PROPOSED REMEDIAL ACTION PLAN
STANDARD MOTOR PRODUCTS, INC
Long Island City, Queens County, New York
Site No. 241016

January 2009

Prepared by:

Division of Environmental Remediation New York State Department of Environmental Conservation

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SECTION 1: <u>SUMMARY AND PURPOSE OF THE PROPOSED PLAN</u>

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the Standard Motor Products Inc. site no. 241016 (the Site). The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this proposed remedy. As more fully described in Sections 3 and 5 of this document, releases associated with spills from industrial and manufacturing resulted in the disposal of hazardous wastes, including chlorinated volatile organic compounds (CVOCs). As a result of these releases, tetrachloroethylene (perchloroethylene or PCE), 1,1,1-trichloroethane (1,1,1-TCA), trichloroethylene (TCE), cis-1,2-dichloroethylene (cis-DCE), 1,1-dichloroethane (1,1-DCA) and vinyl choride (VC) have been identified as compounds of concern (COCs) at the Site. These wastes have contaminated the groundwater, soil and soil vapor at the Site, and have resulted in:

- a significant threat to human health associated with the current exposure to soil vapor and potential exposure to contaminated groundwater.

- a significant environmental threat associated with the current impacts of contaminants to groundwater.

To eliminate or mitigate these threats, the Department proposes to continue the operation, maintenance and monitoring of the proposed Interim Remedial Measure (IRM) which consists of a sub-slab depressurization system (SSDS) in the on-site building and to install an Air Sparging (AS) and a Soil Vapor Extraction (SVE) system to treat the contaminated groundwater and capture the associated soil vapor.

The proposed remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

This Proposed Remedial Action Plan (PRAP) identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for this preference. The Department will select a final remedy for the site only after careful consideration of all comments received during the public comment period.

The Department has issued this PRAP as a component of the Citizen Participation Plan developed pursuant to the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375. This document is a summary of the information that can be found in greater detail in the July 22, 2008 "Comprehensive Remedial Investigation (RI) Report", and the October 31, 2008 "Feasibility Study (FS)". The public is encouraged to review the project documents, which are available at the following repositories:

Queens Public Library, Broadway Branch
40-20 Broadway
Long Island City, New York 11103
(718) 721-2462

Monday	10:00 AM to 8:00 PM
Tuesday	1:00 PM to 6:00 PM
Wednesday and Friday	10:00 AM to 6:00 PM
Thursday	1:00 PM to 8:00 PM
Saturday	10:00 AM to 5:30 PM
Sunday	Closed

NYSDEC Region 2 Office
1 Hunter's Point Plaza
47-40 21st Street
Long Island City, NY 11101-5407
Contact: Shaun Bollers
(718) 482-4096

The Department seeks input from the community on all PRAPs. A public comment period has been set from February 9 through March 11, 2009 to provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for February 25, 2009 at the NYSDEC Region 2 Annex located at 11-15 47th Avenue, Long Island City beginning at 7:00 PM.

At the meeting, the results of the RI/FS will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP. Written comments may also be sent to Mr. Bollers at the above address through March 11, 2009.

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP, based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

SECTION 2: SITE LOCATION AND DESCRIPTION

Standard Motor Products Inc. (SMP) is located at 37-18 Northern Boulevard, Long Island City, Queens County, New York in the northwestern section of the county (Figure 1). The Site was owned and operated by SMP until March 2008 and is located in an urban industrial area. The Site is approximately rectangular in shape and occupies approximately one acre of land (Figure 2). The Site contains a six-story industrial building with approximately 42,000 square feet per floor. Bordering the Site is Northern Boulevard to the north; Sunnyside Freight Railroad Yard (Sunnyside Yard) to the south; 39th Street, an automobile dealership, and a Hess (formerly Merit) gasoline station to the east; and commercial and industrial properties to the west. Various industrial and commercial properties are located across from SMP on Northern Boulevard.

A narrow strip of land on the south side of the property contains a loading dock and a dirt access path for vehicles (Figure 3). This strip of land is owned by the Metropolitan Transportation Authority (MTA) and is part of a long-term lease to SMP. Contamination has been identified in the area adjacent to the loading dock. Thus, the Site includes the SMP property and the adjacent strip of land where contamination has been identified.

The Site is underlain by the following units (in order by increasing depth): urban fill, Upper Pleistocene glacial deposits (including both till and channel deposits), and bedrock. The fill is predominantly comprised of reworked glacial deposits (sand, silt, clay, and gravel) and railroad ballast with minor amounts of construction debris and other materials. The Upper Pleistocene glacial deposits consist mainly of ground moraine deposits (unstratified, poorly sorted mixture of sand, silt, clay, and gravel). Bedrock was encountered at a depth of 74 feet below land surface (i.e. 53 feet below mean sea level).

The groundwater beneath the Site occurs under water table (unconfined) conditions. The depth to groundwater in the vicinity of the Site is approximately 5 feet below ground surface (bgs) but may be influenced by surface runoff that results in standing water across most of the Site during rain events. The water table occurs in either fill or glacial deposits.

Groundwater elevation data show that flow is primarily from east to west beneath the Site. Due to the proximity to the East River, the hydraulic gradients are gentle which is consistent with the regional groundwater contour map and the groundwater contours present in the Sunnyside Yard (Figure 4). Vertical groundwater movement is restricted by the Gardiners Clay where present or by the Precambrian bedrock which is considered to be the bottom hydrogeologic boundary of the groundwater flow system. The groundwater flow rate was estimated to be 0.78 feet/day.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Site has historically been used for industrial and manufacturing activities since 1919. SMP has occupied the on-site building since the mid-1900s. S. Karpen & Brothers occupied the building prior to that time. SMP maintained a small plating line for chrome plating of small machine parts from approximately 1975 to 1984. The wastes generated from the chrome plating process were temporarily stored on-site prior to off-site disposal. In addition, SMP was previously engaged in painting automobile parts prior to distribution. In

1984, aqueous based paints replaced the previously used solvent-based paints. All painting operations were gradually eliminated between 1990 and 1991. SMP performed several other processes that also generated hazardous wastes. These included die-casting operations that ceased in the 1970s; rubber production that was eliminated around 1985; and degreasing which utilized chlorinated solvents that ended in 1990.

Until March 2008, SMP produced automobile parts and components at the Site, primarily in the basement. The manufacturing operations included metal fabrication and machining, plastic injection molding, and assembly. SMP also operated a small photography laboratory for production of newsletters, brochures, etc. Hazardous or toxic materials involved in plant operations include lubricating oils for machinery, caustics for degreasing, phenolics used in molding processes, epoxies for coil production, and water-based inks involved in their small scale printing. All wastes were temporarily stored on-site in secure containers prior to off-site disposal at a licensed treatment, storage, and disposal (TSD) facility.

The building occupies most of the Site and SMP is the major occupant of the building and it is the SMP corporate headquarters. The building and associated property was sold by SMP in March 2008 to EXII Northern Boulevard Acquisition, LLC, who will continue to operate this facility as commercial office space.

3.2: <u>Remedial History</u>

In 1994, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

Prior to the Site's listing a number of investigations were conducted and these are summarized as follows:

- A preliminary investigation was initiated by Summit Environmental Evaluations, Inc. in September 1990 following the observation of an oily sheen in a puddle area in the southeast side of the Site off the loading dock. An area of approximately 2,700 square feet (30 feet by 90 feet) was excavated to a depth of 1 to 2 feet. The excavated soil (approximately 4,050 cubic feet) was either stockpiled or placed in roll-off containers located along the loading dock. Analysis of soil samples collected on October 11, 1990, indicated that this area contained elevated levels of petroleum hydrocarbons and volatile organic compounds (VOCs), particularly 1,1,1-TCA.

- Subsequent to the Summit Environmental Evaluations, Inc. investigation, SMP contracted Public Service Testing Laboratories, Inc. to conduct additional analyses on the soil. The results of these additional analyses indicated non-detectable levels of VOCs. However, levels of lead detected from toxicity characteristic leaching procedure (TCLP) analyses yielded results above the hazardous toxicity thresholds in three of the five samples.

- In early 1991, H2M Group (H2M) conducted an assessment of the soil quality in the area off the loading dock. This assessment included a soil gas survey and analysis of additional soil samples. The results of this assessment are documented in the "*Soil Investigation Report*" prepared by H2M Group in 1991 (H2M 1991). Eleven soil samples were collected based on the results of the soil gas survey and visual inspections. Soil samples were collected at a depth of 18 inches below grade. Elevated levels of total petroleum hydrocarbon (TPH) and VOCs were found in the stockpiled soil and in the undisturbed soil off the loading dock in the south eastern portion of the Site. Though TPH and VOCs were also detected in background samples, the concentrations were up to three orders of magnitude less than those detected in the stockpiled soil and near the eastern portion of the loading dock. Based on the results, H2M reported that the soil could be classified as an environmental media contaminated with a listed hazardous waste and not as a hazardous waste.

- In 1991, H2M conducted an RI in which forty soil samples were collected at depths ranging from 5 to 40 feet below grade and were analyzed for VOCs. Total VOC concentrations were as high as 35 parts per million (ppm). The most prevalent compounds detected in the shallow soil samples (above 7 feet bgs) were chlorinated solvents, such as 1,1,1-TCA, located alongside the loading dock.

- In 1995, EnviroAudit Ltd. (EnviroAudit) conducted an investigation of surface and subsurface soil at the site and of the groundwater conditions within the upper aquifer. This investigation included the drilling of 15 soil borings with two borings completed as groundwater monitoring wells, collection and analysis of forty-four soil samples, and collection and analysis of three groundwater samples and two sump samples. The results of this investigation were documented in "*A Phase II EnviroAudit Subsurface Investigation and Summary Report of an Industrial Property Located at 37-18 Northern Boulevard in Long Island City, New York*", prepared by EnviroAudit in 1996. Elevated levels of VOCs were found in the area of the loading dock, in site soil and groundwater. The primary compounds detected in excess of clean-up guidelines in effect in 1996 were 1,1,1-TCA, 1,1-dichloroethane (DCA), and TCE. Lead was only detected at low levels with TCLP analysis.

SECTION 4: ENFORCEMENT STATUS

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past or present owners and operators, waste generators, and haulers.

The Department and the Standard Motor Products Inc. (SMP) entered into a Consent Order on March 30, 1998. The Order obligates SMP to implement a remedial investigation/feasibility study (RI/FS) only remedial program. After the remedy is selected, the Department would approach the SMP to implement the selected remedy under an Order on Consent.

SECTION 5: SITE CONTAMINATION

A remedial investigation/feasibility study (RI/FS) has been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between November 2002 and February 2008. The field activities and findings of the investigation are described in the 'Comprehensive RI' Report.

The primary objectives of the RI, which was completed by CDM in four phases, were to characterize the nature and extent of contamination resulting from operations at the site and to identify areas that pose an unacceptable risk to human health and the environment. The Phase I investigation, completed in November 2002, included the collection of soil samples using hand augers and direct push drilling. Groundwater was also sampled using direct push drilling. The Phase II investigation, completed in July 2003, included the installation and sampling of eight groundwater monitoring wells at five locations. The Phase III investigation, completed in September 2005 and March 2006, included two sampling rounds of all existing groundwater monitoring wells and one round of soil vapor, sub-slab vapor, indoor and outdoor ambient air sampling. The Phase IV investigation, completed in January and February 2008, included the installation and sampling of four new groundwater monitoring wells, sixteen sub-slab vapor ports and twelve soil vapor ports. In addition, direct push groundwater and soil samples were collected

5.1.1: <u>Standards, Criteria, and Guidance (SCGs)</u>

To determine whether the soil, groundwater and soil vapor contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and 6 NYCRR Part 703.5.

- Soil SCGs are based on the Department's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels" and 6 NYCRR Subpart 375-6 – Remedial Program Soil Cleanup Objectives).

- Concentrations of VOCs in soil vapor and indoor/ambient air were evaluated using the air guidelines provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006.

Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report.

5.1.2: <u>Nature and Extent of Contamination</u>

This section describes the findings of the investigation for all environmental media that were investigated.

As described in the RI report, many soil, groundwater, soil and sub-slab vapor samples were collected to characterize the nature and extent of contamination. As seen in Figures 4 through 8 and summarized in Table1, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs). For comparison purposes, where applicable, SCGs are provided for each medium.

Chemical concentrations are reported in parts per billion (ppb) for water and parts per million (ppm) for soil. Air samples are reported in micrograms per cubic meter ($\mu g/m^3$).

Figures 4-8 and Table 1 summarize the degree of contamination for the contaminants of concern in groundwater and soil vapor. and compare the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Surface Soil (depth; 0-2 feet)

According to historical investigations, the surface soil within the “hot spot” location (as depicted in Figure 7), some 120 feet west of the southeast corner of the on-site building, contained significant levels of CVOCs. In 1991, during the soil investigation, the highest total VOCs were detected at a depth of 18 to 24 inches below grade at 894 ppm. During the 1996 EnviroAudit investigation, the highest level of VOC detected was at a location where the concentration for 1,1,1-TCA was 7,000 ppm at a depth of 0 to 2 feet bgs. However, the Phase I remedial investigation revealed only one surface soil sample, collected at a depth of 0.5 bgs, that contained a VOC (TCE) in exceedance of the SCG. The subsequent Phase IV remedial investigation, conducted six years later, contained no soil samples with elevated levels of CVOCs.

No site-related surface soil contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for surface soil.

Subsurface Soil

The analytical results that exceeded SCG levels for CVOCs in 2002 were from subsurface soil samples collected from 0 to 6 feet bgs, which coincides with the groundwater table interface and saturated soil. The analytical results from the recent (February 2008) Phase IV investigation do not contain concentrations exceeding the SCG levels for CVOCs. The highest 1,1,1-TCA concentration observed was 4,800 ppm in 2002, but it was detected below the SCG at an adjacent boring location in 2008. The consistency of the highest concentration of 1,1,1-TCA being in this localized area confirms the location of the aforementioned “hot spot” identified during the Phase I and II Remedial Investigations. The significant decrease in concentration, however, suggests that there is an extensive degradation of 1,1,1-TCA and that the source is a historical release.

Since all historical investigations detected the highest concentration of CVOCs near the surface soil, approximately 120 feet west of the southeast corner of the building (the “hot spot” location), the source of the CVOCs was likely a surface spill located immediately adjacent to the loading docks. The data collected during the RI supports this finding with the exception that currently the VOC contamination has been flushed over time from the surface soil into the subsurface unsaturated soil and finally into the subsurface saturated soil located a foot or two below the water table interface, indicating the absence of a continuing source of contamination.

Ethylbenzene and xylene were the two common non-chlorinated VOCs that exhibited SCG exceedances during the Phase I investigation. Eight out of twelve samples demonstrated exceedances with concentrations ranging from 8.1 ppm to 15 ppm for ethylbenzene and 2.5 ppm to 91 ppm for total xylenes. However, the Phase IV investigation, conducted six years later, revealed no elevated levels of non-chlorinated VOCs (non-CVOCs) in any soil samples.

No site-related subsurface soil contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for subsurface soil. However, any residual soil contamination that may be present will be addressed as part of the proposed remedy.

Groundwater

Figure 4 illustrates the location of groundwater samples collected on-site as well as the analytical results of these samples. Table 1 summarizes the analytical results of these samples. The majority of the highest CVOC concentrations detected during the Phase I Investigation are in the samples collected from within the shallow 6-foot depth interval which coincides with the groundwater table interface. The Phase IV samples that contained the highest CVOC concentrations are also associated with the groundwater table interface (5 to 9 feet bgs) and in close proximity to the Phase I borings where the detections mentioned above were found. These results are consistent with soil analytical data in that the highest concentrations of both the soil and groundwater are located immediately adjacent to the loading dock approximately 120 feet west of the southeast corner of the building. These results are also consistent with the historical soil and groundwater data in that they indicate a “hot spot" (Figure 7).

In addition, the analytical results from the Phase I and Phase IV Investigations demonstrate significant degradation of PCE. During the Phase I Investigation four direct push groundwater locations showed elevated concentrations of PCE. The highest concentration of PCE among those samples was 44 ppb. The Phase IV Investigation identified only two locations containing PCE at relatively low concentrations, 11 ppb and 8.7 ppb. The majority of the constituents detected during the Phase IV Investigation are TCE, cis-1,2-DCE, and VC which are breakdown products of PCE. The highest 1,1,1-TCA concentration (3,100 ppb) detected during the Phase IV Investigation is in the “hot spot” location. Other chlorinated VOCs detected include 1,1-DCA and chloroethane which are the breakdown products of 1,1,1-TCA. During the Phase I Investigation, groundwater samples, collected downgradient of the “hot spot”, detected 1,1,1-TCA while similarly placed borings analyzed during the Phase IV Investigation detected 1,1,1-TCA at a similar level of 7.7 ppb.
The contaminant distribution of the BTEX constituents is different from the chlorinated VOC contamination (Figures 6, 7 and 8). The highest levels of BTEX contamination are detected in the most hydraulically upgradient borings adjacent to the eastern portion of the building. This suggests that the plume is emanating from the nearby Hess Station, which is being investigated and remediated under Department oversight under spill no. 9500846.

Groundwater contamination identified during the RI/FS will be addressed in the remedy selection process.
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Surface Water

No site-related surface water contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for surface water.

Sediments

No site-related sediment contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for sediment.

Soil Vapor/Sub-Slab Vapor/Air

Soil vapor, sub-slab vapor, indoor and outdoor ambient air samples were collected during Phase III and Phase IV of the RI to evaluate the potential for exposures through vapor intrusion. Figure 7 illustrates the location of these samples as well as the contaminant concentrations that were detected. Table 1 summarizes these analytical results.

The soil vapor samples containing elevated concentrations of CVOCs during the Phase III and Phase IV Investigations were located within the exterior "hot spot". The highest non-CVOC concentrations in the soil vapor samples were detected at four locations in 2008. These four soil vapor locations detected non-CVOCs at concentrations greater than 50 $\mu g/m^3$. The elevated levels of non-CVOCs can be attributed to the gasoline plume and/or localized releases.

Sub-slab vapor samples displaying the highest concentrations of CVOCs are located to the east of the exterior localized "hot spot" in the vicinity of a stair well that may be impacting pressure gradients across the building. Vapor constituents detected diminish in the western side of the building and loading dock. The soil vapor results confirm the previously identified "hot spot" location. The CVOC concentrations in total have diminished between 2006 and 2008. The Phase III Investigation showed the highest 1,1,1-TCA and TCE concentrations at 51,000,000 microgram per cubic meter ($\mu g/m^3$) and 1,800,000 $\mu g/m^3$, respectively. The Phase IV Investigation showed the highest 1,1,1-TCA and TCE concentrations at 820,000 $\mu g/m^3$ and 120,000 $\mu g/m^3$, respectively. This decrease in concentrations of Site-related contaminants suggests significant degradation of the source over time.

Analysis of indoor and outdoor ambient air samples detected elevated levels of 1,1,1-TCA which were, however, several orders of magnitude less than the soil vapor detections. The outdoor ambient air contamination could be due to potential soil vapor pathways and/or the Site being situated in a highly industrial and commercial area. The indoor air samples detected one CVOC (1,1-DCA) at an isolated area and at a very low concentration, 0.4 $\mu g/m^3$. According to the 2006 NYSDOH Final *Guidance for Evaluating Soil Vapor Intrusion*, a sub-slab 1,1,1-TCA level of 1,000 $\mu g/m^3$ and a sub-slab TCE level of 250 $\mu g/m^3$ would require mitigation regardless of the indoor ambient air concentration; therefore, mitigation is recommended.

Soil vapor identified during the RI/FS will be addressed in the remedy selection process.
Sub-slab vapor and indoor air contamination identified during the RI/FS will be addressed during the IRM described in Section 5.2.

5.2: <u>Interim Remedial Measures</u>

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS. As mentioned previously, levels of contamination in sub-slab vapor beneath the on-site building recommend, according to the 2006 NYSDOH Final *Guidance for Evaluating Soil Vapor Intrusion,* that mitigation measures be taken to address potential human exposures (via inhalation) to these contaminants. SMP has, therefore, chosen to install a sub-slab depressurization system (SSDS) as an IRM (Figure 9) to prevent the potential build-up of VOC concentrations in the indoor air through soil vapor intrusion.

5.3: <u>Summary of Human Exposure Pathways</u>:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 6 of the RI report. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

The indoor air and sub-slab soil vapor in the on-site building are contaminated with trichloroethylene and tetrachloroethylene. Therefore, occupants of the on-site building may be exposed to these contaminants in the indoor air.

Ingestion of or dermal contact with the contaminated groundwater by the site occupants is not expected because the area is served by public water and no private supply wells have been identified in the vicinity of the site. Construction or utility workers conducting subsurface activities that intersect the groundwater could be exposed to the contaminated groundwater via dermal contact and/or incidental ingestion.

During the remedial investigation it was determined that contaminated soil vapor and groundwater are not migrating off-site. It is unlikely that people off-site will be exposed to contaminated soil vapor or groundwater.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

Past releases associated with spills from industrial and manufacturing operations at the site have resulted in the disposal of hazardous wastes, including CVOCs. As a result of these releases, PCE, 1,1,1-TCA, TCE, cis 1,2-DCE and 1,1-DCA have been identified as COCs. These wastes have contaminated the groundwater at the site, and have resulted in a significant threat to the environment. There are no nearby wetlands or other exposure pathways to fish and wildlife receptors.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this site are to eliminate or reduce to the extent practicable: :

- exposures of persons at or around the site to CVOCs in groundwater, soil vapor and indoor air;

- the release of contaminants from groundwater into indoor air through sub-slab vapor intrusion.

Further, the remediation goals for the site include attaining to the extent practicable:

- ambient groundwater quality standards

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Standard Motor Products Inc. Site were identified, screened and evaluated in the FS report which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated groundwater at the site. All of these remedies would include continued operation, maintenance and monitoring (OM&M) of the on-site SSDS IRM installed to mitigate the threat of soil vapor intrusion. For cost comparison purposes only, a time line of 5 years was used for alternatives G1 and G3 through G5. Additional years of OM&M may be required of the selected alternative contingent on the results of the 5-year review.

Alternative G1: No Further Action

Present Worth: *$429,000*
Capital Cost: *$0*
Annual Costs
(Years 1-5): *$106,000*
(Years 6-30): *$0*

The No Further Action alternative recognizes remediation of the site conducted under a previously completed IRM. Alternative G-1 was developed as a baseline against which to compare other remedial alternatives for groundwater. Under Alternative G-1, no additional actions beyond the continued operation, maintenance, and monitoring of the on-site SSDS IRM, as described in Section 5.2 of this PRAP, would be conducted as a part of the final remedy.

This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative G2: Monitored Natural Attenuation (MNA)

Present Worth: *$1,429,000*
Capital Cost: *$35,000*
Annual Costs:
(Years 1-20): *$179,000*
(Years 21-30): *$0*

Based on the RI data, biodegradation is occurring naturally at the Site; therefore, a natural attenuation monitoring program would be instituted to collect data on contaminant concentrations and movement at the Site. Nine existing monitoring wells would be used for the monitoring program. Based on the DER-10, the MNA monitoring would be performed quarterly for the first 8 quarters and would be reduced to every fifth quarter if there is evidence that the contaminant levels are decreasing. For cost comparison purposes, it is assumed that the monitoring program would be performed quarterly for the first two years and annually for the rest of the evaluation period. The monitoring data would be used to assess the migration and attenuation of the groundwater contamination over time and to monitor the effectiveness of remedial action.

A review of the site conditions would be conducted every five years. The site reviews would include an evaluation of the extent of contamination and effectiveness of MNA. If contamination remains, the site reviews would also include an assessment of contaminant migration and attenuation over time.

Institutional controls would be implemented to restrict future use of the site as part of an environmental easement. Implementation of the environmental easement would include the development of a Site Management Plan which would set forth the institutional controls necessary to manage exposure to contamination remaining at a site. Institutional controls would likely include implementation of land-use restrictions limiting subsurface activity and precluding installation of drinking water wells in the area of contamination, and would prohibit changes in use of the site (e.g., change from commercial to residential use). Periodic institutional control inspections and reporting would be conducted.

Alternative G3: Air Sparging/Soil Vapor Extraction

Present Worth: *$1,559,000*
Capital Cost: *$416,000*
Annual Costs:
(Years 1-5): *$289,000*
(Years 6-30): *$0*

An AS/SVE system would be installed in the treatment area near the loading dock. The treatment area is defined by the area exceeding 20 times groundwater SCG (Figure 10). Air sparging is an in-situ technology used to treat groundwater contaminated with VOCs. The process physically removes contaminants from the groundwater by injecting air into a well that has been installed into the groundwater. As the injected air rises through the groundwater it volatilizes the VOCs from the groundwater into the injected air. The VOCs are carried with the injected air into the vadose zone (the area below the ground surface but above the water table) where a soil vapor extraction (SVE) system is used to remove the injected air. The SVE system pulls a vacuum on wells or trenches that have been installed into the vadose zone to remove the VOCs along with the air introduced by the sparging process. The air extracted from the SVE wells is then run through activated carbon which removes VOCs from the air before it is discharged to the atmosphere. AS would treat the groundwater in situ and SVE would capture contaminated soil vapor, preventing it from migrating off site.

The AS/SVE system would consist of the following components:

- Air sparge wells – Wells would be placed in the treatment area, with screens at or below the desired treatment depth. Based on a typical result for air sparging in sandy soil, a 20-foot radius of influence was estimated. It is estimated that four wells would be required to treat the area exceeding 20 times SCG.

- SVE trenches – The SVE trenches would be constructed with perforated pipes laid in a bedding of filter pack material. The filter pack would be covered with a seal (e.g., clay, bentonite, plastic) to prevent short-circuiting to the atmosphere. Backfill would be placed above the seal and compacted to grade. A conservatively lateral extent of influence of 15 feet has been used for costing purposes. This provides full coverage of the treatment area and full capture of air sparge vapors. See Figure 10 for the estimated trench locations.

- SVE system – The system would include a blower for inducing a vacuum on the extraction trenches, a knockout tank for collection of soil vapor condensate, and activated carbon units required to treat extracted vapor and condensed water.

A pre-design investigation would be performed to obtain the site-specific design parameters. The above estimates are for cost estimating purposes. The design would be developed based on the results of the radius of influence (ROI) test.

Institutional controls as described under alternative G2 and a long term groundwater monitoring program would be implemented.

Alternative G4: Enhanced Anaerobic Biodegradation and MNA

Present Worth: *$1,569,000*
Capital Cost: *$567,000*
Annual Costs:
(Years 1-5): *$229,000*
(Years 6-30): *$0*

Enhanced Anaerobic Biodegradation (EAB) of CVOCs at the Site could be implemented via the injection of electron donors and nutrients into the treatment area exhibiting relatively high contaminant concentrations. Anaerobic biodegradation of CVOCs such as PCE and TCE require highly reducing conditions to allow anaerobic bacteria to reductively dechlorinate the CVOCs. This technical approach involves provision of a carbon source that ultimately provides electrons used in the reductive dechlorination. This alternative would be implemented to treat the area exceeding 20 times groundwater SCGs.

A bench-scale study would be performed to obtain site specific data and effectiveness Groundwater modeling would be considered during development of the bench-scale study to assist in the placement of injection points. Based on an estimated12.5 feet spacing, a total of 24 injection points would be installed at the treatment area. The actual number of injections, the chemical usage, and the injection point spacing would be determined during remedial design and remedial action.

Institutional controls and MNA groundwater monitoring program would be implemented as described in alternative G2.

Alternative G5: In Situ Chemical Oxidation (ISCO)

Present Worth: *$1,629,000*
Capital Cost: *$663,000*
Annual Costs:
(Years 1-5): *$220,000*
(Years 6-30): *$0*

In this alternative, ISCO would be applied at the treatment area. In-situ chemical oxidation is a technology used to treat chlorinated ethene compounds (a type of volatile organic compound) in the soil and groundwater. The process injects a chemical oxidant into the subsurface via injection wells or an infiltration gallery. The method of injection and depth of injection is determined by location of the contamination. As the chemical oxidant comes into contact with the contaminant, an oxidation reaction occurs that breaks down the contaminant into relatively benign compounds such as carbon dioxide and water. Several chemical oxidants are commercially available.

Using ISCO at the Site would mineralize dissolved TCE, PCE, and *cis*-DCE in groundwater within a short period upon contact with the contaminants. In the event that extensive residual contaminant masses exist in relatively low permeability zones, treatment via chemical oxidation could significantly increase the mass transfer between the contamination and groundwater, subsequently reducing the duration of remediation at the Site. For cost estimating purposes, Fenton's Reagent is selected as the oxidant, however, other oxidation technologies would also be evaluated during the remedial design stage.

A pre-design investigation would be performed to obtain site specific data on soil oxidant demand. Groundwater modeling would be performed as described under alternative G4. Injections of chemical oxidant into the groundwater would be followed by groundwater sampling. The results of the sampling would determine the strategy for the next rounds of injection.

Institutional controls as described under alternative G2 and a long term groundwater monitoring program would be implemented.

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectivness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

SECTION 8: SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Remedial Alternative G3 – Air Sparging /Soil Vapor Extraction (AS/SVE) for the remediation of groundwater and continued OM&M of the SSDS IRM (Figure 9) in the on-site building as the remedy for this site. The elements of this remedy are described at the end of this section.

The proposed remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

Alternative G3 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It would achieve the remediation goals for the site by significantly reducing the source of contamination to the groundwater, which currently poses a significant threat to public health and the environment, and it would create the conditions needed to restore groundwater quality to the extent practicable. In addition, Alternative G3 would capture contaminated soil vapor thereby preventing it from migrating off-site.

Alternative G1 (no further action) would not satisfy the threshold criteria for protecting human health and the environment nor would it comply with the SCGs. Alternative G2 (Monitored Natural Attenuation) would be protective of human health and the environment but would take a significantly long time to comply with the SCGs. Therefore, alternatives G1 and G2 are not considered further in the evaluation. Alternatives G3 (AS/SVE with MNA), G4 (Enhanced Aerobic Biodegradation with MNA), and G5 (In-Situ Chemical Oxidation with MNA) would fully comply with the threshold criteria and for this reason the five balancing criteria are particularly important in selecting a final remedy for the Site.

Remedial alternatives G3, G4, and G5 would provide an effective and permanent remedy for the most highly contaminated area of the Site where contaminant exceedances are 20 times SCG.

Although alternatives G3, G4, and G5 would significantly reduce the toxicity and volume of contaminated groundwater, G3 is the only alternative that would provide a reduction in the mobility of contaminated soil vapor. The SVE system would capture contaminated soil vapor produced by on-site groundwater contamination thereby preventing migration off-site. An SVE system would interfere with the effectiveness of alternatives G4 and G5. Alternative G4 relies on anaerobic degradation and an SVE system would introduce oxygen creating aerobic conditions instead of anaerobic conditions. Alternative G5 requires injection of an oxidant which would create mounding in the area of treatment. Since the groundwater table interface is approximately 5 feet below ground surface, the shallow SVE horizontal pipelines may intercept the mounding groundwater table interface.

Alternatives G3, G4, and G5 would have some short term impacts related to the installation of wells and also, in the case of alternatives G4 and G5, the handling of chemicals. Whereas alternatives G4 and G5 would require repeated mobilizations to the site for injections, alternative G3 would require ongoing operation of a treatment system at the Site. The time needed to achieve the remediation goals would be similar for Alternatives G3, G4, and G5, although it is anticipated in the cost analysis that alternative G4 would be monitored for five years as opposed to three years for the other two alternatives.

Alternative G3 is technically implementable - SVE and AS systems are proven technologies, but a pilot study would be required for proper design of the remedy. Alternatives G4 and G5 would require a bench-scale study for proper design of the remedy.

The present value cost of each of the three alternatives (G3, G4 and G5) is very similar, and ranges from $1.56M for G3 to $1.63M for G5.

The estimated present worth cost to implement the remedy is $1,559,000. The cost to construct the remedy is estimated to be $416,000 and the estimated average annual costs for five years is $289,000.

The elements of the proposed remedy are as follows:

1. A remedial design program would be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. Installation of an Air Sparging/Soil Vapor Extraction system. The AS system would treat the contaminated groundwater in situ, and the SVE system would capture and remove the contaminated soil vapor thereby preventing it from migrating off-site.

3. Continued implementation and OM&M of the on-site IRM which will consist of a sub-slab depressurization system (SSDS) to mitigate the threat of soil vapor intrusion into the site building.

4. Imposition of an institutional control in the form of an environmental easement that would require (a) limiting the use and development of the property to commercial use, which would also permit industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

5. Development of a site management plan which would include the following institutional and engineering controls: (a) periodic groundwater sampling and analysis as part of the monitored natural attenuation; (b) identification of any use restrictions on the site; (c) fencing to control site access; and (d) provisions for the continued proper operation and maintenance of the AS and SVE systems.

6. The property owner would provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal would: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

7. The operation of the AS and SVE systems would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

Since the remedy results in untreated hazardous waste remaining at the site, a long-term monitoring program would be instituted. This would consist of periodic sampling and analysis of the groundwater to determine the efficacy of the remedy in terms of reduction in the contaminant concentrations and mass loadings. The emissions from the SVE system would also be sampled to estimate the quantity of contaminant being captured. This long term monitoring program would allow the effectiveness of the AS/SVE systems to be monitored and would be a component of the long-term management for the site.

TABLE 1
Nature and Extent of Contamination
January 2008-February 2008

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	1,1,1-Trichloroethane	0.76 - 3,100	5	14 of 50
	1,1,2-Trichloroethane	1.3 - 22	1	3 of 50
	1,1-Dichloroethane	0.51 - 2,300	5	11 of 50
	1,1-Dichloroethene	0.95 - 13	5	1 of 50
	Chloroethane	3 - 2,200	5	3 of 50
	Chloroform	7.1 - 7.1	7	1 of 50
	cis-1,2-Dichloroethene	0.65 - 1,700	5	16 of 50
	Methylene chloride	0.6 - 150	5	11 of 50
	Tetrachloroethene	0.61 - 92	5	7 of 50
	trans-1,2-Dichloroethene	0.65 - 9.1	5	1 of 50
	Trichloroethene	0.58 - 2,300	5	18 of 50
	Vinyl chloride	3.8 - 41	2	13 of 50

[a] ppb = parts per billion, which is equivalent to micrograms per liter, µg/L, in water;

[b] SCG = standards, criteria, and guidance values
TOGS 1.1.1 Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998.
Includes April 2000 and June 2004 Addendum values. (http://www.dec.ny.gov/regulations/2652.html).

TABLE 1
Nature and Extent of Contamination
January 2008-February 2008

SOIL VAPOR	Contaminants of Concern	Concentration Range Detected (µg/m^3)[a]	SCG[b] (µg/m^3)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	1,1,1-Trichloroethane	14 - 820,000	NA	NA
	Methylene chloride	6.9 - 33,000	NA	NA
	Tetrachloroethene	12 - 950	NA	NA
	Trichloroethene	12 – 120,000	NA	NA

SUB-SLAB	Contaminants of Concern	Concentration Range Detected (µg/m^3)[a]	SCG[b] (µg/m^3)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	1,1,1-Trichloroethane	19 - 5,200	1,000	4 of 16
	Tetrachloroethene	8.8 - 620	1,000	0 of 16
	Trichloroethene	7.5 – 2,800	250	5 of 16

INDOOR AIR	Contaminants of Concern	Concentration Range Detected (µg/m^3)[a]	SCG[b] (µg/m^3)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	1,1,1-Trichloroethane	1 - 2	100	0 of 3
	Carbon tetrachloride	0.5 - 0.5	5	0 of 3
	Tetrachloroethene	1 - 1	100	0 of 3
	Trichloroethene	0.5 – 1.13	5	0 of 3

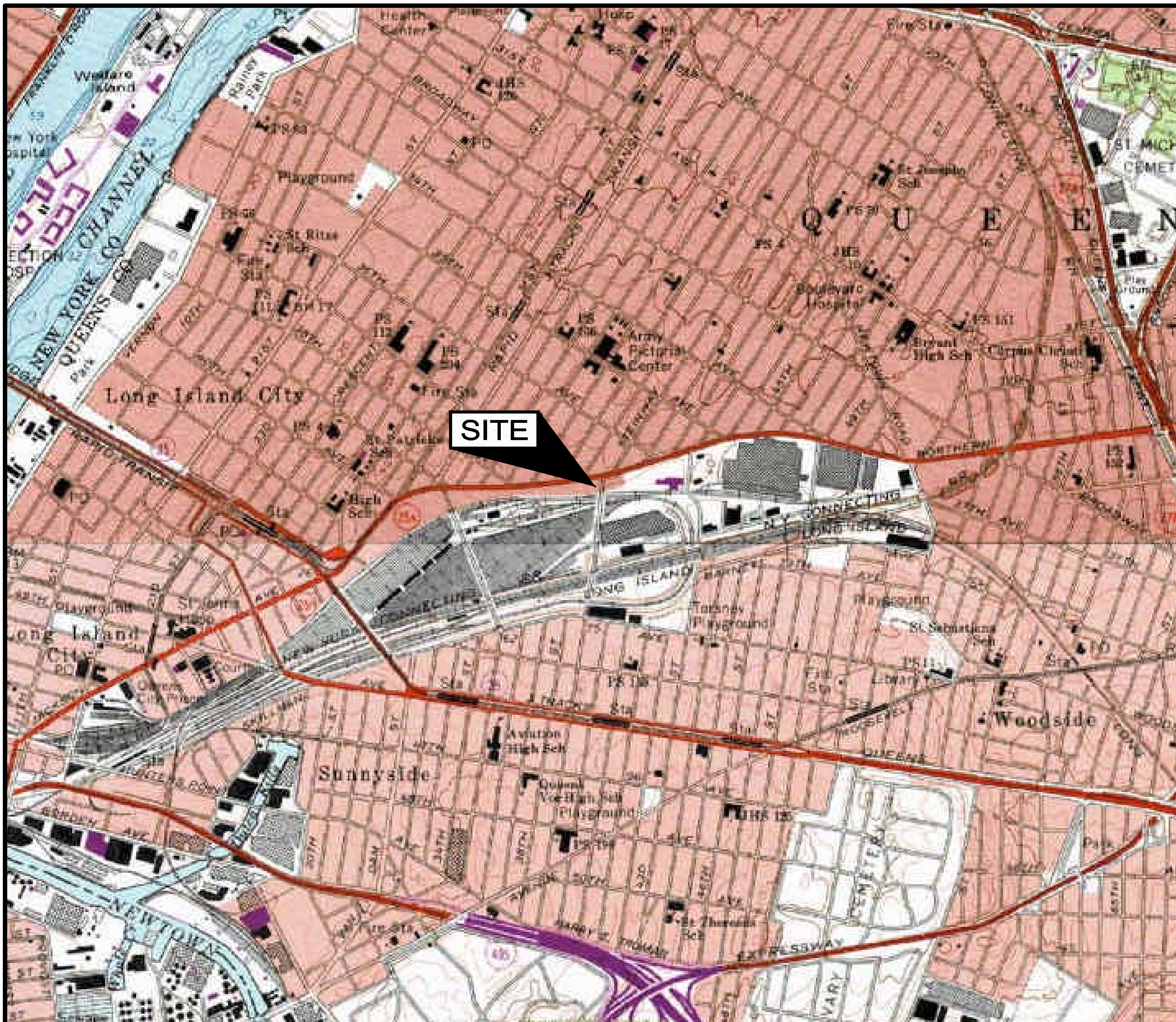
[a] µg/m^3 = micrograms per cubic meter

[b] SCG = standards, criteria, and guidance values
Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York. October 2006.

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs[1] ($)	Total Present Worth[2] ($)
G1 - No Further Action	$0	$106,000*	$429,000
G2 – Monitored Natural Attenuation**	$35,000	$179,000	$1,429,,000
G3 – Air Sparging/Soil Vapor Extraction	$416,000	$289,000*	$1,559,000
G4 – Enhanced Anaerobic Biodegradation and MNA***	$567,000	$229,000	$1,569,000
G5 – In Situ Chemical Oxidation	$663,000	$220,000*	$1,629,000

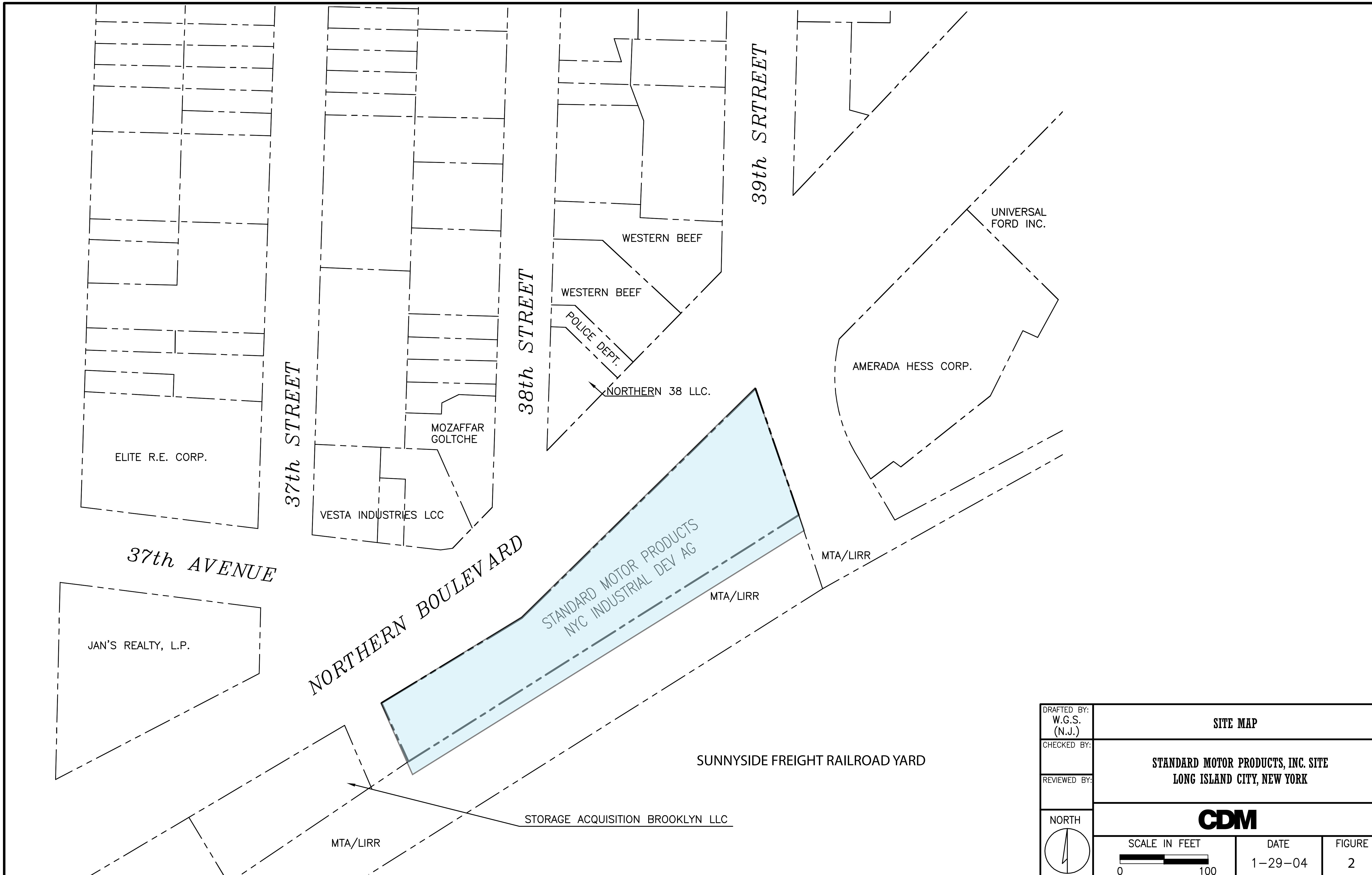
1 Annual costs for alternatives G2 through G5 include annual costs for IRM (alt G1)
2 Present Worth for alternatives G2 through G5 include present worth of alternative G1
* Consists of O&M costs for 3-year period; monitoring costs for 5-year period
** Over a 20-year period
*** Over a 5-year period)



SOURCE: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE 1979
CENTRAL PARK, N.Y. – N.J.
CONTOUR INTERVAL = 10'

QUADRANGLE LOCATION

DRAFTED BY: W.G.S. (N.J.)	SITE LOCATION MAP
CHECKED BY:	STANDARD MOTOR PRODUCTS, INC. SITE LONG ISLAND CITY, NEW YORK
REVIEWED BY:	
NORTH	CDM
	SCALE IN FEET 0 2000 | DATE 1-29-04 | FIGURE 1



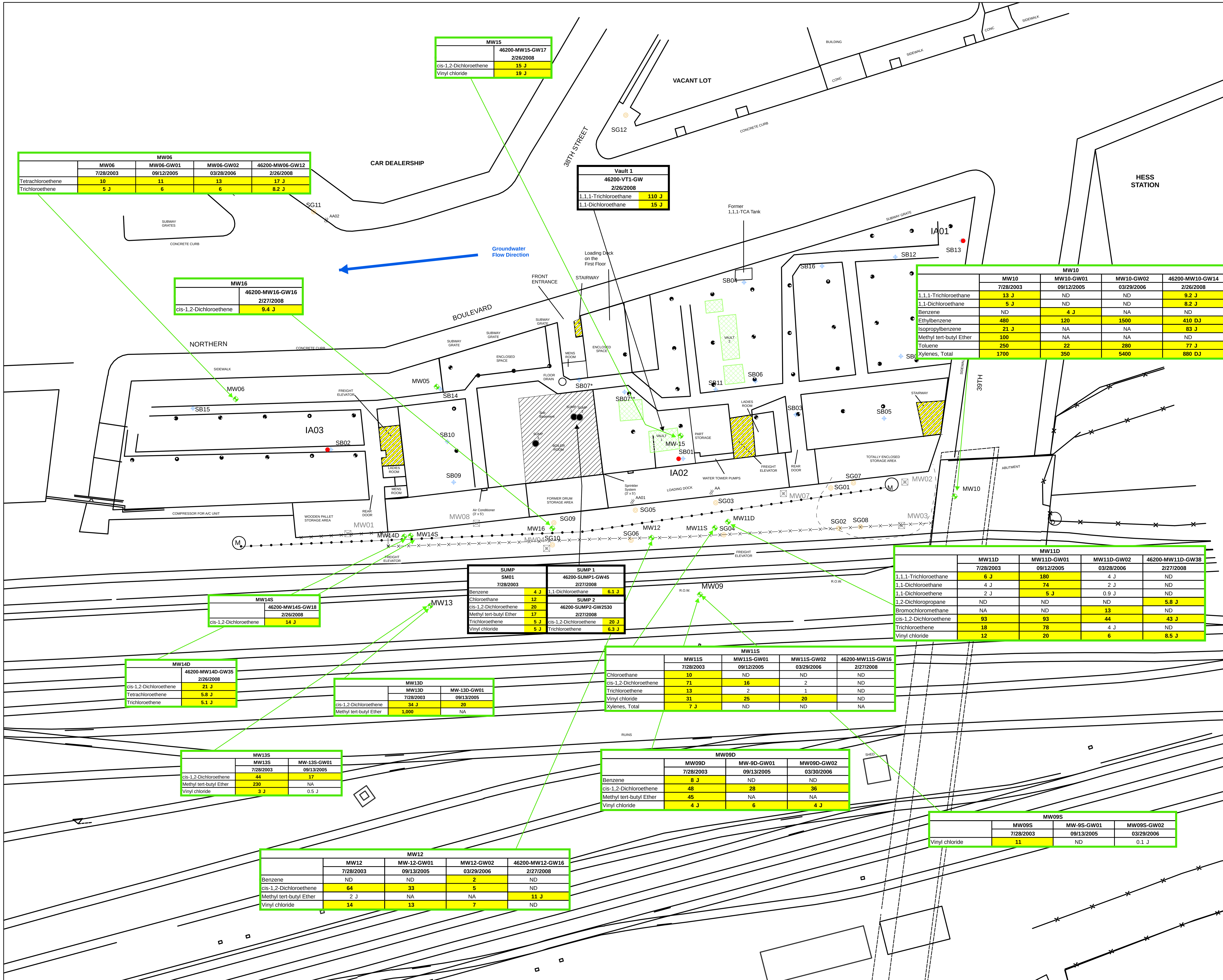
39th SRTREET
UNIVERSAL FORD INC.
WESTERN BEEF
WESTERN BEEF
POLICE DEPT.
38th STREET
37th STREET
NORTHERN 38 LLC.
AMERADA HESS CORP.
MOZAFFAR GOLTCHE
ELITE R.E. CORP.
VESTA INDUSTRIES LCC
37th AVENUE
NORTHERN BOULEVARD
STANDARD MOTOR PRODUCTS
NYC INDUSTRIAL DEV AG
MTA/LIRR
MTA/LIRR
JAN'S REALTY, L.P.
SUNNYSIDE FREIGHT RAILROAD YARD
STORAGE ACQUISITION BROOKLYN LLC
MTA/LIRR
DRAFTED BY: W.G.S. (N.J.)
CHECKED BY:
REVIEWED BY:
SITE MAP
STANDARD MOTOR PRODUCTS, INC. SITE
LONG ISLAND CITY, NEW YORK
CDM
NORTH
SCALE IN FEET
0
100
DATE
1-29-04
FIGURE
2

INDOOR AIR (IA) SAMPLE LOCATION
AMBIENT AIR (AA) SAMPLE LOCATION
DESTROYED MONITORING WELLS (MW)
MONITORING WELL (MW)
SUB-SLAB (SB) SAMPLE LOCATION
SOIL GAS (SG) SAMPLE LOCATION
SEWER MANHOLE (APPROX 12' DEEP)
APPROX LOCATION OF DRAIN SPOUT
R.O.W. RIGHT OF WAY
SUPPORT COLUMN
FENCE LINE
UNDERGROUND STORM SEWER
APPROX. VICINITY OF PREVIOUSLY EXCAVATED SOILS
RECESS EQUIPMENT PAD/VAULT
A — A' CROSS SECTION

NOTES:
SB07* - AIR SAMPLE
SB07** - SOIL/GW SAMPLE

DRAFTED BY: CJ	CROSS SECTION LOCATION MAP
CHECKED BY:	STANDARD MOTOR PRODUCTS, INC. SITE LONG ISLAND CITY, NEW YORK
REVIEWED BY:	CDM

NORTH	SCALE IN FEET 0 50	DATE 9-30-08	FIGURE 3



MW06				
	MW06	MW06-GW01	MW06-GW02	46200-MW06-GW12
	7/28/2003	09/12/2005	03/28/2006	2/26/2008
Tetrachloroethene	**10**	**11**	**13**	**17 J**
Trichloroethene	**5 J**	**6**	**6**	**8.2 J**

MW15	
	46200-MW15-GW17
	2/26/2008
cis-1,2-Dichloroethene	**15 J**
Vinyl chloride	**19 J**

Vault 1	
	46200-VT1-GW
	2/26/2008
1,1,1-Trichloroethane	**110 J**
1,1-Dichloroethane	**15 J**

MW16	
	46200-MW16-GW16
	2/27/2008
cis-1,2-Dichloroethene	**9.4 J**

MW10				
	MW10	MW10-GW01	MW10-GW02	46200-MW10-GW14
	7/28/2003	09/12/2005	03/29/2006	2/26/2008
1,1,1-Trichloroethane	**13 J**	ND	ND	**9.2 J**
1,1-Dichloroethane	**5 J**	ND	ND	**8.2 J**
Benzene	ND	**4 J**	NA	ND
Ethylbenzene	**480**	**120**	**1500**	**410 DJ**
Isopropylbenzene	**21 J**	NA	NA	**83 J**
Methyl tert-butyl Ether	**100**	NA	NA	ND
Toluene	**250**	**22**	**280**	**77 J**
Xylenes, Total	**1700**	**350**	**5400**	**880 DJ**

MW11D				
	MW11D	MW11D-GW01	MW11D-GW02	46200-MW11D-GW38
	7/28/2003	09/12/2005	03/28/2006	2/27/2008
1,1,1-Trichloroethane	**6 J**	**180**	4 J	ND
1,1-Dichloroethane	4 J	**74**	2 J	ND
1,1-Dichloroethene	2 J	**5 J**	0.9 J	ND
1,2-Dichloropropane	ND	ND	ND	**5.8 J**
Bromochloromethane	NA	ND	**13**	ND
cis-1,2-Dichloroethene	**93**	**93**	**44**	**43 J**
Trichloroethene	**18**	**78**	4 J	ND
Vinyl chloride	**12**	**20**	**6**	**8.5 J**

SUMP	
SM01	
7/28/2003	
Benzene	**4 J**
Chloroethane	**12**
cis-1,2-Dichloroethene	**20**
Methyl tert-butyl Ether	**17**
Trichloroethene	**5 J**
Vinyl chloride	**5 J**

SUMP 1	
46200-SUMP1-GW45	
2/27/2008	
1,1-Dichloroethane	**6.1 J**

SUMP 2	
46200-SUMP2-GW2530	
2/27/2008	
cis-1,2-Dichloroethene	**20 J**
Trichloroethene	**6.3 J**

MW14S	
	46200-MW14S-GW18
	2/26/2008
cis-1,2-Dichloroethene	**14 J**

MW14D	
	46200-MW14D-GW35
	2/26/2008
cis-1,2-Dichloroethene	**21 J**
Tetrachloroethene	**5.8 J**
Trichloroethene	**5.1 J**

MW13D		
	MW13D	MW-13D-GW01
	7/28/2003	09/13/2005
cis-1,2-Dichloroethene	**34 J**	**20**
Methyl tert-butyl Ether	**1,000**	NA

MW11S				
	MW11S	MW11S-GW01	MW11S-GW02	46200-MW11S-GW16
	7/28/2003	09/12/2005	03/29/2006	2/27/2008
Chloroethane	**10**	ND	ND	ND
cis-1,2-Dichloroethene	**71**	**16**	2	ND
Trichloroethene	**13**	2	1	ND
Vinyl chloride	**31**	**25**	**20**	ND
Xylenes, Total	**7 J**	ND	ND	NA

MW13S		
	MW13S	MW-13S-GW01
	7/28/2003	09/13/2005
cis-1,2-Dichloroethene	**44**	**17**
Methyl tert-butyl Ether	**230**	NA
Vinyl chloride	**3 J**	0.5 J

MW09D			
	MW09D	MW-9D-GW01	MW09D-GW02
	7/28/2003	09/13/2005	03/30/2006
Benzene	**8 J**	ND	ND
cis-1,2-Dichloroethene	**48**	**28**	**36**
Methyl tert-butyl Ether	**45**	NA	NA
Vinyl chloride	**4 J**	**6**	**4 J**

MW09S			
	MW09S	MW-9S-GW01	MW09S-GW02
	7/28/2003	09/13/2005	03/29/2006
Vinyl chloride	**11**	ND	0.1 J

MW12				
	MW12	MW-12-GW01	MW12-GW02	46200-MW12-GW16
	7/28/2003	09/13/2005	03/29/2006	2/27/2008
Benzene	ND	ND	**2**	ND
cis-1,2-Dichloroethene	**64**	**33**	**5**	ND
Methyl tert-butyl Ether	2 J	NA	NA	**11 J**
Vinyl chloride	**14**	**13**	**7**	ND

- INDOOR AIR (IA) LOCATION
- AMBIENT AIR (AA) LOCATION
- DESTROYED MONITORING WELL
- MONITORING WELL (MW)
- SUB-SLAB (SB) LOCATION
- SOIL GAS (SG) LOCATION
- M SEWER MANHOLE (APPROX 12' DEEP)
- D APPROX LOCATION OF DRAIN SPOUT
- R.O.W. RIGHT OF WAY
- SUPPORT COLUMN
- FENCE LINE
- UNDERGROUND STORM SEWER
- RECESS EQUIPMENT PAD/VAULT
- APPROX. VICINITY OF PREVIOUSLY EXCAVATED SOIL

NOTES:
SB07* - AIR SAMPLE
SB07** - SOIL/GW SAMPLE

Site Specific Groundwater Delineation Criteria	
1,1,1-Trichloroethane	5
1,1-Dichloroethane	5
1,2-Dichloropropane	1
Benzene	1
Bromochloromethane	5
Chloroethane	5
cis-1,2-Dichloroethene	5
Ethylbenzene	5
Isopropylbenzene	5
Methyl tert-butyl Ether	10
Tetrachloroethene	5
Toluene	5
Trichloroethene	5
Vinyl chloride	2
Xylenes, Total	5

RESULTS ARE IN µg/L.

BOLD EXCEED SITE SPECIFIC CRITERIA

DRAFTED BY: BK

CHECKED BY: CJ

REVIEWED BY: MW

PHASE II, III AND IV MONITORING WELL VOCs EXCEEDANCES

STANDARD MOTOR PRODUCTS, INC. SITE
LONG ISLAND CITY, NEW YORK

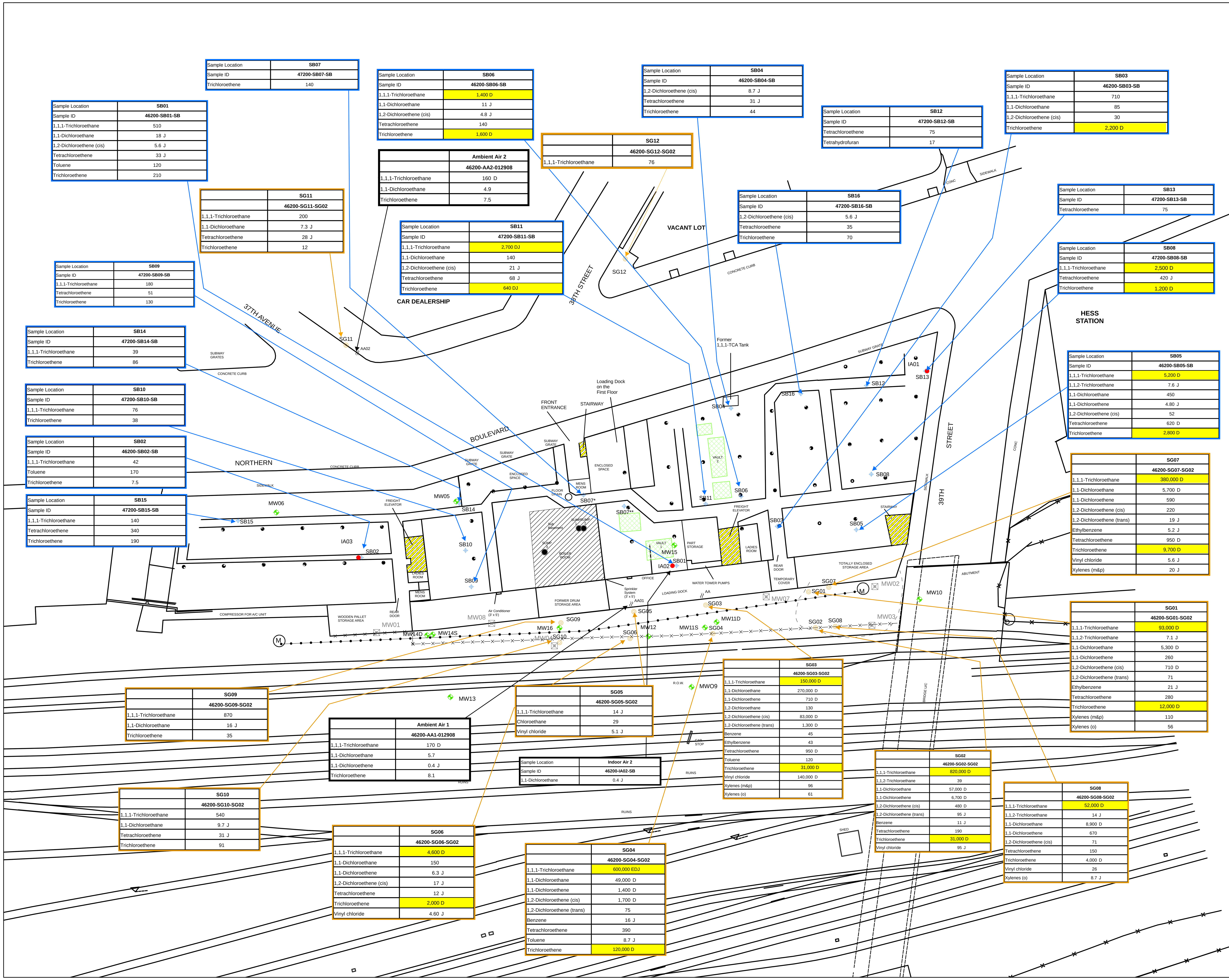
CDM

NORTH

SCALE IN FEET
0 50

DATE 9-4-08

FIGURE 4



Sample Location	SB07
Sample ID	47200-SB07-SB
Trichloroethene	140

Sample Location	SB06
Sample ID	46200-SB06-SB
1,1,1-Trichloroethane	1,400 D
1,1-Dichloroethane	11 J
1,2-Dichloroethene (cis)	4.8 J
Tetrachloroethene	140
Trichloroethene	1,600 D

Sample Location	SB04
Sample ID	46200-SB04-SB
1,2-Dichloroethene (cis)	8.7 J
Tetrachloroethene	31 J
Trichloroethene	44

Sample Location	SB03
Sample ID	46200-SB03-SB
1,1,1-Trichloroethane	710
1,1-Dichloroethane	85
1,2-Dichloroethene (cis)	30
Trichloroethene	2,200 D

Sample Location	SB01
Sample ID	46200-SB01-SB
1,1,1-Trichloroethane	510
1,1-Dichloroethane	18 J
1,2-Dichloroethene (cis)	5.6 J
Tetrachloroethene	33 J
Toluene	120
Trichloroethene	210

Sample Location	SB12
Sample ID	47200-SB12-SB
Tetrachloroethene	75
Tetrahydrofuran	17

	SG12
	46200-SG12-SG02
1,1,1-Trichloroethane	76

	Ambient Air 2
	46200-AA2-012908
1,1,1-Trichloroethane	160 D
1,1-Dichloroethane	4.9
Trichloroethene	7.5

	SG11
	46200-SG11-SG02
1,1,1-Trichloroethane	200
1,1-Dichloroethane	7.3 J
Tetrachloroethene	28 J
Trichloroethene	12

Sample Location	SB16
Sample ID	47200-SB16-SB
1,2-Dichloroethene (cis)	5.6 J
Tetrachloroethene	35
Trichloroethene	70

Sample Location	SB13
Sample ID	47200-SB13-SB
Tetrachloroethene	75

Sample Location	SB11
Sample ID	47200-SB11-SB
1,1,1-Trichloroethane	2,700 DJ
1,1-Dichloroethane	140
1,2-Dichloroethene (cis)	21 J
Tetrachloroethene	68 J
Trichloroethene	640 DJ

Sample Location	SB09
Sample ID	47200-SB09-SB
1,1,1-Trichloroethane	180
Tetrachloroethene	51
Trichloroethene	130

Sample Location	SB08
Sample ID	47200-SB08-SB
1,1,1-Trichloroethane	2,500 D
Tetrachloroethene	420 J
Trichloroethene	1,200 D

Sample Location	SB14
Sample ID	47200-SB14-SB
1,1,1-Trichloroethane	39
Trichloroethene	86

Sample Location	SB05
Sample ID	46200-SB05-SB
1,1,1-Trichloroethane	5,200 D
1,1,2-Trichloroethane	7.6 J
1,1-Dichloroethane	450
1,1-Dichloroethene	4.80 J
1,2-Dichloroethene (cis)	52
Tetrachloroethene	620 D
Trichloroethene	2,800 D

Sample Location	SB10
Sample ID	47200-SB10-SB
1,1,1-Trichloroethane	76
Trichloroethene	38

Sample Location	SB02
Sample ID	46200-SB02-SB
1,1,1-Trichloroethane	42
Toluene	170
Trichloroethene	7.5

	SG07
	46200-SG07-SG02
1,1,1-Trichloroethane	380,000 D
1,1-Dichloroethane	5,700 D
1,1-Dichloroethene	590
1,2-Dichloroethene (cis)	220
1,2-Dichloroethene (trans)	19 J
Ethylbenzene	5.2 J
Tetrachloroethene	950 D
Trichloroethene	9,700 D
Vinyl chloride	5.6 J
Xylenes (m&p)	20 J

Sample Location	SB15
Sample ID	47200-SB15-SB
1,1,1-Trichloroethane	140
Tetrachloroethene	340
Trichloroethene	190

	SG01
	46200-SG01-SG02
1,1,1-Trichloroethane	93,000 D
1,1,2-Trichloroethane	7.1 J
1,1-Dichloroethane	5,300 D
1,1-Dichloroethene	260
1,2-Dichloroethene (cis)	710 D
1,2-Dichloroethene (trans)	71
Ethylbenzene	21 J
Tetrachloroethene	280
Trichloroethene	12,000 D
Xylenes (m&p)	110
Xylenes (o)	56

	SG03
	46200-SG03-SG02
1,1,1-Trichloroethane	150,000 D
1,1-Dichloroethane	270,000 D
1,1-Dichloroethene	710 D
1,2-Dichloroethane	130
1,2-Dichloroethene (cis)	83,000 D
1,2-Dichloroethene (trans)	1,300 D
Benzene	45
Ethylbenzene	43
Tetrachloroethene	950 D
Toluene	120
Trichloroethene	31,000 D
Vinyl chloride	140,000 D
Xylenes (m&p)	96
Xylenes (o)	61

	SG09
	46200-SG09-SG02
1,1,1-Trichloroethane	870
1,1-Dichloroethane	16 J
Trichloroethene	35

	SG05
	46200-SG05-SG02
1,1,1-Trichloroethane	14 J
Chloroethane	29
Vinyl chloride	5.1 J

	Ambient Air 1
	46200-AA1-012908
1,1,1-Trichloroethane	170 D
1,1-Dichloroethane	5.7
1,1-Dichloroethene	0.4 J
Trichloroethene	8.1

Sample Location	Indoor Air 2
Sample ID	46200-IA02-SB
1,1-Dichloroethene	0.4 J

	SG02
	46200-SG02-SG02
1,1,1-Trichloroethane	820,000 D
1,1,2-Trichloroethane	39
1,1-Dichloroethane	57,000 D
1,1-Dichloroethene	6,700 D
1,2-Dichloroethene (cis)	480 D
1,2-Dichloroethene (trans)	95 J
Benzene	11 J
Tetrachloroethene	190
Trichloroethene	31,000 D
Vinyl chloride	95 J

	SG10
	46200-SG10-SG02
1,1,1-Trichloroethane	540
1,1-Dichloroethane	9.7 J
Tetrachloroethene	31 J
Trichloroethene	91

	SG08
	46200-SG08-SG02
1,1,1-Trichloroethane	52,000 D
1,1,2-Trichloroethane	14 J
1,1-Dichloroethane	8,900 D
1,1-Dichloroethene	670
1,2-Dichloroethene (cis)	71
Tetrachloroethene	150
Trichloroethene	4,000 D
Vinyl chloride	26
Xylenes (o)	8.7 J

	SG06
	46200-SG06-SG02
1,1,1-Trichloroethane	4,600 D
1,1-Dichloroethane	150
1,1-Dichloroethene	6.3 J
1,2-Dichloroethene (cis)	17 J
Tetrachloroethene	12 J
Trichloroethene	2,000 D
Vinyl chloride	4.60 J

	SG04
	46200-SG04-SG02
1,1,1-Trichloroethane	600,000 EDJ
1,1-Dichloroethane	49,000 D
1,1-Dichloroethene	1,400 D
1,2-Dichloroethene (cis)	1,700 D
1,2-Dichloroethene (trans)	75
Benzene	16 J
Tetrachloroethene	390
Toluene	8.7 J
Trichloroethene	120,000 D

INDOOR AIR (IA) SAMPLE LOCATION
AMBIENT AIR (AA) SAMPLE LOCATION
DESTROYED MONITORING WELLS (MW)
MONITORING WELL (MW)
SUB-SLAB (SB) SAMPLE LOCATION
SOIL GAS (SG) SAMPLE LOCATION
M SEWER MANHOLE (APPROX 12' DEEP)
D APPROX LOCATION OF DRAIN SPOUT
R.O.W. RIGHT OF WAY
SUPPORT COLUMN
FENCE LINE
UNDERGROUND STORM SEWER
APPROX. VICINITY OF PREVIOUSLY EXCAVATED SOIL
RECESS EQUIPMENT PAD/VAULT
RECOMMEND MITIGATION

NOTES:
SB07* - AIR SAMPLE
SB07** - SOIL/GW SAMPLE

ALL RESULTS IN µg/m3

DRAFTED BY: BK
CHECKED BY: CJ
REVIEWED BY: MW

PHASE IV SOIL GAS, SUB-SLAB AND INDOOR AIR VOC DETECTIONS

STANDARD MOTOR PRODUCTS, INC. SITE
LONG ISLAND CITY, NEW YORK

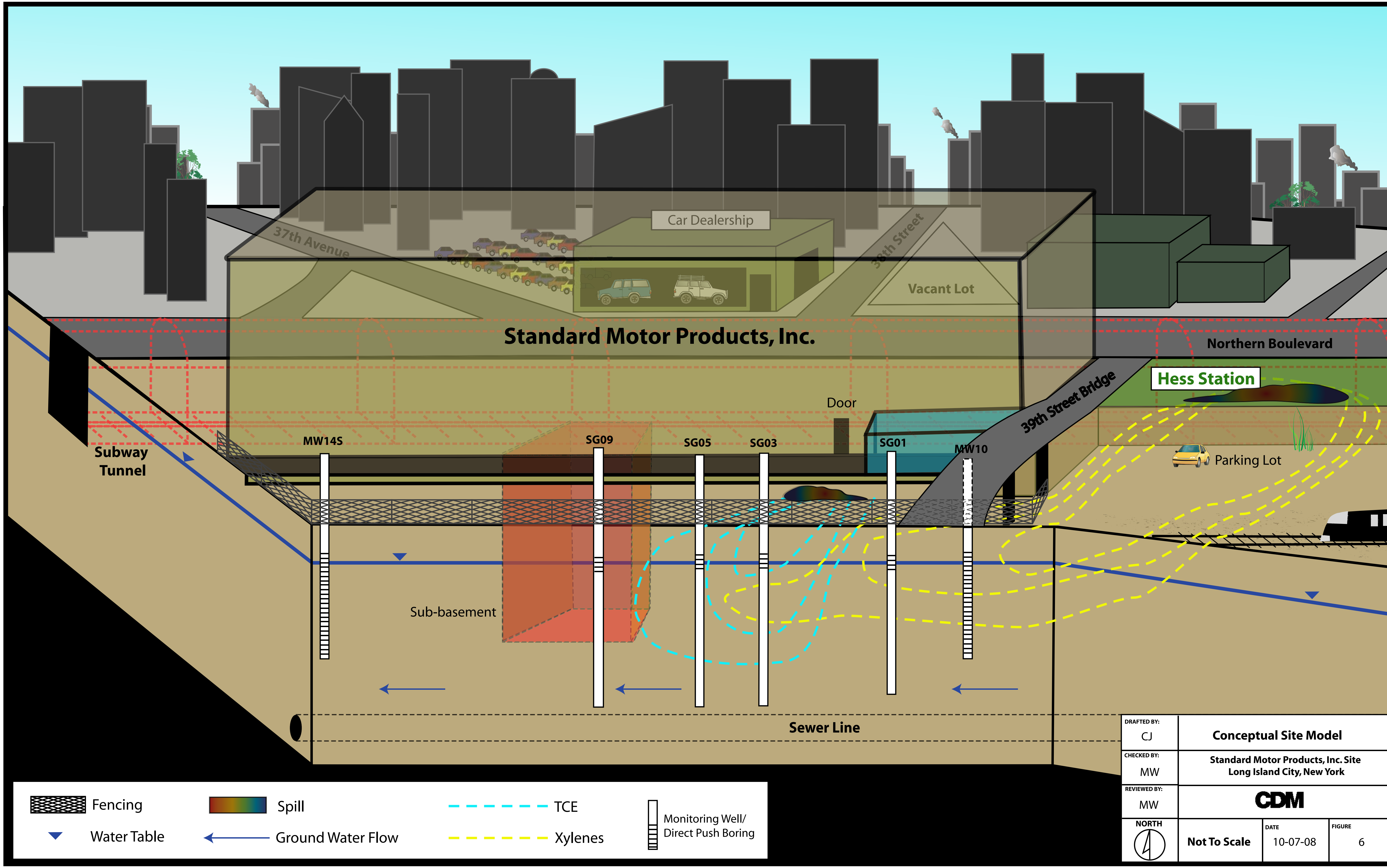
CDM

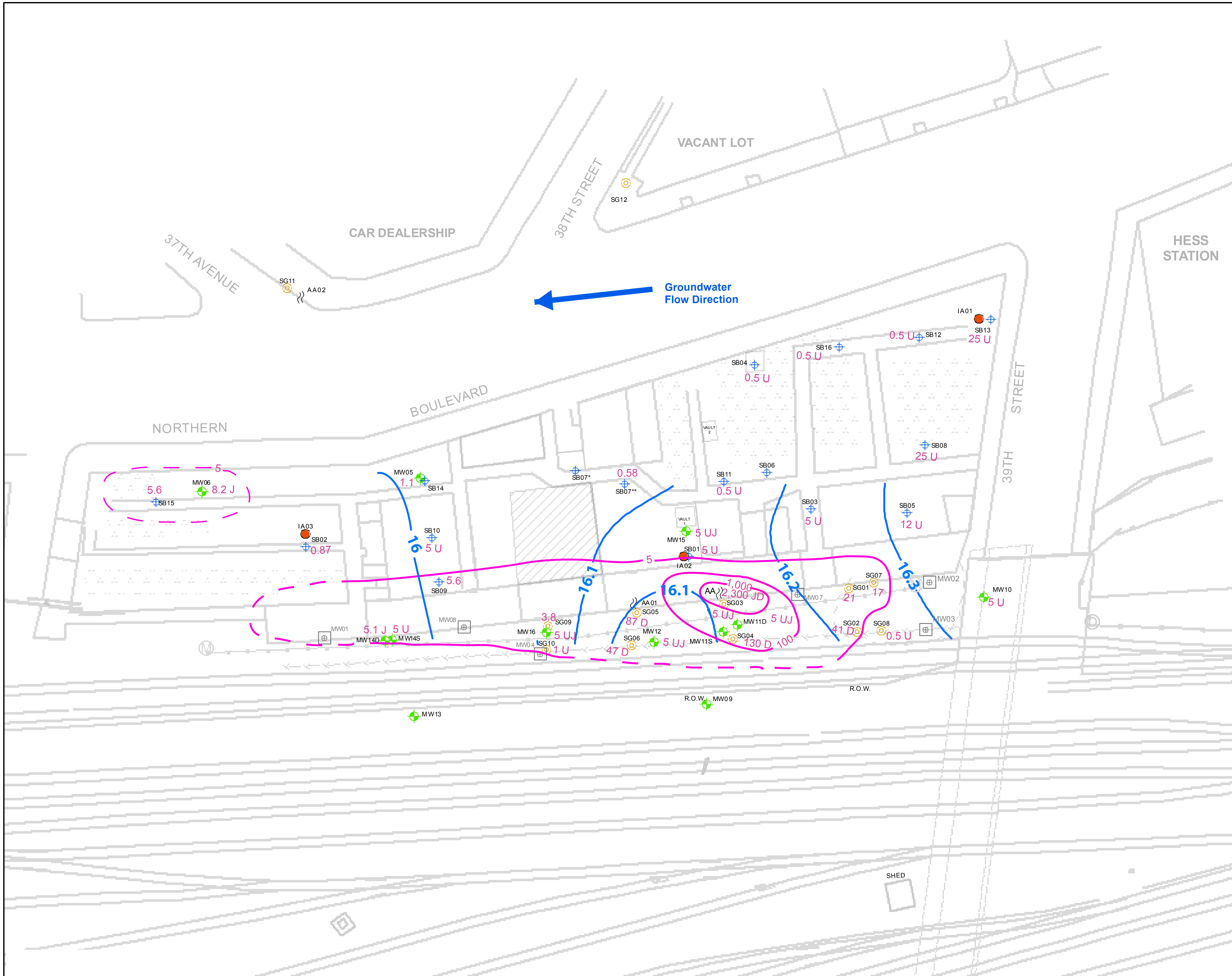
NORTH

SCALE IN FEET
0 50

DATE 9-2-08

FIGURE 5


37th Avenue
Car Dealership
38th Street
Vacant Lot
Standard Motor Products, Inc.
Northern Boulevard
Hess Station
Door
39th Street Bridge
Parking Lot
Subway Tunnel
MW14S
SG09
SG05
SG03
SG01
MW10
Sub-basement
Sewer Line
Fencing
Water Table
Spill
Ground Water Flow
TCE
Xylenes
Monitoring Well/ Direct Push Boring
DRAFTED BY:
CJ
Conceptual Site Model
CHECKED BY:
MW
Standard Motor Products, Inc. Site
Long Island City, New York
REVIEWED BY:
MW
CDM
NORTH
Not To Scale
DATE
10-07-08
FIGURE
6



INDOOR AIR (IA) SAMPLE LOCATION
AMBIENT AIR (AA) SAMPLE LOCATION
DESTROYED MONITORING WELLS (MW)
MONITORING WELL (MW)
SUB-SLAB (SB) SAMPLE LOCATION
SOIL GAS (SG) SAMPLE LOCATION
SEWER MANHOLE (APPROX 12' DEEP)
APPROX LOCATION OF DRAIN SPOUT
R.O.W. RIGHT OF WAY
FENCE LINE
UNDERGROUND STORM SEWER
BUILDING - PROCESS EQUIPMENT
APPROX. VICINITY OF PREVIOUSLY EXCAVATED SOILS
16.3 POTENTIOMETRIC CONTOUR, FEET AMSL
TCE ISOCONCENTRATION CONTOUR (MICROGRAMS/LITER) (MAXIMUM TOTAL TCE CONCENTRATION AT EACH LOCATION WERE USED TO CREATE CONTOURS)
2,300 JD TCE, MICROGRAMS/LITER
D DILUTED SAMPLE
U NOT DETECTED, VALUE REPORTED IS THE DETECTION LIMIT
J ESTIMATED CONCENTRATION

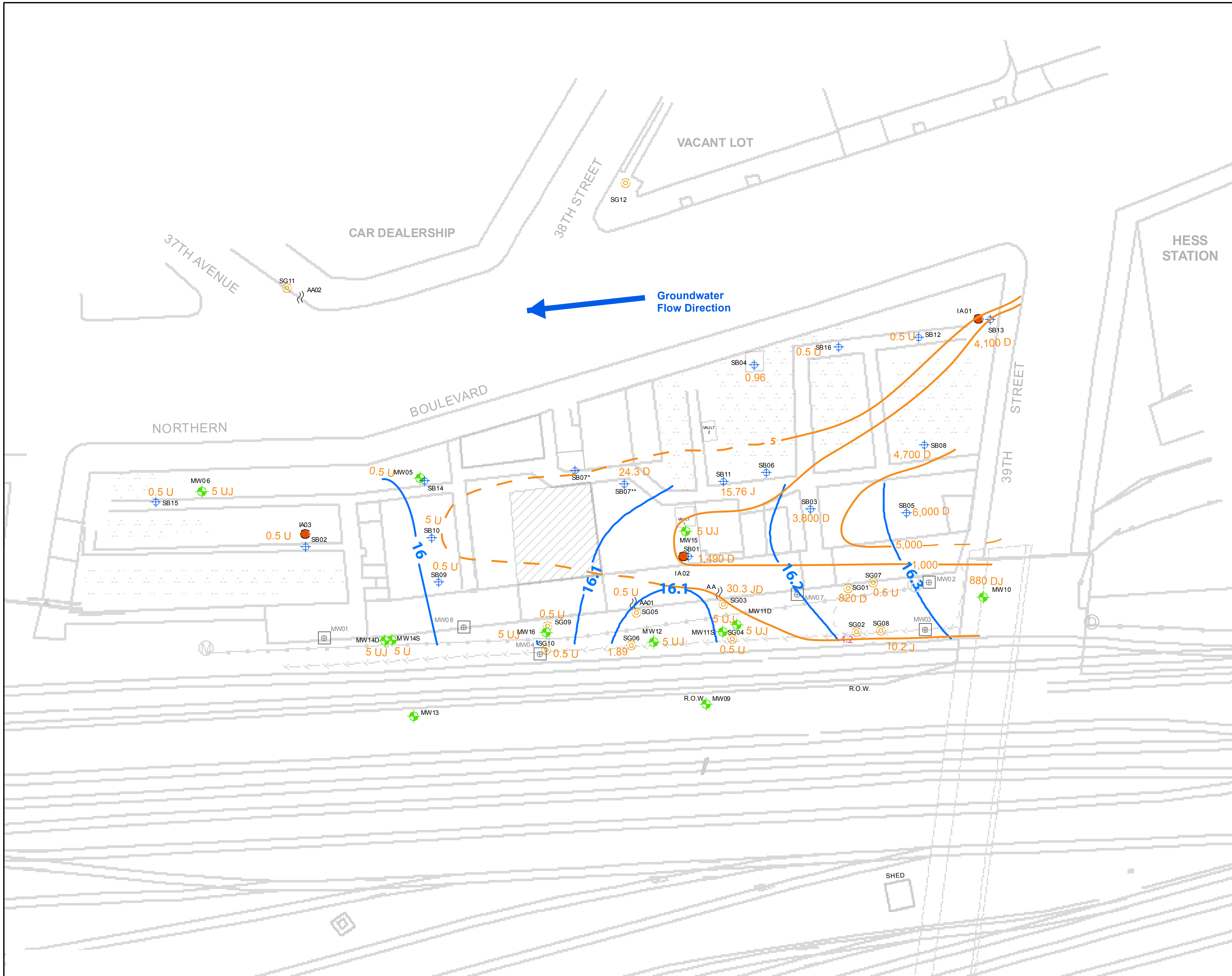
NOTES:
SB07* - AIR SAMPLE
SB07** - SOIL/GW SAMPLE

DRAFTED BY: BK	**PHASE IV TCE GROUNDWATER ISOCONCENTRATION CONTOUR MAP**
CHECKED BY: JD	**STANDARD MOTOR PRODUCTS, INC. SITE LONG ISLAND CITY, NEW YORK**
REVIEWED BY: MW	CDM

NORTH

50 Feet

DATE	FIGURE
6-18-08	7



INDOOR AIR (IA) SAMPLE LOCATION
AMBIENT AIR (AA) SAMPLE LOCATION
DESTROYED MONITORING WELLS (MW)
MONITORING WELL (MW)
SUB-SLAB (SB) SAMPLE LOCATION
SOIL GAS (SG) SAMPLE LOCATION
SEWER MANHOLE (APPROX 12' DEEP)
APPROX LOCATION OF DRAIN SPOUT
R.O.W. RIGHT OF WAY
FENCE LINE
UNDERGROUND STORM SEWER
BUILDING - PROCESS EQUIPMENT
APPROX. VICINITY OF PREVIOUSLY EXCAVATED SOILS
POTENTIOMETRIC CONTOUR, FEET AMSL
XYLENE ISOCONCENTRATION CONTOUR (MICROGRAMS/LITER) (MAXIMUM TOTAL TCE CONCENTRATION AT EACH LOCATION WERE USED TO CREATE CONTOURS)
4,700 J XYLENE, MICROGRAMS/LITER
D DILUTED SAMPLE
U NOT DETECTED, VALUE REPORTED IS THE DETECTION LIMIT
J ESTIMATED CONCENTRATION

NOTES:
SB07* - AIR SAMPLE
SB07** - SOIL/GW SAMPLE

DRAFTED BY: BK
CHECKED BY: JD
REVIEWED BY: MW
NORTH

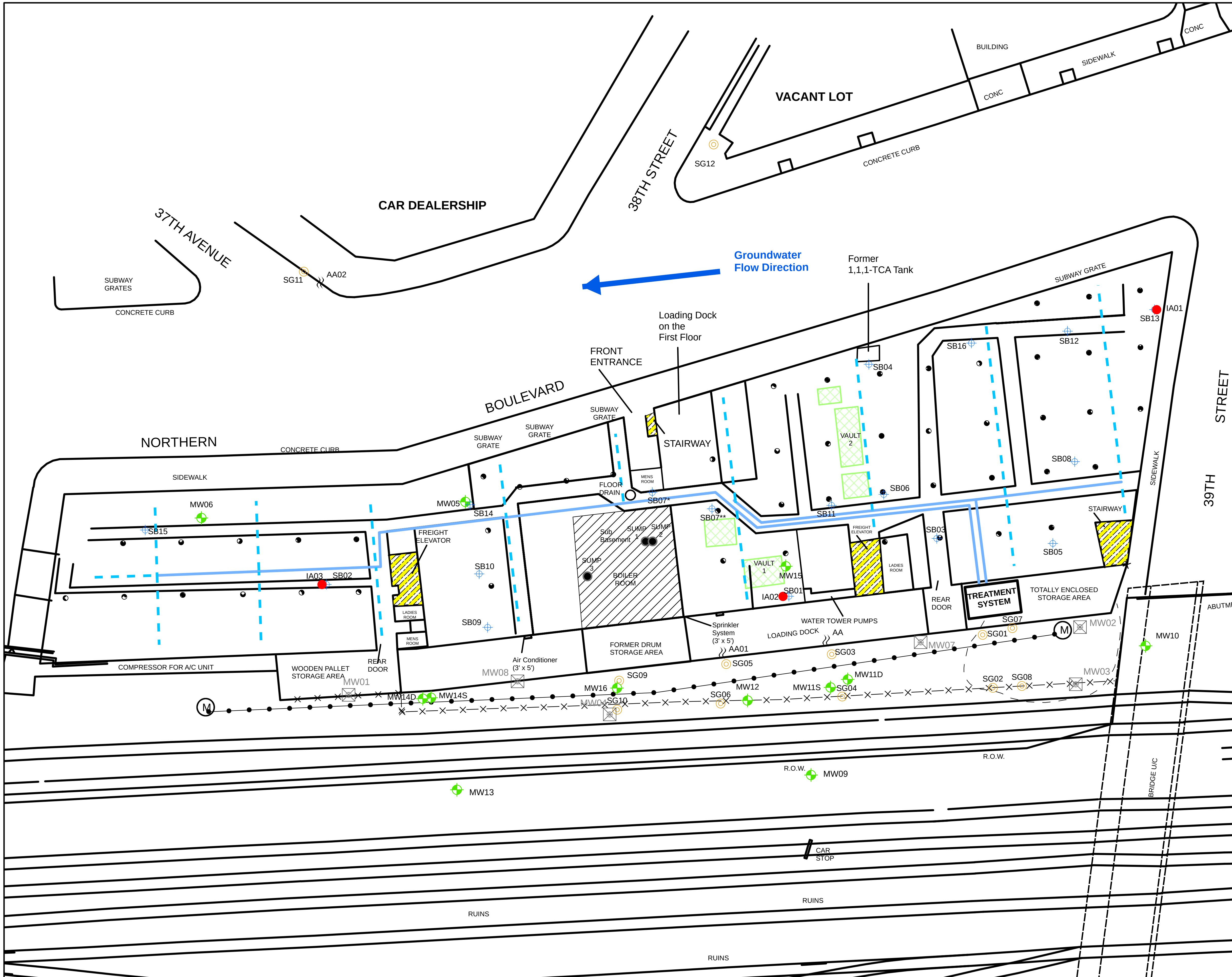
PHASE IV XYLENE GROUNDWATER ISOCONCENTRATION CONTOUR MAP

STANDARD MOTOR PRODUCTS, INC. SITE
LONG ISLAND CITY, NEW YORK

CDM

50 Feet

DATE	FIGURE
6-18-08	8



- INDOOR AIR (IA) SAMPLE LOCATION
- AMBIENT AIR (AA) SAMPLE LOCATION
- DESTROYED MONITORING WELLS (MW)
- MONITORING WELL (MW)
- SUB-SLAB (SB) SAMPLE LOCATION
- SOIL GAS (SG) SAMPLE LOCATION
- M SEWER MANHOLE (APPROX 12' DEEP)
- D APPROX LOCATION OF DRAIN SPOUT
- R.O.W. RIGHT OF WAY
- SUPPORT COLUMN
- FENCE LINE
- UNDERGROUND STORM SEWER
- APPROX. VICINITY OF PREVIOUSLY EXCAVATED SOILS
- RECESS EQUIPMENT PAD/VAULT
- SOLID PVC PIPING TRENCH
- PERFORATED PVC PIPING TRENCH

NOTES:
SB07* - AIR SAMPLE
SB07** - SOIL/GW SAMPLE

DRAFTED BY: CJ	**SUB-SLAB DEPRESSURIZATION SYSTEM LAYOUT**
CHECKED BY:	**STANDARD MOTOR PRODUCTS, INC. SITE LONG ISLAND CITY, NEW YORK**
REVIEWED BY:	CDM

NORTH	SCALE IN FEET 0 40	DATE 10-2-08	FIGURE 9

INDOOR AIR (IA) SAMPLE LOCATION
AMBIENT AIR (AA) SAMPLE LOCATION
DESTROYED MONITORING WELLS (MW)
MONITORING WELL (MW)
SUB-SLAB (SB) SAMPLE LOCATION
SOIL GAS (SG) SAMPLE LOCATION
M SEWER MANHOLE (APPROX 12' DEEP)
D APPROX LOCATION OF DRAIN SPOUT
R.O.W. RIGHT OF WAY
SUPPORT COLUMN
FENCE LINE
UNDERGROUND STORM SEWER
APPROX. VICINITY OF PREVIOUSLY EXCAVATED SOILS
RECESS EQUIPMENT PAD/VAULT
AREA EXCEEDS 20 TIMES CRITERIA
PROPOSED AIR SPARGE (AS) WELL
PROPOSED SOIL VAPOR EXTRACTION (SVE) TRENCH
AS AREA OF INFLUENCE
SVE AREA OF INFLUENCE

NOTES:
SB07* - AIR SAMPLE
SB07** - SOIL/GW SAMPLE

DRAFTED BY: CJ

AIR SPARGING WELLS AND SOIL VAPOR EXTRACTION TRENCHES LAYOUT

CHECKED BY: JVB

STANDARD MOTOR PRODUCTS, INC. SITE
LONG ISLAND CITY, NEW YORK

REVIEWED BY: MW

CDM

NORTH

SCALE IN FEET
0 20

DATE 10-16-08

FIGURE 10