PROPOSED REMEDIAL ACTION PLAN

Mechanicville Light Industrial Park

Environmental Restoration Project

City of Mechanicville, Saratoga County, New York

Site No. E546050

October 2009

Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

A 1996 Clean Water/Clean Air Bond Act
Environmental Restoration Project
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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

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 Mechanicville Light Industrial Park Site.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Brownfields are abandoned, idled, or under-used properties where redevelopment is complicated by real or perceived environmental contamination. They typically are former industrial or commercial properties where operations may have resulted in environmental contamination. Brownfields often pose not only environmental, but legal and financial burdens on communities. Under the Environmental Restoration Program, the state provides grants to municipalities to reimburse up to 90 percent of eligible costs for site investigation and remediation activities. Once remediated, the property can then be reused.

As more fully described in Sections 3 and 5 of this document, historical rail yard operations at the site resulted in the disposal of hazardous substances, including semivolatile organic compounds (SVOCs) and metals. These hazardous substances contaminated the surface soil, subsurface soil and groundwater at the site, and resulted in:

- a threat to human health associated with potential exposure to surface soil and subsurface soil contaminated with SVOCs and metals.

To eliminate or mitigate these threats, the Department proposes placement of a barrier to contact in the proposed softball field area and the proposed industrial area with institutional and engineering controls.

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 March 2009 Remedial Investigation Report, the April 2009 Alternatives Analysis Report, and other relevant documents. The public is encouraged to review the project documents, which are available at the following repositories:

City Hall
36 North Main Street
Mechanicville, NY 12118
(518) 664-7303
Hours: Mon – Fri, 8:30 am – 4:30 pm

NYSDEC Region 5 Warrensburg Office
232 Golf Course Rd, P.O. Box 220
Warrensburg, NY 12885
(518) 623-1238
Hours: Mon – Fri, 8:30 am – 4:45 pm
Contact: Ms. Alicia Thorne, P.E.

Mechanicville Public Library
190 North Main Street
Mechanicville, NY 12118
(518) 664-4646
Hours: Mon, Wed: 11 am – 8 pm
Tue, Thur, Fri: 11 am – 5 pm
Contact: Ms. Michelle Duell

The Department seeks input from the community on all PRAPs. A public comment period has been set from {dates} to provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for {date} at the {location} beginning at {time}.

At the meeting, the results of the SI/RAR and IRM 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 Ms. Thorne at the above address through {date comment period ends}.

The Department may modify the proposed remedy or select another 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

The Mechanicville Light Industrial Park site, is approximately 25 acres in size, and lies in an urban setting in the City of Mechanicville, Saratoga County (See Figure 1). The site is bisected by Industrial Park Drive and Clement Street borders the site to the south. The site lies in a mixed use area situated among commercial use, residences, and a recreational ball field. A portion of the site is currently occupied by the Mechanicville Department of Public Works (DPW) and includes an office, garage, paved parking area, and Industrial Park Drive. In addition, a portion of the site is occupied by a small baseball field (Field C) and batting cages used by the Mechanicville/Stillwater Little League. Fields "A" and "B" are not located on the site.

Site geology includes a horizon of approximately 1 ft of fill material which included topsoil, gravel, sand, brick and some coal. Below the fill layer is a fine to medium grained sand from approximately 2 ft to 6 ft below ground surface (bgs). Below the fine sand is a coarser sand or clay from approximately 6 to 12 ft bgs. A shale bedrock was encountered at approximately 11 ft bgs. Groundwater was encountered in the coarse sand or clay horizon from approximately 6 ft to 10 ft bgs. As indicated in Figure 3, groundwater flow is easterly towards the Hudson River, approximately a half mile from the site.

The Mechanicville Light Industrial Park site is planned to be broken up into three areas for proposed future use. The main portion of the site (or approximately 17 acres or 68% of the site), is proposed as industrial use. The City is also proposing two separate areas, which are adjacent and contiguous to be used as restricted residential use (8 acres or approximately 32% of the site). This restricted residential use will apply to the existing baseball field, (approximately 2- acres or 8% of the site), and the remaining undeveloped area, the proposed soft ball fields.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The site was vacant undeveloped land prior to 1921 when the site was developed as the southwestern portion of a 200-acre Boston and Maine/Delaware and Hudson railroad yard. Historically the site had several structures on site including a power house, sand house, engine house, round house and a coal trestle. Historical site operations consisted of train engine maintenance, fueling, sanding, and rerouting. Various site structures and operations were removed throughout the railroad's tenure on site, from1921 until the 1990s. The City purchased the site from Boston and Maine Railroad in 1996. In 1996 and 1997, the City improved a portion of the 25-acre site with the current DPW buildings. In addition, Industrial Park Road was constructed, running east/west along the site. The Mechanicville/Stillwater Little League has leased a section of the southwest corner of the site and has constructed a ball field. The field or area is known as Field "C". Later batting cages were installed as well.

3.2: Remedial History

In 1997, a Phase II investigation was performed by the City, documenting petroleum contamination on site. In 2002, a Phase I investigation was performed, followed by a Phase II investigation in 2003.

SECTION 4: ENFORCEMENT STATUS

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

Since no viable PRPs have been identified, there are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the state to recover state response costs should PRPs be identified. The City of Mechanicville will assist the state in its efforts by providing all information to the state which identifies PRPs. The City of Mechanicville will also not enter into any agreement regarding response costs without the approval of the Department.

SECTION 5: SITE CONTAMINATION

The City of Mechanicville has recently completed a remedial investigation/alternatives analysis report (RI/AA) to determine the nature and extent of any contamination by hazardous substances at this environmental restoration site.

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 from July 2007 to March 2009. The field activities and findings of the investigation are described in the SI report.

Investigative tasks performed during the RI included performing a ground penetrating radar survey, the collection of 23 surface soil samples, 22 subsurface soil samples, 5 offsite background surface soil samples, and 5 soil vapor samples. Subsequently, three additional surface soil samples were collected in the proposed new softball field area.

The subsurface investigative tasks performed included the installation of 11 test pits and 26 soil borings. During the RI, 8 groundwater monitoring wells were installed and sampled along with 6 existing groundwater monitoring wells. In addition, a potable well survey was completed.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the surface soil, subsurface soil, groundwater, and soil gas contains contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on the Department's June 1998 "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.
- Soil SCGs are based on 6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives (SCOs).
- Concentrations of VOCs in 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.

- Concentrations of VOCs in air were compared to typical background levels of VOCs in indoor and outdoor air using the background levels provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. The background levels are not SCGs and are used only as a general tool to assist in data evaluation.
- Background surface soil samples were taken from 5 locations. These locations were taken from public lands within 0.5 miles from the site, and were unaffected by historic or current site operations. The samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and inorganic metals (metals). The results of the background sample analysis were compared to relevant SI data to determine appropriate site remediation goals.

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

5.1.2: Nature and Extent of Contamination

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

As described in the RI report, many soil, subsurface soil, groundwater and soil vapor samples were collected to characterize the nature and extent of contamination. As seen in Figures 2A, 4, 5 and summarized in Tables 1, 2, 3, and 4, the main categories of contaminants that exceed their SCGs are semivolatile organic compounds (SVOCs) and inorganics (metals). 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 2A, 4, and 5 indicate the location and summarize the degree of contamination for the contaminants of concern in surface soil, subsurface soil, and groundwater and compare the data with the respective restricted residential and industrial use SCGs. Tables 1 , 2, 3, and 4 summarize the degree of contamination for the contaminants of concern in surface soil, subsurface soil, groundwater and soil vapor respectively, and compare the data with the unrestricted SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Surface Soil

Investigative tasks performed during the RI included the collection of 23 surface soil samples and 5 offsite background surface soil samples. Three additional surface soil samples were taken in the proposed softball field area to further define the SVOC contamination detected. The background surface soil samples were collected off-site from Tallmadge Park located south of the site and areas along sidewalks in the residential neighborhoods south-southeast of the site.

Existing Baseball Field Area (Restricted Residential Use)

As indicated on Figure 2, four of the 23 surface soil samples collected on site were collected from the existing baseball field area. As indicated on Table 1, in surface soil sample SS-20, there was a detection of

two pesticides, 4,4-DDE and 4,4-DDT, and one inorganic, copper, slightly above the respective unrestricted use SCOs, but below the respective restricted residential SCOs. No other contaminants were detected above the unrestricted use SCOs.

Proposed Softball Field Area (Restricted Residential Use)

As indicated on Figure 2, two of the 23 surface soil samples collected on site were collected from the proposed softball field area. In surface soil sample SS-19, there was a detection of several inorganics, including arsenic, copper, lead, and zinc slightly above the unrestricted use SCO, but below the restricted residential SCO. As indicated on Figure 5, surface soil sample SS-15, had several estimated detections of SVOC contaminants above the restricted residential SCOs. To confirm whether this contamination was an isolated case or anomaly, three additional surface soil samples, SS-24, SS-25 and SS-26, were collected and analyzed for SVOCs only. In surface soil samples SS-24 and SS-25, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, indeno(1,2,3-cd)pyrene and dibenz(a,h)anthracene were detected above the respective SCOs. However, the concentrations of SVOCs detected in the additional samples were several orders of magnitude lower than that detected in SS-15. The detection of SVOC contamination at surface soil samples SS-24 and SS-25 confirms that there is slight SVOC surface soil contamination in the proposed softball field area.

Proposed Industrial Area

As indicated on Figure 2, 17 of the 23 surface soil samples collected on site, were collected from the proposed industrial area. As indicated in Table 1, when compared to the unrestricted use SCO, several SVOC contaminants were detected above the unrestricted use SCOs, including benzon(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene and indeno(1,2,3-cd)pyrene. There were five slight exceedances of pesticide compounds above their respective unrestricted use SCOs. There was one slight detection of PCBs at 0.11 ppm above the unrestricted use SCO of 0.1 ppm. Five inorganic or metals compounds were detected above the unrestricted use SCOs. While there were numerous detections of various contaminants above the unrestricted use SCOs, as indicated on Figure 4, only 3 of the 14 surface soil samples exceeded the industrial SCO for benzo(a)pyrene. Benzo(a)pyrene exceedances above the SCO of 1.1 ppm, ranged from 1.6 ppm to 2.5 ppm. In addition, as indicated on Figure 4, 8 of the 14 surface soil samples (SS-1, SS-2, SS-4, SS-5, SS-7, SS-9, SS-10, and SS-13) exceeded the industrial use SCO for arsenic, an inorganic. The arsenic exceedances above the SCO of 16.0 ppm ranged from 16.4 ppm to 65.3 ppm.

Surface soil contamination identified during the RI/AA will be addressed in the remedy selection process.

Subsurface Soil

As indicated in Table 2, while there were several detections of contaminants above the unrestricted use SCOs, there was only one exceedance of restricted residential use SCOs in the subsurface on site. In the baseball field area, as indicated in Figure 5, there was a detection of an inorganic, manganese at SB-22 at the 5 to 10 ft depth at a concentration of 5,570 ppm. This detection is above the unrestricted use SCO of 1,600 ppm and also the restricted residential use SCO of 2,000 ppm. There were also several compounds detected slightly above the unrestricted use, which primarily included metals compounds.

Three metals: copper, nickel and zinc were detected in the future industrial area above the unrestricted use SCOs, however these detections are well below their respective industrial use SCOs. While there were no contraventions of the industrial use SCOs in the industrial use area, significant grossly contaminated soil was

encountered in a discrete area of the central portion of the site that exhibited evidence of petroleum free product, heavy staining and petroleum odors. This subsurface soil contamination identified during the RI/AA was addressed during the soil excavation IRM described in Section 5.2.

Subsurface soil contamination identified during the RI/AA will be addressed in the remedy selection process.

Groundwater

14 monitoring wells, as indicated in Figures 2 and 3, were sampled. There were several detections of VOCs. However, there was only one exceedance of the groundwater standards for VOCs, specifically bromomethane at 6.0 ppb at MW-9, which is slightly above the SCG of 5.0 ppb (see Table 3). While there were numerous detections of SVOCs in the site monitoring wells, there was only one detection of SVOC contamination above SCGs. Bis(2-ethylhexyl)phthalate was detected at 13 ppb at MW-14, which is slightly above the SCG of 5 ppb. As indicated in Table 3, there were various detections of inorganic metals, contaminants in the site monitoring wells. Monitoring well MW-13 exhibited the highest and most detections of metals contamination and also exhibited elevated turbidity readings during the sampling event. This high turbidity may have attributed to the elevated level of metals detected in that sample, including aluminum, antimony, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, magnesium, mercury, and nickel. In summary, there were 16 metals detected at levels marginally exceeding SCGs from various monitoring wells across the site.

Groundwater contamination identified during the RI/AA will be addressed as part of the institutional controls as described in Section 8.0. Therefore, no remedial alternatives need to be evaluated for groundwater.

Soil Vapor

As depicted on Figure 2, 5 soil vapor samples were collected on site to evaluate the potential for exposures via soil vapor intrusion. As indicated in Table 4, trace to low levels of VOCs were detected in the soil vapor samples collected on site. No site-related soil vapor contamination of concern was identified during the RI/AA. Therefore, no remedial alternatives need to be evaluated for this medium.

5.2: Interim Remedial Measures

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/AA. During the RI, grossly contaminated subsurface soils and groundwater were detected in a discrete central portion of the proposed industrial area. The subsurface soils in this location exhibited evidence of petroleum free product, staining, and petroleum odors. To address this source of subsurface contamination, in September 2008, a focused soil excavation and dewatering IRM was conducted. During excavation activities, excavation dewatering and active groundwater treatment via carbon filtration was performed to address petroleum contamination. Approximately 105,200 gallons of contaminated water was evacuated and treated for petroleum contamination from the excavation prior to discharge to the sanitary sewer system. The dimensions of the excavation were approximately 200 ft in length, 70 feet wide, by 6 feet deep. In total, approximately 2,292 tons of contaminated soil was excavated and transported for off-site disposal. The excavation was backfilled with clean, off-site soil.

The post-excavation confirmatory samples were analyzed for VOCs and SVOCs only, as the preliminary results from the RI revealed that petroleum contamination were the main subsurface contaminants of concern in that area. While there were numerous detections of several VOCs and SVOCs in the 29 confirmatory soil samples collected, as indicated in Figure 2A, only one post-excavation soil sample, SW-9, was detected above the industrial use SCGs. SW-9 was collected from the northeastern most portion of the excavation wall at 3 ft depth. SW-9 exhibited benzo(a)pyrene at 1,500 ppb, which slightly exceeds the respective industrial SCG of 1,100 ppb. These results confirm that a majority of the site's petroleum contamination was addressed through the implementation of the IRM.

5.3: Summary of Human Exposure Pathways:

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 6.1 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.

Access to the site is not restricted therefore site workers or trespassers could be exposed to contaminated soils during future construction or other ground invasive work. Recreational users of the current baseball field are not expected to come in contact with contamination in the soil as samples collected from the baseball field did not indicate the presence of compounds above applicable standards. Exposures to contaminated groundwater via drinking water are not expected because public water serves the area. The potential for soil vapor intrusion will be evaluated should structures be constructed on the site.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site prior to the IRM. 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. The site lies in an urban setting with no water resources or other environmentally sensitive receptors in proximity to the site, therefore there are no complete or potentially complete environmental exposure pathways or ecological risks associated with the Mechanicville Light Industrial Park site.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND PROPOSED USE OF THE SITE

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 substances 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 proposed softball field area of the site to SVOCs in the surface soil;
- exposures of persons at or around the proposed industrial area site to inorganics (metals) in surface soil;
- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards; and
- the release of contaminants from subsurface soil into indoor air through soil vapor.

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

- Groundwater SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values," and
- Soil SCOs are based on the 6 NYCRR Part 375 soil cleanup objectives (SCOs).

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. Potential remedial alternatives for the Mechanicville Light Industrial Park were identified, screened and evaluated in the AA report which is available at the document repositories established for the 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 soils and groundwater at the site.

Alternative 1: No Further Action

The No Further Action alternative recognizes remediation of the site conducted under a previously completed IRM. To evaluate the effectiveness of the remediation completed under the IRM, only continued monitoring is necessary. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative 2: Institutional Controls

Present Worth: *$22,000*
Capital Cost: *$2,500*
Annual Costs:
(Years 1-5): *$2,700*
(Years 5-30): *$700*

Alternative 2 would leave site conditions the same, but include the imposition of institutional controls and the development of a Site Management Plan (SMP). The institutional controls would be in the form of an environmental easement that: would restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; limit the use and development of the property to industrial use only; require the property owner to complete and submit to the Department a periodic certification that the controls are in place, and; would require notification to a potential purchaser of site contamination upon a change of property ownership.

Alternative 3: Barrier to Contact in Softball Field Area, Barrier to Contact in Industrial Area, with Institutional and Engineering Controls

Present Worth: *$1,300,000*
Capital Cost: *$1,300,000*
Annual Costs:
(Years 1-5): *$2,700*
(Years 5-30): *$700*

Alternative 3 would require a soil cover to be constructed over all vegetated areas in the future softball field area to prevent potential exposure to contaminated soils. The two-foot thick cover would consist of clean soil underlain by an indicator such as orange plastic snow fence to demarcate the cover soil from the

subsurface soil. The top six inches of soil would be of such quality to support vegetation. Clean soil would constitute soil that meets the Division of Environmental Remediation's criteria for backfill or local site background. Non-vegetated areas (buildings, roadways, parking lots, etc.) would be covered by a paving system or concrete at least 6 inches thick.

Alternative 3 would also require a soil cover to be constructed over all vegetated areas in the undeveloped portion of the industrial area to prevent potential exposure to contaminated soils. The one-foot thick cover would consist of clean soil underlain by an indicator such as orange plastic snow fence to demarcate the cover soil from the subsurface soil. Clean soil would constitute soil that meets the Division of Environmental Remediation's criteria for backfill or local site background. Non-vegetated areas (buildings, roadways, parking lots, etc.) would be covered by a paving system or concrete at least 6 inches thick.

Alternative 3 would also include institutional controls as described in Alternative 2.

Alternative 4: Soil Excavation and Disposal Off-site, Groundwater Removal and Treatment

Present Worth: *$4,800,000*
Capital Cost: *$4,800,000*
Annual Costs:
(Years 1-5): *$0*
(Years 5-30): *$0*

Alternative 4 would provide removal of soils with concentrations of consituents above the Part 375-6 unrestricted use SCOs. Excavated soil would be transported off-site for treatment and/or disposal. This alternative would achieve the remedial action objective of preventing direct contact with unacceptable levels of metals, VOCs, and SVOCs in soil and the Department's preference to restore a site to pre-release conditions where feasible by removing all contaminated soil above the SCOs. The excavated soil would be disposed of properly off-site and the excavation would be backfilled with clean off-site fill. If contaminated groundwater were encountered during excavation, the groundwater would need to be collected and disposed of off-site at an appropriate receiving facility.

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 environmental restoration projects in New York A detailed discussion of the evaluation criteria and comparative analysis is included in the RA 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 5.

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/AA 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 Alternative 3, Barrier to Contact in Softball Field Area and the proposed Industrial Area with Institutional and Engineering Controls 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 AA. Alternative 3 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 preventing uncontrolled exposures to remaining contamination in the future softball field area and undeveloped industrial area through the installation of a protective cover and the implementation of a site management plan. This proposed remedy achieves the remediation goal of preventing exposures of persons at or around the proposed softball field area of the site to SVOCs in the surface soil and exposures of persons at or around the undeveloped portion of the industrial area to inorganics (metals) in the surface soil.

Because Alternative 4 also satisfies the threshold criteria, the five balancing criteria are particularly important in selecting a final remedy for the site.

Alternative 3 (Barrier to Contact with Institutional and Engineering Controls) and Alternative 4 (Soil Excavation and Disposal Off-site, Groundwater Removal and Treatment) both have short-term impacts which can easily be controlled. The time needed to achieve the remediation goals would be longest for Alternative 4, as the construction of the remedy would take several months longer.

While Alternative 3 has long-term effectiveness, Alternative 4 has greater long-term effectiveness as it is a permanent remedy. Alternative 4 is favorable because it would result in the removal of all of the remaining contaminated soil and groundwater at the site. Since Alternative 4 would result in removal of all of the chemical contamination at the site, it would also alleviate the need for property use restrictions and long-term monitoring.

Alternatives 3 and 4 are also similarly implementable, however Alternative 4, as it calls for additional physical actions, i.e. groundwater removal and treatment, would be slightly more difficult or involved to implement.

Alternative 3 would greatly reduce the mobility of contaminants but this reduction is dependent upon the long-term maintenance of the barrier to contact system.

The cost of the alternatives varies significantly. Alternative 3, Barrier to Contact with Institutional Controls and Engineering Controls is significantly less expensive than excavation (Alternative 4). Although Alternative 4 will eliminate all contamination from the site, it also has a longer short-term impact and is significantly more expensive to implement. Alternative 3 is favorable as it is cost effective and it is more implementable with similar effectiveness.

The estimated present worth cost to implement the remedy is $1,300,000. The cost to construct the remedy is estimated to be $1,300,000 and the estimated average annual costs for 30 years is $1000.

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) A soil cover would be constructed over all vegetated areas in the future softball field (restricted residential) area to prevent exposure to contaminated soils. The two-foot thick cover would consist of clean soil underlain by an indicator such as orange plastic snow fence to demarcate the cover soil from the subsurface soil. The top six inches of soil would be of sufficient quality to support vegetation. Clean soil would constitute soil that meets the Division of Environmental Remediation's criteria for backfill or local site background. Non-vegetated areas (buildings, roadways, parking lots, etc.) would be covered by a paving system or concrete at least 6 inches thick. The existing baseball field in the restricted residential use area will not require the two foot soil cover as the remedial investigation results confirm that during the construction of the ballfield and batting cages clean fill from off site was used as surface covering.

3) A soil cover would be constructed over all vegetated areas in the undeveloped portion of the future industrial use area to prevent exposure to contaminated soils. The one-foot thick cover would consist of clean soil underlain by an indicator such as orange plastic snow fence to demarcate the cover soil from the subsurface soil. The top six inches of soil would be of sufficient quality to support vegetation. Clean soil would constitute soil that meets the Division of Environmental Remediation's criteria for backfill or local site background. Non-vegetated areas (buildings, roadways, parking lots, etc.) would be covered by a paving system or concrete at least 6 inches thick.

4) Imposition of an institutional control in the form of an environmental easement that would require (a) limiting the use and development of the existing baseball field and future softball field property to restricted residential use which would also permit commercial or industrial uses; and limiting the use and development of the industrial park to 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) management of the final cover systems to restrict excavation below the soil cover's demarcation layer, pavement, or buildings. Excavated soil would be tested, properly handled to protect the health and safety of workers and the nearby community, and would be properly managed in a manner acceptable to the Department; (b) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (c) identification of any use restrictions on the site; (d) and provisions for the continued proper operation and maintenance of the components of the remedy.

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.

The site is planned to be broken up into three areas for proposed future use. The main portion of the site (or approximately 17 acres or 68% of the site), is proposed as industrial use. The City is also proposing two separate areas, which are adjacent and contiguous to be used as restricted residential use (8 acres or approximately 32% of the site). This restricted residential use will apply to the existing baseball field, (approximately 2- acres or 8% of the site), and the remaining undeveloped area, the proposed soft ball fields.

TABLE 1
Surface Soil
Nature and Extent of Contamination
August 2007 – January 2008

Existing Baseball Field Area (Restricted Residential Use)

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	Unrestricted Use SCO[b] (ppm)[a]	Frequency of Exceeding Unrestricted Use SCO
PCB/Pesticides	4,4-DDE	.0056	.0033	1 of 4
	4,4-DDT	.0018	.0018	1 of 4
Inorganics (Metals)	Copper	116	50	1 of 4

Proposed Softball Field Area (Restricted Residential Use)

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	Unrestricted Use SCO[b] (ppm)[a]	Frequency of Exceeding Unrestricted Use SCO
Semivolatile Organic Compounds (SVOCs)	Benzo(a)anthracene	1.8 to 78	1.0	3 of 4
	Chrysene	2.1 to 61	1.0	3 of 4
	Benzo(b)fluoranthene	3.6 to 63	1.0	3 of 4
	Benzo(k)fluoranthene	1.2 to 19	0.8	3 of 4
	Benzo(a)pyrene	2.3 to 46	1.0	3 of 4
	Indeno(1,2,3-cd)pyrene	1.1 to 32	0.5	3 of 4
	Dibenz(a,h)anthracene	.71 to 3	.33	2 of 4
	Acenaphthene	25	20	1 of 4
	Florene	30	30	1 of 4

TABLE 1
Surface Soil
Nature and Extent of Contamination
August 2007 – January 2008

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	Unrestricted Use SCO[b] (ppm)[a]	Frequency of Exceeding Unrestricted Use SCO
Inorganics (Metals)	Phenanthrene	120	100	1 of 4
	Fluoranthene	130	100	1 of 4
	Pyrene	110	100	1 of 4
	Arsenic	14	13	1 of 4
	Copper	104	50	1 of 4
	Lead	190	63	1 of 4
	Zinc	114	109	1 of 4

Industrial Use Area

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	Unrestricted Use SCO[b] (ppm)[a]	Frequency of Exceeding Unrestricted Use SCO
Semivolatile Organic Compounds (SVOCs)	Benzo(a)anthracene	1.5 to 3.5	1.0	3 of 17
	Chrysene	1.1 to 3.0	1.0	4 of 17
	Benzo(b)fluoranthene	1.9 to 3.8	1.0	4 of 17
	Benzo(k)fluoranthene	0.85 to 1.2	0.8	3 of 17
	Benzo(a)pyrene	1.6 to 2.5	1.0	3 of 17
	Indeno(1,2,3-cd)pyrene	0.53 to 2.1	0.5	5 of 17

TABLE 1
Surface Soil
Nature and Extent of Contamination
August 2007 – January 2008

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	Unrestricted Use SCO[b] (ppm)[a]	Frequency of Exceeding Unrestricted Use SCO
PCB/Pesticides	alpha-BHC	.061	.02	1 of 17
	4,4-DDE	.025	.0033	1 of 17
	4,4-DDT	.026 to .028	.0033	3 of 17
	PCB	0.11	0.1	1 of 17
Inorganics (Metals)	Arsenic	14.4 to 65.3	13	10 of 17
	Copper	50.7 to 110	50	8 of 17
	Lead	66.4 to 200	63	11 of 17
	Mercury	0.333	0.18	1 of 17
	Zinc	122 to 366	109	2 of 17

TABLE 2
Subsurface Soil
Nature and Extent of Contamination
August 2007 – January 2008

Existing Baseball Field Area (Restricted Residential Use)

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	Unrestricted Use SCO[b] (ppm)[a]	Frequency of Exceeding Unrestricted Use SCO
PCB/Pesticides	4,4-DDE	.0044	.0033	1 of 6
Inorganics (Metals)	Manganese	5570	1600	1 of 6
	Nickel	53.1	30	1 of 6
	Zinc	136	109	1 of 6

Industrial Area

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	Unrestricted Use SCO[b] (ppm)[a]	Frequency of Exceeding Unrestricted Use SCO
Volatile Organic Compounds (VOCs)	Acetone	.077 to 9.40	.050	3 of 9
Semivolatile Organic Compounds (SVOCs)	Benzo(b)fluoranthene	1.6	1.0	1 of 9
Inorganics (Metals)	Copper	84.7	50	1 of 9
	Nickel	30.7 to 39.8	30	2 of 9
	Zinc	116 to 797	109	3 of 9

TABLE 3
Groundwater
Nature and Extent of Contamination
August 2007 – January 2008

Industrial Area

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Bromomethane	6.0	5.0	1 of 13
Semivolatile Organic Compounds (SVOCs)	Bis(2-ethylhexyl)phthalate	13.0	5.0	1 of 13
Inorganic Compounds	Aluminum	122 to 181,000	100	8 of 13
	Antimony	4.7 to 1090	3	3 of 13
	Arsenic	37 to 97	25	2 of 13
	Barium	2720	1000	1 of 13
	Beryllium	10.1	3	1 of 13
	Cadmium	46.3	5	1 of 13
	Chromium	837	50	1 of 13
	Copper	841	200	1 of 13
	Iron	457 to 492,000	300	13 of 13
	Lead	569	25	1 of 13
	Magnesium	119,000 to 328,000	35,000	1 of 13
	Manganese	349 to 21,100	300	13 of 13
	Mercury	0.72	0.7	1 of 13
	Nickel	433	100	1 of 13
	Sodium	21,600 to 114,000	20,000	12 of 13
	Thallium	4.4J	0.5	1 of 13

TABLE 4
Soil Vapor
Nature and Extent of Contamination
August 2007 – January 2008

Industrial Area

SOIL VAPOR	Contaminants of Concern	Concentration Range Detected (ug/m^3)	Frequency of Detection
Volatile Organic Compounds (VOCs)	Carbon Tetrachloride	.044 to 0.52	4 of 5
	Tetrachloroethene	0.77	1 of 5
	Benzene	1.0 to 3.7	5 of 5
	Toluene	1.0 to 17	5 of 5
	Ethyl Benzene	1.0 to 1.3	2 of 5
	Xylene	0.78 to 3.2	3 of 5
	1,2,4-Trimethylbenzene	0.82 to 0.98	2 of 5
	Methylene Chloride	3.2	1 of 5

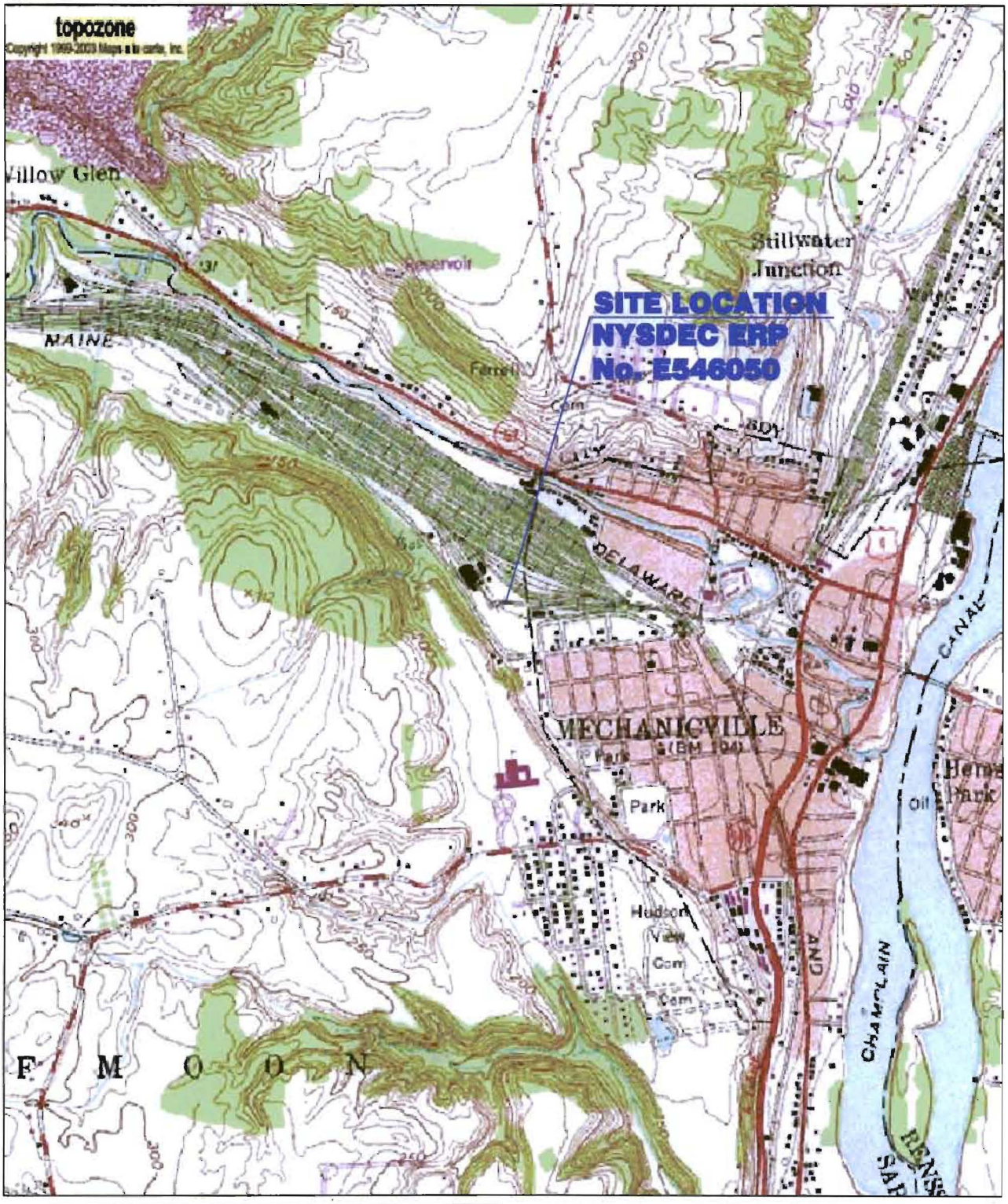
[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;

[b] SCG = standards, criteria, and guidance values; soils compared to "6 NYCRR Subpart 375-6: Remedial Program Soil Cleanup Objectives", and groundwater compared to"Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

J = indicates concentration is estimated.

Table 5
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
No Further Action	$0	$0	$0
Alternative 2: Institutional Controls	$2,500	$1,000	$22,000
Alternative 3: Barrier to Contact in Softball Field Area, Barrier to Contact in Industrial Area, with Institutional and Engineering Controls	$1,300,000	$1000	$1,300,000
Alternative 4: Soil Excavation and Disposal Off-site, Groundwater Removal and Treatment	$4,800,000	$0	$4,800,000



UTM 18 606100E 4751170N (NAD27)
USGS Mechanicville (NY) Quadrangle
Projection is UTM Zone 18 NAD83 Datum

M *
G
M=-14.368
G=0.885

FIGURE 1
SITE LOCATION
MECHANICVILLE
INDUSTRIAL PARK
MECHANICVILLE, NY
HRP # MEC2000.P2
NYSDEC ERP # E546050

S:\Data\M\MECHC - CITY OF MECHANICVILLE\FORMER RAILROAD YARD - D,HB,M, MECHANICVILLE, NY\MEC2000P2\CAD\SITE LOCATION.dwg, Layout1, 1/8/2009 1:14:54 PM

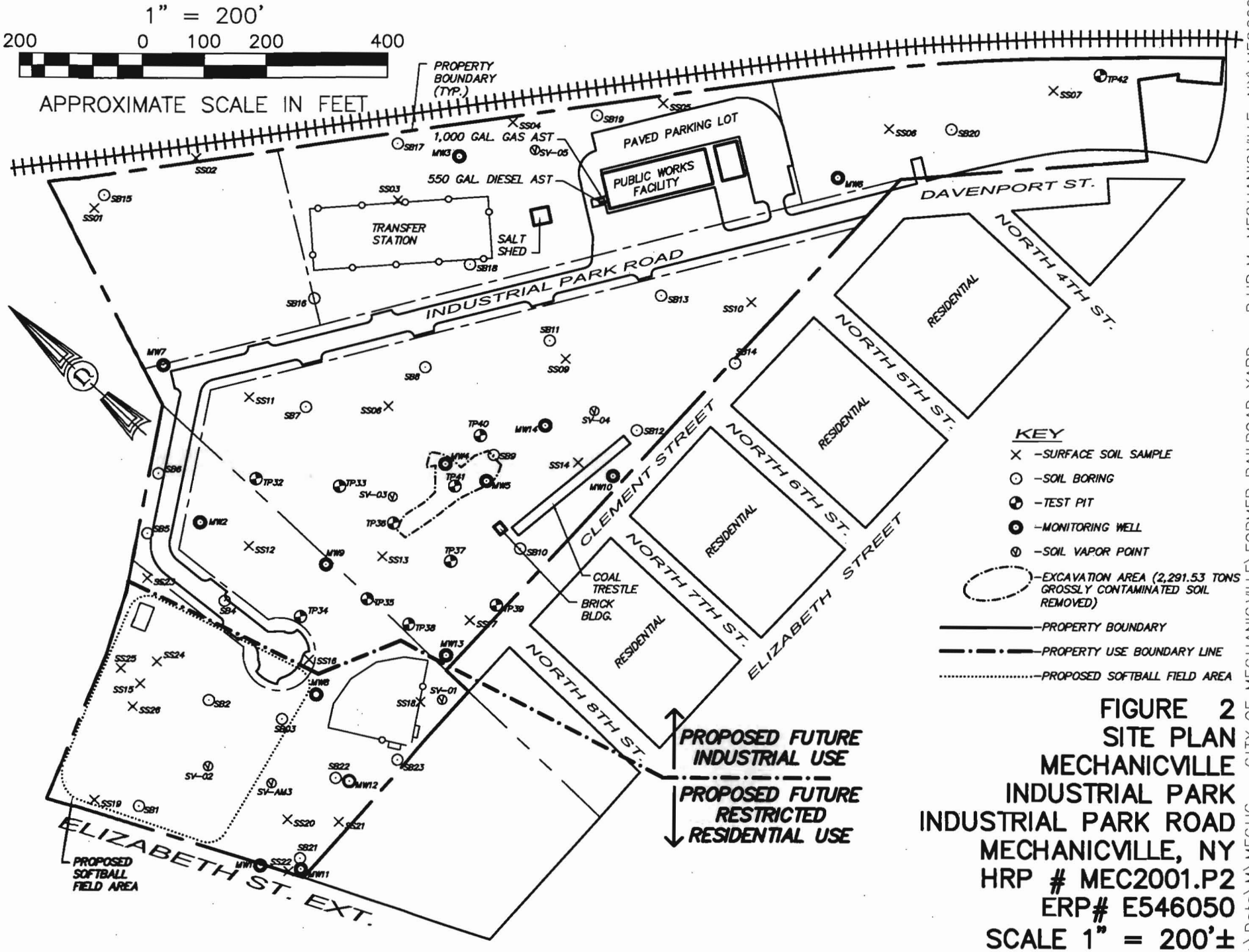


FIGURE 2
SITE PLAN
MECHANICVILLE INDUSTRIAL PARK
INDUSTRIAL PARK ROAD
MECHANICVILLE, NY
HRP # MEC2001.P2
ERP# E546050
SCALE 1" = 200'±

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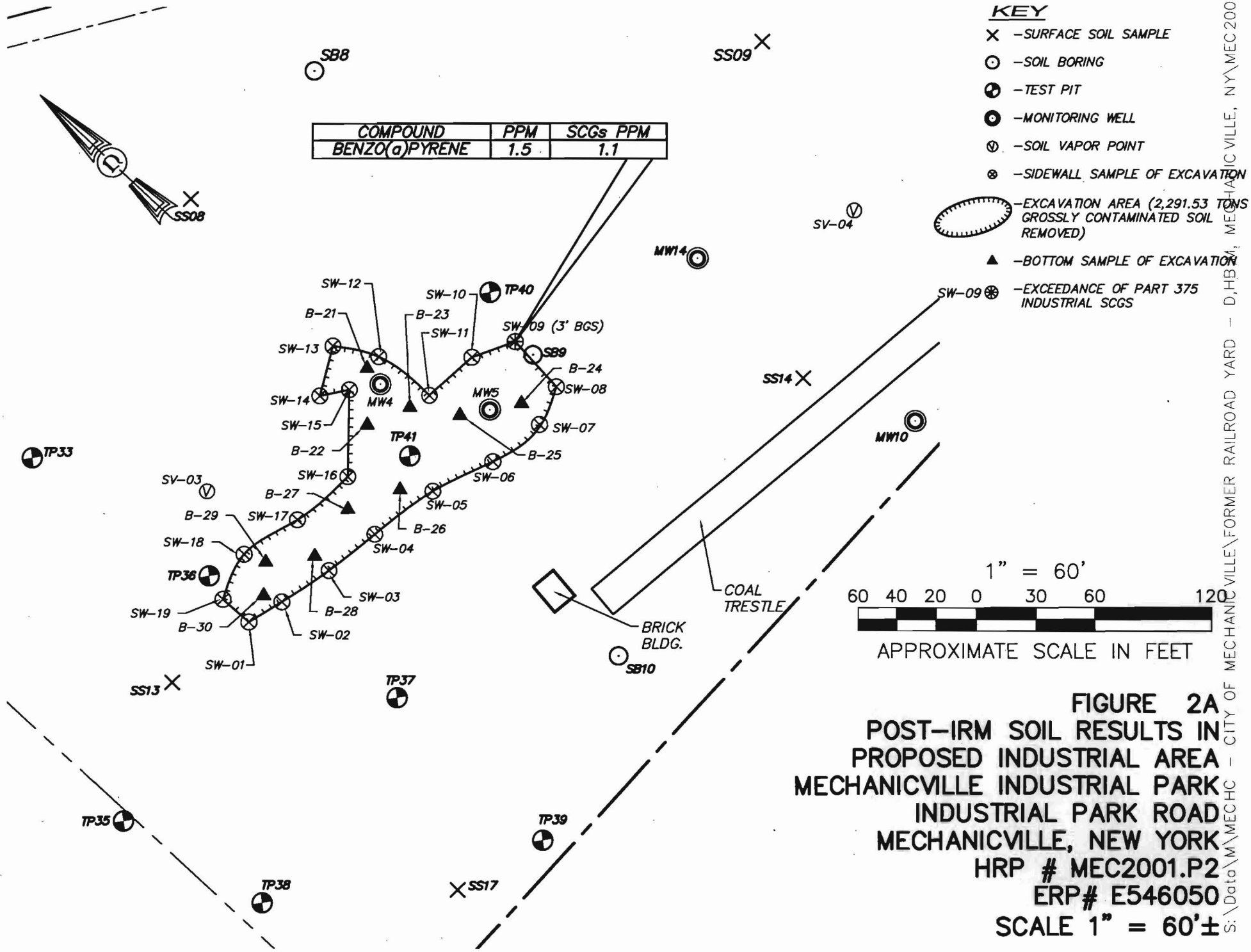

FIGURE 2A
POST-IRM SOIL RESULTS IN PROPOSED INDUSTRIAL AREA
MECHANICVILLE INDUSTRIAL PARK
INDUSTRIAL PARK ROAD
MECHANICVILLE, NEW YORK
HRP # MEC2001.P2
ERP# E546050
SCALE 1" = 60'±

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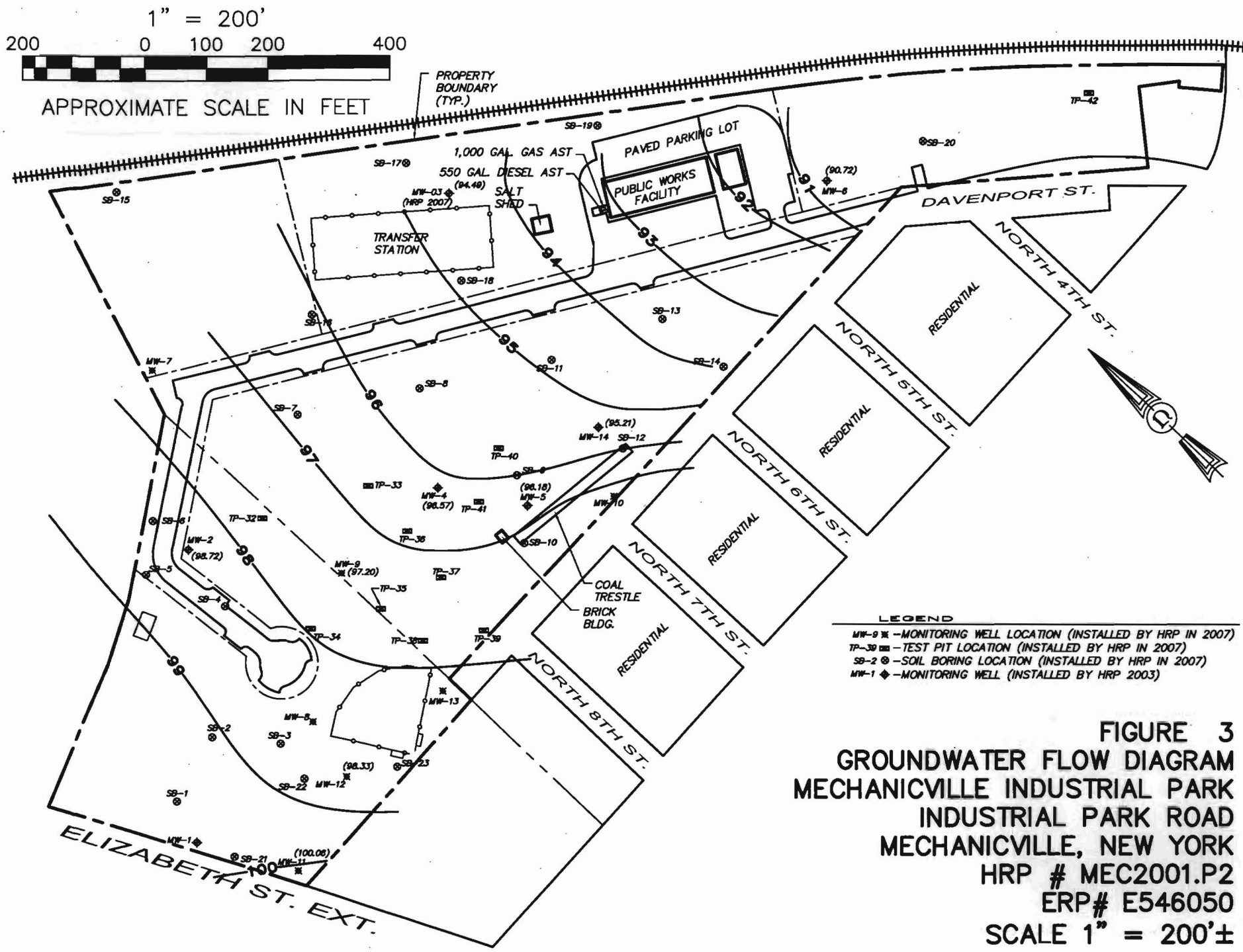


FIGURE 3
GROUNDWATER FLOW DIAGRAM
MECHANICVILLE INDUSTRIAL PARK
INDUSTRIAL PARK ROAD
MECHANICVILLE, NEW YORK
HRP # MEC2001.P2
ERP# E546050
SCALE 1" = 200'±

S:\Data\M\MECHC - CITY OF MECHANICVILLE\FORMER RAILROAD YARD - D,HB,M, MECHANICVILLE, NY\MEC2001

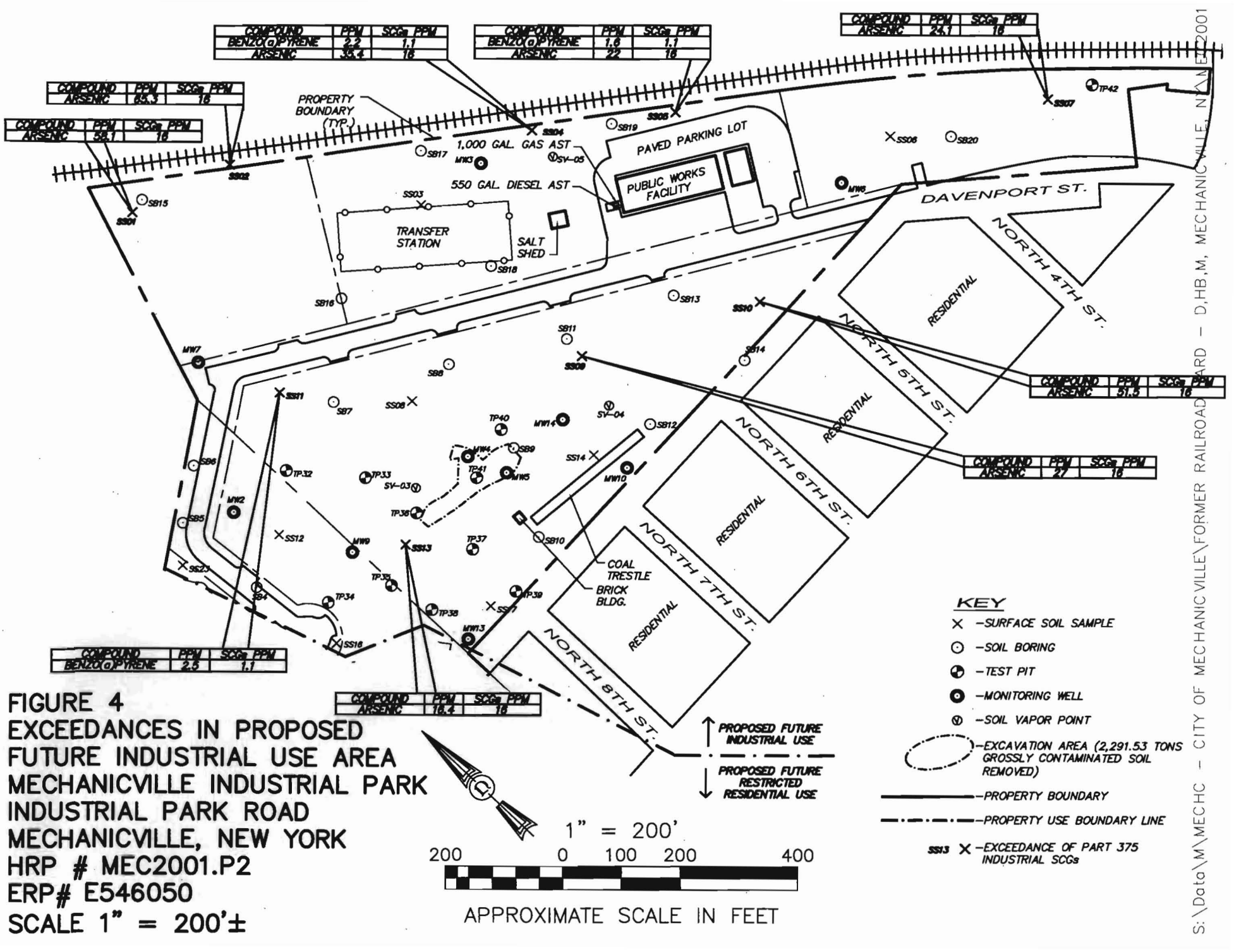
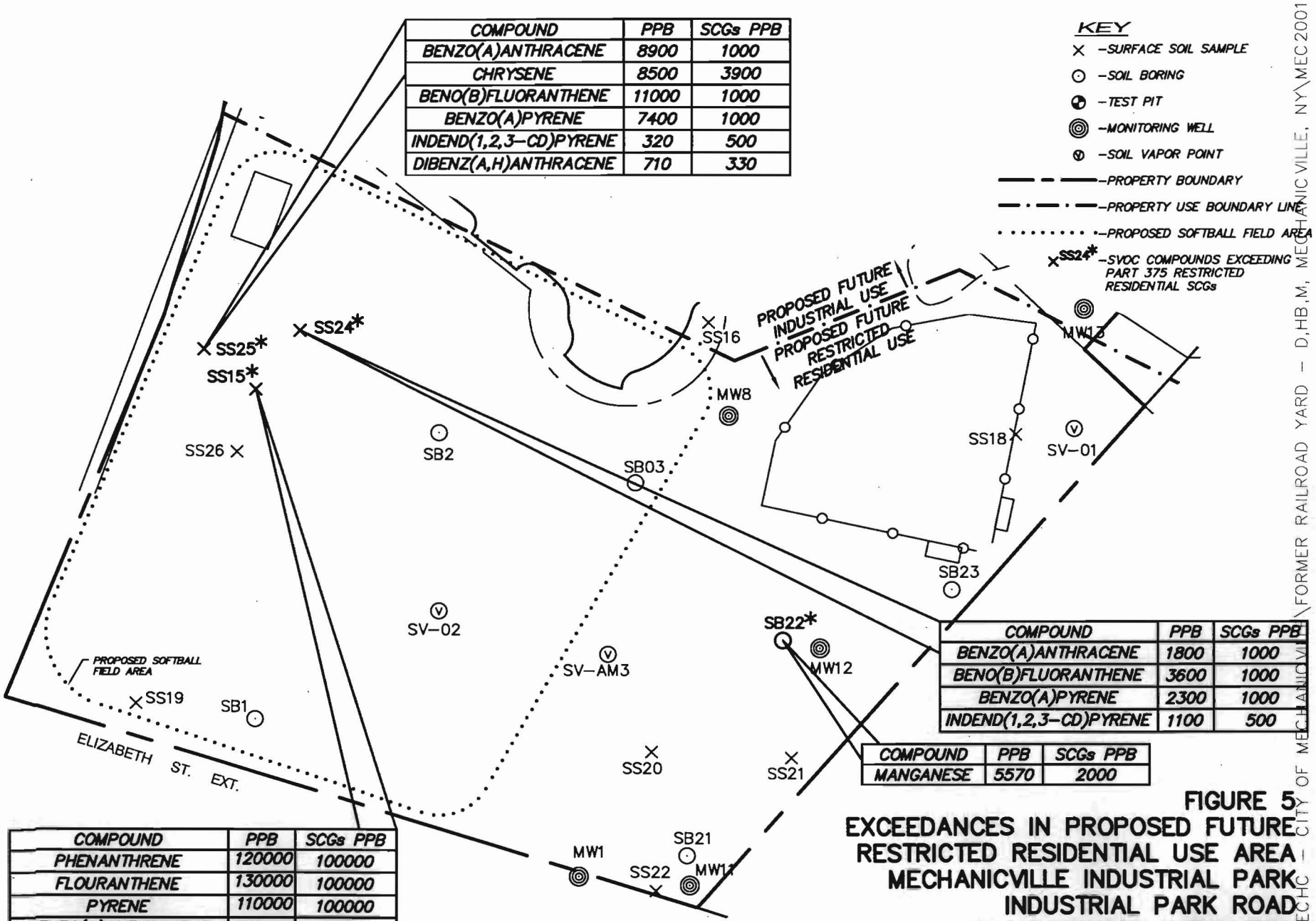


FIGURE 4
EXCEEDANCES IN PROPOSED
FUTURE INDUSTRIAL USE AREA
MECHANICVILLE INDUSTRIAL PARK
INDUSTRIAL PARK ROAD
MECHANICVILLE, NEW YORK
HRP # MEC2001.P2
ERP# E546050
SCALE 1" = 200'±



COMPOUND	PPB	SCGs PPB
BENZO(A)ANTHRACENE	8900	1000
CHRYSENE	8500	3900
BENO(B)FLUORANTHENE	11000	1000
BENZO(A)PYRENE	7400	1000
INDEND(1,2,3-CD)PYRENE	320	500
DIBENZ(A,H)ANTHRACENE	710	330

COMPOUND	PPB	SCGs PPB
BENZO(A)ANTHRACENE	1800	1000
BENO(B)FLUORANTHENE	3600	1000
BENZO(A)PYRENE	2300	1000
INDEND(1,2,3-CD)PYRENE	1100	500

COMPOUND	PPB	SCGs PPB
MANGANESE	5570	2000

COMPOUND	PPB	SCGs PPB
PHENANTHRENE	120000	100000
FLOURANTHENE	130000	100000
PYRENE	110000	100000
BENZO(A)ANTHRACENE	78000	1000
CHRYSENE	61000	3900
BENO(B)FLUORANTHENE	63000	1000
BENZO(A)PYRENE	19000	1000
INDEND(1,2,3-CD)PYRENE	32000	500
DIBENZ(A,H)ANTHRACENE	3000	330

FIGURE 5
EXCEEDANCES IN PROPOSED FUTURE RESTRICTED RESIDENTIAL USE AREA - MECHANICVILLE INDUSTRIAL PARK
INDUSTRIAL PARK ROAD
MECHANICVILLE, NEW YORK
HRP # MEC2001.P2
ERP# E546050
SCALE 1" = 80'±

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