Department of Environmental Conservation

Division of Environmental Remediation

Environmental Restoration
Record of Decision
Henry Johnson Boulevard Properties Site
City of Albany, Albany County, New York
Site Number E401049

March 2010

New York State Department of Environmental Conservation
DAVID A. PATERSON, *Governor* ALEXANDER B. GRANNIS, *Commissioner*

DECLARATION STATEMENT
ENVIRONMENTAL RESTORATION RECORD OF DECISION

Henry Johnson Boulevard Properties Environmental Restoration Site
City of Albany, Albany County, New York
Site No. E401049

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Henry Johnson Boulevard Properties site, an environmental restoration site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Henry Johnson Boulevard Properties environmental restoration site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened releases of hazardous substances and/or petroleum products from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Site Investigation/Remedial Alternatives Report (SI/RAR) for the Henry Johnson Boulevard Properties site and the criteria identified for evaluation of alternatives, the Department has selected chemical groundwater treatment utilizing in-situ chemical oxidation in one. area of the site along with an environmental easement over the entire site as an institutional control. The components of the remedy are as follows:

The elements of the selected remedy are as follows:

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

2. An initial round of groundwater samples will be collected to confirm the existing contaminant concentrations. A pilot study will then be undertaken to determine the effectiveness of the injection of the sodium permanganate oxidant into the overburden soils

via an existing monitoring well in Area 4. Groundwater will be tested immediately before and after the injection. The information and data gathered during the pilot study will be utilized to determine the efficacy of the technology and the potential for full-scale application.

3. Based upon a successful pilot test, in-situ chemical oxidation will be implemented full-scale at Area 4. The oxidant injections will be repeated as required based upon monitoring data. It is anticipated that there will be no more than three injection events over a period of one to two years.

4. Imposition of an institutional control in the form of an environmental easement including both Areas 3 and 4 that will limit use to (a) commercial use of the property, which will also permit industrial use consistent with local zoning; (b) excavated soils will be tested, properly handled and managed in a manner acceptable to the Department; (c) compliance with the approved site management plan; (d) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; (e) the property owner to complete and submit to the Department a periodic certification of the institutional controls and (f) allowing the Department access to the site.

5. Development of a site management plan which will include the following institutional and engineering controls: (a) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (b) monitoring of groundwater; (c) identification of any use restrictions on the site; and (d) provisions for the continued proper operation and maintenance of the components of the remedy.

6. The property owner will 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 will: (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 components of the remedy will 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 will be instituted. Groundwater will be monitored in the overburden aquifer and soils respectively. This program will allow the effectiveness of the in-situ chemical oxidation to be monitored and would be a component of the long-term management for the site.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective.

MAR 3 0 2012

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the Henry Johnson Boulevard Properties. The presence of hazardous substances has created threats to human health and/or the environment that are addressed by this remedy.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. 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 service station operations and possibly dry cleaning operations have resulted in the disposal of hazardous substances, including petroleum and chlorinated related volatile organic compounds (VOCs). These hazardous substances have contaminated the soil, soil vapor and groundwater at the site, and have resulted in:

- a threat to human health associated with a potential exposure to contaminated soil, soil vapor and/or groundwater.

- an environmental threat associated with the impacts of contaminants to groundwater.

To eliminate or mitigate these threats, the Department has selected chemical groundwater treatment utilizing in-situ chemical oxidation in one area of the site along with an environmental easement over the entire site as an institutional control.

The selected 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.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Henry Johnson Boulevard Properties Site is located in the Arbor Hill section of the City of Albany, Albany County (Figure 1). The site is composed of five individual non-contiguous parcels located between Clinton Avenue and First Street. The City of Albany is proposing future

commercial use of the properties. The total area of the site is approximately 0.6 acres. One of the parcels fronts on Clinton Avenue and four of the parcels front on Henry Johnson Boulevard. Only the parcel at 339 Clinton Avenue has a structure on it, which is abandoned and thus not occupied. The other parcels include 124, 126, 130 and 132 Henry Johnson Boulevard. Originally this project included five additional parcels located between First and Second Streets along Henry Johnson Boulevard. Remedial investigation activities were conducted on these parcels; however, these parcels have recently been removed from the ERP site definition in order to allow for the immediate construction of an Albany Public Library branch at this location. These five parcels include the properties at 214 and 216 Second Street, 138 and 150 Henry Johnson Boulevard and Howler Alley (Figure 2). The site is located in a mixed residential and commercial area. The Arbor Hill Gateway Properties ERP Site, E401048, is located three blocks to the northwest.

The natural underlying near surface soil deposits at the site are fine to medium brown sands above silt and clay, however much of the site area contains fill materials consisting of charcoal, wood, concrete and brick. The silt and clay layer is at least forty feet thick around the site. Bedrock was not encountered during the remedial investigation.

Groundwater was encountered at 4 to 10' below the ground surface, generally at the fill-silt/clay interface. Groundwater follows the topographical gradient of the area, flowing southeast across the site (Figure 3). The utilities corridor under the sidewalk along Henry Johnson Boulevard may locally affect the groundwater flow along this side of the site.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The review of sanborn and other maps and photos of the area from 1920s through the present indicate that over time the individual parcels were generally utilized for either residential or commercial use. A service station was located at 132 Henry Johnson Boulevard and operated from approximately 1934 through the late 1980s (see remedial history below). Based on the data collected during the site investigation, it also appears that the disposal of hazardous substances (solvents) may have occurred in the basements of some of the structures or these may have be present in the structures when demolition of these buildings took place.

3.2: Remedial History

Phase I and II Environmental Site Assessments (ESAs) were conducted at the site as part of a Environmental Protection Agency (EPA) Brownfields Assessment, Demonstration Pilot Program grant by the City of Albany in 2004. The ESAs included among other things, surface, sub-surface soil and groundwater sampling and analysis.

Five underground storage tanks used for petroleum products were removed from the property at 132 Henry Johnson Boulevard in 1991, along with approximately three hundred cubic yards of petroleum contaminated soils. Several of the tanks had apparently been leaking and a spill was reported to the NYSDEC spill hotline (#9109113). The spill report states that some residual

petroleum contaminated soils were left in place at this parcel during the tank closures due to the proximity to the sidewalk and the underground utilities.

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 Albany will assist the state in its efforts by providing all information to the state which identifies PRPs. The City will also not enter into any agreement regarding response costs without the approval of the Department.

SECTION 5: SITE CONTAMINATION

The City of Albany has recently completed a Remedial Investigation/Alternatives Analysis Report (RI/AAR) to determine the nature and extent of any contamination by hazardous substances at this environmental restoration site.

5.1: Summary of the Site 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 June 2006 and September 2008. The field activities and findings of the investigation are described in the RI report.

The following activities were conducted during the RI:

- Surface soil samples were collected to evaluate the potential for human contact and exposure;

- Soil borings were conducted and monitoring wells were installed for the collection and analysis of subsurface soil samples and groundwater samples, as well as to determine the physical classifications and properties of the soils and the hydrogeological conditions;

- Soil vapor points were installed and sampled in order to determine the potential exposure via vapor intrusion at nearby structures and for any future on-site building construction; and

- Sub-slab, indoor air and ambient air samples were collected at and around selected nearby structures to determine potential and actual exposure via vapor intrusion.

Figure 4 shows the sampling locations for all of the site media.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the groundwater, soil 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".

- Soil SCGs are based on the Department's Soil Cleanup Objectives (SCO), ("NYSDEC Regulations 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives").

- 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. For some of the site related contaminants of concern, the specific decision guidelines in Matrices 1 and 2 of the above document were utilized.

- Concentrations of VOCs in air for those contaminants not included in Matrices 1 and 2 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 and actual ambient air sample results. The background levels are not SCGs and are used only as a general tool to assist in data evaluation.

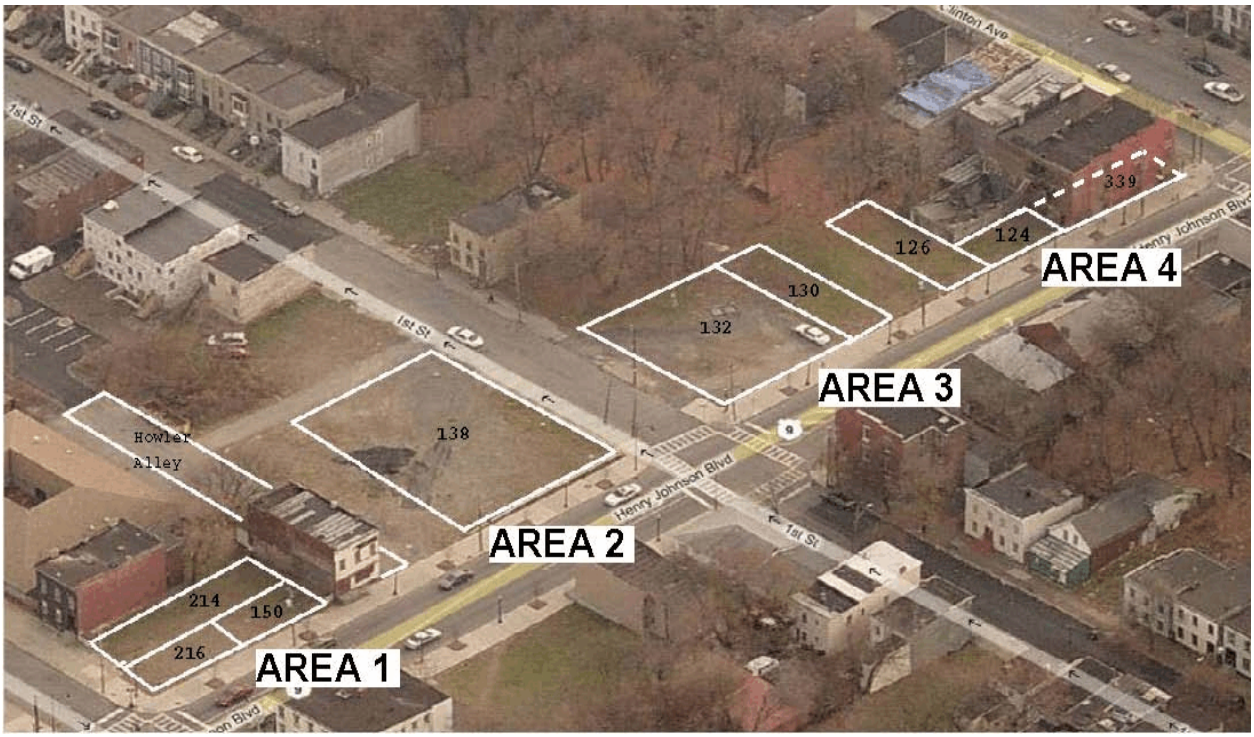
Based on the RI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the RI report.

5.1.2: Nature and Extent of Contamination

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

Because the site is comprised of non-contiguous parcels with somewhat different contamination characteristics, the nature and extent of the contamination is described separately for the different areas of the site. As shown below and in Figure 2, Area 3 includes the parcels at 130 and 132 Henry Johnson Blvd and Area 4 includes the parcels at 124 and 126 Henry Johnson Blvd. as well as 339 Clinton Ave. Areas 1 and 2 were originally made up of three and two parcels respectively that were removed from the site description and the ERP project as outlined in Section 2.

As described in the RI report, many soil, soil vapor and groundwater samples were collected to characterize the nature and extent of contamination. As seen in Figures 5 and 6 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, soil samples are reported in parts per million (ppm) while air samples are reported in micrograms per cubic meter ($\mu g/m^3$).

AREA 3 CONTAMINATION

Surface Soil

The surface soils collected in this area contained metals contamination above the unrestricted use SCOs primarily for lead, mercury and zinc. However, these same soils did not contain contaminant concentrations above the commercial use SCOs for any compounds including the above metals as shown in the table below.

Detected Compounds	Concentration Range Detected (ppm)	Unrestricted SCO (ppm)	Frequency Exceeding Unrestricted SCO	Commercial SCO (ppm)	Frequency Exceeding Commercial SCO
Lead	131 to 808	63	4 of 4	1,000	0 of 4
Mercury	0.09 to 0.24	0.18	2 of 4	2.8	0 of 4
Zinc	ND to 336	109	2 of 4	10,000	0 of 4

ND = Not Detected

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

Subsurface Soil

The subsurface soils collected in this area contained metals and SVOC contamination above the unrestricted use SCOs. These metals included lead, mercury and zinc and the SVOCs included two polynuclear aromatic hydrocarbon (PAH) compounds. However, these same soils did not contain contaminant concentrations above the commercial use SCOs for any compounds as shown in the table below.

Detected Compounds	Concentration Range Detected (ppm)	Unrestricted SCO (ppm)	Frequency Exceeding Unrestricted SCO	Commercial SCO (ppm)	Frequency Exceeding Commercial SCO
Lead	20 to 242	63	7 of 14	1,000	0 of 14
Mercury	0.01 to 2.1	0.18	8 of 14	2.8	0 of 14
Zinc	45 to 145	109	2 of 14	10,000	0 of 14
Benzo(a)anthracene	0.054 to 1.3	1.0	1 of 14	5.6	0 of 14
Chrysene	0.063 to 1.2	1.0	1 of 14	56	0 of 14

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

Groundwater

Six groundwater monitoring wells were installed and sampled in this area. Groundwater contamination in this area appears to be related to the former service station. The primary VOC contaminant of concern is methyl tert butyl ether (MTBE), a gasoline additive no longer used. MTBE was found in two monitoring wells on the 132 Henry Johnson Boulevard parcel above the groundwater standard. Figure 5 shows the VOC contaminant concentrations for the various sample collection events. The groundwater also contains the metals iron, manganese, magnesium and sodium above standards. However these metals are also present in the up-gradient wells and thus do not represent site related contamination.

Groundwater VOC contamination identified during the RI/AA will be addressed in the remedy selection process.

Soil Vapor/Air

Three soil vapor probes were installed in this area during the remedial investigation. Soil vapor and ambient air samples were collected in order to determine the potential for vapor intrusion for any structures which may be constructed in this area. Site-related contaminants were either detected in soil vapor at low levels or were non-detect. The soil vapor of Area 3 has been adequately characterized and the results do not indicate that this area is likely a source of VOCs. However, the potential for vapor intrusion for any buildings constructed in Area 3, will be evaluated at that time.

Soil vapor identified during the RI/AA will be addressed in the remedy selection process.

AREA 4 CONTAMINATION

Surface Soil

Much of the surface soils from 124 and 128 Henry Johnson Boulevard were removed and replaced with clean fill material which met the unrestricted use SCO during the IRM described below in section 5.2. However there are surface soils which were unaffected by the IRM in this area that contain metals contamination, primarily lead, mercury and zinc above the unrestricted use SCOs, but below the commercial use SCOs as shown in the table below.

Detected Compounds	Concentration Range Detected (ppm)	Unrestricted SCO (ppm)	Frequency Exceeding Unrestricted SCO	Commercial SCO (ppm)	Frequency Exceeding Commercial SCO
Lead	83 to 421	63	4 of 4	1,000	0 of 4
Mercury	0.07 to 0.35	0.18	2 of 4	2.8	0 of 4
Zinc	ND to 261	109	1 of 4	10,000	0 of 4

ND = Not Detected

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

Subsurface Soil

Much of the subsurface soils from 124 and 128 Henry Johnson Boulevard were also removed and replaced with clean fill material which met the unrestricted use SCO during the IRM described below in section 5.2. However there are subsurface soils which were unaffected by the IRM in this area that contained one metal, arsenic above the unrestricted use SCOs and slightly above the commercial SCO. This contamination is located at a depth of 2 to 4'. These same soils did not contain any other contaminant concentrations above the commercial use SCOs for any other compounds.

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

Groundwater`

Four groundwater monitoring wells were installed and sampled in this area. The primary VOC contaminant of concern is tetrachloroethylene related to the source area described in the IRM in Section 5.2. Figure 5 shows the VOC contaminant concentrations for the various sample collection events. The groundwater in this area also contains the metals iron, manganese, magnesium and

sodium above standards. However these metals are also present in the up-gradient wells and thus do not represent site related contamination.

Groundwater VOC contamination identified during the RI/AA will be addressed in the remedy selection process.

Soil Vapor/Air

Three soil vapor probes were installed in this area during the remedial investigation. Soil vapor and ambient air samples were collected in order to determine the potential for vapor intrusion for any structures which may be constructed in this area. Figure 6 shows the detected results for these samples. Two chlorinated VOC compounds were detected in two soil vapor samples, at levels that warrant an evaluation of the potential for soil vapor intrusion for any building constructed in Area 4 portion of the site.

Soil vapor identified during the RI/AA will be addressed in the remedy selection process.

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/AAR.

The remedial investigation revealed that there was a source area of chlorinated VOC contamination located in the remnants of a foundation located at 124 Henry Johnson Boulevard. An IRM work plan was developed and implemented to address this source area. Based upon the fact that the parcel was adjacent to a building of dubious physical integrity and major utilities run under the sidewalk along the west side of the property, sheet piling was utilized to stabilize the excavation area and protect these structures.

A 21 foot by 30 foot area of soil was excavated to a depth of 12 feet. The total amount of contaminated soil removed was 363 tons, which was disposed off-site in a permitted facility. In addition, remnants of an old building foundation at 124 HJB, which included 20 tons of concrete was removed from the excavation area and recycled. Chlorinated VOC soil contamination concentrations in this area ranged from 9.0 to 52,000 ppm prior to the IRM and confirmation sample concentrations ranged from 0.003 to 1.2 ppm after the IRM (Figure 7). The excavation was backfilled with approximately two feet of washed stone to provide a permeable layer for future remedial measures, if needed. The remainder of the excavation was backfilled with clean fill material which met the unrestricted use SCO .

Based upon the presence of chlorinated VOCs in the soil, soil vapor and groundwater at the site, sub-slab soil vapor and indoor air was sampled at two off-site structures. This sampling and analysis was conducted in order to evaluate the potential for current exposures associated with soil vapor intrusion. The two structures included an operating day care center and a store/apartment located in the area near the site.

Indoor air (main floor), basement air and sub-slab air samples were collected from the day care center concurrently with an ambient air sample. The indoor air sample was collected in duplicate. Indoor air (main floor) and basement air samples were collected at the store/apartment. This structure has a dirt floor in the basement. Based upon the sample results, actions were not needed to address exposures related to soil vapor intrusion in either of these structures.

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 9 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.

Currently, there are no known exposure pathways which exist at the site. Potential exposure pathways which could exist in the future include the following:

- On-site workers and construction workers involved in sub-surface excavations may come in direct contact with contaminated groundwater and soil and may also inhale vapors and airborne particulates.

- There is the potential for vapors accumulating in the indoor air via the soil vapor intrusion pathway into structures constructed on-site in the future.

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.

The site is located in an urban area with no significant environmental habitats. Much of the area contains fill materials. Thus there are no environmental exposure pathways of concern at the site.

Site contamination has however impacted the groundwater resource in the shallow aquifer, but it is not discharging to surface water in the area.

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 site to VOCs in groundwater and soil vapor;
- exposures of persons at or around the site to metals in soil;
- the release of contaminants from groundwater to indoor air of future buildings constructed on the site, through soil 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. Potential remedial alternatives for the Henry Johnson Boulevard Properties were identified, screened and evaluated in the RI/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. For the alternatives considered for Area 3, a time frame of 5 years and 5% interest was used to evaluate present worth costs. For the alternatives considered for Area 4, a time frame of 3 years and 5% interest was used to evaluate present worth costs. This does not imply that operation, maintenance, or monitoring would cease after these time frames if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated surface and subsurface soil, groundwater and soil vapor at the site.

AREA 3 ALTERNATIVES

Alternative 3-1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative would allow the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Present Worth: *$0*

Alternative 3-2: Institutional Controls

Present Worth: *$31,000*
Capital Cost: *$5,000*
Annual Costs:
(Years 1-5): *$6,000*

This alternative would leave Area 3 in its present condition, but would place an institutional control on the property to address potential human exposures. The institutional control would be in the form of an environmental easement that would (a) limit use of the property to commercial, which would also permit industrial use consistent with local zoning; (b) development of a Health and Safety Plan for future subsurface construction activities. Excavated soils will be tested, properly handled and managed in a manner acceptable to the Department; (c) compliance with the approved site management plan which would address sub-surface excavations; (d) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; (e) the property owner to complete and submit to the Department a periodic certification of the institutional controls and (f) allowing the Department access to the site.

The Alternative 3-2 Site Management Plan (SMP) would specify the procedures necessary to maintain the site remedy. These include; (a) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (b) monitoring of groundwater; and (c) provisions for the continued proper operation and maintenance of the components of the remedy.

Alternative 3-3: Monitored Natural Attenuation

Present Worth: *$105,000*
Capital Cost: *$5,000*
Annual Costs:
(Years 1-5): *$23,000*

Alternative 3-3 would consist of Monitored Natural Attenuation (MNA) of the residual contaminants in the soil vapor and groundwater. Natural attenuation is a set of physical, chemical and biological processes including biodegradation, volatilization, adsorption and dispersion, continuously on-going at the site. The MNA alternative differs from Alternative 3-2 in that it includes the periodic

monitoring of the on-site groundwater for the contaminants of concern and a site specific list of natural attenuation parameters. The monitoring data would be used to evaluate the degree to which the concentrations of petroleum compounds in the subsurface media are being reduced through the intrinsic natural attenuation processes and would provide continuing information on changes in the mobilization of the residual contaminants in these media.

The monitoring of these natural attenuation processes would be performed utilizing the existing sampling points and thus would not require a significant design or implementation period. The estimated time to meet the remediation goals is five years, based upon the RI monitoring.

Institutional Controls similar to those listed in Alternative 3-2 would also be required with this alternative.

Alternative 3-4: Enhanced Bioremediation using Oxygen Release Compounds (ORC)

Present Worth: *$200,000*
Capital Cost: *$114,000*
Annual Costs:
(Years 1-5): *$20,000*

Alternative 3-4 would consist of the utilization of an oxygen releasing compound (ORC) such as a chemical formulation composed of magnesium peroxide, which when injected into the subsurface would release supplemental oxygen. The supplemental oxygen would help to enhance the aerobic biodegradation of the contamination by the naturally occurring microorganisms. The chemicals would be applied in the subsurface by pressure injection through new or existing boreholes which would allow the bioremediation to occur at the existing contamination locations (in-situ). The alternative consists of the following items:

- A pilot test to determine the ORC radius of influence and treatability;
- Injection of ORC through Geoprobe® boreholes;
- Post-injection groundwater monitoring; and
- Institutional Controls similar to those listed in Alternative 3-2.

The time required to design and implement Alternative 3-4 would be approximately one year. It would take an estimated time period of two years for the site to reach steady state conditions and achieve the remediation goals.

AREA 4 ALTERNATIVES

Alternative 4-1: No Further Action

The No Further Action alternative recognizes remediation of the area 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.

Present Worth: *$33,000*
Capital Cost: *$0*
Annual Costs:
(Years 1-3): *$12,000*

Alternative 4-2: Monitored Natural Attenuation

Present Worth: *$68,000*
Capital Cost: *$5,000*
Annual Costs:
(Years 1-3): *$23,000*

Alternative 4-2 would consist of the Monitored Natural Attenuation (MNA) of the residual contaminants in the soil vapor and groundwater. Natural attenuation is a set of physical, chemical and biological processes including biodegradation, volatilization, adsorption and dispersion, continuously on-going at the site. The MNA alternative differs from Alternative 4-1 in that it includes the periodic monitoring of the on-site groundwater for the contaminants of concern and a site specific list of natural attenuation parameters. The monitoring data would be used to evaluate the degree to which the concentrations of petroleum compounds in the subsurface media are being reduced through the intrinsic natural attenuation processes and would provide continuing information on changes in the mobilization of the residual contaminants in these media.

The monitoring of these natural attenuation processes would be performed utilizing the existing sampling points and thus would not require a significant design or implementation period. The estimated time to meet the remediation goals is five years, based upon the RI monitoring.

Institutional Controls similar to those listed in Alternative 3-2 would also be required with this alternative.

Alternative 4-3: In-Situ Chemical Oxidation (ISCO) using Sodium Permanganate

Present Worth: *$211,000*
Capital Cost: *$148,000*
Annual Costs:
(Years 1-3): *$23,000*

Alternative 4-3 would consist of utilizing sodium permanganate to treat the chlorinated groundwater contamination via in-situ chemical oxidation. When sodium permanganate, which is a strong oxidizer, comes into contact with organic compounds such as PCE and its breakdown products, an oxidation reaction occurs destroying the chemical structure of the compound and leaving behind relatively benign compounds such as chlorides, carbon dioxide and water. The chemical oxidant would be applied through injection wells or points to target the contaminated groundwater.The alternative would include the following elements:

- A pilot test, including installation of an injection well(s) to more clearly define the design parameters including radius of influence of the sodium permanganate and contamination treatability;
- Design of the alternative;
- Injection (s) of the chemical oxidants;
- Pre and post-injection groundwater sampling and analysis;
- Development and implementation of a monitoring program; and
- Institutional controls in the form of an environmental easement and a site management plan similar to alternative 3-2.

The time required to design and implement this remedy would be approximately one year. It is estimated that it would take an additional year for the area to reach steady state conditions and to achieve the remediation goals.

Alternative 4-4: Air Sparging/Soil Vapor Extraction

Present Worth: *$502,000*
Capital Cost: *$322,000*
Annual Costs:
(Years 1-3): *$66,000*

Alternative 4-4 would consist of air sparging (AS) of the groundwater coupled with soil vapor extraction (SVE) and ex-situ treatment of the contaminated vapors. Air sparging involes the injection of clean air into the groundwater causing the contaminants to partition from the water phase to the vapor phase. The air then is vented through the unsaturated zone. The soil vapor in the unsaturated zone is then extracted under vacuum and the contaminated vapors are treated ex-situ using carbon adsorption before being released to the atmosphere. The alternative would include the following elements:

- A pilot test to more clearly define the design parameters including radius of influence of the air sparging along with optimization with the soil vapor extraction;

- Design of the alternative;
- Installation of the AS and SVE wells;
- Installation of the ex-situ treatment system;
- System operation and monitoring; and
- Institutional controls in the form of an environmental easement and a site management plan similar to alternative 3-2.

The time required to design and implement this remedy would be approximately one year. It is estimated that it would take an additional two years for the area to reach steady state conditions and to achieve the remediation goals.

Alternative 4-5: Enhanced Bioremediation using Hydrogen Release Compounds (HRC)

Present Worth: *$169,000*
Capital Cost: *$114,000*
Annual Costs:
(Years 1-3): *$20,000*

Alternative 4-5 would consist of enhanced bioremediation utilizing hydrogen release compounds (HRCs). HRCs are organic molecules such as lactic acid, which when metabolized by naturally occurring microorganisms hydrogen is released. The available hydrogen is then utlized by anaerobic microbes in a natural process know as reductive dechlorination. The substitution of hydrogen for chlorine during this process eventually results in the breakdown of the contamination and the production of non-toxic compounds such as chloride, ethene and ethane. The alternative would include the following elements:

- A pilot test, including installation of an injection well(s) to more clearly define the design parameters including radius of influence of the sodium permanganate and contamination treatability;
- Design of the alternative;
- Injection(s) of the HRC chemicals;
- Pre and post-injection groundwater sampling and analysis;
- Development and implementation of a long-term monitoring program; and
- Institutional controls in the form of an environmental easement and a site management plan similar to alternative 3-2.

The time required to design and implement this remedy would be approximately one year. It is estimated that it would take an additional two years for the area to reach steady state conditions and to achieve the remediation goals.

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 1.

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 have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the Department addressed the concerns raised.

No significant public comments were received.

SECTION 8: SUMMARY OF THE PROPOSED REMEDY

Based upon the Administrative Record (Appendix B) and the discussion presented below, the Department has selected Alternative 3-2, Institutional Controls for Areas 3 and 4 and additionally Alternative 4-3**,** In-Situ Chemical Oxidation using Sodium Permanganate for Area 4 as the remedies for this site. The elements of these remedies are described at the end of this section. The selected remedies are based on the results of the RI and the evaluation of alternatives presented in the AAR.

Alternatives 3-2 and 4-3 have been selected because, as described below, they satisfy the threshold criteria and provide the best balance of the primary balancing criteria described in Section 7.2.

Alternative 3-2, Institutional Controls will achieve the remediation goals in Area 3 by restricting the use of the property to commercial use, which would also permit industrial use consistent with local zoning, restricting the use of the groundwater and by requiring that the potential for vapor intrusion be evaluated and mitigated if necessary for any buildings developed in this area.

Alternative 4-3, In-situ Chemical Oxidation (ISCO) will achieve the remediation goals in Area 4 by destroying the organic contamination in the groundwater, which will also control the source of soil vapor contamination. ISCO will also restore the groundwater to pre-release conditions to the extent practical for the VOC contaminants of concern. Additionally, the institutional controls outlined in Alternative 3-2 will also cover this area and provide further protection of human health.

Alternatives 3-1 (No Action) and 4-1 (No Further Action) do not provide any additional protection from the contaminants that pose a potential threat to human health.

There are no short-term impacts to the community or the environment associated with the implementation of the institutional controls. It will take approximately six months to implement these controls.

Alternatives 3-4 (Enhanced Bioremediation using Oxygen Release Compounds), 4-3 (In-situ Chemical Oxidation) and 4-5 (Enhanced Bioremediation using Hydrogen Release Compounds) would all have similar minor short-term impacts to the community and site workers, primarily associated with the storage, handling and use of the ORC, HRC and ISCO chemicals. Alternative 4-4 (Air Sparging/Soil Vapor Extraction) would also have the short-term impacts associated with the physical installation of the AS/SVE points and operation of the ex-situ treatment system over a period of time. Each of these alternatives would require a pilot study before full-scale operation.

Although groundwater beneath Area 3 is contaminated with low level petroleum related compounds, the source of this contamination was removed during the tank closure action in 1991. The magnitude of the exposure risks to this contamination is low and the Site Management Plan's requirements of the institutional controls in Alternative 3-2 will be adequate to limit the risk to acceptable levels. These controls will include limiting the use of groundwater and evaluating and mitigating the vapor intrusion pathway if required for any structures erected in this area. Alternatives 3-3 and 3-4 both rely on biological processes as well as the physical processes of dilution and dispersion to degrade the contamination. Based upon the historical data it appears that conditions may not be favorable for the biological attenuation of the MTBE in the groundwater at this site.

Long-term effectiveness and permanence for Area 4 would best be achieved by restoration of the groundwater to pre-disposal conditions. Chemical oxidation will destroy the organic contaminants, reducing the toxicity, mobility and volume of the VOCs and thus providing a permanent remedy. The biological reductive dechlorination process of Alternative 4-5 may result in the generation of chlorinated VOC breakdown products such as vinyl chloride remaining in the area.

Administrative mechanisms exist to readily implement the institutional controls of Alternatives 3-2 and 4-3 for Areas 3 and 4 respectively. Environmental easements have been routinely utilized on other sites and there are no technical issues associated with their implementation.

In terms of implementability at Area 4, the chemical oxidation technology proposed in Alternative 4-3 has been utilized successfully at other sites, thus most technical issues have been addressed in the past. The fact that the IRM excavation was backfilled with a permeable layer of crushed stone should help minimize one of the technical issues associated with this technology, which is bringing the chemical oxidant in direct contact with the contamination during treatment. Experienced personnel and standard materials are readily available. Alternative 4-4 would be more complicated in that it involves construction of the AS/SVE and ex-situ treatment system as well as optimization of this system. It would also require that power be supplied to the site as well as construction of a security enclosure. There would also be costs associated with the regeneration or disposal of the activated carbon from the treatment system.

For Area 3, other than No Action, Alternative 3-2 is the least costly of the alternatives followed by 3-3 and then 3-4. By restricting access to the low concentrations of residual contamination alternative 3-2 provides a cost-effective method to protect public health in this area.

For Area 4, other than No Further Action, Alternative 4-2 is the least costly of the alternatives followed by 4-5, 4-3 and then 4-4. Alternatives 4-3 and 4-5 are roughly the same cost with 4-4 being

approximately twice as much as each of these. Based upon the comparative analysis presented above Alternative 4-3 provides a cost-effective method to protect public health in this area by treating the groundwater contamination and restricting access to the low concentrations of residual contamination.

The estimated present worth cost to implement the remedy at Area 3 is $31,000.The cost to construct the remedy is estimated to be $5,000 and the estimated average annual costs for 5 years is $6,000. The estimated present worth cost to implement the remedy at Area 4 is $211,000. The cost to construct the remedy is estimated to be $148,000 and the estimated average annual costs for 3 years is $23,000.

The estimated total present worth cost to implement the remedy at both Areas 3 and 4 is $242,000. The total cost to construct the remedy is estimated to be $153,000 and the estimated average annual costs are $29,000.

The elements of the selected remedy are as follows:

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

2. An initial round of groundwater samples will be collected to confirm the existing contaminant concentrations. A pilot study will then be undertaken to determine the effectiveness of the injection of the sodium permanganate oxidant into the overburden soils via an existing monitoring well in Area 4. Groundwater will be tested immediately before and after the injection. The information and data gathered during the pilot study will be utilized to determine the efficacy of the technology and the potential for full-scale application.

3. Based upon a successful pilot test, in-situ chemical oxidation will be implemented full-scale at Area 4. The oxidant injections will be repeated as required based upon monitoring data. It is anticipated that there will be no more than three injection events over a period of one to two years.

4. Imposition of an institutional control in the form of an environmental easement including both Areas 3 and 4 that will limit use to (a) commercial use of the property, which will also permit industrial use consistent with local zoning; (b) excavated soils will be tested, properly handled and managed in a manner acceptable to the Department; (c) compliance with the approved site management plan; (d) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; (e) the property owner to complete and submit to the Department a periodic certification of the institutional controls and (f) allowing the Department access to the site.

5. Development of a site management plan which will include the following institutional and engineering controls: (a) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified;

(b) monitoring of groundwater; (c) identification of any use restrictions on the site; and (d) provisions for the continued proper operation and maintenance of the components of the remedy.

6. The property owner will 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 will: (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 components of the remedy will 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 will be instituted. Groundwater will be monitored in the overburden aquifer and soils respectively. This program will allow the effectiveness of the in-situ chemical oxidation to be monitored and would be a component of the long-term management for the site.

SECTION 9: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the environmental restoration process, a number of Citizen participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.

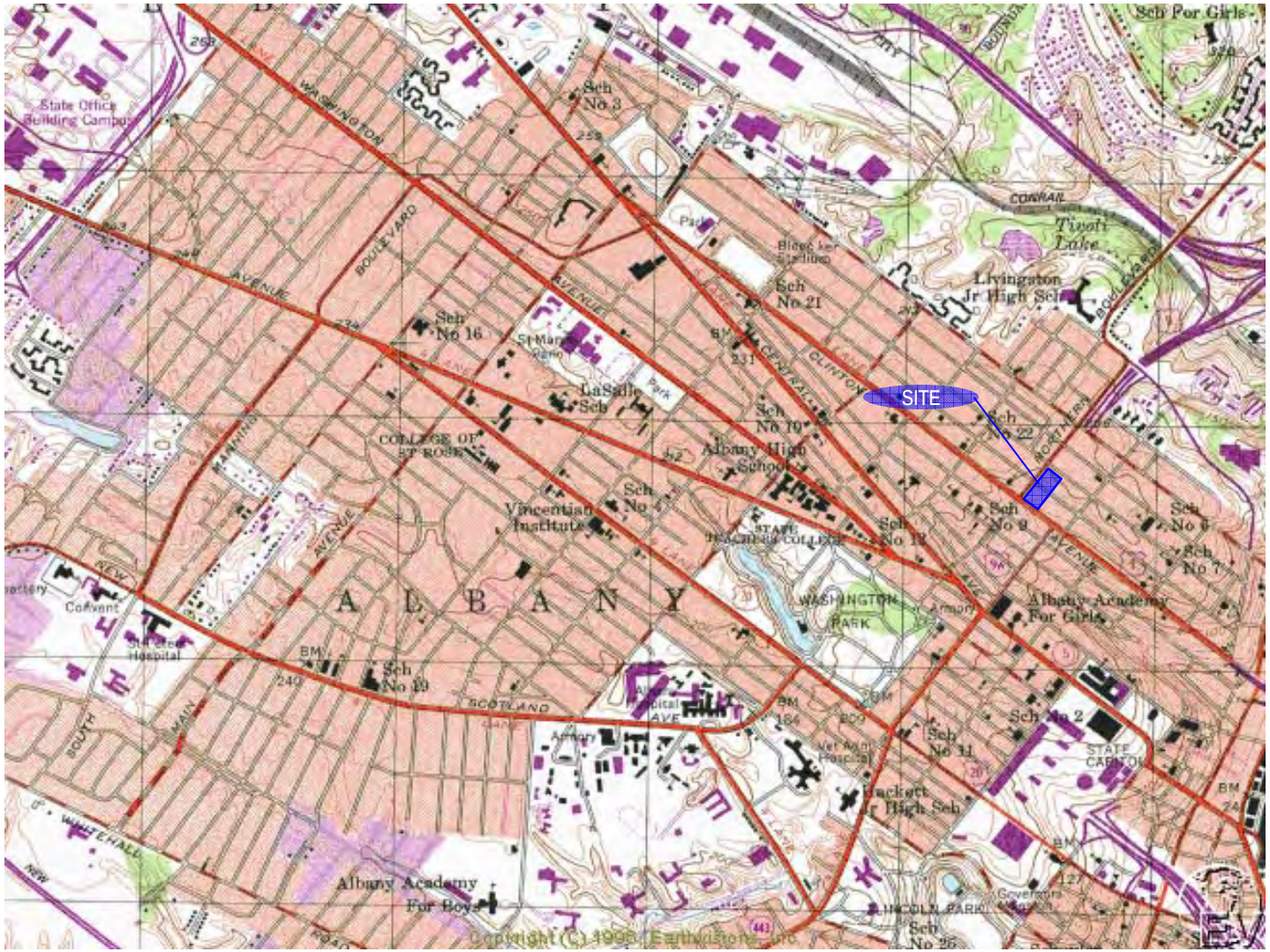
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.

- A public meeting was held on March 10, 2010 to present and receive comment on the PRAP.

- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

Table 1
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
3-1 NO ACTION	$ 0	$ 0	$ 0
3-2 INSTITUTIONAL CONTROLS	$ 5,000	$ 6,000	$ 31,000
3-3 MONITORED NATURAL ATTENUATION	$ 5,000	$ 23,000	$ 105,000
3-4 ENHANCED BIOREMEDIATION USING ORC	$ 114,000	$ 20,000	$ 200,000
4-1 NO FURTHER ACTION	$ 0	$ 12,000	$ 33,000
4-2 MONITORED NATURAL ATTENUATION	$ 5,000	$ 23,000	$ 68,000
4-3 IN-SITU CHEMICAL OXIDATION	$ 148,000	$ 23,000	$ 211,000
4-4 AIR SPARGING/SOIL VAPOR EXTRACTION	$ 322,000	$ 66,000	$ 502,000
4-5 ENHANCED BIOREMEDIATION USING HRC	$ 114,000	$ 20,000	$ 169,000
TOTAL COSTS -PROPOSED ALTERNATIVES 3-2 and 4-3	$ 153,000	$ 29,000	$253,000



SOURCE: 7.5 MINUTE TOPOGRAPHIC MAP
ALBANY QUADRANGE, NEW YORK
UNITED STATES GEOLOGIC SURVEY 1980.

SCALE IN FEET

0 1000 2000 4000

F:PROJECT4279009\FILE\HJ WORKPLAN\FIGS 2-1 and 3-1.PPT

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SITE LOCATION

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FIGURE 1

N

2ND STREET

150 HJB

216 2ND ST.

214 2ND ST.

212 2ND ST.

210 2ND ST.

148 HJB

ALLEY

146 HJB

138 HJB

132 HJB

130 HJB

128 HJB

126 HJB

124 HJB

339 CLINTON AVE.

337 CLINTON AVE.

335 CLINTON AVE.

333 CLINTON AVE.

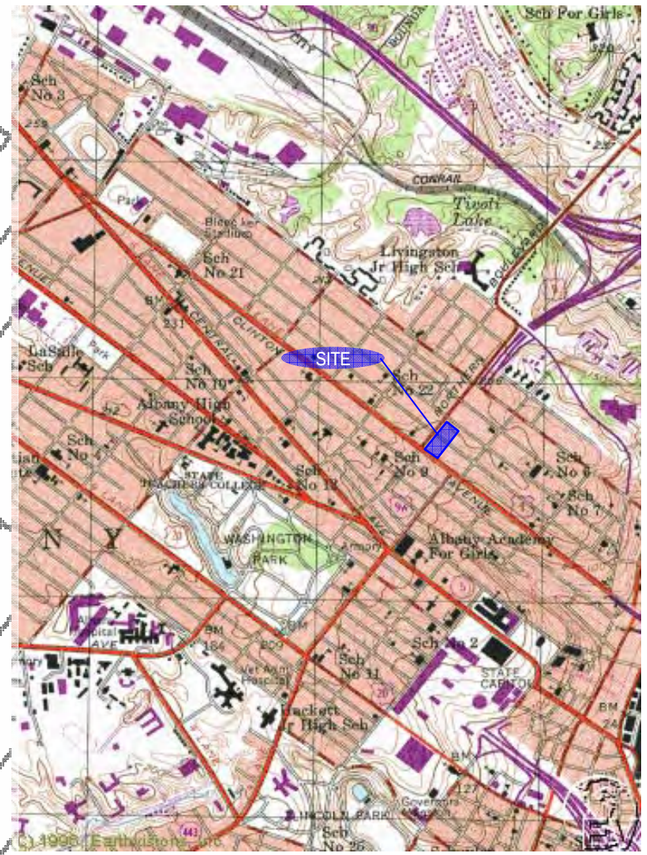
HENRY JOHNSON BOULEVARD

1ST STREET

CLINTON AVENUE

APPROXIMATE SCALE IN FEET

0 50 100 200



LEGEND

Henry Johnson Boulevard Properties

F:\PROJECT\4279009\FILE\HJ WORK PLAN\FIG 2-1.PPT

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HENRY JOHNSON BOULEVARD PROPERTIES
ALBANY, NEW YORK

ASSESSMENT PROPERTIES

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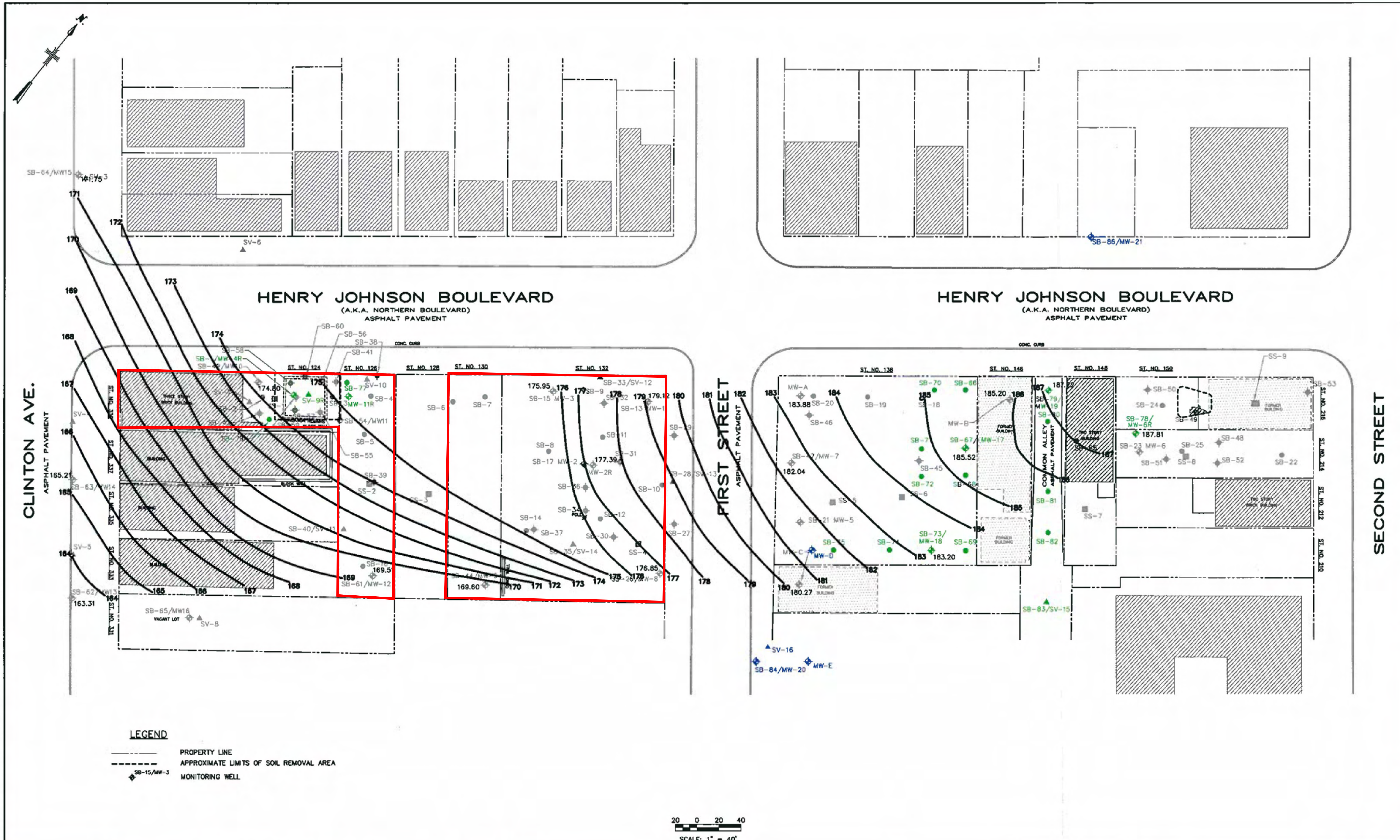
FIGURE 2



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POTENTIOMETRIC MAP (AUGUST 22, 2007)

SCALE: 1"=40'

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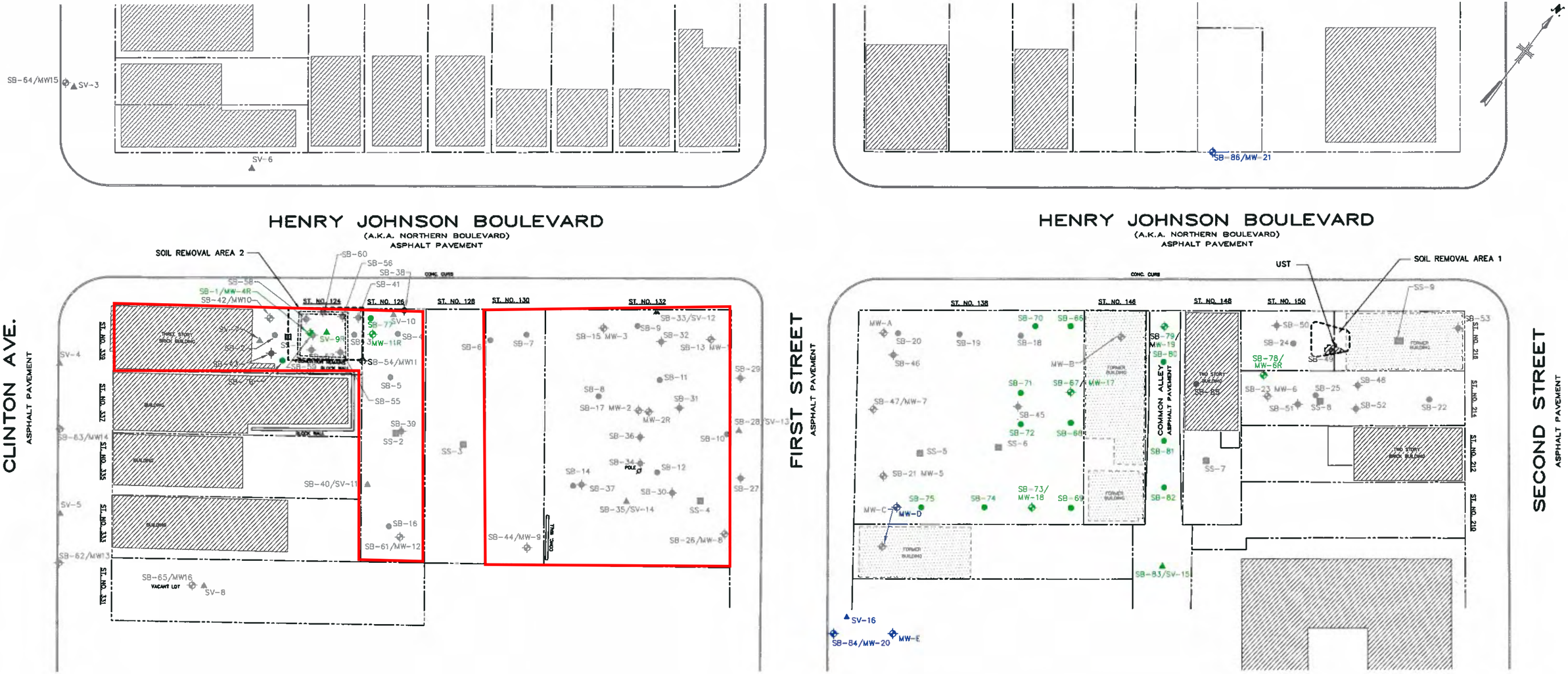
FIGURE 3

CAD REF. NO. 4279009



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SAMPLING LOCATIONS

SCALE: 1"=40'

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FIGURE 4

CAD REF. NO. 4279009

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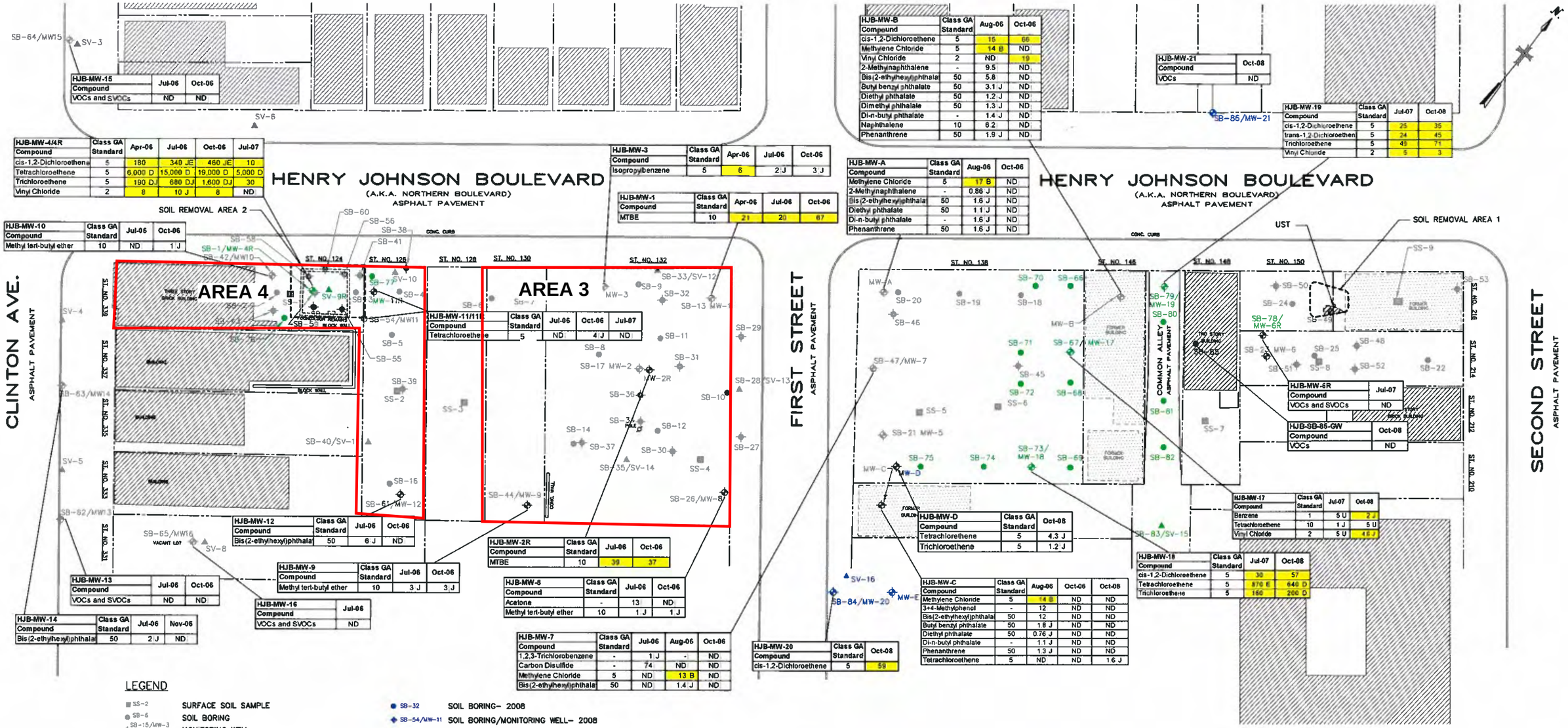
User:Lewandowski Spec:PIRNIE STANDARD File:I:\CAD\PROJ\4279\009\HENRY JOHNSON ERP\Remedial Investigation\FIGURE4-2.DWG Scale:1:1 Date:11/10/2008 Time:08:28 Layout:Layout1



HJB-MW-15	Jul-06	Oct-06
Compound		
VOCs and SVOCs	ND	ND

HJB-MW-4/4R	Class GA Standard	Apr-06	Jul-06	Oct-06	Jul-07
Compound					
cis-1,2-Dichloroethene	5	180	340 JE	460 JE	10
Tetrachloroethene	5	6,000 D	15,000 D	19,000 D	5,000 D
Trichloroethene	5	190 DJ	680 DJ	1,600 DJ	30
Vinyl Chloride	2	8	10 J	8	ND

HJB-MW-10	Class GA Standard	Jul-06	Oct-06
Compound			
Methyl tert-butyl ether	10	ND	1 J

HJB-MW-3	Class GA Standard	Apr-06	Jul-06	Oct-06
Compound				
Isopropylbenzene	5	6	2 J	3 J

HJB-MW-1	Class GA Standard	Apr-06	Jul-06	Oct-06
Compound				
MTBE	10	21	20	67

HJB-MW-11/11R	Class GA Standard	Jul-06	Oct-06	Jul-07
Compound				
Tetrachloroethene	5	ND	4 J	ND

HJB-MW-12	Class GA Standard	Jul-06	Oct-06
Compound			
Bis(2-ethylhexyl)phthalate	50	6 J	ND

HJB-MW-13	Jul-06	Oct-06
Compound		
VOCs and SVOCs	ND	ND

HJB-MW-14	Class GA Standard	Jul-06	Nov-06
Compound			
Bis(2-ethylhexyl)phthalate	50	2 J	ND

HJB-MW-9	Class GA Standard	Jul-06	Oct-06
Compound			
Methyl tert-butyl ether	10	3 J	3 J

HJB-MW-16	Jul-06
Compound	
VOCs and SVOCs	ND

HJB-MW-2R	Class GA Standard	Jul-06	Oct-06
Compound			
MTBE	10	39	37

HJB-MW-8	Class GA Standard	Jul-06	Oct-06
Compound			
Acetone	-	13	ND
Methyl tert-butyl ether	10	1 J	1 J

HJB-MW-7	Class GA Standard	Jul-06	Aug-06	Oct-06
Compound				
1,2,3-Trichlorobenzene	-	1 J	-	ND
Carbon Disulfide	-	74	ND	ND
Methylene Chloride	5	ND	13 B	ND
Bis(2-ethylhexyl)phthalate	50	ND	1.4 J	ND

HJB-MW-B	Class GA Standard	Aug-06	Oct-06
Compound			
cis-1,2-Dichloroethene	5	15	66
Methylene Chloride	5	14 B	ND
Vinyl Chloride	2	ND	19
2-Methylnaphthalene	-	9.5	ND
Bis(2-ethylhexyl)phthalate	50	5.8	ND
Butyl benzyl phthalate	50	3.1 J	ND
Diethyl phthalate	50	1.2 J	ND
Dimethyl phthalate	50	1.3 J	ND
Di-n-butyl phthalate	-	1.4 J	ND
Naphthalene	10	6.2	ND
Phenanthrene	50	1.9 J	ND

HJB-MW-A	Class GA Standard	Aug-06	Oct-06
Compound			
Methylene Chloride	5	17 B	ND
2-Methylnaphthalene	-	0.86 J	ND
Bis(2-ethylhexyl)phthalate	50	1.6 J	ND
Diethyl phthalate	50	1.1 J	ND
Di-n-butyl phthalate	-	1.6 J	ND
Phenanthrene	50	1.6 J	ND

HJB-MW-21	Oct-08
Compound	
VOCs	ND

HJB-MW-19	Class GA Standard	Jul-07	Oct-08
Compound			
cis-1,2-Dichloroethene	5	25	35
trans-1,2-Dichloroethene	5	24	45
Trichloroethene	5	48	71
Vinyl Chloride	2	5	3

HJB-MW-6R	Jul-07
Compound	
VOCs and SVOCs	ND

HJB-SB-85-GW	Oct-08
Compound	
VOCs	ND

HJB-MW-17	Class GA Standard	Jul-07	Oct-08
Compound			
Benzene	1	5 U	2 J
Tetrachloroethene	10	1 J	5 U
Vinyl Chloride	2	5 U	4.8 J

HJB-MW-18	Class GA Standard	Jul-07	Oct-08
Compound			
cis-1,2-Dichloroethene	5	30	57
Tetrachloroethene	5	870 E	640 D
Trichloroethene	5	160	200 D

HJB-MW-D	Class GA Standard	Oct-08
Compound		
Tetrachloroethene	5	4.3 J
Trichloroethene	5	1.2 J

HJB-MW-C	Class GA Standard	Aug-06	Oct-06	Oct-08
Compound				
Methylene Chloride	5	14 B	ND	ND
3+4-Methylphenol	-	12	ND	ND
Bis(2-ethylhexyl)phthalate	50	12	ND	ND
Butyl benzyl phthalate	50	1.8 J	ND	ND
Diethyl phthalate	50	0.76 J	ND	ND
Di-n-butyl phthalate	-	1.1 J	ND	ND
Phenanthrene	50	1.3 J	ND	ND
Tetrachloroethene	5	ND	ND	1.6 J

HJB-MW-20	Class GA Standard	Oct-08
Compound		
cis-1,2-Dichloroethene	5	59

LEGEND

- SS-2 — SURFACE SOIL SAMPLE
- SB-6 — SOIL BORING
- SB-15/MW-3 — MONITORING WELL
- PROPERTY LINE
- APPROXIMATE LIMITS OF SOIL REMOVAL AREA
- SB-32 — DIRECT-PUSH SOIL BORING– 2006
- SB-54/MW-11 — HSA SOIL BORING/MONITORING WELL– 2006
- INDOOR AIR/SOIL VAPOR MONITORING POINT
- SB-11 — SOIL VAPOR MONITORING POINT– 2006
- SB-32 — SOIL BORING– 2007
- SB-54/MW-11 — SOIL BORING/MONITORING WELL– 2007
- SB-11 — SOIL VAPOR MONITORING POINT– 2007
- CONCENTRATION EXCEEDS CORRESPONDING NYSDEC CLASS GA STANDARD.

NOTE: GROUNDWATER CONCENTRATIONS GIVEN IN µg/l.

SCALE: 1" = 40'

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NATURE AND EXTENT OF GOUNDWATER CONTAMINATION–VOC & SVOC ANALYTICAL DATA

SCALE: 1"=40'

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FIGURE 5

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User:Lewandowski Spec:PIRNIE STANDARD File:I:\CAD\PROJ\4279\009\HENRY JOHNSON ERP\Remedial Investigation\FIGURE7-3.DWG Scale:1:1 Date:01/13/2009 Time:15:05

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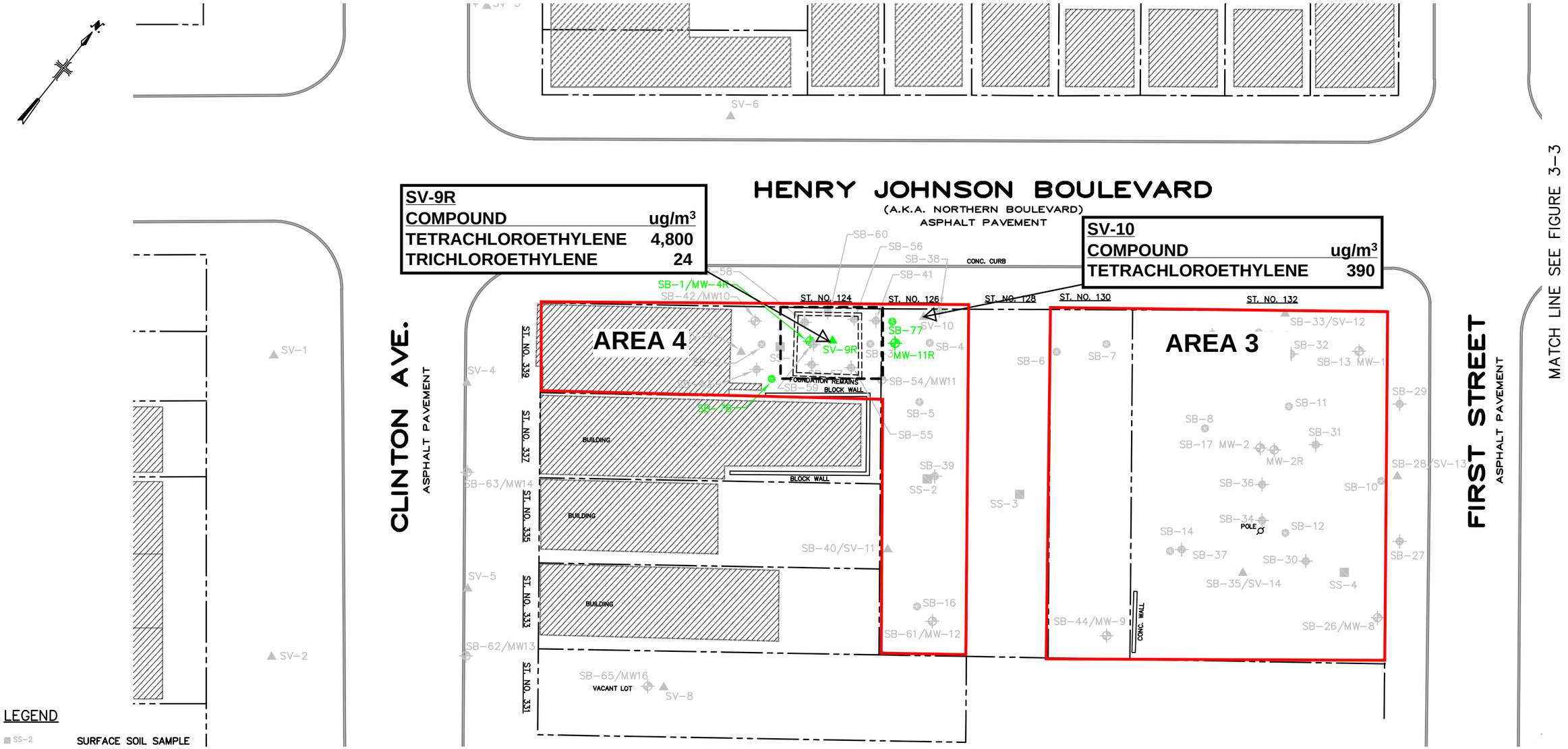
User: Lewandowski Spec: PIRNIE STANDARD File: I: \ACAD\PROJ\4279\009\HENRY JOHNSON ERP\Remedial Investigation\HOUGH FIGURE.DWG Scale: 1:1 Date: 12/16/2009 Tim



LEGEND

SS-2	SURFACE SOIL SAMPLE
SB-6	SOIL BORING
SB-15/MW-3	MONITORING WELL
	PROPERTY LINE
	APPROXIMATE LIMITS OF SOIL REMOVAL AREA
SB-32	DIRECT-PUSH SOIL BORING- 2006
SB-54/MW-11	HSA SOIL BORING/MONITORING WELL- 2006
	INDOOR AIR/SOIL VAPOR MONITORING POINT
SB-11	SOIL VAPOR MONITORING POINT- 2006
SB-70	SOIL BORING- 2007
SB-73/MW-18	SOIL BORING/MONITORING WELL- 2007
SV-11	SOIL VAPOR MONITORING POINT- 2007

NOTE: SOIL CONCENTRATIONS GIVEN IN mg/kg

15 0 15 30

SCALE: 1" = 30'

NYSDOH AIR GUIDELINE VALUES	ug/m3
TETRACHLOROETHYLENE	100
TRICHLOROETHYLENE	5

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CITY OF ALBANY
ALBANY, NEW YORK

HENRY JOHNSON BOULEVARD ERP

SOIL VAPOR RESULTS - ABOVE NYSDOH AIR GUIDELINE VALUES

SCALE: AS SHOWN

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FIGURE 6

CAD REF. NO. 4279009

XREFS: I:\ACAD\PROJ\4279\XREF\4279009-BASEMAP.dwg IMAGES: K:\Symbols2000\Pirnie Standard\Gen\MPI Title Blocks\MPLOGOBK_NoBleed.jpg
User: Lewondowski Spec: PIRNIE STANDARD File: I:\ACAD\PROJ\4279\009\HENRY JOHNSON ERP\Remedial Investigation\FIGURE3-2.DWG Scale: 1:1 Date: 02/05/2008 Tim

HENRY JOHNSON BOULEVARD
(A.K.A. NORTHERN BOULEVARD)
ASPHALT PAVEMENT

CLINTON AVE.
ASPHALT PAVEMENT

FIRST STREET
ASPHALT PAVEMENT

AREA 4

AREA 3

HJB-SRA-2W	5/30/07	East sidewall
Compound		~3.5' bgs
Tetrachloroethene		0.0029

HJB-SRA-2B-12	5/30/07	Bottom sample
Compound		~12' bgs
1,1-Dichloroethene		0.007
cis-1,2-Dichloroethene		0.225
Tetrachloroethene		1.22
Trichloroethene		0.079

HJB-SRA-2S	5/30/07	South sidewall
Compound		~3.5' bgs
Tetrachloroethene		0.13

HJB-SRA-2N	5/30/07	North sidewall
Compound		~3.5' bgs
TCL VOCs		ND

HJB-SRA-2E	5/30/07	East sidewall
Compound		~3.5' bgs
Tetrachloroethene		0.32

LEGEND

- SS-2 — SURFACE SOIL SAMPLE
- SB-6 — SOIL BORING
- SB-15/MW-3 — MONITORING WELL
- PROPERTY LINE
- APPROXIMATE LIMITS OF SOIL REMOVAL AREA
- SB-32 — DIRECT-PUSH SOIL BORING- 2006
- SB-54/MW-11 — HSA SOIL BORING/MONITORING WELL- 2006
- INDOOR AIR/SOIL VAPOR MONITORING POINT
- SB-11 — SOIL VAPOR MONITORING POINT- 2006
- SB-70 — SOIL BORING- 2007
- SB-73/MW-18 — SOIL BORING/MONITORING WELL- 2007
- SV-11 — SOIL VAPOR MONITORING POINT- 2007

NOTE: SOIL CONCENTRATIONS GIVEN IN mg/kg

15 0 15 30
SCALE: 1" = 30'

MALCOLM PIRNIE

REVISIONS			
NO.	BY	DATE	REMARKS

DES TAL
DWN TAL
CKD

CITY OF ALBANY
ALBANY, NEW YORK
HENRY JOHNSON BOULEVARD ERP

IRM EXCAVATION LIMITS AND CONFIRMATION SAMPLE RESULTS
SCALE: AS SHOWN

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FIGURE 7

CAD REF. NO. 4279009

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Henry Johnson Boulevard Properties Environmental Restoration Site
City of Albany, Albany County, New York
Site No. E401049

The Proposed Remedial Action Plan (PRAP) for the Henry Johnson Boulevard Properties site, was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 10, 2010. The PRAP outlined the remedial measure proposed for the contaminated soil, soil vapor and groundwater at the Henry Johnson Boulevard Properties site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on March 10, 2010, which included a presentation of the Remedial Investigation (RI) and the Alternatives Analysis Report (AAR) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 27, 2010.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

COMMENT 1: Can you have apartments on the second floor of a structure on a site designated for commercial use? The first floor would be used for commercial.

RESPONSE 1: In accordance with current regulations and regardless of which floor apartments would be on, they cannot be located on a site designated for commercial use. If in the future the site is to be utilized for residential use, then those areas outside the building footprint would require either to be covered with concrete or another suitable impermeable surface of at least six inches and any exposed vegetated areas must be covered with two feet of clean soil. In addition, the environmental easement would have to be modified to reflect this change in use from commercial to residential.

APPENDIX B

Administrative Record

Administrative Record

Henry Johnson Boulevard Properties Environmental Restoration Site
City of Albany, Albany County, New York
Site No. E401049

1. Proposed Remedial Action Plan for the Henry Johnson Boulevard Properties site, dated February 2010, prepared by the Department.

2. "Remedial Investigation / Alternatives Analysis Work Plan", February 2006, prepared by Malcolm Pirnie, Inc..

3. "Quality Assurance Project Plan", February 2006, prepared by Malcolm Pirnie, Inc..

4. "Health and Safety Plan and Community Air Monitoring Plan", February 2006, prepared by Malcolm Pirnie, Inc..

5. "Citizen Participation Plan", February 2006, prepared by Malcolm Pirnie, Inc..

6. Fact Sheet, June 2006, Announcement of the Remedial Investigation start and availability of Work Plans

7. "Remedial Investigation / Alternatives Analysis Report", July 2009, prepared by Malcolm Pirnie, Inc.

8. Fact Sheet, February 2010, Announcement of the PRAP, Public Meeting and Comment Period