'-10')	WC-2 (20'-25')	WC-2 (35'-40')	WC-2 (55'-60')	NYSDEC Class GA Ambient Water Quality Standards
Volatile Organic Compounds *(in micrograms per liter)*					
Chlorobenzene	ND	ND	ND	ND	5*
Chloroethane	ND	ND	ND	ND	5*
1,1-Dichloroethane	**19**	ND	ND	ND	5*
1,2-Dichloroethane	ND	ND	ND	ND	0.6
1,1-Dichloroethylene	5	ND	ND	ND	5*
cis-1,2-Dichloroethylene	**1,900**	ND	**6**	ND	5*
trans-1,2-Dichloroethylene	**22**	ND	ND	ND	5*
Methylene Chloride	ND	ND	ND	ND	5*
Methyl tertiary butyl ether	ND	ND	ND	ND	10
Tetrachloroethylene	**310**	ND	ND	5	5*
Toluene	ND	ND	ND	ND	5*
1,1,1-Trichloroethane	**30**	ND	ND	ND	5*
Trichloroethylene	**200**	ND	ND	ND	5*
1,2,4-Trimethylbenzene	ND	ND	ND	ND	5*
Vinyl Chloride	**720**	ND	ND	ND	2

Table 1 *(continued)*
On-Site Monitoring Well Groundwater Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample Location	WC-3 (5'-10')	WC-3 (20'-25')	WC-3 (35'-40')	WC-3 (55'-60')	NYSDEC Class GA Ambient Water Quality Standards
Volatile Organic Compounds *(in micrograms per liter)*					
Chlorobenzene	ND	ND	ND	ND	5*
Chloroethane	ND	ND	ND	ND	5*
1,1-Dichloroethane	ND	ND	ND	ND	5*
1,2-Dichloroethane	ND	ND	ND	ND	0.6
1,1-Dichloroethylene	ND	ND	ND	ND	5*
cis-1,2-Dichloroethylene	**8**	ND	ND	ND	5*
trans-1,2-Dichloroethylene	ND	ND	ND	ND	5*
Methylene Chloride	ND	ND	ND	ND	5*
Methyl tertiary butyl ether	ND	ND	ND	ND	10
Tetrachloroethylene	**15**	**25**	**30**	**28**	5*
Toluene	ND	ND	ND	ND	5*
1,1,1-Trichloroethane	ND	**7**	**7**	**6**	5*
Trichloroethylene	**6**	ND	ND	ND	5*
1,2,4-Trimethylbenzene	ND	ND	ND	ND	5*
Vinyl Chloride	ND	ND	ND	ND	2

Table 1 *(continued)*
On-Site Monitoring Well Groundwater Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample Location	MW-4	MW-5	MW-8D	MW-9	MW-12	NYSDEC Class GA Ambient Water Quality Standards
Volatile Organic Compounds *(in micrograms per liter)*						
Chlorobenzene	ND	ND	ND	ND	ND	5*
Chloroethane	ND	ND	ND	ND	ND	5*
1,1-Dichloroethane	5	ND	ND	**49**	ND	5*
1,2-Dichloroethane	ND	ND	ND	ND	ND	0.6
1,1-Dichloroethylene	ND	ND	ND	**7**	ND	5*
cis-1,2-Dichloroethylene	**990**	ND	ND	**320**	**11**	5*
trans-1,2-Dichloroethylene	**13**	ND	ND	**6**	ND	5*
Methylene Chloride	ND	ND	ND	ND	ND	5*
Methyl tertiary butyl ether	ND	ND	ND	ND	ND	10
Tetrachloroethylene	**13**	ND	ND	**300**	ND	5*
Toluene	ND	ND	ND	ND	ND	5*
1,1,1-Trichloroethane	ND	ND	ND	**220**	ND	5*
Trichloroethylene	**81**	ND	ND	**390**	**18**	5*
1,2,4-Trimethylbenzene	ND	ND	ND	**6**	ND	5*
Vinyl Chloride	**86**	ND	ND	**66**	ND	2

Table 1 *(continued)*
On-Site Monitoring Well Groundwater Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Notes:
Only detected analytes are reported.
ND = Not Detected
NS = Not Sampled
J = Indicates an estimated value
B = Indicates that the analyte was also found in the trip blank sample.
* = The Principal Organic Contaminant Standard applies.
- = No New York State Department of Environmental Conservation (NYSDEC) Class GA Ambient Water Quality Standard is available.
Bold values indicate an exceedance of the NYSDEC Class GA Ambient Water Quality Standards.

Table 2
Off-Site Geoprobe Groundwater Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample ID	**GP-15**	**GP-16**		**GP-17**		**NYSDEC Class GA Ambient Water Quality Standards**
Sample Date	**September, 2002**	**August, 2005**				
Sample Depth ***(in feet below grade)***	**10'-12'**	**6'-8'**	**21'-23'**	**7'-9'**	**21'-23'**	
Volatile Organic Compounds ***(in micrograms per liter)***						
Benzene	ND	ND	**5**	ND	1	1
n-Butylbenzene	ND	ND	1	ND	ND	5*
1,1-Dichloroethane	**25**	ND	2	ND	ND	5*
cis-1,2-Dichloroethylene	**1,500**	ND	**89**	ND	ND	5*
Ethylbenzene	ND	ND	**19**	ND	ND	5*
Isopropylbenzene	ND	ND	4	ND	ND	5*
Methyl tertiary butyl ether	ND	ND	ND	ND	1	10
Naphthalene	ND	ND	17	ND	ND	10
n-Propylbenzene	ND	ND	**6**	ND	ND	5*
Toluene	ND	ND	5	ND	2	5*
1,1,1-Trichloroethane	**40**	ND	**6**	ND	ND	5*
Trichloroethylene	**170**	ND	ND	ND	ND	5*
1,2,4-Trimethylbenzene	ND	ND	**6**	ND	2	5*
1,3,5-Trimethylbenzene	**ND**	ND	1	ND	ND	5*
Vinyl Chloride	**420**	ND	**22**	ND	ND	2
o-Xylene	ND	ND	4	ND	ND	5*
p- & m-Xylenes	ND	ND	**25**	ND	2	5*

Table 2 *(continued)*
Off-Site Geoprobe Groundwater Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample ID	**GP-18**		**GP-19**		**NYSDEC Class GA Ambient Water Quality Standards**
Sample Date	**August, 2005**				
Sample Depth *(in feet below grade)*	**7'-9'**	**22'-24'**	**9'-11'**	**22'-24'**	
Volatile Organic Compounds *(in micrograms per liter)*					
Benzene	ND	1	ND	**6**	1
n-Butylbenzene	ND	ND	ND	ND	5*
1,1-Dichloroethane	ND	ND	ND	ND	5*
cis-1,2-Dichloroethylene	ND	ND	ND	ND	5*
Ethylbenzene	ND	ND	ND	4	5*
Isopropylbenzene	ND	ND	ND	3	5*
Methyl tertiary butyl ether	ND	2	ND	ND	10
Naphthalene	ND	ND	ND	ND	10
n-Propylbenzene	ND	ND	ND	**7**	5*
Toluene	ND	ND	ND	2	5*
1,1,1-Trichloroethane	ND	ND	ND	ND	5*
Trichloroethylene	ND	ND	ND	ND	5*
1,2,4-Trimethylbenzene	ND	ND	ND	**6**	5*
1,3,5-Trimethylbenzene	ND	ND	ND	ND	5*
Vinyl Chloride	ND	ND	ND	ND	2
o-Xylene	ND	ND	ND	ND	5*
p- & m-Xylenes	ND	ND	ND	3	5*

Notes:
Only detected analytes are reported.
ND = Not Detected
* = The Principal Organic Contaminant Standard applies.
Bolded values indicate an exceedance of the New York State Department of Environmental Conservation (NYSDEC) Class GA Ambient Water Quality Standards.

Table 3
Off-Site Monitoring Well Groundwater Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample ID	MW-A	MW-B	NYSDEC Class GA Ambient Water Quality Standards
Volatile Organic Compounds ***(in micrograms per liter)***			
n-Butylbenzene	**6**	ND	5*
sec-Butylbenzene	5	ND	5*
Ethylbenzene	3 J	ND	5*
Isopropylbenzene	**14**	ND	5*
Methylene Chloride	4 JB	3 JB	5*
Methyl tertiary butyl ether (MTBE)	2 J	ND	10
Naphthalene	2 J	ND	10
n-Propylbenzene	**35**	ND	5*
p& m-Xylenes	3 J	ND	5*

Notes:
Only detected analytes are reported.
ND = Not Detected
* = The Principal Organic Contaminant Standard applies.
Bolded values indicate an exceedance of the New York State Department of Environmental Conservation (NYSDEC) Class GA Ambient Water Quality Standards.

Table 4
Indoor Air Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample ID	IA-1		IA-2			NYSDOH Indoor Air Guidelines
Sample Date	**9/8/05**	**9/5/07**	**9/8/05**	**8/14/06**	**1/8/07**	
Volatile Organic Compounds ***(in micrograms per cubic meter of air)***						
Acetone	26.6	47.6	31.4	30.9	ND	-
Benzene	ND	ND	2.60	1.92	ND	-
Chloromethane	1.26	ND	2.31	ND	ND	-
1,4-Dichlorobenzene	ND	9.02	ND	ND	ND	-
Dichlorodifluoromethane	ND	ND	ND	2.97	ND	-
1,1-Dichloroethene	ND	ND	ND	2.38	ND	-
cis-1,2-Dichloroethene	ND	ND	ND	2.78	ND	-
Ethyl alcohol	ND	99.8	ND	16.2	ND	-
Ethyl benzene	ND	1.30	3.09	1.74	ND	-
p-Ethyltoluene	ND	2.46	6.99	1.47	ND	-
Heptane	4.99	9.82	2.91	1.64	ND	-
Hexane	ND	ND	3.94	2.12	ND	-
Isopropyl Alcohol	11.5	110	10.3	13.0	375	-
Methyl Ethyl Ketone	9.00	ND	9.60	ND	ND	-
Methylisobutylketone	ND	69.7	ND	ND	ND	-
Styrene	ND	5.11	ND	ND	ND	-
Tetrachloroethylene	21.4	42.8	56.6	88.2	82.8	100
Toluene	12.7	8.66	8.82	27.1	4.22	-
1,1,1-Trichloroethane	2.22	ND	3.33	2.73	7.21	-
Trichloroethylene	ND	3.22	2.19	3.76	**6.01**	5
Trichlorfluoromethane	ND	ND	ND	1.69	9.14	-
1,2,4-Trimethylbenzene	ND	3.94	5.00	2.46	ND	-
1,3,5-Trimethylbenzene	ND	1.48	ND	ND	ND	-
2,2,4-Trimethylpentane	9.50	ND	ND	1.40	ND	-
m- & p-Xylenes	ND	13.9	3.97	3.04	ND	-
o-Xylene	ND	1.30	ND	1.30	ND	-

Table 4 *(continued)*
Indoor Air Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample ID	IA-3			NYSDOH Indoor Air Guidelines
Sample Date	**9/8/05**	**8/14/06**	**1/8/07**	
Volatile Organic Compounds *(in micrograms per cubic meter of air)*				
Acetone	22.5	35.7	ND	-
Benzene	ND	ND	ND	-
Chloromethane	ND	ND	ND	-
1,4-Dichlorobenzene	ND	4.21	ND	-
Dichlorodifluoromethane	ND	3.46	ND	-
1,1-Dichloroethene	ND	ND	ND	-
cis-1,2-Dichloroethene	ND	ND	ND	-
Ethyl alcohol	ND	73.4	ND	-
Ethylbenzene	ND	1.30	ND	-
p-Ethyltoluene	ND	1.47	ND	-
Heptane	ND	6.55	ND	-
Hexane	ND	4.23	ND	-
Isopropyl Alcohol	1,650	147	6,500	-
Methyl Ethyl Ketone	ND	ND	ND	-
Methylisobutylketone	ND	5.33	ND	-
Styrene	ND	ND	ND	-
Tetrachloroethylene	ND	7.46	ND	100
Toluene	22.6	6.02	ND	-
1,1,1-Trichloroethane	ND	ND	ND	-
Trichloroethylene	ND	ND	ND	5
Trichlorfluoromethane	ND	1.69	ND	-
1,2,4-Trimethylbenzene	ND	2.46	ND	-
1,3,5-Trimethylbenzene	ND	1.48	ND	-
2,2,4-Trimethylpentane	ND	ND	ND	-
m- & p-Xylenes	ND	1.74	ND	-
o-Xylene	ND	ND	ND	-

Table 4 *(continued)*
Indoor Air Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample ID	**IA-4**			**NYSDOH Indoor Air Guidelines**
Sample Date	**9/8/05**	**8/14/06**	**9/5/07**	
Volatile Organic Compounds *(in micrograms per cubic meter of air)*				
Acetone	41.1	40.4	52.3	-
Benzene	2.60	5.43	1.60	-
Chloromethane	1.05	ND	ND	-
1,4-Dichlorobenzene	ND	ND	1.20	-
Dichlorodifluoromethane	ND	2.97	ND	-
1,1-Dichloroethene	ND	2.78	ND	-
cis-1,2-Dichloroethene	4.44	3.57	ND	-
Ethyl alcohol	ND	65.9	60.26	-
Ethylbenzene	1.77	5.64	2.17	-
p-Ethyltoluene	2.00	6.38	3.44	-
Heptane	3.33	6.96	6.55	-
Hexane	3.58	15.5	ND	-
Isopropyl Alcohol	7.00	27.0	ND	-
Methyl Ethyl Ketone	10.2	5.60	ND	-
Methylisobutylketone	ND	ND	34.0	-
Styrene	ND	ND	2.98	-
Tetrachloroethylene	75.9	88.2	**115.35**	100
Toluene	14.2	36.14	12.8	-
1,1,1-Trichloroethane	3.88	2.73	5.46	-
Trichloroethylene	3.28	4.84	4.84	5
Trichlorfluoromethane	19.4	73.1	84.3	-
1,2,4-Trimethylbenzene	ND	7.38	4.92	-
1,3,5-Trimethylbenzene	ND	3.44	1.97	-
2,2,4-Trimethylpentane	2.38	4.20	ND	-
m- & p-Xylenes	2.21	16.5	10.9	-
o-Xylene	ND	6.52	2.61	-

Table 4 *(continued)*
Indoor Air Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample ID	IA-5		IA-6	NYSDOH Indoor Air Guidelines
Sample Date	**8/14/06**	**1/8/07**	**1/8/07**	
Volatile Organic Compounds *(in micrograms per cubic meter of air)*				
Acetone	33.3	ND	ND	-
Benzene	1.92	ND	ND	-
Chloromethane	ND	ND	ND	-
1,4-Dichlorobenzene	ND	ND	ND	-
Dichlorodifluoromethane	2.97	ND	ND	-
1,1-Dichloroethene	1.19	ND	ND	-
cis-1,2-Dichloroethene	ND	ND	ND	-
Ethyl alcohol	15.1	ND	ND	-
Ethylbenzene	1.30	ND	ND	-
p-Ethyltoluene	1.47	ND	ND	-
Heptane	1.64	ND	ND	-
Hexane	3.53	ND	ND	-
Isopropyl Alcohol	15.7	1,050	3,000	-
Methyl Ethyl Ketone	ND	ND	ND	-
Methylisobutylketone	ND	ND	ND	-
Styrene	ND	ND	ND	-
Tetrachloroethylene	26.5	96.6	ND	100
Toluene	15.8	ND	ND	-
1,1,1-Trichloroethane	1.64	ND	ND	-
Trichloroethylene	1.61	ND	ND	5
Trichlorfluoromethane	1.69	ND	ND	-
1,2,4-Trimethylbenzene	2.46	ND	ND	-
1,3,5-Trimethylbenzene	ND	ND	ND	-
2,2,4-Trimethylpentane	1.40	ND	ND	-
m- & p-Xylenes	3.04	ND	ND	-
o-Xylene	ND	ND	ND	-

Notes:
Only detected analytes are reported.
ND = Not Detected
Bolded values indicate an exceedance of the New York State Department of Health (NYSDOH) Indoor Air Guidelines.

Table 5
On-Site Subslab Soil Vapor Monitoring Points
Soil Vapor Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample ID	AM-1		AM-2		AM-3	
Sample Date	**3/3/06**	**10/28/09**	**3/3/06**	**10/28/09**	**3/3/06**	**10/28/09**
Volatile Organic Compounds ***(in micrograms per cubic meter of air)***						
Acetone	ND	36	ND	ND	ND	34
Benzene	ND	ND	ND	ND	ND	ND
Carbon Disulfide	ND	2.5	ND	ND	ND	ND
Chloroethane	ND	ND	537	ND	ND	ND
Cyclohexane	ND	3.5	ND	ND	ND	4.2
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	741	ND	3,000	ND	3,090	ND
1,1-Dichloroethylene	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	60.5	ND	2,380	ND	7,660	24
trans-1,2-Dichloroethylene	ND	ND	ND	ND	ND	ND
Ethyl acetate	ND	ND	ND	ND	ND	9.0
Ethyl alcohol	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND
p-Ethyltoluene	ND	ND	ND	ND	ND	ND
Freon 113	ND	ND	ND	ND	ND	ND
Isopropyl Alcohol	ND	37	ND	ND	ND	10
n-Heptane	ND	3.7	ND	ND	ND	5.8
Methyl butyl ketone	ND	36	ND	ND	ND	Nd
Methyl ethyl ketone	ND	6.6	ND	ND	ND	9.3
Methyl isobutyl ketone	ND	ND	ND	ND	ND	46
Styrene	ND	3.5	ND	ND	ND	6.1
Tetrachloroethylene	2,690	ND	25,500	3,700	207,000	130
Toluene	ND	5.8	460	ND	ND	8.8
1,1,1-Trichloroethane	1,890		9,990	ND	11,700	11
Trichloroethylene	350	6.0	3,610	ND	7,650	ND
Trichlorofluoromethane	ND	21	ND	ND	ND	33
1,2,4-Trimethylbenzene	ND	ND	ND	ND	ND	5.6
1,3,5-Trimethyl benzene	ND	ND	ND	ND	ND	ND
p & m-Xylenes	ND	5.7	ND	ND	ND	12
o-Xylenes	ND	ND	ND	ND	ND	4.4

Table 5 *(continued)*
On-Site Subslab Soil Vapor Monitoring Points
Soil Vapor Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample ID	AM-4	AM-5		AM-6
Sample Date	**3/3/06**	**3/3/06**	**9/5/07**	**9/5/07**
Volatile Organic Compounds *(in micrograms per cubic meter of air)*				
Acetone	ND	ND	85.61	238
Benzene	ND	ND	5.11	29.7
tert Butyl Alcohol	ND	ND	ND	218
Carbon Disulfide	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND
Cyclohexane	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND
1,1-Dichloroethane	ND	5,350	263	3,241
1,1-Dichloroethylene	ND	ND	278	365
cis-1,2-Dichloroethylene	2,580	15,700	2,261	4,364
trans-1,2-Dichloroethylene	ND	ND	51.6	127
Ethyl acetate	ND	ND	ND	ND
Ethyl alcohol	ND	ND	226	60.3
Ethylbenzene	ND	ND	3.90	52.1
p-Ethyltoluene	ND	ND	5.40	46.7
Freon 113	ND	ND	6.13	920
Isopropyl Alcohol	ND	ND	982	ND
n-Heptane	ND	ND	14.7	ND
Methyl butyl ketone	ND	ND	ND	ND
Methyl ethyl ketone	ND	ND	ND	ND
Methyl isobutyl ketone	ND	ND	103	ND
Styrene	ND	ND	5.96	ND
Tetrachloroethylene	110,000	166,000	8,142	33,247
Toluene	ND	ND	27.9	226
1,1,1-Trichloroethane	13,900	10,500	9,280	163,770
Trichloroethylene	1,750	9,290	4,782	2,740
Trichlorofluoromethane	ND	ND	5.06	124
1,2,4-Trimethylbenzene	ND	ND	8.36	45.8
1,3,5-Trimethylbenzene	ND	ND	2.46	12.3
p & m-Xylenes	ND	ND	24.8	161
o-Xylenes	ND	ND	4.78	47.8

Table 5 *(continued)*
On-Site Subslab Soil Vapor Monitoring Points
Soil Vapor Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York

Sample ID	AM-7		Soil Vapor West
Sample Date	**10/28/09**	**9/5/07**	**9/5/07**
Volatile Organic Compounds *(in micrograms per cubic meter of air)*			
Acetone	1,500	154.57	238
Benzene	ND	3.19	29.7
tert Butyl Alcohol	ND	ND	218
Carbon Disulfide	ND	ND	ND
Chloroethane	ND	ND	ND
Cyclohexane	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND
1,1-Dichloroethane	ND	ND	3,241
1,1-Dichloroethylene	ND	ND	365
cis-1,2-Dichloroethylene	ND	ND	4,364
trans-1,2-Dichloroethylene	ND	ND	127
Ethyl acetate	ND	ND	ND
Ethyl alcohol	ND	207	60.3
Ethylbenzene	ND	2.60	52.1
p-Ethyltoluene	ND	3.93	46.7
Freon 113	ND	ND	920
Isopropyl Alcohol	ND	1,522	ND
n-Heptane	ND	11.9	ND
Methyl butyl ketone	ND	ND	ND
Methyl ethyl ketone	ND	ND	ND
Methyl isobutyl ketone	ND	73.8	ND
Styrene	ND	5.11	ND
Tetrachloroethylene	9,700	1,764	33,247
Toluene	ND	132	226
1,1,1-Trichloroethane	ND	147	163,770
Trichloroethylene	ND	17.7	2,740
Trichlorofluoromethane	ND	ND	124
1,2,4-Trimethylbenzene	ND	6.39	45.8
1,3,5-Trimethylbenzene	ND	2.46	12.3
p & m-Xylenes	ND	17.8	161
o-Xylenes	ND	2.61	47.8

Notes:
Only detected analytes are reported.
ND = Not Detected

Table 6
Off-Site Indoor Air and Sub-Slab Soil Vapor Chemical Analytical Results
Unit 31 at Chatham Square Apartments
Bay Shore, New York

Sample ID	IA-1	SS-1	NYSDOH Air Guideline Value
Volatile Organic Compounds ***(in micrograms per cubic meter of air)***			
Benzene	16.41	4.94	-
cis-1,2-dichloroethylene	ND	12.78	-
Ethylbenzene	11.79	3.67	-
Tetrachloroethylene	ND	25.32	100
Toluene	101.38	20.93	-
1,1,1-Trichloroethane	ND	141.90	-
Trichloroethylene	ND	2.62	5
1,2,4-Trimethylbenzene	11.40	5.15	-
1,3,5-Trimethylbenzene	2.80	ND	-
o-Xylene	12.94	3.97	-
p-& m-Xylenes	21.20	5.96	-

Notes:
Only detected analytes are reported.
ND = Not Detected

Table 7
Soil Vapor Extraction System Flow Rates at Start-up
41 Saxon Avenue
Bay Shore, New York
October 10, 2009

SVE Pipe	Flow Rate *(in cubic feet per minute)*
Leg-1	49
Leg-2	49
Leg-3	49
Leg-4	18.4
Leg-5	24.5
Leg-6	18.7
Leg-7	27.6
Leg-8	21.5
Leg-9	30.7
Total SVE Flow Rate	290

Note:
Flow rate calculations based on exit velocity measured with an in-line anemometer.

Table 8
Soil Vapor Extraction System Air Chemical Analytical Results
41 Saxon Avenue
Bay Shore, New York
October, 2009

Sample ID	L-1	L-2	L-3	L-4	L-5
Volatile Organic Compounds ***(in micrograms per cubic meter of air)***					
1,1,1-Trichloroethane	50.1	96.0	21.8	4,406	2,581
1,1-Dichloroethane	5.80	16.5	ND	62.2	25.2
1,1-Dichloroethylene	ND	ND	ND	44.4	20.2
cis-1,2-Dichloroethylene	577	1,600	62.9	2,649	1,307
Ethyl acetate	91.5	ND	ND	ND	ND
Methyl ethyl ketone	76.5	11.7	15.0	40.2	71.7
Tetrachloroethylene	5,519	4,691	1,932	55,205	79,397
Tetrahydrofuran	ND	24.9	8.79	48.3	112
trans-1,2-Dichloroethylene	ND	11.7	ND	35.0	ND
Trichloroethylene	157	574	39.0	2,951	2,022
Vinyl Chloride	11.8	45.5	2.57	23.0	10.6

Sample ID	L-6	L-7	L-8	L-9
Volatile Organic Compounds ***(in micrograms per cubic meter of air)***				
1,1,1-Trichloroethane	293	432	97.1	1,054
1,1-Dichloroethane	58.0	104	ND	151
1,1-Dichloroethylene	ND	ND	ND	ND
cis-1,2-Dichloroethylene	863	778	164	1,311
Ethyl acetate	ND	ND	ND	ND
Methyl ethyl ketone	61.8	684	1,305	1,329
Tetrachloroethylene	14,968	43,058	8,002	97,539
Tetrahydrofuran	54.0	2,234	4,259	3,989
trans-1,2-Dichloroethylene	ND	ND	ND	38.7
Trichloroethylene	485	1,470	209	2,634
Vinyl Chloride	40.0	ND	ND	25.9

Notes:
Only detected analytes were reported.
ND = Not Detected

Table 9
Photoionization Detector Readings
41 Saxon Avenue
Bay Shore, New York

Sample Location	PID Reading *(in parts per million)*					
	Pre-Start Up	Subsequent to Start Up				
Date	**October 10, 2009**	**October 13, 2009**	**October 22, 2009**	**December 14, 2009**	**February 1, 2010**	**February 18, 2010**
L-1	0.0	0.0	183	NS	0.2	0.2
L-2	0.0	25.4	89.7	NS	0.0	0.2
L-3	0.0	0.0	108	NS	0.0	0.2
L-4	24	75	29.5	0.2	0.0	3.4
L-5	410	485	54.8	6.8	8.6	18.1
L-6	12	0.0	19.6	3.2	0.0	1.2
L-7	12	0.0	0.0	0.6	0.0	1.5
L-8	11	0.0	2.6	0.3	0.0	1.0
L-9	4.0	0.0	3.8	0.2	0.0	0.9
Influent Drum #1	NS	200	98.4	0.4	0.7	0.2
Influent Drum #2	NS	0.0	1.2	6.8	0.0	0.1
Effluent Drum #2	NS	0.0	0.8	0.0	0.0	0.1
AM-1	NS	NS	NS	NS	NS	0.7
AM-2	NS	NS	NS	NS	NS	0.2
AM-3	NS	NS	NS	NS	NS	0.0
AM-5	NS	NS	NS	NS	NS	0.3

Notes:
PID = Photoionization Detector
NS = Not Sampled
L = Soil Vapor Extraction Leg
AM = Soil Vapor Monitoring Probe

Appendix A

EC-EG-56

NON-HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Doc. No. | 2. Page 1 of

GENERATOR

3. Generator's Name and Mailing Address
COMMERICAL ARBORIST
41 SAXON AVE
4. Generator's Phone ( ) BAYSHORE NY

5. Transporter 1 Company Name: EASTERN ENVIRONMENTAL | 6. US EPA ID Number: NJA698 | A. Transporter's Phone: 631-325-2700

7. Transporter 2 Company Name | 8. US EPA ID Number | B. Transporter's Phone

9. Designated Facility Name and Site Address
RGM
972 NICHOLS RD
DEER PARK N.Y.
10. US EPA ID Number | C. Facility's Phone: 631-586-0002

11. Waste Shipping Name and Description	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
a. NON-HAZARDOUS CONTAMINATED SOIL	XXX1	DT	XXX2	YD
b.				
c.				
d.				

D. Additional Descriptions for Materials Listed Above

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
ER. #(631)-325-2700

16. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest ~~are not~~ subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name: PETER DENMODY | Signature | Month: 11 | Day: 8 | Year: 04

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: ALEX WACIK | Signature | Month: 11 | Day: 08 | Year: 04

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month | Day | Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.

Printed/Typed Name: ~~PETER DENMODY~~ W RICKERBY | Signature | Month: 11 | Day: 08 | Year: 04

ORIGINAL – RETURN TO GENERATOR

DNR

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

DO NOT WRITE IN THIS SPACE

ATT. ☐ DIS. ☐ REJ. ☒ PR. ☐

Required under authority of Act 64, P.A. 1979, as amended and Act 136, P.A. 1969. 57540

Failure to file is punishable under section 299.548 MCL or Section 10 of Act 136, P.A. 1969.

Form Approved. OMB No. 2050-0039 Expires 9-30-86

Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. MID 0 6 2 0 4 5 7 5 5 — Manifest Document No. 6 5 2 0 1

2. Page 1 of — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
PABLO PICASSO LLC
41 SAXON AVENUE, BAY SHORE, NY 11706

4. Generator's Phone (631) 666-8641

5. Transporter 1 Company Name: PAGE INC — 6. US EPA ID Number: M Y D 9 5 6 9 6 9 5 4 7

7. Transporter 2 Company Name — 8. US EPA ID Number

9. Designated Facility Name and Site Address
WAYNE DISPOSAL INC
49350 N-I 94 SERVICE DR. SITE 2 L/F
BELLEVILLE, MI 48111 — 10. US EPA ID Number: M I D 0 1 4 5 0 5 0 6 3

	11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID NUMBER). HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
X	RQ HAZ. WASTE SOILD, ORGANIC NOS, 9, UN3077 PGII, (F001)	01011	DT	5T	
b.					
c.					
d.					

GENERATOR

15. Special Handling Instructions and Additional Information
24 HOUR EMERGENCY # 800-969-3678

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled/placarded and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name — Signature — Month Day Year — Date

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year — Date

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space
OK to change 15 cu yd
Manifest @ Closed DKM

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name — Signature — Month Day Year — Date

ALL SPILLS MUST BE REPORTED TO THE MICHIGAN POLLUTION EMERGENCY ALERTING SYSTEM, IN MICHIGAN AT 1-800-292-4706 OR OUT OF STATE AT 517-373-7660 AND THE NATIONAL RESPONSE CENTER AT 1-800-424-8802 24 HOURS PER DAY.

EPA Form 8700-22 (Rev. 9/88)

TSDF COPY

1

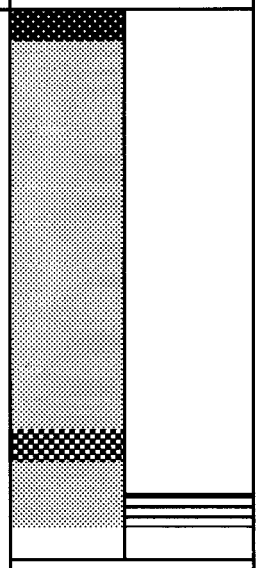
Appendix B

Air Sparging Well Installation Log

Well No.: AS-1
Date: 3/26/08
Total Depth: 37 feet
Pipe Length: 5 feet
Diameter: 2 inches
Drilling Method: Hollow stem auger
Drilling Company: Land Air Water Environmental Services, Inc.
Reported By: P. Dermody

Notes:
- Concrete
- Morie Sand #2
- Bentonie Seal
- Screened Interval

The screen was installed at 35 to 37.5 feet below grade.

Depth *(in feet below grade)*	Geology	Well Construction
0 5 10 15 20 25 30 35 40	0'-2' Dark brown, fine to coarse-grained sand with some gravel. 2'-37' Light brown, medium to coarse-grained sand. Slight perc odor noted in soil.	

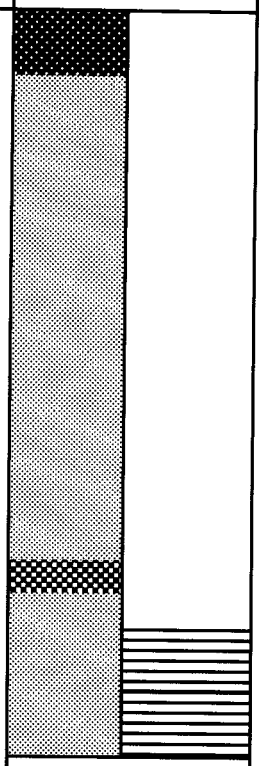
Dermody Consulting

Air Sparging Well Installation Log

Well No.: AS-2
Date: 3/26/08
Total Depth: 22.5 feet
Pipe Length: 5 feet
Diameter: 2 inches
Drilling Method: Hollow stem auger
Drilling Company: Land Air Water Environmental Services, Inc.
Reported By: P. Dermody

Notes:
- Concrete
- Morie Sand #2
- Bentonie Seal
- Screened Interval

The screen was installed at 20 to 22.5 feet below grade.

Depth *(in feet below grade)*	Geology	Well Construction
0	0'-1' Brown, medium to coarse-grained sand and gravel, dry.	
2		
4	1'-4' Dark brown, fine to medium-grained sand with some silt and trace gravel, moist.	
6		
8	4'-10' Brown, fine to medium-grained sand with trace gravel, wet.	
10		
12	10'-22' Light brown, medium to coarse-grained sand, wet.	
14		
16		
18		
20		
22		

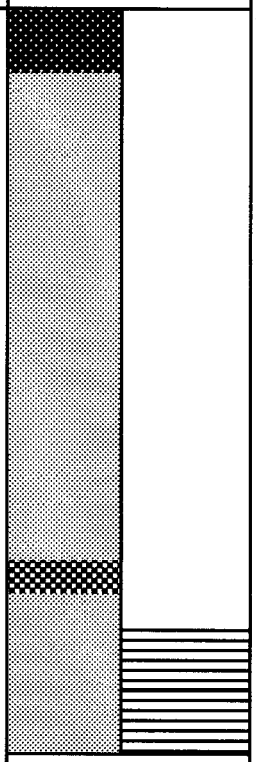
Dermody Consulting

Air Sparging Well Installation Log

Well No.: AS-3
Date: 11/14/05
Total Depth: 22.5 feet
Pipe Length: 5 feet
Diameter: 2 inches
Drilling Method: Hollow stem auger
Drilling Company: Land Air Water Environmental Services, Inc.
Reported By: P. Dermody

Notes:
- Concrete
- Morie Sand #2
- Bentonie Seal
- Screened Interval

The screen was installed at 20 to 22.5 feet below grade.

Depth *(in feet below grade)*	Geology	Well Construction
0 2 4 6 8 10 12 14 16 18 20 22	0'-5' Light brown, coarse to medium-grained sand and gravel with trace pebbles, moist. 5'-20' Light brown, coarse to medium-grained sand and trace gravel, wet. 20'-22.5' Light brown, coarse to medium-grained sand, wet.	

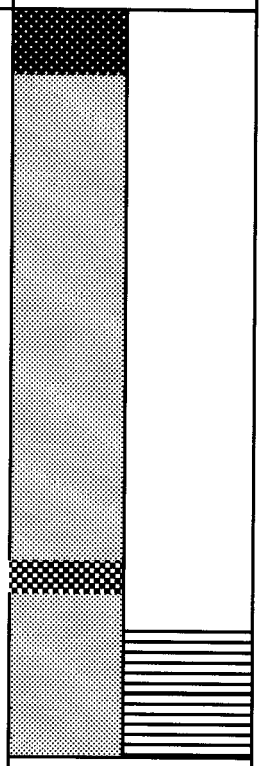
Dermody Consulting

Air Sparging Well Installation Log

Well No.: AS-4
Date: 11/14/05
Total Depth: 22.5 feet
Pipe Length: 5 feet
Diameter: 2 inches
Drilling Method: Hollow stem auger
Drilling Company: Land Air Water Environmental Services, Inc.
Reported By: P. Dermody

Notes:
- Concrete
- Morie Sand #2
- Bentonie Seal
- Screened Interval

The screen was installed at 20 to 22.5 feet below grade.

Depth *(in feet below grade)*	Geology	Well Construction
0 2 4 6 8 10 12 14 16 18 20 22	0'-5' Light brown, coarse to medium-grained sand and trace gravel, moist. 5'-15' Light brown, coarse to medium-grained sand and trace gravel, wet. 15'-22.5' Light brown, medium-grained sand and trace gravel, wet.	

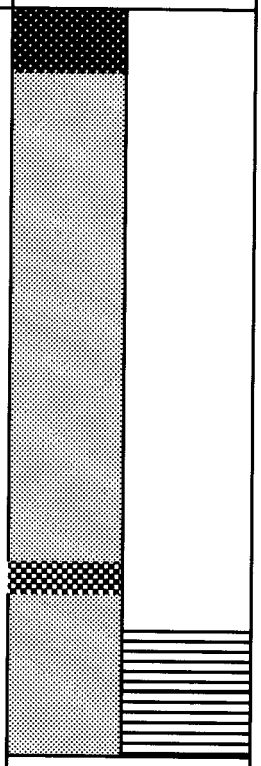
Dermody Consulting

Air Sparging Well Installation Log

Well No.: AS-5
Date: 3/26/08
Total Depth: 22.5 feet
Pipe Length: 5 feet
Diameter: 2 inches
Drilling Method: Hollow stem auger
Drilling Company: Land Air Water Environmental Services, Inc.
Reported By: P. Dermody

Notes:
- Concrete
- Morie Sand #2
- Bentonie Seal
- Screened Interval

The screen was installed at 20 to 22.5 feet below grade.

Depth *(in feet below grade)*	Geology	Well Construction
0 2 4 6 8 10 12 14 16 18 20 22	0'-3' Light brown, medium to coarse-grained sand, moist. 3'-22' Light brown, medium to coarse-grained sand, wet.	

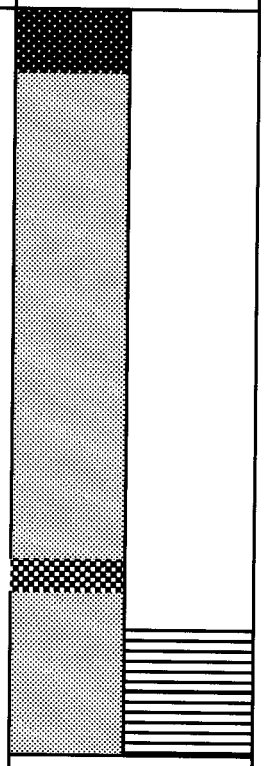
Dermody Consulting

Air Sparging Well Installation Log

Well No.: AS-6
Date: 3/26/08
Total Depth: 22.5 feet
Pipe Length: 5 feet
Diameter: 2 inches
Drilling Method: Hollow stem auger
Drilling Company: Land Air Water Environmental Services, Inc.
Reported By: P. Dermody

Notes:
- Concrete
- Morie Sand #2
- Bentonie Seal
- Screened Interval

The screen was installed at 20 to 22.5 feet below grade.

Depth *(in feet below grade)*	Geology	Well Construction
0	0'-1' Brown, medium to coarse-grained sand and gravel, dry.	
2		
4	1'-4' Dark brown, fine to medium-grained sand with some silt and trace gravel moist.	
6		
8	4'-10' Brown, fine to medium-grained sand with trace gravel, wet.	
10		
12	10'-22' Light brown, medium to coarse-grained sand, wet.	
14		
16		
18		
20		
22		

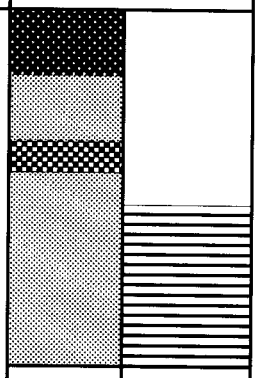
Dermody Consulting

Test Well Installation Log

Well No.: TW-1
Date: 11/14/05
Total Depth: 22.5 feet
Pipe Length: 5 feet
Diameter: 2 inches
Drilling Method: Hollow stem auger
Drilling Company: Land Air Water Environmental Services, Inc.
Reported By: P. Dermody

Notes:
- Concrete
- Morie Sand #2
- Bentonie Seal
- Screened Interval

The screen was installed at 7 to 10 feet below grade.

Depth *(in feet below grade)*	Geology	Well Construction
0	0'-5' Light brown, medium to coarse-grained sand and trace gravel, moist.	
2		
4	5'-10' Light brown, medium to coarse-grained sand and trace gravel, wet.	
6		
8		
10		

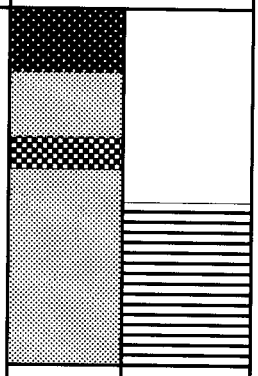
Dermody Consulting

Test Well Installation Log

Well No.: TW-2
Date: 11/14/05
Total Depth: 22.5 feet
Pipe Length: 5 feet
Diameter: 2 inches
Drilling Method: Hollow stem auger
Drilling Company: Land Air Water Environmental Services, Inc.
Reported By: P. Dermody

Notes:
- Concrete
- Morie Sand #2
- Bentonie Seal
- Screened Interval

The screen was installed at 7 to 10 feet below grade.

Depth *(in feet below grade)*	Geology	Well Construction
0	0'-5' Light brown, medium to coarse-grained sand and trace gravel, moist.	
2		
4	5'-10' Light brown, medium to coarse-grained sand and trace gravel, wet.	
6		
8		
10		

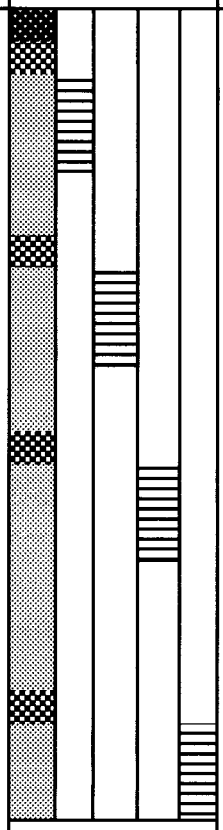
Dermody Consulting

Cluster Well Installation Log

Well No.: WC-2
Date: 8/14/07
Total Depth: 60 feet
Pipe Length: 5 feet
Diameter: 1 inches
Drilling Method: Hollow stem auger
Drilling Company: Land Air Water Environmental Services, Inc.
Reported By: T. Wall

Notes:
- Concrete
- Morie Sand #2
- Bentonie Seal
- Screened Interval

The screens were installed at 5 to 10 feet below grade (fbg), 20 to 25 fbg, 35 to 40 fbg, and 55 to 60 fbg.

Depth *(in feet below grade)*	Well Construction	Geology
0 5 10 15 20 25 30 35 40 45 50 55 60		0'-4' Brown, coarse-grained sand and gravel, dry. 4'-20' Brown, coarse-grained sand and gravel, wet. 20'-25' Brown, coarse-grained sand and gravel, wet, sewer odor. 25'-35' Brown, coarse-grained sand and gravel, wet. 35'-60' Brown, medium to coarse-grained sand, wet.

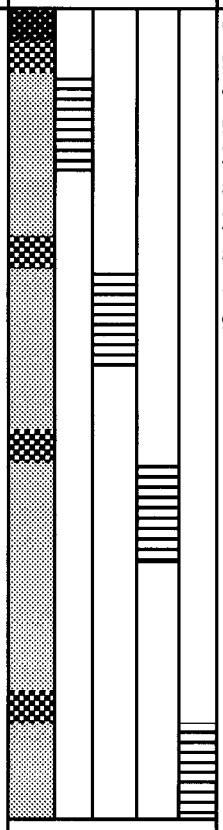
Dermody Consulting

Cluster Well Installation Log

Well No.: WC-3
Date: 8/14/07
Total Depth: 60 feet
Pipe Length: 5 feet
Diameter: 1 inches
Drilling Method: Hollow stem auger
Drilling Company: Land Air Water Environmental Services, Inc.
Reported By: T. Wall

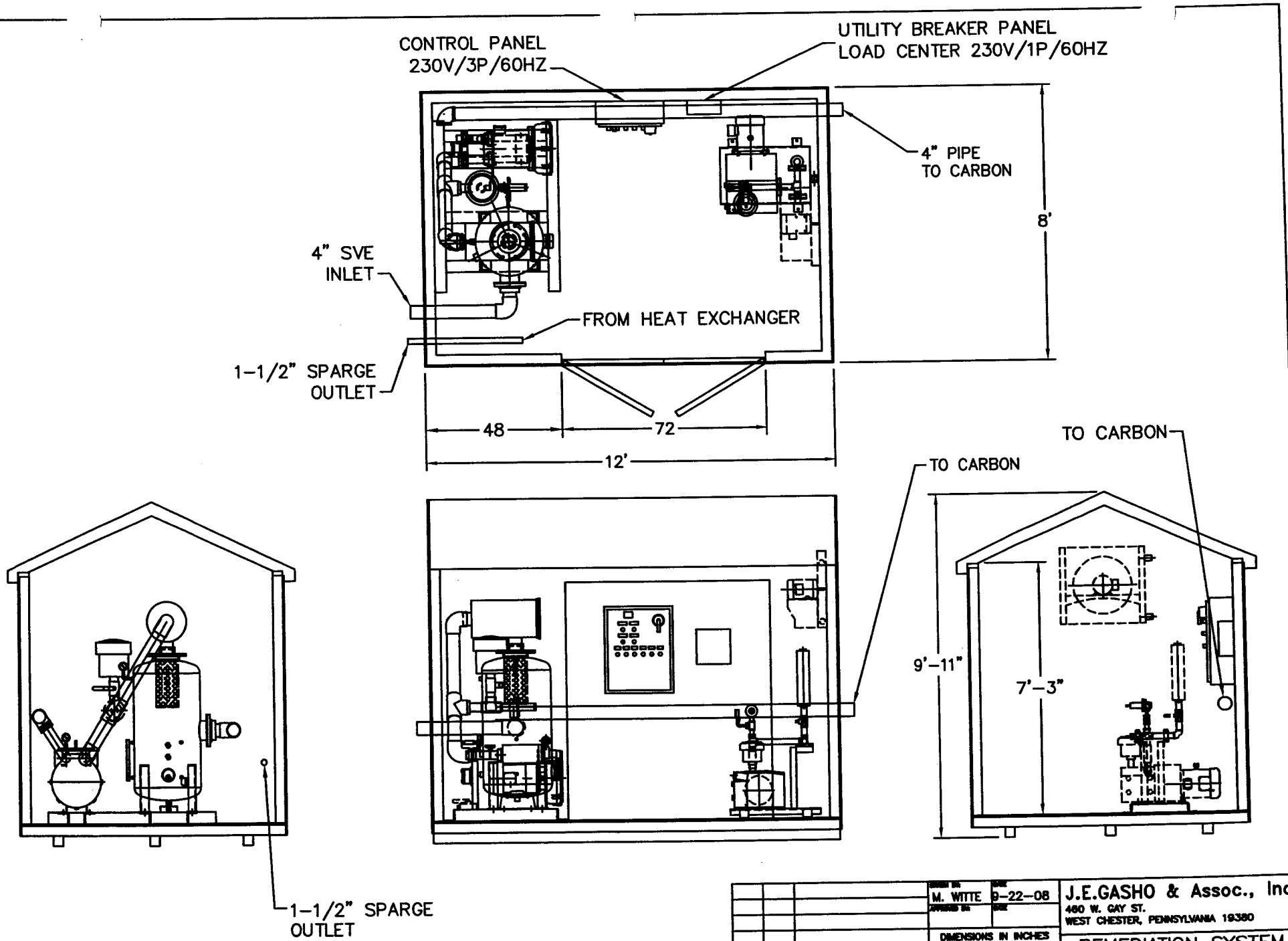
Notes:
- Concrete
- Morie Sand #2
- Bentonie Seal
- Screened Interval

The screens were installed at 5 to 10 feet below grade (fbg), 20 to 25 fbg, 35 to 40 fbg, and 55 to 60 fbg.

Depth *(in feet below grade)*	Well Construction	Geology
0 5 10 15 20 25 30 35 40 45 50 55 60		0'-4' Tan, coarse-grained sand and gravel, moist. 4'-20' Tan, coarse-grained sand and gravel, wet. 20'-25' Brown, coarse-grained sand and gravel, wet, sewer odor. 25'-30' Brown, coarse-grained sand and gravel, wet. 30'-60' Brown, medium to coarse-grained sand, wet.

Dermody Consulting

Appendix C



REV.	DATE	DESCRIPTION
A	10-27-08	MOVE PANELS INSIDE

DRAWN BY: M. WITTE DATE: 9-22-08
APPROVED BY: DATE:
DIMENSIONS IN INCHES
SCALE: TOLERANCE: SURFACE FINISH:
MATERIAL: WEIGHT:
SHEET 1 OF

J.E.GASHO & Assoc., Inc.
460 W. GAY ST.
WEST CHESTER, PENNSYLVANIA 19380

REMEDIATION SYSTEM
EN858BD72WL GX90
KDT3.100 SPARGE

JG08-1-2245 A

2245A shed.dwg 10/27/08 09:41

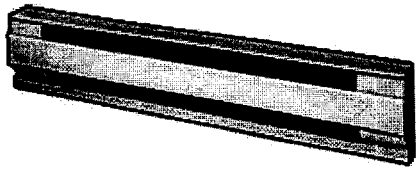
Standard Equipment Shed Specification

1. A-Frame Shed
2. Approx. Dimensions: 8'W x 12'L
3. (3) 4 x 4 treated timbers under floor
4. 2" x 4" x 8' joists on 12" centers
5. 2" x 4" wall studs on 16" centers
6. 2' x 4" rafters on 16" centers
7. 5/8" 5 ply plywood on floor
8. 7/16" OSB (chipboard) on walls
9. ½" 4 ply plywood on roof CDX
10. R-11 fiberglass insulation in walls and roof
11. 25 yr. shingles on roof (asphalt)
12. (2) 8" x 16" Passive vents
13. ½" T1-11 siding on exterior walls
14. (2) coats of latex exterior paint
15. 6' wide double doors on one side

Additional items:

1. Interior Lights with switch
2. Heater controlled by thermostat
3. Shed ventilation fan controlled by thermostat
4. Distribution panel box for utilities

Baseboard Convection Heaters



Duplex Receptacle End Plate

These quiet and efficient heaters are designed for easy installation. Have three 6" wire leads. Housing has indentations spaced 1" apart so you can punch your own mounting holes. Heaters are made of steel with an almond finish and have an overheat safety shutoff. Operate on 60 Hz, single phase. UL listed. When operating on 208 VAC, the heat output (Btu) and wattage will decrease by 25%.

Optional heater-mount thermostats adjust from 45° to 95° F and have two 6" wire leads. The *120 VAC* model is single pole, single throw (SPST); *208/240 VAC* is double pole, single throw (DPST).

Since outlets should not be installed above heaters, the **optional duplex receptacle end plate** lets you conveniently add a receptacle. Has two three-prong outlets, six 6" wire leads, and two 1/8" dia. mounting holes (fasteners not included). Rated 120 VAC, 60 Hz, 15 amp.

Watts	Btu/Hr.	Ht. x Wd. x Dp.	120 VAC Heaters Amps		208/240 VAC Heaters Amps	
500	1707	6 3/4" x 30" x 2 1/2"	4.17	1778K41	2.08	1778K52
750	2560	6 3/4" x 36" x 2 1/2"	6.25	1778K42	3.13	1778K54
1000	3413	6 3/4" x 48" x 2 1/2"	8.33	1778K43	4.17	1778K56
1250	4266	6 3/4" x 60" x 2 1/2"			5.21	1778K57
1500	5120	6 3/4" x 72" x 2 1/2"	12.50	**1778K44**	6.25	1778K58
2000	6826	6 3/4" x 96" x 2 1/2"	—	—	8.33	1778K19
2500	8533	6 3/4" x 96" x 2 1/2"	—	—	10.41	1778K23

Optional Heater-Mount Thermostat for 120 VAC Heaters 1778K71

Optional Heater-Mount Thermostat for 208/240 VAC Heaters 1778K72

Optional Duplex Receptacle End Plate for 120 VAC 1778K73

American Industrial Heat Transfer, Inc.

Customer: Gasho
Model Selection: ACA 3 24 2 - 3
Required Sq.ft: 13.8
Unit Design Sq.Ft: 13.8
Date: September 12, 2008
Job: SVE

Performance of One Unit

TUBE SIDE			FAN SIDE		
Vapor Circulated		AIR			AIR
Specific Gravity		1.00	Elevation	feet	0
Flow Rate	scfm	70.00	FAN Flow		2900
Calc Flow Rate	scfm	70.0		Fs	934
Flow Rate	acfm	0.0			
Compressor Discharge/Inlet acfm		43.2 / 70.0	Atmospheric Pressure	psia	14.696
Operating Pressure	psig	18.0			
Operating Pressure	in. water	0.0			
Temperature Entering	F	265.0	68.00		90.0
Temperature Exiting	F	103.5			94.0
Approach Temperature	F	13.5			
Specific Heat	Btu / lb-f	0.2506			0.2502
Viscosity	centipoise	0.0167			0.0184
Conductivity	Btu/hr ft^2 F/ft	0.0137			0.0154

Calculation

Total Heat Load	Btu/hr	12603			12603
Dry Air	Btu/hr	12484	308.5	lbs/hr	
Vapor	Btu/hr	119	1.6	lbs/hr	
Condensed	Btu/hr	0	0.0	lbs/hr	
Density	lb / ft^3	0.1197			0.0722
Flow Rate	lbs / Hr	310.2			12560.5
Mass Velocity	lbs / Hr-ft^2	15273			5414
Pressure Differential	Inches H2O	2.9	Static Pressure	Inches H2O	0.16
Pressure Differential	psi	0.105	Face Velocity	ft / min	740
Velocity Tubes	Ft / sec	35.46	Fin Velocity	ft / min	1249.96
Nr		10229			5906
U clean	Btu / hr ft^2 F	15.4			
Fouling Requested	hr ft^2 F / btu	0.0005		Material	218

Selection

Required Surface	Sq. ft.	13.83		LMTD	59.6
Effective Surface	Sq. ft.	13.84	Service	Btu / hr ft^2 F	15.3

Configuration

Tube Diameter	inch	0.375	Fins Per Inch		8
Tube Wall	inch	0.025	Estimated 1=		0
Length Tubes	inch	24.0	Enter Number Passes		2
Parallel Tube Rows		3	Estimated Nozzle	inch	1.9
Number Tubes		71	Nozzle size	inch	1.50
Coil Weight Empty	lbs	44.9	Manifold	inch	2.50

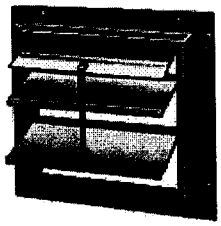
Construction Materials

Tubes	Copper	Fins Aluminum	Cabinet Carbon Steel
Tanks	Steel	Tube-Sheets Steel	Gaskets Hypalon
Coating	Enamal		Fan Aluminum
Coil Size	24 X 24		Nozzle 1.5 NPT

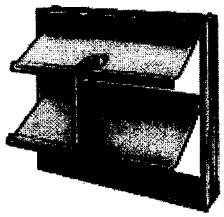
HP .25 Phase 3 Hertz/Volts 60/208 230-460 Class TEFC RPM 1140

Brazed coil core X Serviceable core

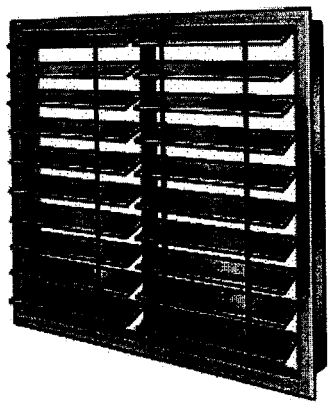
Heavy Duty Movable-Blade Wall Louvers



Single Panel Surface Mount with Flange



Single Panel Drop-In Mount



Double Panel Recessed Mount with Flange

Built to last, these louvers have 24-ga. aluminum blades, except louvers 30" and wider which have 22-ga. blades. Maximum air velocity is 2500 fpm. Temperature range is -20° to +200° F, except motorized units which have a maximum temperature of 130° F.

Aluminum Frame— Frame is 0.063" thick extruded aluminum, and frame depth is 1 7/8", except for drop-in mount louvers less than 50" wide, which are 0.05" thick and have a frame depth of 1 1/2". **Galvanized Steel Frame—** Frame is 14-ga. steel, so it's our strongest. Frame depth is 1 1/2".

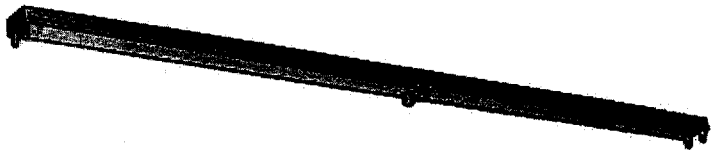
Gravity Operated— Also called automatic, these louvers stay open as long as air flows against the blades. *Pull Chain—* Also called manual, these louvers open and close with a tug on the pull chain. *Motorized—* Motor opens and closes these louvers. Motor is 115/230 VAC, 60 Hz, single phase with four 36" leads for hardwiring.

Select from three mounting styles. With *surface-mount louvers* the frame and flange mount outside the wall. Overall size is 3" larger than opening size. With *recessed-mount louvers* the frame rests in the wall and the flange mounts to the outside wall. When the blades close they're flush with the wall. Overall size is 2 7/8" larger than opening size. Both surface- and recess-mount styles have 15/64" dia. mounting holes—eight holes for single panel louvers, 10 holes for double panel louvers, and 12 holes for triple panel louvers. *Drop-in mount louvers* go inside a wall or duct. Overall size is 1/8" smaller than opening size.

Please specify mounting style: surface mount, recessed mount, or drop-in mount.

Exposed-Bulb Fluorescent Lights

Standard Light



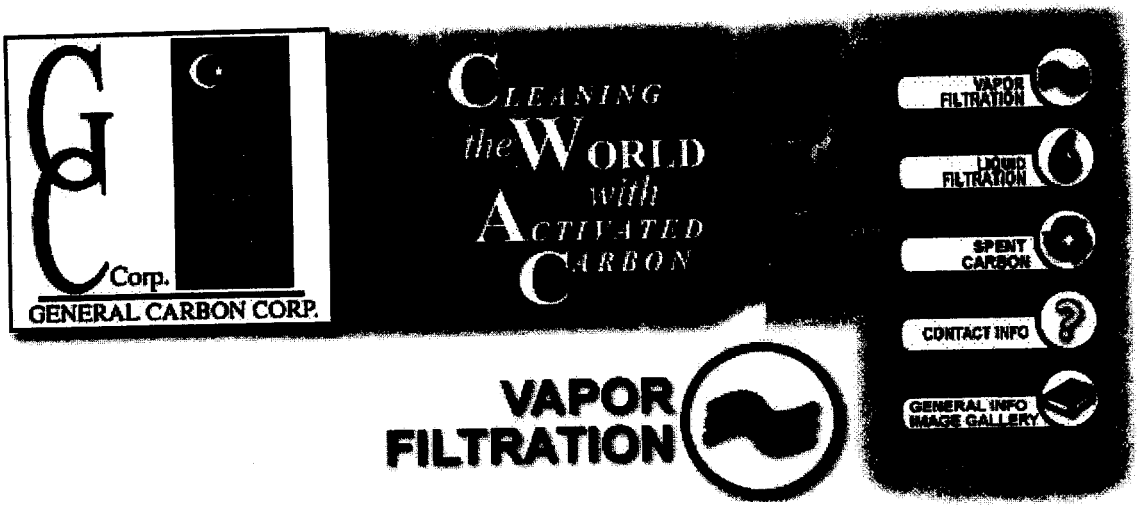
Lights with Tandem Bulbs

These overhead lights provide plenty of uniform illumination over large areas. They are made of steel with a white finish and have knockouts for hardwire connections and mounting. Suitable for surface, suspended, and row mounting. All have a universal ballast for both 120 VAC and 277 VAC. UL listed.

Bulbs are sold separately. They have a medium bi-pin base (unless noted) and a color temperature of 4100 Kelvins (cool, white light). For other bulb options, see pages 669-670.

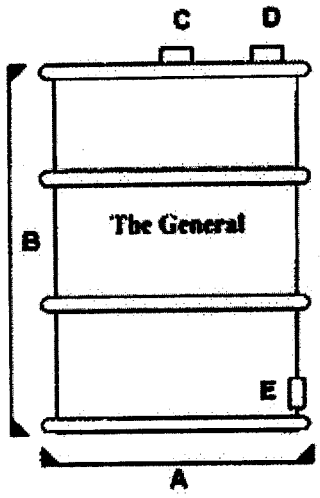
O'all Size, Lg. x Wd. x Ht.	Min. Start Temp.	Lights Each	No. Req'd.	Watts per Bulb	Bulbs Pkg. Qty.	
Standard Lights						
With Rapid-Start Electronic Ballast for T8 (1" Dia.) Bulbs						
24" x 2 3/4" x 2 3/4"	50° F	1612K611	1	17	6	1501K81
24" x 4 3/16" x 2 5/16"	50° F	1612K631	2	17	6	1501K81
36" x 2 3/4" x 2 3/4"	50° F	1612K641	1	25	6	1501K75
48" x 2 3/4" x 2 3/4"	50° F	**1612K651**	1	32	6	1683K14
48" x 4 3/16" x 3 15/16"	50° F	1612K661	2	32	6	1683K14
With Instant-Start Electronic Ballast for T8 (1" Dia.) Bulbs						
48" x 2 3/4" x 2 3/4"	0° F	1612K84		32	6	1683K14
48" x 4 3/8" x 2 1/16"	0° F	1612K82	2	32	6	1683K14
96" x 4 3/16" x 2 15/16"	0° F	1612K671*	1	59	6	8355K85
96" x 4 3/16" x 2 15/16"	0° F	1612K681*	2	59	6	8355K85
With High-Output Electronic Ballast for T8 (1" Dia.) Bulbs						
96" x 4 3/8" x 3"	-20° F	1612K691‡	2	86	6	1504K92
Lights with Tandem Bulbs (two bulbs mounted end-to-end)						
With Rapid-Start Electronic Ballast for T8 (1" Dia.) Bulbs						
96" x 2 3/4" x 2 3/4"	50° F	1612K731	2	32	6	1683K14
96" x 4 3/16" x 2 5/16"	50° F	1612K741	4	32	6	1683K14
With Instant-Start Electronic Ballast for T8 (1" Dia.) Bulbs						
96" x 4 3/16" x 2 15/16"	0° F	1612K86	4	32	6	1683K14

* Uses bulbs with single-pin base.‡ Uses bulbs with recessed double-contact (DC) base.



The General

Air Pollution Control Barrels



The General Air Pollution Control Barrels are ready to use, low cost, self contained air purification units that can treat air flows of up to 250 CFM. **The General** is available in three different sizes to better serve your treatment needs.

Specifications	55 Gallon	85 Gallon	110 Gallon
A-Diameter, Outside:	24"	28"	32"
B-Height, Outside Wall:	35"	39"	43"
Inlet Fitting:	E-2"MPT	C-4"FPT	C-4"FPT
Outlet Fitting:	C-2"MPT	D-4"FPT	D-4"FPT
Drain Fitting:	E-2"MPT	E-I"FPT	E-I"FPT
Carbon Weight, Lbs.:	150	300	400
Max. Recommended Flow Rate, CFM:	100	180	250
Maximum Pressure, psig:	10	7	7
Max. design Temp., Deg F:	140	140	140
Flow Direction:	Upflow	Upflow	Upflow

Activated Carbon - The General vapor adsorbers are filled with virgin, high activity GC C-40 pelletized carbon. Other virgin coal, coconut shell, reactivated or impregnated carbons are available.

Removable Lid - 16 gauge lid with ring & bolt closure and poly-clad cellulose gasket.

Connections - Metal connectors with standard pipe threads insure easy, durable and leakproof hookup to your system. Unions or quick connect fittings are advised to make drum exchange easy. Drains let you remove any accumulated condensate.

Flow Distributors - The 55 gallon barrel uses an air chamber to insure even distribution of the air flow through the carbon. Low pressure drop, slotted Schedule 40 PVC collectors are used in the 85 gallon and 110 gallon drums for proper flow distribution. Stainless Steel internals and drums are available for special applications.

Coatings - **The General** pollution control barrels are coated on the inside with heat cured phenolic epoxy. The outside coating is industrial enamel. A polyethylene liner is available for extra corrosion resistance for the 55 gallon and 85 gallon units.

Installation & Start Up - **The General** air pollution control barrel requires no special procedure for start up. Just connect the inlet and outlet to the treatment system and start it up. Multiple units are usually connected in series with testing advised between the units to determine when the first unit needs to be changed out.

Maintenance - Once connected, **The General** requires no maintenance other than the monitoring of the influent and effluent air streams and the operating pressure of the system. Monitoring the air stream into the last Air Pollution Control Barrel in series mode is a recommended safeguard against breakthrough in the final discharge. When the concentration of contaminants in the outflow equals the concentration in the inflow, **The General** has reached its removal capacity and should be removed from the service. The working life of each adsorber is dependent upon the type of contaminant in the air as well as its concentration and the air flow rate. A pressure relief device is advised to prevent damage to the canister in the event of excessive pressure buildup.

Recharging The General - Once the carbon has reached its pollutant removal capacity, the unit should be removed and replaced with a fresh one. To purchase replacement carbon or to arrange for a carbon change out, please contact our office.

Disposal - Dispose of the spent carbon in accordance with Federal, State and Local regulations.

WARNING!

Wet activated carbon removes oxygen from air causing a severe hazard to workers inside carbon vessels. Confined space/low oxygen procedures should be put in place before any entry is made. Such procedures should comply with all applicable local, state and federal guidelines.

Appendix D