Release Abatement Measure Plan

Former Lewis Chemical Co.
Site Soil Vapor Extraction

0 & 12-24 Fairmount Court

Hyde Park, MA

RTN 3-1616

221375.01

Boston Department of Neighborhood Development

July 2010

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

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1. INTRODUCTION

This Release Abatement Measure (RAM) Plan has been prepared in accordance with the Massachusetts Contingency Plan (MCP), 310 CMR 40.0444, for the property located at 0 and 12-24 Fairmount Court in Hyde Park, Massachusetts (the Site). A Site Locus is provided as **Figure 1**.

The City of Boston, Massachusetts has assumed the role as the potentially responsible party (PRP) for the release, designated by Release Tracking Number (RTN) 3-1616 and is proposing to implement a RAM to address VOCs in soil and soil vapor present at the Site below the Site building foundation. The RAM activities will include the design, installation, and operation of a Soil Vapor Extraction (SVE) System at the Site. The MassDEP Release Abatement Measure Transmittal Form (BWSC106) has been submitted electronically to MassDEP.

1.1 SITE DESCRIPTION

The subject property is currently owned by the City of Boston, is 30,592 square feet in size and is comprised of two parcels laid out in a rectangular manner. The smaller of the two parcels, comprising 6,338 square feet, is not improved. The larger parcel, comprising 24,254 square feet, is improved with a three-story, 8,800-square foot (building footprint), former industrial building. The building is currently vacant. The coordinates of the property are 42° 15' 10"N latitude, 71° 07' 11"W longitude. The Universal Transverse Mercator (UTM) coordinates are 4680042 Northing and 325153 Easting in Zone 19. A Site Plan is included as **Figure 2**.

1.2 SURROUNDING RECEPTORS

The Site is located in a restricted manufacturing zoned area of Boston. Nearby properties are zoned commercial, restricted manufacturing, and residential and are developed as such. The nearest human receptors are residents living within 500 feet north and east of the Site across MBTA railroad lines, which run along the northern Site boundary. The Neponset River, which runs along the southern Site boundary, and the land situated adjacently southwest of the Site is identified as protected open space. Institutions such as orphanages, nursing homes, convalescent homes, educational facilities, or correctional facilities that provide overnight housing were not identified within 500 feet of the subject properties during Site reconnaissance.

The Massachusetts Geographic Information System (MassGIS) Site Scoring Map (provided as **Appendix A**) was reviewed for information pertaining to the location of natural resources located within 500 feet of the Site. According to the Site Scoring Map, there are no natural resources located within 500 feet of the Site. Additionally, the subject property is not located within 500 feet of any drinking water supplies (Zone II areas, Interim Wellhead Protection Areas, Zone A areas, and/or Potentially Productive Aquifers), Areas of Critical Environmental Concern (ACEC), EPA Sole Source Aquifers, Certified Vernal Pools, habitats of Species of Special Concern, or habitats of Threatened or Endangered Species within a 500-foot radius of the subject property. There are no known private drinking water wells in the vicinity of the Site.

1.3 RELEASE HISTORY

The Site has a history of industrial use and was formerly the location of the Lewis Chemical Company. Based on available information, the Site was utilized as a leather manufacturing company from 1940 to the early 1960's. Lewis Chemical operated the Site from 1963 until 1983 and collected, stored, transported and processed hazardous waste. Lewis Chemical was forced to cease operations under a Court Order issued by MassDEP in 1983. The MassDEP subsequently listed the Site as a State disposal site in

1987 and issued release tracking number (RTN) 3-1616. The Site is currently listed as a Tier 1B disposal site. The City of Boston gained ownership of the property in October 2000 via tax foreclosure.

Several environmental investigations have been performed at the Site since 1986. The most recent was a supplemental soil investigation conducted by Woodard & Curran for the City of Boston completed in 2008. The recent investigation conducted at the Site identified significant volatile organic compound (VOC) concentrations in soil below the building foundation. Notably, tetrachloroethene (PCE) and trichloroethene (TCE) were detected in maximum concentrations of 8,000 mg/Kg and 1,900 mg/Kg, respectively, in soil samples collected beneath the concrete slab floor at the western portion of the Site building. Additional VOCs concentrations were detected in soil samples collected in November 2008 and are summarized in **Table 1.** Soil boring locations are depicted in **Figure 2**. Soil boring logs are also included as **Appendix B**.

Elevated soil gas concentrations have previously been detected during March 2006 Phase II assessment activities completed by Environmental Strategies and Management, Inc. (ESM, Inc). A total of six soil gas points were installed and sampled in 2006. Notably, PCE and TCE were detected in concentrations ranging from 157,000 µg/m^3 to 2,360,000 µg/m^3, and 50,600 µg/m^3 to 1,730,000 µg/m^3, respectively, in samples collected beneath the concrete slab floor throughout the Site building. Additional VOCs concentrations were detected in soil gas samples collected in March 2006 and are summarized in **Table 2**. Soil gas sampling points are depicted in **Figure 2**.

2. RAM PLAN

2.1 PERSON ASSUMING RESPONSIBILITY FOR THE RAM

The City of Boston, the current owner of the property, is the Potentially Responsible Party (PRP) for the release and is assuming responsibility for this RAM. Contact information is provided in Section F of the Bureau of Waste Site Cleanup Transmittal Form (BWSC106), submitted electronically, and shown below.

Name: City of Boston, Department of Neighborhood Development
Thomas Barrasso, Senior Project Manager

Address: 26 Court Street, 9th Floor
Boston, MA 02108

Phone: (617) 635-0103

2.2 OBJECTIVE, SPECIFIC PLAN, AND PROPOSED SCHEDULE FOR THE RAM

2.2.1 Objective

Consistent with 310 CMR 40.0441, the RAM consists of accelerated response actions designed to reduce the VOC concentrations in soil and subsequently reduce soil gas concentrations that are most likely infiltrating into the ambient air inside the vacant Site building. Specifically, the objective of the RAM is to install a SVE system inside the Site building and operate the system until VOC concentrations in the sub-slab soil and soil gas have been reduced to levels that do not pose a significant risk to future occupants of the building. Soil generated during the installation of the SVE system will be removed, characterized, and transported to an approved off-Site disposal facility.

2.2.2 Specific Plan

The concrete slab flooring will be cored and soil will be removed via truck-mounted Vactor to a depth of approximately 3.5 feet bgs. Samples will be collected from the soil generated during SVE installation activities. Subsequent to soil characterization analytical results, the excavated soil will be transferred into appropriately labeled drums for temporary storage (pending analysis) and subsequent disposal. At the end of each workday, any open excavations will be secured by the excavation contractor. Excessive airborne dust will be prevented by using appropriate dust control measures (i.e., watering, misting the work areas), as needed. Based on previous subsurface characterization, the impacted soil is located at a depth ranging from 0-4 feet below surface grade (bsg). The RAM activities will include removing limited areas of concrete over the impacted area. The soil will be routinely screened in one-foot interval to the established final depth of 3.5 feet to assist in determining the ultimate disposition of the soil in the impacted area. Based upon the previous investigations completed at the Site, groundwater is not expected to be encountered at the Site.

2.2.3 Soil Vapor Extraction System Installation

A soil vapor extraction system (SVE) will be installed throughout the Site building as depicted in **Figure 3**. The SVE system will reduce the mass of VOCs in soil, thereby reducing potential for soil vapor impacts associated with the soil, and will help to reduce the concentration of chlorinated VOCs observed

in groundwater in this area. The SVE system will consist of ten vertical SVE wells installed perpendicular to the slab flooring at a depth of approximately three-and-a-half (3.5) feet (bsg). The SVE wells will be constructed of 2-inch schedule 20 PVC piping in sand pack from 0.5 feet bgs to 3.5 feet bgs. A concrete and bentonite mix will extend from surface grade to 0.5 bgs. This will allow the SVE wells to influence contaminated and vadose zone soils adjacent the SVE wells, as the groundwater table fluctuates seasonally. These SVE wells will be operated until it is determined that their continued use is no longer resulting in the beneficial removal of VOC mass. Detailed Design Drawings for the SVE system are included herein as **Figures 3** and **4**. Specifications for the SVE equipment are included as **Appendix C**. The monitoring plan is presented in Section 4.2.

2.2.4 Schedule

SVE installation activities are tentatively scheduled to begin in July 2010.

2.3 MANAGEMENT OF REMEDIATION WASTES

Contaminated soil will be removed via truck-mounted Vactor to a depth of approximately 3.5 feet bgs. The soil will be transferred from the Vactor vessel into 55-gallon drums at the end of the workday. The 55-gallon drums will be appropriately labeled for temporary storage (pending analysis) and subsequent disposal.

2.3.1 Soil

It is anticipated that a limited amount of soil will be generated during Vactor excavation, approximately 12 cubic feet. The soil will be temporarily stored on-Site in 55-gallon drums pending laboratory analysis for proper disposal. Further soil removal during RAM activities is not anticipated.

2.3.2 Water

No excavation below the water table is proposed. It is unlikely groundwater will be encountered. Information obtained from previous subsurface investigations indicates that the groundwater table is present at a depth of greater than 5 feet below ground surface.

2.4 DECONTAMINATION ACTIVITIES

All equipment and tools used during the excavation activities will be decontaminated prior to leaving the work zones using water, brushes and/or steam. All water generated during decontamination activities will be contained and disposed appropriately.

2.5 PROPOSED ENVIRONMENTAL MONITORING PLAN FOR IMPLEMENTATION DURING AND/OR AFTER THE RAM

Environmental monitoring will be conducted within, outside, and along the perimeter of the excavation area. Inhalation hazards can be caused from intake of vapors and/or contaminated dust. Monitoring activities will be conducted using a photoionization detector for VOCs and a respirable dust monitor for dust levels. Readings will be recorded initially, during changes in conditions or work areas, and at a minimum of 2-hour increments during the excavation activities from pre-determined locations surrounding the work areas.

2.6 FEDERAL, STATE, AND/OR LOCAL PERMITS

DigSafe will also be notified a minimum of 72 hours prior to the start of field activities associated with the commencement of the proposed RAM activities. No other federal, state, or local permits are anticipated to be required.

2.7 SEAL AND SIGNATURE OF THE LICENSED SITE PROFESSIONAL

In accordance with 310 CMR 40.0444(1)(g), the original seal and signature of Craig E. Blake, the LSP of record, is provided in Section E of RAM Transmittal Form BWSC106, submitted electronically via Massachusetts eDEP electronic filing system. The BWSC form is available on-line via the Reportable Release File Viewer.

2.8 PUBLIC NOTIFICATION

Notification of the RAM Plan will be provided to the local officials within the 20-day period prior to initiation of the RAM. Copies of the notification letters are included as **Appendix D**.

2.9 HEALTH AND SAFETY PLAN

All personnel performing the soil excavation and handling shall comply with all applicable federal, state local and other applicable safety and health regulations, including Title 29 CFR Parts 1910 and 1926. A Site-specific health and safety plan will be developed to address the response actions associated with the implementation of the RAM Plan. It is expected that personal protection for the oversight and sampling will be a modified Level D. Personal protection for the workers performing the soil excavation is also expected to be a modified Level D.

2.10 DESCRIPTION AND CONCEPTUAL PLAN OF REMEDIAL ACTION

The SVE activities will be focused on the southern sub-slab area of the existing building where previous sub-slab investigations have identified elevated concentrations of chlorinated solvents in the sub-slab soil and soil gas. Conceptually, the SVE system will include ten (10) shallow SVE wells located within the target area.

2.11 PROCESS DESCRIPTION

Figure 3 illustrates the layout of the proposed SVE system. The proposed piping and instrumentation diagram is shown in **Figure 4** and **Figure 5** illustrates the soil vapor extraction well construction details. The major SVE system processes are described in the following sections.

2.11.1 SVE System

The SVE system consists of the ten (10) extraction wells, one vacuum extraction blower, the extraction system piping, flow controls and granular activated carbon filtration of effluent vapors.

2.11.2 Extraction Wells

A total of ten (10) vertical SVE wells will be used for the extraction of soil vapor from the unsaturated soils at the site. The locations of the extraction wells are given on **Figure 3**. Details regarding the construction of the extraction wells are given on **Figure 5**.

Initially, the ten (10) soil vapor extraction wells will be operated continuously. As remediation progresses, flow from certain soil vapor extraction wells may be reduced or eliminated, as appropriate.

2.11.3 Extraction System Blower

The SVE system will be comprised of one regenerative blower for the SVE wells. The blower will be a 5-hp regenerative blower (Rotron DR757) which can provide a flow rate of 220 standard cubic feet per minute (cfm) at a vacuum of 80 inches of water (iwg). The blower will be located inside the building on the lower floor in the area of the eastern overhead door.

The blower will be interlocked with a high/low vacuum switch on the influent header. If the vacuum to the well field is below a preset level (indicating a blockage in the filter or moisture separator), an alarm light will activate and the blower will shut down. Likewise, if the vacuum to the well field is above a preset level (indicating blockages or flow restrictions in the SVE manifold or laterals), an alarm light will activate and the blower will shut down.

The inlet header for the blower will be equipped with pitot tube flow meters, vacuum gauges, an ambient air inlet valve, and a vacuum relief valve. The ambient air inlet will be used to modify the vacuum, flow, and temperature through the treatment system, if necessary. A pitot tube flow meter will be installed upstream and downstream of the ambient air inlet so that the influent flow rate with and without ambient air addition can be measured. Vacuum gauges will measure the pressure drop across each air filter, indicating when it should be cleaned or replaced. The vacuum relief valve will prevent excessive system vacuum that could result from upstream line restrictions. The effluent header will be equipped with a pressure relief valve to prevent excessive system temperatures and pressures that could result from downstream restrictions.

An in-line filter will clean the soil vapor stream of virtually all particulate matter greater than 10 microns to protect the blower and vapor phase VGAC from fouling.

2.11.4 Soil Vapor Extraction System Piping and Flow Controls

The proposed extraction wells will be piped together in three separate inlets to the control manifold within the SVE Equipment Area shown in **Figure 4** via 2 and 3-inch diameter PVC pipe. The piping will slope towards the wells to drain any accumulated condensate.

Manually actuated ball valves will be used to isolate wells from the control manifold and to control the flow from a given well. Each well lateral will be fitted with a ¼-inch monitoring port to allow for the measurement of soil vapor VOC concentration, flow and pressure. The flow control valves for the soil vapor extraction wells will be located at each wellhead.

2.11.5 Air Treatment System

The air treatment system consists of a moisture separator (condensate knockout drum) and particulate filter for the blower and two 1,000-lb vapor phase granular activated carbon (VGAC) units. A process flow schematic of the air treatment system is illustrated on **Figure 4**.

The flow of air drawn from the SVE extraction wells will contain volatilized VOCs, water vapor, liquid water and particulates. Pretreatment via the moisture knock-out drum and in-line filter of the air stream will protect down stream equipment and lengthen the effective life of the air treatment system.

Removal of the target compounds from the air stream will be accomplished using two vapor-phase VGAC units. The VGAC units will be kept under pressure by locating the blower upstream of the units. This aids in sample collection from ports located downstream of the SVE blower, and helps to lower the relative humidity of the influent vapors due to heating through the blower.

2.11.6 Moisture Separator

The air stream from the SVE extraction wells will contain volatilized VOCs, water vapor, liquid water and particulates. The cyclonic knockout drum will remove liquids entrained in the soil vapor. The drum will be equipped with a high-level sensor that will automatically shut down the SVE system when an excessive amount of liquid accumulates in the separator. Sampling and analysis of the condensate will be performed in accordance with the Monitoring Plan (Section 4.2).

The knockout drum will be equipped with a float ball as a mechanical fail-safe overflow protection mechanism. In the event that the high-level sensor is not operating properly, a float ball will plug the outlet to the drum. This will block all flow from the SVE wells and activate the built-in vacuum relief valve on the moisture separator. If this occurs, the low pressure switch on the SVE manifold will be triggered, activating an alarm light and causing the SVE blower to shut down.

2.11.7 Particulate Filter

A polyester air filter will clean the air stream of virtually all particulate matter greater than 10 microns to protect the blower and vapor phase VGAC from fouling. A similar, but separate filter is provided for each bleed air inlet.

2.11.8 VVGAC Units

Two 1,000-lb vapor phase granular activated carbon (VGAC) units, piped in series, will treat the filtered air from the blower as depicted in **Figure 4**. The units will be capable of accepting a flow of at least 200 scfm. Sampling and analysis of the air stream will be conducted to evaluate the performance of the air treatment system in accordance with the Monitoring Plan (Section 4.2).

2.11.9 Process Control

The intent of this system design is to make it as dependable and simple to operate as possible so that it requires minimal operator interaction, and is easy to stop and restart when necessary. Under normal operating conditions, once per month a W&C employee will collect data, adjust operating parameters, and perform routine maintenance at the site.

2.11.10 Power Distribution

The main service supplied to the SVE Equipment Area is single phase, 240 VAC.

The area lights, power receptacle, ventilation fan and any other equipment less than 1 hp that may be incorporated in the future, will be serviced by single phase 120 VAC which will be supplied through the 240VAC, single-phase panel board.

2.11.11 Control Systems

Under normal circumstances, the SVE system will operate continuously, with no change in operating parameters. There are two automated control systems:

1. The moisture separator high-level switch (LSH) will shut off the SVE Blower in the event that the liquid level in the condensate knock-out drum rises to the switch level.
2. The SVE Blower influent vacuum switch (PI) will shut off the SVE Blower in the event that the influent vacuum is too high or too low.

2.11.12 System Alarms

There are four conditions that will cause the system alarms to activate:

1. The vacuum from SVE Blower, measured upstream of the condensate knock-out drum, is too low.

   Potential Causes: a) Overfill of the knock-out drum caused the fail-safe ball valve to block the flow of soil vapor through the system; b) clogged in-line air filter; or c) SVE Blower malfunction.

   Resulting Action: SVE Blower will shut down and the alarm light outside the treatment area will activate.

2. The vacuum from SVE Blower, measured upstream of the moisture separator (MS), is too high.

   Potential Cause: a) Freezing or other blockage in the SVE manifold.

   Resulting Action: SVE Blower will shut down.

3. Condensate in knock-out drum has triggered the high-level switch.

   Potential Cause: a) Entrainment of water in the air stream from the extraction wells is occurring.

   Resulting Action: SVE Blower will shut down.

4. The emergency stop button on the main control panel has been activated or there has been a power failure.

   Resulting Action: SVE Blower will shut down.

2.11.13 Implementation Schedule

The estimated construction schedule for constructing the SVE system is presented in **Table 1**. Level D personal protection has been assumed for all system construction activities.

Table 1: SVE System Proposed Construction and Startup Schedule

Activity	Estimated Duration	Proposed Dates of Activities
Installation of SVE wells	1 week	July 2010
Above Slab Plumbing	2 weeks	July 2010
Equipment Installation	1 – 2 weeks	August 2010
Plumbing and Electrical Work within Treatment Area	1-2 weeks	August 2010
System Startup	1 month	September 2010

2.11.14 Management of Treatment Residual

All remediation wastes generated during the construction of the SVE system will be containerized and disposed of in accordance with all State and Federal requirements.

All spent vapor phase VGAC units will be disposed of in accordance with all applicable State and Federal requirements.

3. CONSTRUCTION PLAN

3.1 CONSTRUCTION MONITORING PLAN

These procedures are intended as general guidelines to be followed during implementation of remedial activities. Specific procedures (e.g., health and safety plans) are contained elsewhere in this report or will be prepared by W&C as part of final construction documents.

3.2 SITE ADMINISTRATION

W&C will be responsible for maintaining appropriate health and safety, administrative, project management, and site security procedures. These procedures will include the following:

1. Follow the approved Health and Safety Plan that covers personnel at the site.

2. Assemble a project management team to include a project manager and the necessary administrative and technical personnel required to manage all aspects of the work. The Project Manager or his construction manager designee will have overall responsibility for the remedial construction project and will be the primary contact for all communication between W&C, involved authorities, and the site owner.

3. W&C will restrict access to project work areas to authorized personnel only.

3.3 CONSTRUCTION DUTIES STATEMENT

W&C's responsibilities and duties include the following activities:

1. Track and maintain the construction project schedule;

2. Participate in pre-construction conferences and arrange progress meeting and other job conferences, as necessary;

3. Respond to questions or requests for clarification received from construction contractors, and assist the contractor in obtaining additional job site details and information required for proper execution of the work; and

4. Record major conflicts observed or known to have occurred in the field, and any errors or inconsistencies in the design plans or specifications.

3.4 SECURITY PLAN

This security plan is intended to minimize potential health risks to the public and prevent loss or damage of equipment due to unauthorized persons on-site. This plan incorporates construction and operational procedures, and the installation of long-term security features around equipment and facilities.

3.4.1 Construction and Operation Security Procedures

A secure chain-link fence with a locked gate controls access to the Site. Access to the project work areas will be restricted to authorized personnel only. All visitors will be accompanied at all times by W&C personnel. Signs will be posted with W&C contact numbers if access to the Site building is necessary.

3.5 PERMITS

As required by the MCP (310 CMR 40.0874(3)(f)), the following is a list of necessary federal, state or local permits, licenses and/or approvals required for the design, construction and/or operation of the selected remedial action:

Federal: No federal permits are anticipated.

State: No state permits are anticipated.

City of Boston: Electrical Permit.

4. OPERATION, MAINTENANCE AND MONITORING PLAN

The operation and maintenance procedures for the remedial design include startup, testing, maintenance and monitoring of the SVE system.

4.1 SVE SYSTEM OPERATION PROCEDURES

This section presents the person(s) conducting O&M and/or monitoring activities, as required by the Section 40.0874 of the MCP, startup and shutdown procedures for the SVE system. Normal operating procedures, emergency shutdowns, and important maintenance issues are also discussed.

4.1.1 Person(s) Conducting O&M and/or Monitoring Activities

Dan Clinton
Scientist
Woodard & Curran, Inc.
980 Washington Street, Suite 325
Dedham, MA 02026
Phone: (800) 446-5518

Sean Driscoll
Engineer
Woodard & Curran, Inc.
95 Cedar Street, Suite 100
Providence, RI 02903
Phone: (800) 985-7897

4.1.2 Startup Procedures

There is one mechanical system component that requires startup: the SVE blower. This component will start if placed in Auto mode, as long as there are no existing alarm conditions. The operator can restart the system following an alarm condition once the alarm condition is attended to and is acknowledged at the control panel. The general startup procedure is as follows:

SVE SYSTEM

1. Examine the SVE system to ensure that all valving is in the proper position.
2. At the main control panel, turn the hand switch for the SVE blower to “Auto”.

4.1.3 Shutdown Procedures

The general system shutdown procedure is at the main control panel. Turn the hand switch for the SVE blower to “Off”.

4.1.4 VGAC Replacement

The system is equipped with two vapor phase granular activated carbon (VGAC) units connected in series. When soil vapor sampling and analysis, as described in Section 4.2, indicate that the vessels require replacement, the following procedure will be used:

1. Shut down the SVE system per the procedures listed in Section 4.1.3;
2. Disconnect the inlet and outlet hoses to/from the VGAC units at the quick disconnect couplings;
3. Remove the quick disconnect fittings from the inlet and outlet of each VGAC unit;
4. Remove both units;
5. Replace with fresh VGAC units;
6. Install the quick disconnect fittings on the inlet and outlet of each VGAC unit;
7. Reattach the inlet and outlet hoses to/from the VGAC units at the quick disconnect couplings; and
8. Restart the SVE system per the procedures listed in Section 4.1.2.

The spent carbon units will be transported and disposed of in accordance with the applicable local, State, and Federal regulations.

4.1.5 Normal Operating Conditions

In general, total SVE flow rates will be established during the initial system startup, and are not expected to vary significantly during the operating life of the system. However, the flows from individual extraction wells may be changed slightly from month to month in order to maximize contaminant removal and/or encourage new vapor flow pathways.

4.1.6 SVE System Operation

In order to assess that the SVE system is adequately capturing all extracted air, the vapor monitoring wells present at the Site will periodically be monitored for vacuum. This will be accomplished by connecting a pressure gauge sensitive to 0.01 iwg to the monitoring port on the SVE monitoring point. The vacuum at all perimeter-monitoring points should be greater than or equal to 0.0 iwg (i.e. the vapor monitoring wells and SSDS monitoring points should not be under pressure). If the perimeter monitoring point(s) are under pressure, the flow to individual extraction wells and/or air sparge points should be adjusted to prevent this condition from occurring.

The expected total soil vapor flow rate to the SVE system is approximately 200 scfm. It is anticipated that the SVE flow rate will always be maintained at the highest level possible. However, as remediation progresses, individual extraction well flow rates may be altered in order to maximize subsurface contaminant removal and/or encourage new vapor flow pathways.

4.1.7 Emergency Shutdown Procedures

If system operations must be terminated quickly due to emergencies, the power to the system can be terminated at the main breaker. Under non-emergency circumstances, the system should be shut down in accordance with Section 4.1.3.

4.1.8 Initial Operating Period

Upon startup of the SVE system, the system will be operated continuously. Monitoring will be conducted more frequently during the first month of operation than in later stages of operation, to verify 95% removal of VOCs in the treated soil vapors. W&C personnel will be on-site for at least the first two days

of system operation, as well as days 7, 14, and 28. After the first 28 days of system operation, W&C will conduct system monitoring and maintenance on a monthly basis. W&C personnel may increase on-Site time based upon the results of the first two days of system operation monitoring.

4.1.9 Scheduled System Maintenance

Maintenance interval categories have been developed to provide necessary equipment service and consolidate service tasks to minimize labor requirements. A summary of maintenance items that will be conducted on a monthly basis is presented below:

- Check the VGAC piping for tight connections and tighten if necessary;
- Inspect and clean or replace the filter elements for the SVE blower, if required;
- Replace the VGAC units, if necessary, per Section 4.1.4;
- Clean the condensate discharge of any accumulated dirt or ice;
- Perform monitoring tasks as specified in Section 4.2.

4.2 SYSTEM MONITORING

4.2.1 Sampling Objectives

Throughout system operations, it will be necessary to collect sufficient data to characterize process streams and to evaluate the performance of the treatment system. Collected process data will be used to calculate system-operating efficiencies, to indicate when system modifications are needed, and to support regulatory reporting requirements.

A summary of the various monitoring programs is provided below. Process monitoring and sampling locations are shown on **Figure 4**.

4.2.2 Soil Vapor Monitoring

Soil vapors will be monitored at vapor monitoring wells and within the soil vapor treatment system. The monitoring necessary in each of these areas is discussed below.

4.2.3 In-Situ Vapor Monitoring

In order to optimize VOC removal and gauge the degree of remediation achieved by the SVE system, soil vapors will be monitored monthly at various in-situ locations. These locations include all of the SVE extraction wells. These locations will be monitored for VOCs with a PID.

4.2.4 Soil Vapor Treatment System

Massachusetts regulations specify 95% mass removal of total VOCs through the soil vapor treatment system. In order to quantify the degree of VOC removal through the vapor phase VGAC treatment train, soil vapors will be monitored at the inlet of the first VGAC unit, the inlet of the second VGAC unit and the outlet of the second VGAC unit. Samples will be collected and analyzed after 1, 7, 14, and 28 days of system operation. For these sample dates, a PID will be used to measure total VOCs at the three sampling

locations. In addition, the soil vapors will also be collected on three of these six dates and analyzed in accordance with USEPA Method TO-15 from the inlet of the first VGAC unit and the outlet of the second VGAC unit.

After 28 days of system operation, samples will be analyzed monthly at the three sample locations using a PID. Air samples collected from the VGAC train inlet and effluent will be analyzed by USEPA Method TO-15 on a quarterly basis.

The PID monitoring results will be compared to the compound-specific results of the Method TO-15 analyses to develop PID response factors. The PID results and the USEPA Method TO-15 analytical results will be used to calculate mass removal.

4.2.5 Condensate Discharge Monitoring

If a significant amount of condensate is captured within the moisture knock-out drum, this condensate will be characterized, transported, and disposed of in accordance with the applicable local, State, and Federal regulations. If condensate becomes a routine problem during system operation, modifications will be presented in via a RAM modification in order to resolve excessive condensate.

Table 2: Summary of Exterior and Interior Sub-Slab Soil Laboratory Analyses Volatile Organic Hydrocarbons (VOCs)

TABLE 2: Summary of Exterior and Interior Sub-Slab Soil Laboratory Analyses
Volatile Organic Hydrocarbons (VOCs)

Sample ID/Sample Interval	Most Stringent Applicable MCP S-1 Standards	GP-1/0-3'	GP-1/3-5'	GP-2/0-3'	GP-2/3-5'	GP-3/0-3'	GP-4/0-3'	GP-4/3-5'	GP-5/0-3'	GP-5/6-8'	GP-6/0-3'	GP-6/6-8'
Date Sampled		11/25/08	11/25/08	11/25/08	11/25/08	11/25/08	11/25/08	11/25/08	11/25/08	11/25/08	11/25/08	11/25/08
VOC Analytes												
1,1,1-trichloroethane	**500**	0.7	0.7	0.6	0.9	<0.2	0.5	0.4	<0.2	0.3	<0.1	<0.1
1,1-dichloroethane	**5**	0.8	3.0	0.4	1.6	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1
1,2,4-trichlorobenzene	**N/A**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	1.6	<0.2	<0.1	<0.1	<0.1
1,2,4-trimethylbenzene	**N/A**	1.1	<0.2	<0.2	1.7	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1
1,2-dichlorobenzene	**30**	2.9	<0.2	0.3	0.9	<0.2	0.6	<0.2	<0.2	<0.1	<0.1	<0.1
1,2-dichloroethane	**0.1**	*<0.2*	**0.3**	*<0.2*	*<0.2*	*<0.2*	*<0.2*	*<0.2*	*<0.2*	<0.1	<0.1	<0.1
1,3,5-trimethylbenzene	**N/A**	0.6	<0.2	<0.2	0.7	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1
1,4-dichlorobenzene	**4**	0.3	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1
2-butanone (MEK)	**50**	<0.6	2.0	<0.5	0.6	<0.5	<0.5	<0.6	<0.5	<0.4	<0.4	<0.4
4-isopropyltoluene	**N/A**	<0.2	<0.2	<0.2	0.3	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1	<0.1
benzene	**30**	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1
chloroethane	**N/A**	<0.2	3.8	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1
cis-1,2-dichloroethene	**N/A**	7.7	2.6	2.8	9.6	<0.2	<0.2	<0.2	<0.2	2.5	<0.1	<0.1
ethylbenzene	**500**	1.1	0.7	<0.2	2.7	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1
xylenes (mixed isomers)	**300**	2.7	1.5	<0.2	5.7	<0.2	<0.2	<0.2	0.2	<0.1	<0.1	<0.1
methylene chloride	**N/A**	0.5	1.1	<0.4	1.6	<0.5	<0.4	0.7	<0.4	<0.3	<0.3	<0.4
naphthalene	**40**	<0.5	<0.4	<0.4	<0.4	0.6	<0.4	<0.5	<0.4	1.9	<0.3	<0.4
tetrachloroethene	**10**	2.6	1.5	4.7	1.7	0.4	6.4	3.4	0.2	2.5	0.3	0.9
toluene	**500**	12	18	0.2	14	< 0.2	0.3	0.5	<0.2	< 0.1	< 0.1	< 0.1
trans-1,2-dichloroethene	**1**	<0.2	<0.2	0.3	0.2	<0.2	<0.2	<0.2	<0.2	<0.1	<0.1	<0.1
trichloroethene	**2**	**2.2**	0.4	**18.0**	1.2	0.2	**2.0**	1.1	<0.2	**2.1**	<0.1	0.5

Sample ID/Sample Interval	Most Stringent Applicable MCP S-1 Standards	SS-1/0-3'	SS-1/3-4'	SS-2/0-3'	SS-2/3-5'	SS-3/0-3'	SS-3/3-5'	SS-4/0-3'	SS-4/3-4'	SS-5/0-3'	SS-5/3-5'	SS-6/0-3'
Date Sampled		11/26/08	11/26/08	11/26/08	11/26/08	11/26/08	11/26/08	11/26/08	11/26/08	11/26/08	11/26/08	11/26/08
VOC Analytes												
1,1,1-trichloroethane	**500**	4.1	0.2	59	76	370	160	100	**1300**	3.6	0.4	0.9
1,2,4-trimethylbenzene	**N/A**	<0.3	<0.1	<1.5	<1.8	52	21	<15	110	<0.3	<0.1	5.5
1,2-dichlorobenzene	**30**	<0.1	<0.3	<0.1	<1.5	<13	<11	**70**	**340**	<0.3	<0.1	<0.1
1,2-dichloroethane	**0.1**	*<0.3*	<0.1	*<1.5*	*<1.8*	*<13*	*<11*	*<15*	*<72*	*<0.3*	<0.1	*0.8*
1,3,5-trimethylbenzene	**N/A**	<0.3	<0.1	<1.5	<1.8	27	12	24	110	<0.3	<0.1	3.2
1,4-dioxane	**6**	*< 7*	< 4	*< 37*	*< 45*	*< 330*	*< 270*	*< 370*	*< 1800*	*< 7*	*< 3*	*< 4*
2-butanone (MEK)	**50**	<0.8	<0.4	<4.4	<5.4	<39	<32.6	<43.9	*<220*	<0.8	<0.4	0.5
4-isopropyltoluene	**N/A**	<0.3	<0.1	<1.5	<1.8	<13	<11	<15	<72	<0.3	<0.1	0.4
cis-1,2-dichloroethene	**N/A**	2.0	0.4	3.8	4.1	130	51	<15	<72	1.3	0.2	1.8
ethylbenzene	**500**	<0.3	<0.1	<1.5	<1.8	35	18	<15	<72	<0.3	<0.1	0.2
hexachlorobutadiene	**6**	< 0.3	<0.1	<1.5	<1.8	*<13*	*<11*	*<15*	*<72*	<0.3	<0.1	0.2
xylenes (mixed isomers)	**300**	<.3	<0.1	5.1	9.1	111	59	22	130	<0.3	<0.1	1.7
methylene chloride	**N/A**	3.2	<0.4	5.7	11	<33	<27	<37	<180	0.8	<0.3	5.9
naphthalene	**40**	< 0.7	< 0.4	< 3.7	< 4.5	< 33	< 27	< 37	*< 180*	< 0.7	< 0.3	2.7
n-propylbenzene	**N/A**	< 0.3	< 0.1	< 1.5	< 1.8	15	< 11	< 15	< 72	< 0.3	< 0.1	0.5
sec-butylbenzene	**N/A**	< 0.3	< 0.1	< 1.5	< 1.8	< 13	< 11	< 15	< 72	< 0.3	< 0.1	2.9
tetrachloroethene	**10**	**52**	1.8	**170**	**210**	**1400**	**710**	**1600**	**8000**	**77**	9.1	**21**
toluene	**500**	0.4	<0.1	2.5	6.8	<13	<11	<15	<72	0.6	<0.1	0.3
trans-1,2-dichloroethene	**1**	< 0.3	< 0.1	*< 1.5*	*< 1.8*	*< 13*	*< 11*	*< 15*	*< 72*	< 0.3	< 0.1	< 0.1
trichloroethene	**2**	**40**	1.2	**180**	**220**	**1600**	**780**	**200**	**1900**	**21**	1.2	**4.9**

Notes:

Highlighted values indicate MDL exceeds applicable S-1 Soil Standard.

Highlighted and bolded values exceed applicable S-1 Soil Standard.

Result units are in mg/kg unless otherwise noted.

MCP= Massachusetts Contingency Plan.

Values with "<" indicate that the analyte was not detected above laboratory detection limits.

TABLE 2: Summary of Exterior and Interior Sub-Slab Soil Laboratory Analyses
Volatile Organic Hydrocarbons (VOCs)

Sample ID/Sample Interval	Most Stringent Applicable MCP S-1 Standards	GP-7/0-3'	GP-7/7-10'	GP-8/0-3'	GP-8/10-12'	GP-9/0-3'	GP-11/0-3'	GP-12/10-12'
Date Sampled		11/25/08	11/25/08	11/25/08	11/25/08	11/25/08	11/25/08	11/25/08
VOC Analytes								
1,1,1-trichloroethane	500	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
1,1-dichloroethane	5	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.2
1,2,4-trichlorobenzene	N/A	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
1,2,4-trimethylbenzene	N/A	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
1,2-dichlorobenzene	30	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
1,2-dichloroethane	0.1	<0.1	*<0.2*	<0.1	<0.1	*<0.2*	<0.1	<0.1
1,3,5-trimethylbenzene	N/A	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
1,4-dichlorobenzene	4	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
2-butanone (MEK)	50	<0.4	<0.7	<0.4	<0.4	<0.6	<0.4	<0.4
4-isopropyltoluene	N/A	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1	<0.1
benzene	30	<0.1	<0.2	<0.1	<0.1	<0.2	0.2	<0.1
chloroethane	N/A	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
cis-1,2-dichloroethene	N/A	<0.1	0.9	<0.1	<0.1	0.3	<0.1	<0.1
ethylbenzene	500	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
xylenes (mixed isomers)	300	0.2	<0.2	0.2	0.2	<0.2	<0.1	<0.1
methylene chloride	N/A	<0.4	<0.6	<0.3	<0.4	<0.5	<0.4	<0.3
naphthalene	40	<0.4	<0.6	<0.3	<0.4	0.6	<0.4	<0.3
tetrachloroethene	10	<0.1	<0.2	<0.1	<0.1	0.2	<0.1	0.1
toluene	500	< 0.1	<0.2	< 0.1	<0.1	< 0.2	< 0.2	< 0.2
trans-1,2-dichloroethene	1	<0.1	<0.2	<0.1	<0.1	<0.2	<0.1	<0.1
trichloroethene	2	<0.1	**6.6**	<0.1	<0.1	1.6	<0.1	0.3

Sample ID/Sample Interval	Most Stringent Applicable MCP S-1 Standards	SS-6/3-5'	SS-7/0-3'	SS-7/3-4'	SS-8/0-3'	SS-8/3-5'
Date Sampled		11/26/08	11/26/08	11/26/08	11/26/08	11/26/08
VOC Analytes						
1,1,1-trichloroethane	500	2.4	8.2	8.4	2.5	1.0
1,2,4-trimethylbenzene	N/A	10	<0.8	<0.3	0.3	3.1
1,2-dichlorobenzene	30	1	<0.8	0.5	0.3	0.5
1,2-dichloroethane	0.1	*<0.8*	*1.6*	*<0.3*	*0.4*	*<0.2*
1,3,5-trimethylbenzene	N/A	4.4	<0.8	<0.3	<0.3	1.2
1,4-dioxane	6	*< 19*	**21**	**14**	*<7*	<4
2-butanone (MEK)	50	<2.3	<2.4	<0.9	1.6	<0.5
4-isopropyltoluene	N/A	1.2	<0.8	<0.3	<0.3	<0.2
cis-1,2-dichloroethene	N/A	3.3	1.5	2.4	8.9	6.2
ethylbenzene	500	1.2	<0.8	0.5	<0.3	<0.2
hexachlorobutadiene	6	<0.8	<0.8	<0.3	<0.3	<0.2
xylenes (mixed isomers)	300	4.8	<0.8	1.2	<0.3	1.3
methylene chloride	N/A	2.2	<2	<0.7	0.8	<0.4
naphthalene	40	3.4	<2	<0.7	<0.7	0.4
n-propylbenzene	N/A	1.0	< 0.8	< 0.3	< 0.3	0.4
sec-butylbenzene	N/A	1.8	< 0.8	0.5	< 0.3	< 0.2
tetrachloroethene	10	**43**	**160**	**50**	**43**	**16**
toluene	500	<0.8	<0.8	0.4	0.9	1.1
trans-1,2-dichloroethene	1	< 0.8	< 0.8	< 0.3	< 0.3	0.2
trichloroethene	2	**2.3**	**23**	**8.6**	1.5	0.5

Notes:

Highlighted values indicate MDL exceeds applicable S-1 Soil Standard.

Highlighted and bolded values exceed applicable S-1 Soil Standard.

Result units are in mg/kg unless otherwise noted.

MCP= Massachusetts Contingency Plan.

Values with "<" indicate that the analyte was not detected above laboratory detection limits.

Table 3: Summary of Soil Gas Analytical Results (March 2006)

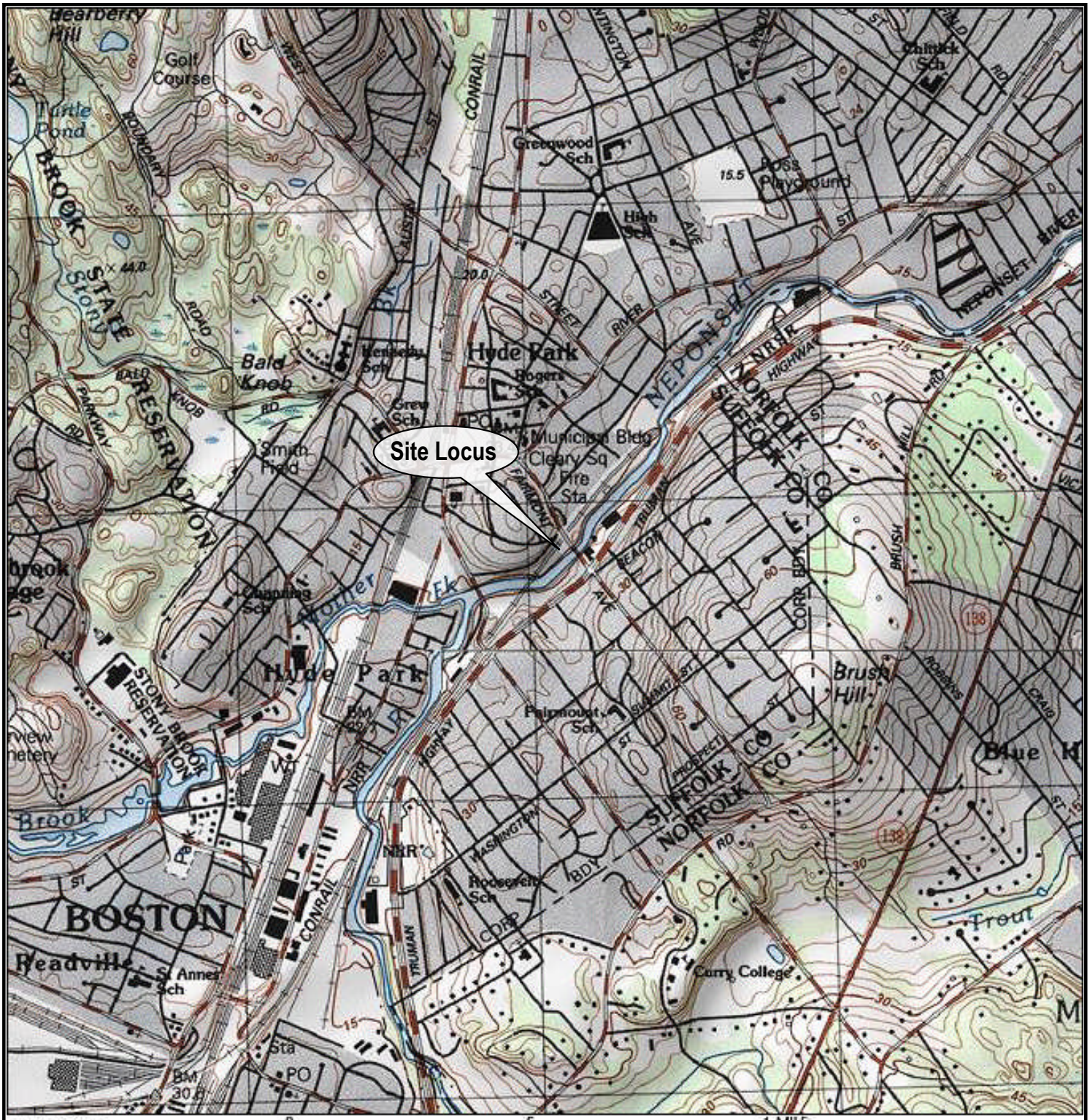
TABLE 3

SUMMARY OF SOIL GAS ANALYTICAL RESULTS (MARCH 2006)

(All results in ug/m3)

Analyte	Date Sampled	Sample ID					
		SG-01	SG-02	SG-03	SG-04	SG-05	SG-06
1,1,2-Trichloro-1,2,2-Trifluoroethane	3/29/2006	3070	16200	39200	284000	562000	886000
Methylene chloride	3/29/2006	6280	15600	<12100	25900	<11500	23500
Xylenes (Total)	3/29/2006	<3410	<13200	<15100	35200	<14300	121200
Tetrachloroethene	3/29/2006	157000	1920000	1150000	2360000	1300000	1080000
Toluene	3/29/2006	<1480	<5730	<6560	80600	<6230	46000
trans-1,2-Dichloroethene	3/29/2006	1970	21200	<6910	<7100	<6550	<6800
Trichloroethene	3/29/2006	50600	201000	360000	1320000	1720000	1730000
Vinyl Chloride	3/29/2006	<1000	29000	<4450	5860	<4220	<4380
1,1,1-Trichloroethane	3/29/2006	61600	1480000	294000	1440000	1590000	1930000
1,1-Dichloroethane	3/29/2006	4820	26100	<7050	<7250	22900	32600
1,1-Dichloroethene	3/29/2006	<1560	8040	<6910	8030	14200	79200
1,2,4-Trimethylbenzene	3/29/2006	2360	<7470	<8560	<8810	<8120	<8430
1,2-Dichloroethane	3/29/2006	<1590	<6150	<7050	<7250	<6690	21500
cis-1,2-Dichloroethene	3/29/2006	43900	1430000	15500	812000	134000	191000
Ethylbenzene	3/29/2006	<1710	<6600	<7560	11900	<7170	20400

Figure 1: Site Locus



Base Map Source:
TOPO!™ © 2000
Wildflower Productions

LAT: 42°15'11.00"
LONG: 71°07'10.09"

DES.BY:	DR.BY: MES	CK.BY: CB

12-24 Fairmount Court
Hyde Park, MA 02136

FIGURE 1
SITE LOCUS

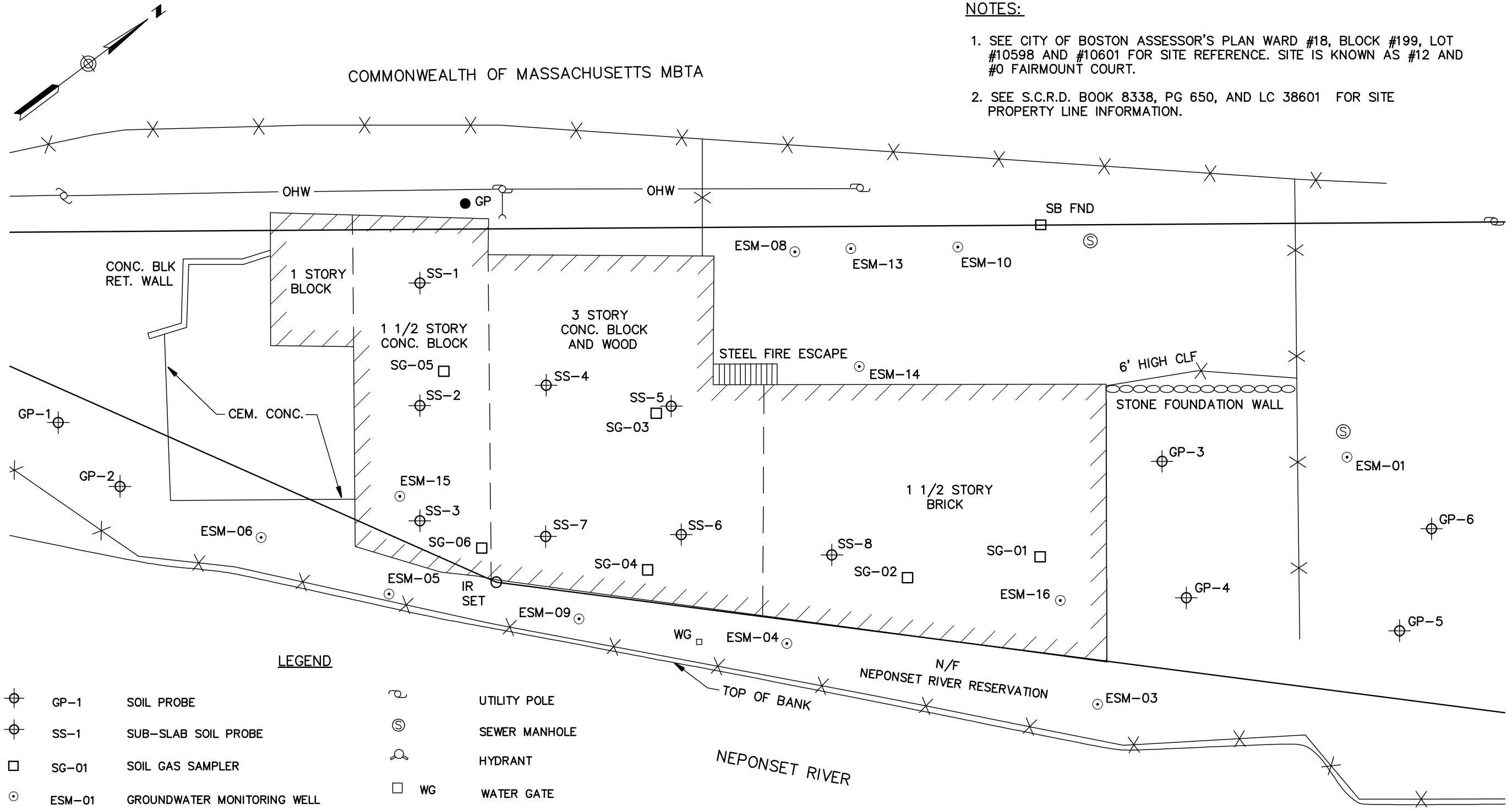
SCALE: AS SHOWN	JOB NO.: 221375.01
DATE: JULY 2010	FILE NAME:

WOODARD &CURRAN
COMMITMENT & INTEGRITY
DRIVE RESULTS
980 Washington St, Suite 325
Dedham, MA 02026
T: 800.446.5518

Figure 2: Site Plan

NOTES:

1. SEE CITY OF BOSTON ASSESSOR'S PLAN WARD #18, BLOCK #199, LOT #10598 AND #10601 FOR SITE REFERENCE. SITE IS KNOWN AS #12 AND #0 FAIRMOUNT COURT.
2. SEE S.C.R.D. BOOK 8338, PG 650, AND LC 38601 FOR SITE PROPERTY LINE INFORMATION.



LEGEND

GP-1	SOIL PROBE		UTILITY POLE
SS-1	SUB-SLAB SOIL PROBE	Ⓢ	SEWER MANHOLE
SG-01	SOIL GAS SAMPLER		HYDRANT
ESM-01	GROUNDWATER MONITORING WELL	WG	WATER GATE
IR SET	IRON ROD SET	GP	GATE POST
SB FND	STONE BOUND FOUND	RET.	RETAINING
————	PROPERTY LINE	CEM. CONC.	CEMENT CONCRETE
FND	FOUND	CONC. BLK	CONCRETE BLOCK
		——x——x——	CHAIN LINK FENCE
		——OHW——	OVERHEAD WIRES

SITE PLAN

20 0 20 40

SCALE IN FEET

WOODARD & CURRAN
COMMITMENT & INTEGRITY DRIVE RESULTS
800 WASHINGTON STREET
DEDHAM, MASSACHUSETTS 02026
781.251.0200 | www.woodardcurran.com

SITE PLAN

CHECKED BY: CB
221375-SITE PLAN FIG 2.dwg
DESIGNED BY: JAR
DRAWN BY: JAR

CITY OF BOSTON
DEPARTMENT OF
NEIGHBORHOOD DEVELOPMENT

FORMER LEWIS CHEMICAL SITE

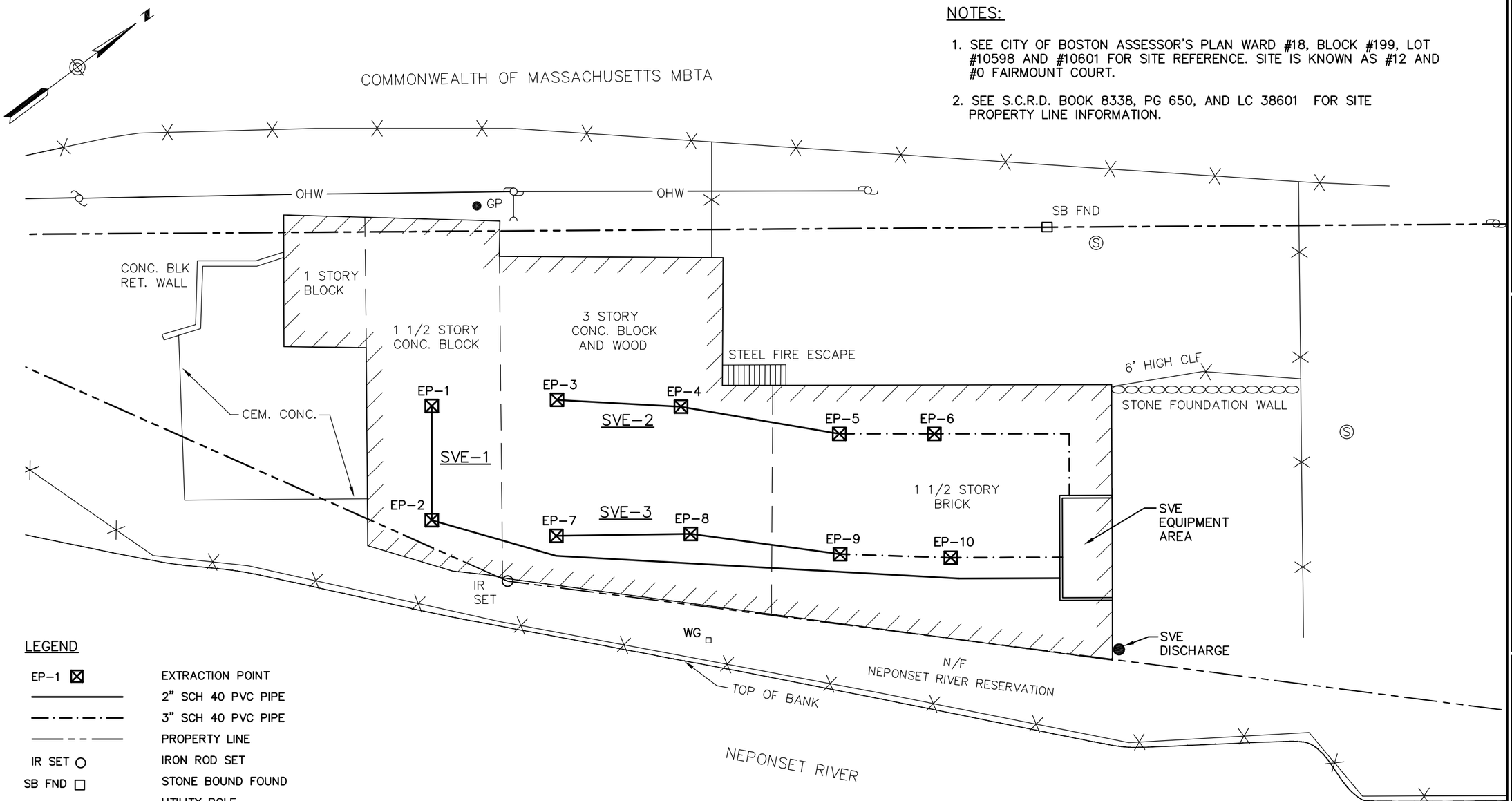
JOB NO: 221375
DATE: JULY 2010
SCALE: 1" = 20'

FIGURE 2

Figure 3: SVE System Piping Layout

NOTES:

1. SEE CITY OF BOSTON ASSESSOR'S PLAN WARD #18, BLOCK #199, LOT #10598 AND #10601 FOR SITE REFERENCE. SITE IS KNOWN AS #12 AND #0 FAIRMOUNT COURT.
2. SEE S.C.R.D. BOOK 8338, PG 650, AND LC 38601 FOR SITE PROPERTY LINE INFORMATION.



LEGEND

EP-1 ⊠	EXTRACTION POINT
———	2" SCH 40 PVC PIPE
—·—·—	3" SCH 40 PVC PIPE
— — —	PROPERTY LINE
IR SET ○	IRON ROD SET
SB FND □	STONE BOUND FOUND
	UTILITY POLE
Ⓢ	SEWER MANHOLE
	HYDRANT
WG □	WATER GATE
GP ●	GATE POST
RET.	RETAINING
CEM. CONC.	CEMENT CONCRETE
CONC. BLK	CONCRETE BLOCK
—x—x—	CHAIN LINK FENCE
—OHW—	OVERHEAD WIRES

20 0 20 40

SCALE IN FEET

980 WASHINGTON STREET
DEDHAM, MASSACHUSETTS 02026
781.251.0200 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

SVE SYSTEM PIPING LAYOUT

CHECKED BY: SLD
221375-SVE-Layout-FIG-1.dwg
DESIGNED BY: DRC
DRAWN BY: GA

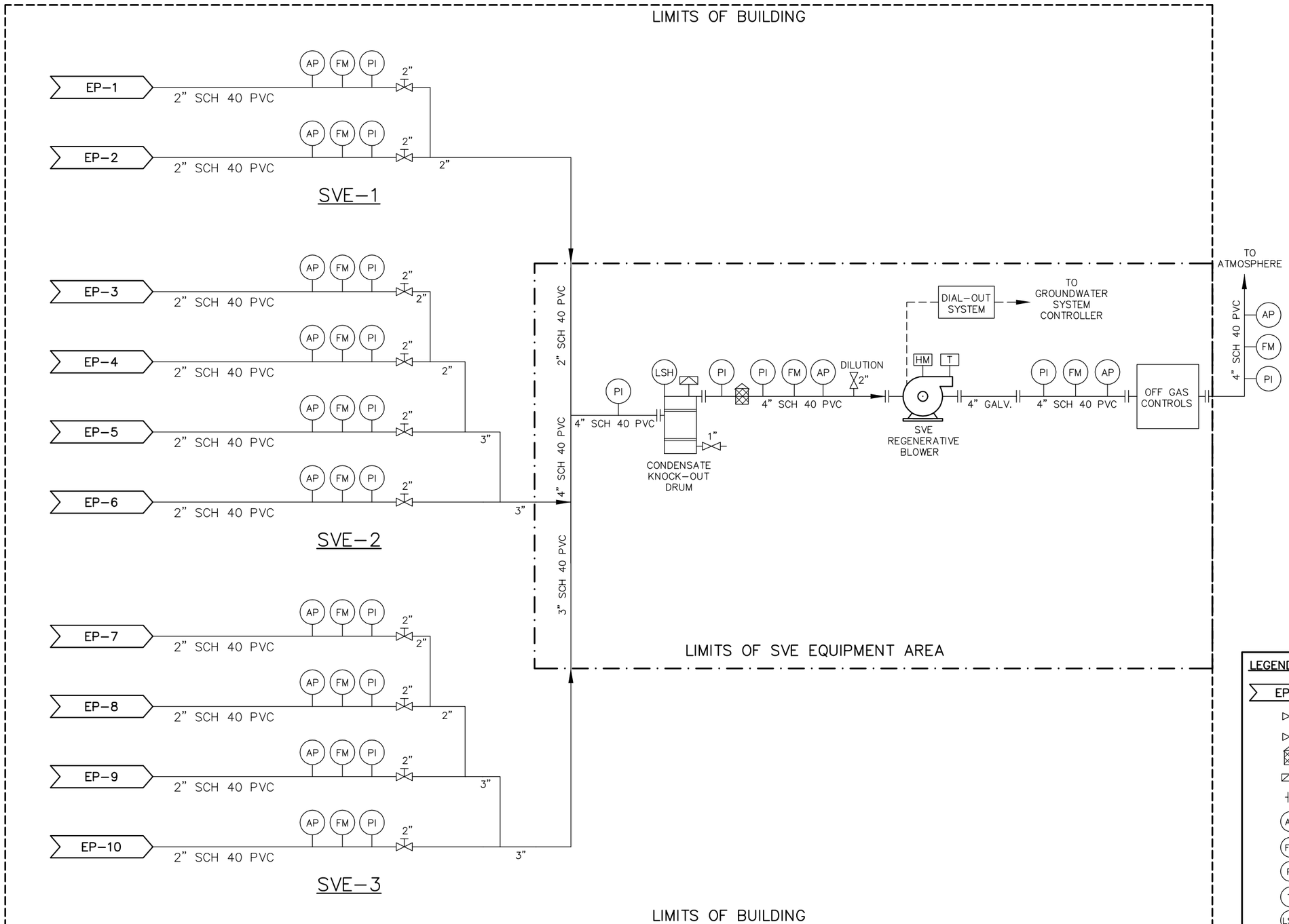
CITY OF BOSTON
DEPARTMENT OF
NEIGHBORHOOD DEVELOPMENT

FORMER LEWIS CHEMICAL SITE

JOB NO: 221375
DATE: AUGUST 2009
SCALE: 1" = 20'

FIGURE 3

Figure 4: SVE Piping and Instrumentation Diagram



LEGEND:

EP-1	SVE EXTRACTION POINT
	GATE VALVE
	BALL VALVE
	PARTICULATE FILTER
	VACUUM RELIEF VALVE
	GALVANIZED UNION
AP	ANALYSIS PORT
FM	FLOW MEASUREMENT PORT
PI	PRESSURE INDICATOR
TI	TEMPERATURE INDICATOR
LSH	LEVEL SWITCH HIGH
HM	HOUR METER
T	TIMER

980 WASHINGTON STREET
DEDHAM, MASSACHUSETTS 02026
781.251.0200

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

SVE PIPING AND INSTRUMENTATION DIAGRAM

CHECKED BY: SLD
221375-SVE-PID_FIG-2.dwg
DESIGNED BY: DRC
DRAWN BY: GA

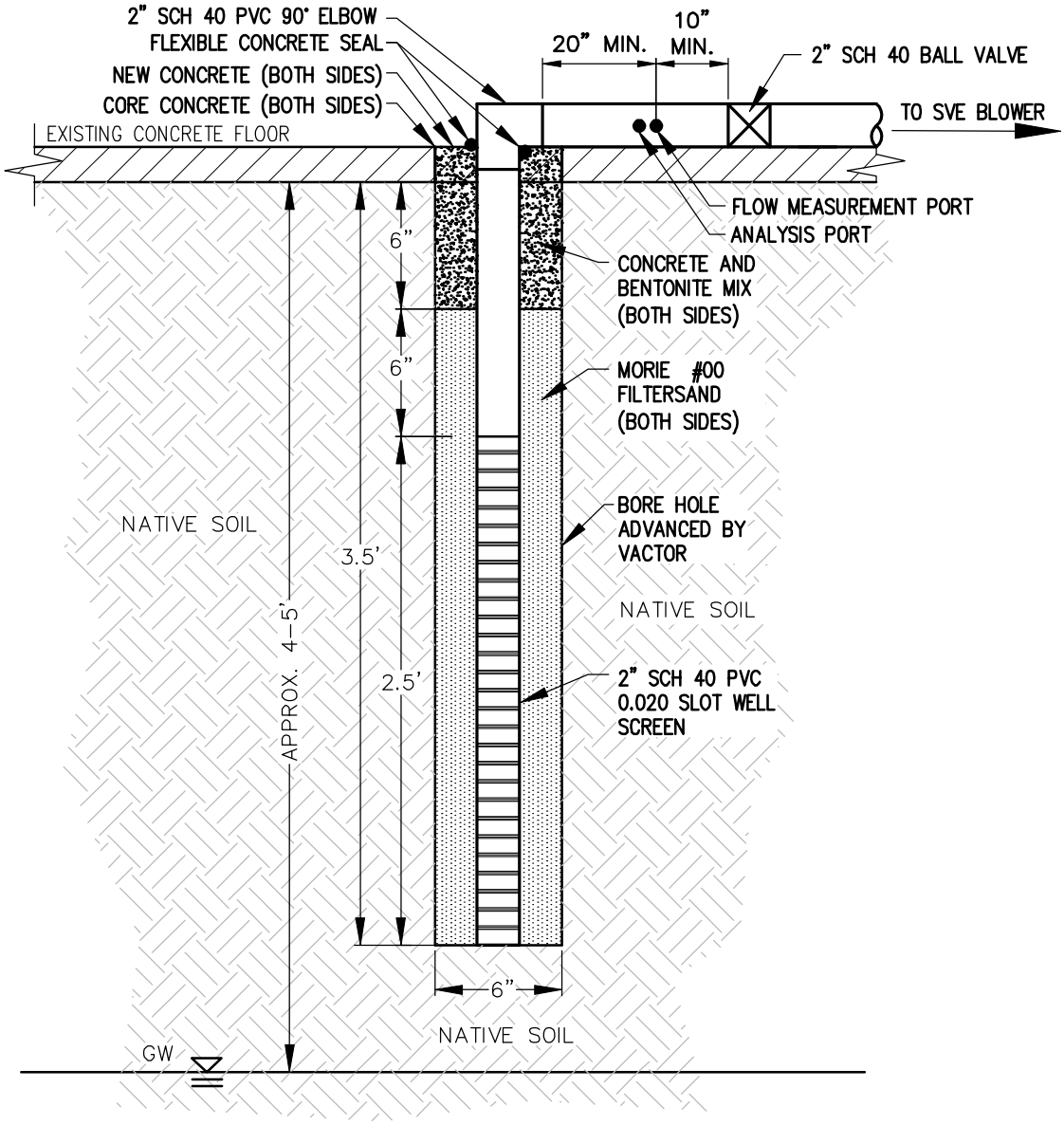
CITY OF BOSTON
DEPARTMENT OF
NEIGHBORHOOD DEVELOPMENT

FORMER LEWIS CHEMICAL SITE

JOB NO: 221375
DATE: AUGUST 2009
SCALE: N.T.S.

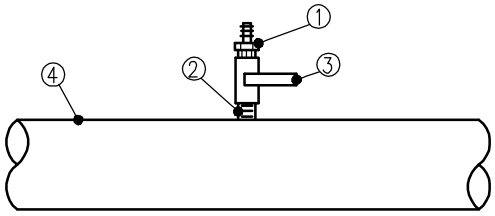
FIGURE 4

Figure 5: SVE Extraction Point and Piping Detail



SVE EXTRACTION POINT DETAIL

NOT TO SCALE

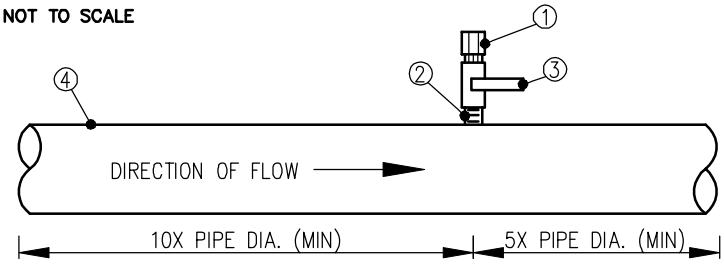


KEY:

① – 1/4" MNPT x3/16" ID TUBING BRASS BARBED FITTING
② – 1/4" GALVANIZED CLOSE NIPPLE
③ – 1/4" BRASS BALL VALVE
④ – SVE PIPING

(PRESSURE, TVOC–PID) ANALYSIS PORT DETAIL (TYP)

NOT TO SCALE



KEY:

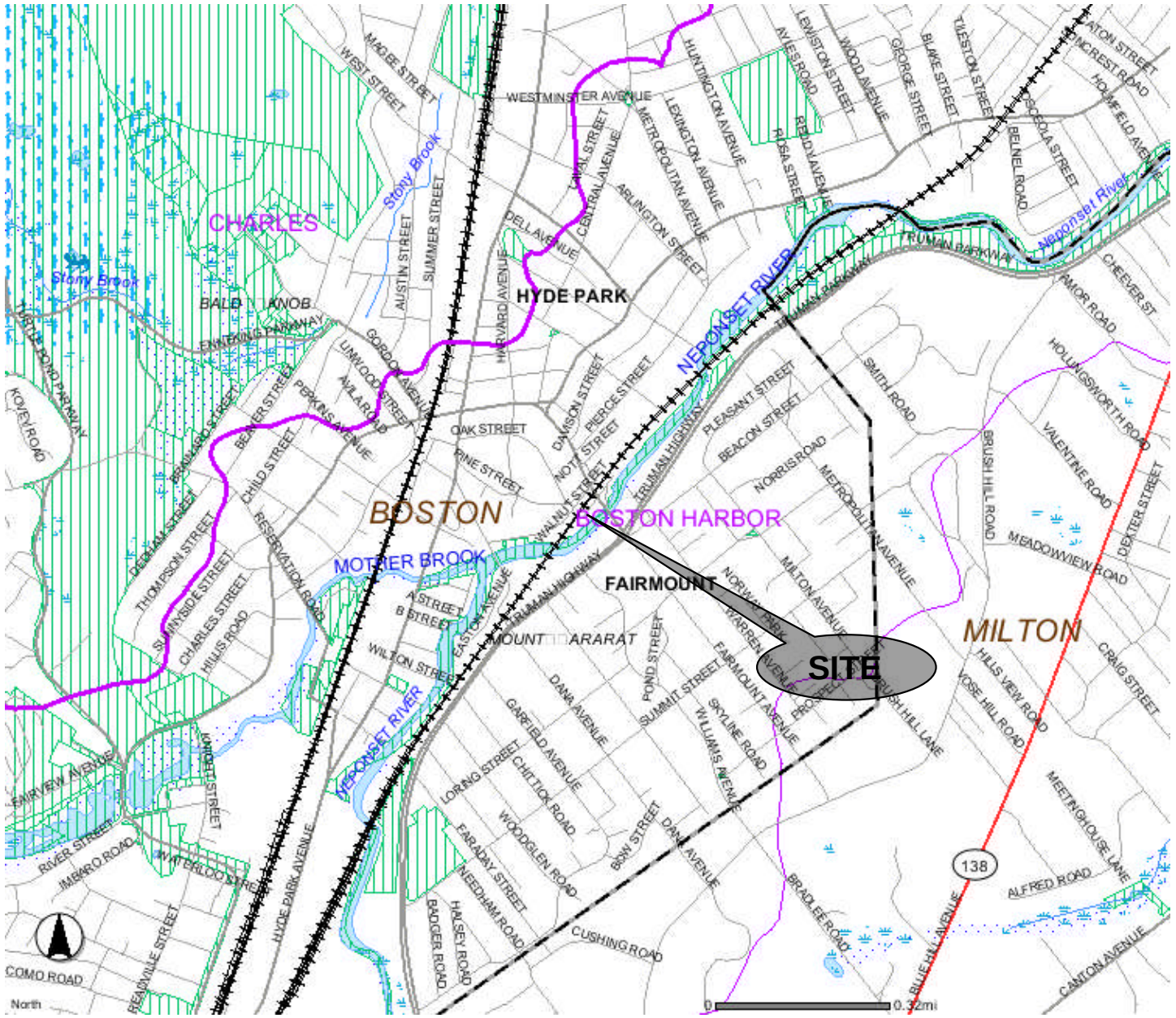
① – SWAGE LOCK FITTING (CAMBRIDGE MODEL # B–600–1 (8 BT 3/8" I.D. x 1/2" MNPT)
② – 1/2" GALVANIZED CLOSE NIPPLE
③ – 1/2" BRASS BALL VALVE, BORE THROUGH
④ – SVE PIPING

(PITOT TUBE / ANEMOMETER) FLOW MEASUREMENT PORT DETAIL (TYP)

NOT TO SCALE

WOODARD &CURRAN | www.woodardcurran.com COMMITMENT & INTEGRITY DRIVE RESULTS	SVE EXTRACTION POINT AND PIPING DETAILS	CITY OF BOSTON DEPARTMENT OF NEIGHBORHOOD DEVELOPMENT	JOB NO: 221375
	DESIGNED BY: DRC, SLD / CHECKED BY: SLD		DATE: AUGUST 2009
	DRAWN BY: GA / 221375-SVE-DETAIL_FIG-3.dwg	FORMER LEWIS CHEMICAL SITE	SCALE: N.T.S.
			FIGURE 5

APPENDIX A: MASSACHUSETTS GEOGRAPHIC INFORMATION SYSTEM (MASSGIS) SITE SCORING MAP



COMMITMENT & INTEGRITY DRIVE RESULTS
980 Washington St, Suite 325
Dedham, MA 02026
T: 800.446.5518

SITE SCORING MAP

12-14 FAIRMOUNT COURT, HYDE PARK, MA

DESIGNED BY:	CHECKED BY: DC
DRAWN BY: MES	

JOB NO.: 221375.01
DATE: JULY 2010
SCALE:

APPENDIX B: SOIL BORING LOGS

ATTACHMENT 2

BORING LOGS

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** SS-1

START DATE:	November 26, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	6 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 4 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-2'	12"/24"	NA	**0'-2':** 0"-4": Concrete; 3"-24": dry to damp, light brown, fine SAND with little crushed Rock
1'				
2'	2-4'	12"/24"	NA	**2'-4':** 0"-12": dry to damp, brown, very fine SAND (petro odor)
3'				
4'	4-6'	24"/24"	NA	**4'-6':** 0"-24": Saturated, brown, very fine SAND (petro odor)
5'				
6'				**Soil samples SS-1 (0-3') and SS-1 (3-5') collected on 11/26/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** SS-2

START DATE:	November 26, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	6 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 3 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'				
	0-2'	12"/24"	NA	**0'-2':** 0"-3": Concrete;
1'				3"-24": dry to damp, dark brown and black, fine SAND with little crushed Rock (petro odor)
2'				
	2-4'	12"/24"	NA	**2'-4':** 0"-12": dry to damp, dark brown and black, fine SAND (petro odor)
3'				
4'				
	4-6'	24"/24"	NA	**4'-6':** 0"-24": Saturated, dark brownish black, fine SAND, over gray, fine SAND (petro odor)
5'				
6'				**Soil samples SS-2 (0-3') and SS-2 (3-5') collected on 11/26/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** SS-3

START DATE:	November 26, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	5 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 4 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'				
	0-2'	12"/24"	NA	**0'-2':** 0"-3": Concrete;
1'				3"-24": dry to damp, dark brown and black, fine SAND with little crushed Rock (petro odor)
2'				
	2-4'	12"/24"	NA	**2'-4':** 0"-12": dry to damp, dark brown and black, fine SAND (petro odor)
3'				
4'				
	4-5'	18"/24"	NA	**3'-5':** 0"-6": damp to wet, dark brown and black, fine SAND (petro odor),
				6"-18": damp to wet, brown and black, fine and very fine SAND (petro odor), **Refusal @ 5'**
5'				**Soil samples SS-3 (0-3') and SS-3 (3-5') collected on 11/26/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** SS-4

START DATE:	November 26, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	6 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 4 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'				
	0-2'	12"/24"	NA	**0'-2':** 0"-4": Concrete;
1'				3"-24": dry, brown, fine SAND with little crushed Rock (petro odor)
2'				
	2-4'	12"/24"	NA	**2'-4':** 0"-12": dry to damp, brown, fine SAND with little crushed Rock (petro odor)
3'				
4'				
	4-6'	24"/24"	NA	**4'-6':** 0"-24": Saturated, dark brownish black, coarse and fine SAND with little Rock
5'				
6'				**Soil samples SS-4 (0-3') and SS-4 (3-4') collected on 11/26/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** SS-5

START DATE:	November 26, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	6 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 4 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'				
	0-2'	12"/24"	NA	**0'-2':** 0"-4": Concrete;
1'				3"-24": dry, brown, fine SAND with little crushed Rock (petro odor)
2'				
	2-4'	12"/24"	NA	**2'-4':** 0"-12": dry to damp, brown, fine SAND with little crushed Rock (petro odor)
3'				
4'				
	4-6'	24"/24"	NA	**4'-6':** 0"-24": Saturated, dark brownish black, coarse and fine SAND with little Rock
5'				
6'				**Soil samples SS-5 (0-3') and SS-5 (3-4') collected on 11/26/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** SS-6

START DATE:	November 26, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	6 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 4 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'				
	0-2'	12"/24"	NA	**0'-2':** 0"-4": Concrete;
1'				3"-24": dry, brown, fine SAND with little crushed Rock (petro odor)
2'				
	2-4'	12"/24"	NA	**2'-4':** 0"-12": dry to damp, brown, fine SAND with little crushed Rock (petro odor)
3'				
4'				
	4-6'	24"/24"	NA	**4'-6':** 0"-24": Saturated, dark brownish black, coarse and fine SAND with little Rock
5'				
6'				**Soil samples SS-6 (0-3') and SS-6 (3-5') collected on 11/26/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** SS-7

START DATE:	November 26, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	6 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 4 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'				
	0-2'	12"/24"	NA	**0'-2':** 0"-4": Concrete;
1'				3"-24": dry, brown, fine SAND with little crushed Rock (petro odor)
2'				
	2-4'	12"/24"	NA	**2'-4':** 0"-12": dry to damp, brown, fine SAND with little crushed Rock (petro odor)
3'				
4'				
	4-6'	24"/24"	NA	**4'-6':** 0"-24": Saturated, dark brownish black, coarse and fine SAND with little Rock
5'				
6'				**Soil samples SS-7 (0-3') and SS-7 (3-4') collected on 11/26/08 for laboratory analysis.**

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TEST BORING LOG
20-24 Fairmount Court
Hyde Park, Massachusetts

Boring No.
SS-8

START DATE:	November 26, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	6 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 4 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'				
	0-2'	12"/24"	NA	**0'-2':** 0"-4": Concrete; 3"-24": dry, brown, fine SAND with little crushed Rock
1'				
2'				
	2-4'	12"/24"	NA	**2'-4':** 0"-12": dry to damp, brown, fine SAND with little crushed Rock (petro odor)
3'				
4'				
	4-6'	24"/24"	NA	**4'-6':** 0"-24": Saturated, dark brown, fine SAND and little Silt
5'				
6'				
				Soil samples SS-8 (0-3') and SS-7 (3-5') collected on 11/26/08 for laboratory analysis.

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** GP-1

START DATE:	November 25, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	10 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 5 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-5'	36"/60"	NA	**0'-5':** 0"-10": LOAM; 10"-24": dry, dark brown, fine and coarse SAND with little crushed brick 24"-36": dry to damp, dark brown, fine and coarse SAND (petro odor)
1'				
2'				
3'				
4'				
5'	5-10'	60"/60"	NA	**5'-10':** 0"-60": saturated, brown, fine SAND with little Rock (heavy solvent odor)
6'				
7'				
8'				
9'				
10'				**Soil samples GP-1 (0-3') and GP-1 (3-5') collected on 11/25/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** GP-2

START DATE:	November 25, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	10 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 5 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-5'	36"/60"	NA	**0'-5':** 0"-10": LOAM; 10"-24": dry, dark brown, fine and coarse SAND with little crushed brick 24"-36": dry to damp, dark brown, fine and coarse SAND (petro odor)
1'				
2'				
3'				
4'				
5'	5-10'	60"/60"	NA	**5'-10':** 0"-60": saturated, brown, fine SAND with little Rock (heavy solvent odor)
6'				
7'				
8'				
9'				
10'				**Soil samples GP-2 (0-3') and GP-2 (3-5') collected on 11/25/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** GP-3

START DATE:	November 25, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	5 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 4 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'				
	0-5'	46"/60"	NA	**0'-5':** 0"-10": LOAM;
1'				10"-12": damp (RAIN), brownish gray, fine SAND, over; saturated fine SAND
2'				
3'				
4'				
				Soil sample GP-3 (0-3') collected on 11/25/08 for laboratory analysis.
5'				

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** GP-4

START DATE:	November 25, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	10 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 5 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-5'	24"/60"	NA	**0'-5':** 0"-10": LOAM; 10"-12": damp (RAIN), brown, fine SAND with some crushed brick 10"-24": damp (RAIN), light brown, medium SAND (petro odor)
1'				
2'				
3'				
4'				
5'	5-10'	60"/60"	NA	**5'-10':** 0"-60": saturated, brown, fine SAND with little Rock
6'				
7'				
8'				
9'				
10'				**Soil samples GP-4 (0-3') and GP-4 (3-5') collected on 11/25/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** GP-5

START DATE:	November 25, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	15 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 12 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-5'	42"/60"	NA	**0'-5':** 0"-10": LOAM; 10"-12": damp (RAIN), brown, medium SAND 10"-24": damp (RAIN), light brown, medium SAND with little Rock 24"-36": dry, blackish brown, fine SAND **Soil sample GP-5 (0-3') collected on 11/25/08 for laboratory analysis.**
5'	5-10'	48"/60"	NA	**5'-10':** 0"-12": dry, blackish brown, fine SAND 12"-48": dry, orange brown, fine SAND (slight petro odor) with some crushed Rock. **Soil sample GP-5 (6-8') collected on 11/25/08 for laboratory analysis.**
10'	5-10'	40"/60"	NA	**10'-15':** 0"-12": dry to damp, brown, coarse and fine SAND 12"-40": wet, brown, fine SAND
15'				

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** GP-6

START DATE:	November 25, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	15 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 12 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-5'	42"/60"	NA	**0'-5':** 0"-7": LOAM; 7"-42": damp (RAIN), brown, medium and coarse SAND
1'				
2'				
3'				
4'				
5'				**Soil sample GP-6 (0-3') collected on 11/25/08 for laboratory analysis.**
	5-10'	42"/60"	NA	**5'-10':** 0"-12": dry, brown, fine SAND with some Rock 12"-30": dry, black, fine SAND (petro odor), over; brown, fine SAND with some crushed brick.
6'				
7'				
8'				
9'				
10'				**Soil sample GP-6 (6-8') collected on 11/25/08 for laboratory analysis.**
	5-10'	36"/60"	NA	**10'-15':** 0"-12": damp, brown, fine SAND 12"-36": wet, blackish gray, fine SAND with some Rock
11'				
12'				
13'				
14'				
15'				

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** GP-7

START DATE:	November 25, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	15 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 12 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-5'	36"/60"	NA	**0'-5':** 0"-7": LOAM; 7"-36": dry, brownish black, medium SAND with litle Rock
1'				
2'				
3'				
4'				
5'				**Soil sample GP-7 (0-3') collected on 11/25/08 for laboratory analysis.**
	5-10'	42"/60"	NA	**5'-10':** 0"-24": dry, brown, medium and fine SAND with some Rock 24"-42": dry, brownish grey, fine SAND (petroleum odor)
6'				
7'				
8'				
9'				
10'				**Soil sample GP-7 (7-10') collected on 11/25/08 for laboratory analysis.**
	5-10'	42"/60"	NA	**10'-15':** 0"-42": damp to wet, brown, medium and coarse SAND
11'				
12'				
13'				
14'				
15'				

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** GP-8

START DATE:	November 25, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	15 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 12 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-5'	42"/60"	NA	**0'-5':** 0"-7": LOAM; 7"-42": dry, brownish gray, coarse SAND with litle Rock **Soil sample GP-8 (0-3') collected on 11/25/08 for laboratory analysis.**
1'				
2'				
3'				
4'				
5'	5-10'	42"/60"	NA	**5'-10':** 0"-42": dry to damp, brownish gray, fine SAND with some Coal Ash at 6'
6'				
7'				
8'				
9'				
10'	5-10'	54"/60"	NA	**10'-15':** 0"-42": wet to saturated, brown, SAND, over; saturated, gray, fine SAND
11'				
12'				
13'				
14'				
15'				**Soil sample GP-8 (10-12') collected on 11/25/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** GP-9

				PAGE
START DATE:	November 25, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	
DRILLER:	Rich	BORING DEPTH (bgs):	15 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 12 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-5'	42"/60"	<0.1	**0'-5':** 0"-7": LOAM; 7"-24": dry, brownish gray, fine SAND with some Rock, 24"-36": dry, brown, fine and medium SAND.
1'				
2'				
3'				
4'				
5'				**Soil sample GP-9 (0-3') collected on 11/25/08 for laboratory analysis.**
	5-10'	12"/60"	<0.1	**5'-10':** 0"-12": dry, gray ash, over rbown fine SAND (very little recovery)
6'				
7'				
8'				
9'				
10'				
	5-10'	24"/60"	<0.1	**10'-15':** 0"-24": damp to wet, dark brown, fine SAND
11'				
12'				
13'				
14'				
15'				**Soil sample GP-9 (10-12') collected on 11/25/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** GP-10

START DATE:	November 25, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	15 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 12 feet	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-5'	36"/60"	<0.1	**0'-5':** 0"-7": LOAM; 7"-24": dry, brownish gray, fine SAND with some Rock, 24"-36": dry, brown, fine and medium SAND. **Soil sample GP-10 (0-3') collected on 11/25/08 for laboratory analysis.**
5'	5-10'	12"/60"	<0.1	**5'-10':** 0"-12": dry, dark brown, fine SAND (very little recovery)
10'	5-10'	24"/60"	<0.1	**10'-15':** 0"-24": damp to wet, dark brown, fine SAND **Soil sample GP-10 (10-12') collected on 11/25/08 for laboratory analysis.**

Woodard and Curran 980 Washington Street, Suite 325 Dedham, MA 02026	**TEST BORING LOG** 20-24 Fairmount Court Hyde Park, Massachusetts	**Boring No.** GP-11

START DATE:	November 25, 2008	DRILLING METHOD:	Geoprobe	
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore	**PAGE**
DRILLER:	Rich	BORING DEPTH (bgs):	15 feet	
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 13 fee	1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-5'	36"/60"	0.3	**0'-5':** 0"-7": LOAM; 7"-36": dry, gray, fine SAND and crushed concrete,
1'				
2'				
3'				
4'				
5'				**Soil sample GP-11 (0-3') collected on 11/25/08 for laboratory analysis.**
	5-10'	42"/60"	0.2	**5'-10':** 0"-24": dry, gray, fine SAND and crushed concrete, over; brown, fine SAND with some Rock. 24"-18": dry, brown, fine SAND with some Rock.
6'				
7'				
8'				
9'				
10'				
	5-10'	42"/60"	1.7	**10'-15':** 0"-24": damp, brown, fine SAND, over; brown, fine SAND with some Rock. 24"-42": damp to wet, brown, fine SAND with some Rock.
11'				
12'				
13'				
14'				
15'				**Soil sample GP-11 (10-12') collected on 11/25/08 for laboratory analysis.**

Woodard and Curran
980 Washington Street, Suite 325
Dedham, MA 02026

TEST BORING LOG
20-24 Fairmount Court
Hyde Park, Massachusetts

Boring No.
GP-12

START DATE:	November 26, 2008	DRILLING METHOD:	Geoprobe
CONTRACTORS:	Technical Drilling Services	SAMPLING METHOD:	Macrocore
DRILLER:	Rich	BORING DEPTH (bgs):	12 feet
GEOLOGIST:	Daniel Clinton	G.WATER DEPTH (bgs):	Approx. 11 feet

PAGE 1 of 1

Depth	Sample ID	Rec. Length	PID (ppm)	Field Description and Remarks
0'	0-2'	24"/24"	NA	**0'-2':** 0"-4": LOAM; 4"-24": dry, brown and gray, fine SAND with little crushed Rock
1'				
2'	2-4'	12"/24"	NA	**2'-4':** 0"-4": dry, brown and gray, fine SAND with little crushed Rock 4"-12" dry, gray, fine SAND
3'				
4'	4-6'	20"/24"	NA	**4'-6':** 0"-12": Dry, brown, fine SAND 12"-20" gray, fine SAND with some crushed brick material
5'				
6'	6-8'	24"/24"	NA	**6'-8':** 0"-12": Dry, brown, fine and coarse SAND 12"-24" Damp, fine SAND with some crushed crushed Rock
7'				
8'	8-10'	20"/24"	NA	**8'-10':** 0"-6": Dryt, brown and gray, fine SAND 6"-18" Dry, brown, fine SAND 18"-20" Damp, brown and gray, fine and medium coarse SAND
9'				
10'	10'-12'	18"/24"	NA	**10'-12':** 0"-12": Damp to Wet, brown and gray, fine SAND 12"-18" Wet to Saturated, brown and gray, fine SAND
11'				
12'				**Soil samples GP-12 (0-3') and GP-12 (10-12') collected on 11/26/08 for laboratory analysis.**

APPENDIX C: SOIL VAPOR EXTRACTION SYSTEM SPECIFICATIONS

COMMITMENT & INTEGRITY
DRIVE RESULTS

980 Washington Street, Suite 325
Dedham, Massachusetts 02026
www.woodardcurran.com

T 800.446.5518
T 781.251.0200
F 781.251.0847

SECTION 11500

SOIL VAPOR EXTRACTION SYSTEM

PART 1 GENERAL

1.1 DESCRIPTION

A. This Specification provides a performance based design, intended to provide technical guidance and minimum construction requirements for the installation of the interior soil vapor extraction (SVE) system.

B. The Contractor/Engineer shall install the systems in accordance with these Specifications, the attached Design Drawings and as directed by, and to the satisfaction of the Engineer.

1.2 RELATED SECTIONS

A. Refer to the attached Exhibits for conceptual Design Drawings included herein as Exhibit A.

1.3 SUBMITTALS

A. Prior to installation of the systems the Contractor/Engineer shall have or provide the specification information for the following items: blower; particulate filter; piping, valves, wellscreen and appurtenances.

B. If Private Contractor is utilized, submittal packages shall include proposed manufacturer, performance information, warranty and means and methods of installation. The submittal shall be approved, in writing, by the Engineer or his agent prior to the Contractor ordering or installing any equipment.

1.4 QUALITY ASSURANCE

A. Contractor/Engineer shall install all components of the systems in accordance with Manufacturer's instructions, recommendations, specifications, and to the satisfaction of the Engineer and Owner (if Contractor is utilized).

B. In all instances the Contractor/Engineer shall perform all work in accordance with any and all pertinent federal, state, and local codes.

PART 2 PRODUCTS

2.1 TREATMENT SYSTEM

2.1.1 OVERVIEW

A. The systems will consist of shallow vertical SVE extraction wells, abovegrade piping, equipment room, and mechanical equipment and appurtenances as shown in the Design Drawings, and as described herein.

2.1.2 SVE EXTRACTION WELLS

A. SVE wellscreen and piping shall be installed in the locations shown in Figure 2. SVE wellscreens will be installed vertically as shown in the Design Drawings.

B. Each SVE extraction well shall have wellscreen installed consisting of 2-inch diameter pipe as shown in the Design Drawings. The trench shall be backfilled with specified sand from 3.5 feet below ground surface to 0.5 feet below ground surface. A cement and bentonite mix will then be poured to grade as specified in the Design Drawings.

C. SVE piping will be run to the equipment room as shown in the Design Drawings.

D. All piping from the SVE wells to the equipment room shall be above the existing concrete slab floor.

E. All subslab piping shall be installed in common trenches and may vary from 12-inch to 24-inch wide as needed to accommodate all SVE piping.

2.1.3 PIPE AND FITTINGS

A. All piping and fittings will be 2-inch, 3-inch, or 4-inch diameter, constructed of a minimum Schedule 40 PVC, or Engineer-approved equal, as shown in the layout drawings except for a five foot length of galvanized steel pipe on the outlet of the blower to dissipate heat, and the PVC flexible hoses used to connect the offgas controls (see Figure A-1).

B. Drain, DWV and/or ABS pipe and fittings are not acceptable.

C. Provide Type I, Grade 1, Schedule 40 pipe and fittings conforming to ASTM F480, ASTM D1784, and/or D1785, as appropriate and Class 12454B to include roundness, ovality and straightness.

D. All connections at pipe joints and fittings shall be solvent welded or, where applicable (brass valves), set with Teflon thread paste.

E. PVC pipe and fittings shall be prepared using a clear primer and be solvent welded using heavy weight, heavy body PVC cement in accordance with ASTM D-2855.

F. SVE valves shall be NIBCO TI-8, 2-inch or 3-inch brass gate valve. Alternatives must be approved by the Engineer.

2.1.4 SVE APPURTENANCES

A. As shown on the Design Drawings the following ports shall be installed to monitor and/or collect samples from the SVE and Equipment Room:

   a. AP = analysis port. This location is for collection of TVOC-PID vapor samples and pressure readings.

b. PI= pressure indicator. This location is the same location as the analysis port. Portable pressure gauges shall be connected to the analysis port to obtain a pressure reading. Contractor/Engineer shall provide four Dwyer magnehelic pressure gauges and the required sample tubing. Pressure gauges are as follows:
    i. 0-1 inch-W.C., Dywer Model No. 2001
    ii. 0-20 inch-W.C., Dywer Model No. 2020
    iii. 0-60 inch-W.C., Dywer Model No. 2060
    iv. 0-150 inch-W.C., Dywer Model No. 2150
c. FM= flow measurement. This location is for the insertion of a hot-wire anemometer or pitot tube to measure velocity or flow. Contractor/Engineer to provide three Dwyer pitot tubes and the required sample tubing. Pitot tubes are as follows:
    i. 2-inch pitot tube- Dwyer Model DS-300-2
    ii. 3-inch pitot tube- Dwyer Model DS-300-3
    iii. 4-inch pitot tube- Dwyer Model DS-300-4
d. TI = temperature indicator. Contractor/Engineer shall provide back mounted, 3-inch dial gauges at the locations shown in the Design Drawings. Temperature gauges shall be permanently mounted with units of measurement in degrees Fahrenheit. The gauge shall read up to 180 deg-F.

2.1.5 SVE INLET PARTICULATE INLINE FILTER

A. Acceptable Manufacturer:

1. AMETEK Rotron
   75 North Street
   Saugerties, NY 12477
   Phone: (845) 246-3401
   Fax: (845) 246-3747

B. The inline filter shall be an AMETEK Rotron PN 271200 or approved equal. The filter element shall be an AMETEK Rotron PN 271078. Alternate filters shall be adequately sized to the specified blower.

C. Pressure gauges are to be installed on the inlet and outlet side of the inline filter. Gauge units of measurement must be in inches of water column, and appropriately matched to the design parameters of the blower and the filter.

2.1.6 SVE EXTRACTION BLOWER

A. Acceptable Manufacturer:

1. AMETEK Rotron
   75 North Street
   Saugerties, NY 12477
   Phone: (845) 246-3401
   Fax: (845) 246-3747

B. The blower is to be an AMETEK Rotron DR 757 explosion proof regenerative blower or approved equal to provide a design flow of 200 scfm at a vacuum of -10 inches of water column.

C. The vacuum relief valve shall be an AMETEK Rotron 271950 or equivalent. Alternatives shall be adequately sized and must be approved by the Engineer.

D. The blower motor shall be 5-HP and TEFC. The blower motor size may be altered based on availability and must be approved by the engineer.

E. The blower shall be equipped with an ON/OFF/Auto switch located on the interior of the equipment room.

F. The blower shall be equipped with a run-time clock to log operating hours.

2.1.7 SVE MOISTURE KNOCK-OUT DRUM

A. Contractor/Engineer shall install a moisture knock-out drum upstream of the blower as shown in the Design Drawings. The tube shall be four feet long and be constructed of 6-inch schedule 40 PVC. Inlet and outlet piping shall be hard piped.

B. A drain valve shall be installed at the bottom of the knock-out drum at an elevation that allows the placement of a 5-gal HDPE bucket directly under the valve to gravity drain the contents of the drum.

2.1.8 SVE OFFGAS CONTROLS

A. Contractor/Engineer to provide and install a 1000-lb, granular activated vapor phase carbon (VGAC) canister downstream of the blower. Carbon canister shall be model VP-110 as manufactured by Envirotrol Inc., Sewickley, PA, or approved equal.

B. The interconnecting piping shall be flexible, reinforced, PVC hose as Manufactured by TigerFlex, or approved equal. Inlet and outlet flex hose will be supplied in minimum lengths of five feet each, and shall have enough extra length to switch the lead/lag operating configuration of the VGACs without having to move the canisters.

C. Flex hose shall be fitted with aluminum quick-connect camlocks on all inlets and outlets of the VGAC canisters or Engineer-approved equal.

2.1.9 EQUIPMENT ENCLOSURE INSTALLATION

A. Contractor shall run SVE extraction points to the enclosure as shown in the Design Drawings. The actual location of the equipment enclosures may be changed depending on final development plans for the Site and rooftop obstructions. This is acceptable and will not require a system re-design as long as the SVE legs are piped individually back to the enclosures as shown on the Design Drawings and is approved by the Engineer.

B. Contractor shall install 2-inch, 3-inch, or 4-inch schedule 40 PVC SVE piping to the equipment enclosures as shown in the Design Drawings.

C. The equipment will be stored inside the building structure and house all SVE equipment and ancillary components. The area shall have adequate clear space around all equipment to perform all required operation and maintenance activities.

D. The equipment enclosure shall be vented to the exterior.

E. Contractor to install all required power and sufficient number of dedicated circuits to the equipment enclosure to operate: the blower, and all other equipment associated with the SVE Design to render a fully functioning system to the satisfaction of the Engineer.

F. Contractor to install an electrical control panel on the inside of equipment enclosure to house any and all required electrical components (motor starter, overloads, relays, hour meter, etc.) for the SVE equipment, as needed to render a fully functioning system to the satisfaction of the Engineer. The panel, at a minimum, shall have an indicator light showing the operational status of the blower and a Hand-OFF (H/O) switch for the blower.

PART 3 EXECUTION

3.1 SOIL REMOVAL

A. Contractor/Engineer to remove existing soil in the building area to provide space for the systems to be installed. This will be accomplished by trenching in accordance with the Design Drawings, and as directed by the Engineer.

B. Contractor/Engineer shall remove, handle, sample, test and dispose (if required) of soils in accordance with the Construction Phase Soil Management Plan provided in the Woodard & Curran July 2010 RAM Plan.

C. Contractor/Engineer shall recycle and/or dispose of all soil and concrete debris off-site at a properly licensed facility. The Contractor/Engineer shall conduct all pre-characterization sampling on the materials in accordance with applicable laws, regulations and as specified by the receiving facility.

D. Contractor/Engineer shall provide all equipment, labor, materials and ancillary items required to effectively load the excavated materials into the appropriate containers for off-site disposal. At a minimum, containers shall be water-tight, be designed and approved for transportation on public/private roadways and rails, and be in generally good condition. All containers must be covered at all times except while being loaded. Contractor/Engineer shall be responsible for initial loading and all reloading as required, at no additional cost to the Engineer or Owner if Contractor is utilized.

E. Contractor/Engineer shall be responsible for obtaining all approvals for each type of waste to be disposed of from the disposal Facility(s).

F. Contractor/Engineer shall only employ licensed haulers in accordance with all Federal, State and local regulations.

G. Contractor/Engineer to provide a list of the off-site disposal facility information such as Facility address, contact name and phone number prior to commencement of removal activities at the Site. Prior to removing material from the Site, Contractor/Engineer shall receive approval by

Engineer and Owner. The Contractor/Engineer shall provide a written notice to the Engineer if the Facility where this material will be disposed of changes, and shall receive approval by the Engineer prior to implementing this change.

H. If Contractor is utilized, within 5 days of being received and accepted at a Facility approved by the Engineer, Contractor shall provide Engineer with written confirmation for each shipment of waste taken from the Site in accordance with Bill of Lading requirements listed under 310 CMR 40.0035 (1) and 40.0035 (2). The main requirements of this provision are summarized as follows:

1. Disposal Facility address, contact name and phone number;
2. Transporters address, contact name and phone number
3. Actual tonnages of material shipped off-site;
4. Shipping dates (off-site and received at Facility) for each waste; and
5. Signed Bill of Lading and/or manifests.

3.2 SVE WELL INSTALLATION

A. Contractor shall install the SVE wells as shown in the attached Design Drawings to the satisfaction of the Engineer.

B. Contractor shall not re-locate SVE wells without prior approval from the Engineer.

3.3 PIPING INSTALLATION

A. Contractor/Engineer shall install all system piping on prepared backfill material. Piping should not be installed directly on sharp edged protrusions as recommended by the Manufacturer.

B. All piping installed beneath the concrete slab shall be Schedule 40 PVC.

C. Contractor/Engineer shall install all vertical piping plumb and straight to the satisfaction of the Engineer.

D. Contractor/Engineer shall install all horizontal piping with sufficient pitch back to the extraction wells to allow condensation/moisture/liquid to drain back to the subsurface.

E. Contractor/Engineer shall not install traps in the piping that could potentially store extracted soil moisture/condensate and/or liquid. Contractor/Engineer shall limit the number of fittings in subsurface piping to only those necessary to connect the piping as shown in the Drawings. When pipes in a common trench cross, Contractor/Engineer shall install in a manner utilizing proper pitch. No additional fittings that may result in water traps will be allowed. Engineer shall reject all unacceptable field piping. If Contractor is utilized, Contractor shall make all required changes at their own expense.

F. Contractor/Engineer shall provide adequate support and bracing on all above slab piping to prevent bending, movement and/or low spots in the piping that can accumulate water and thereby, restricting flow to the extraction blower and/or passive vents.

G. Contractor/Engineer shall ensure that all installed piping is free of debris. If Contractor is utilized, Contractor shall make all required changes at their own expense.

H. All piping shall be clearly labeled "TREATMENT SYSTEM" a minimum of every ten feet, so tradespeople do not tie the system piping into the sanitary or drain piping networks.

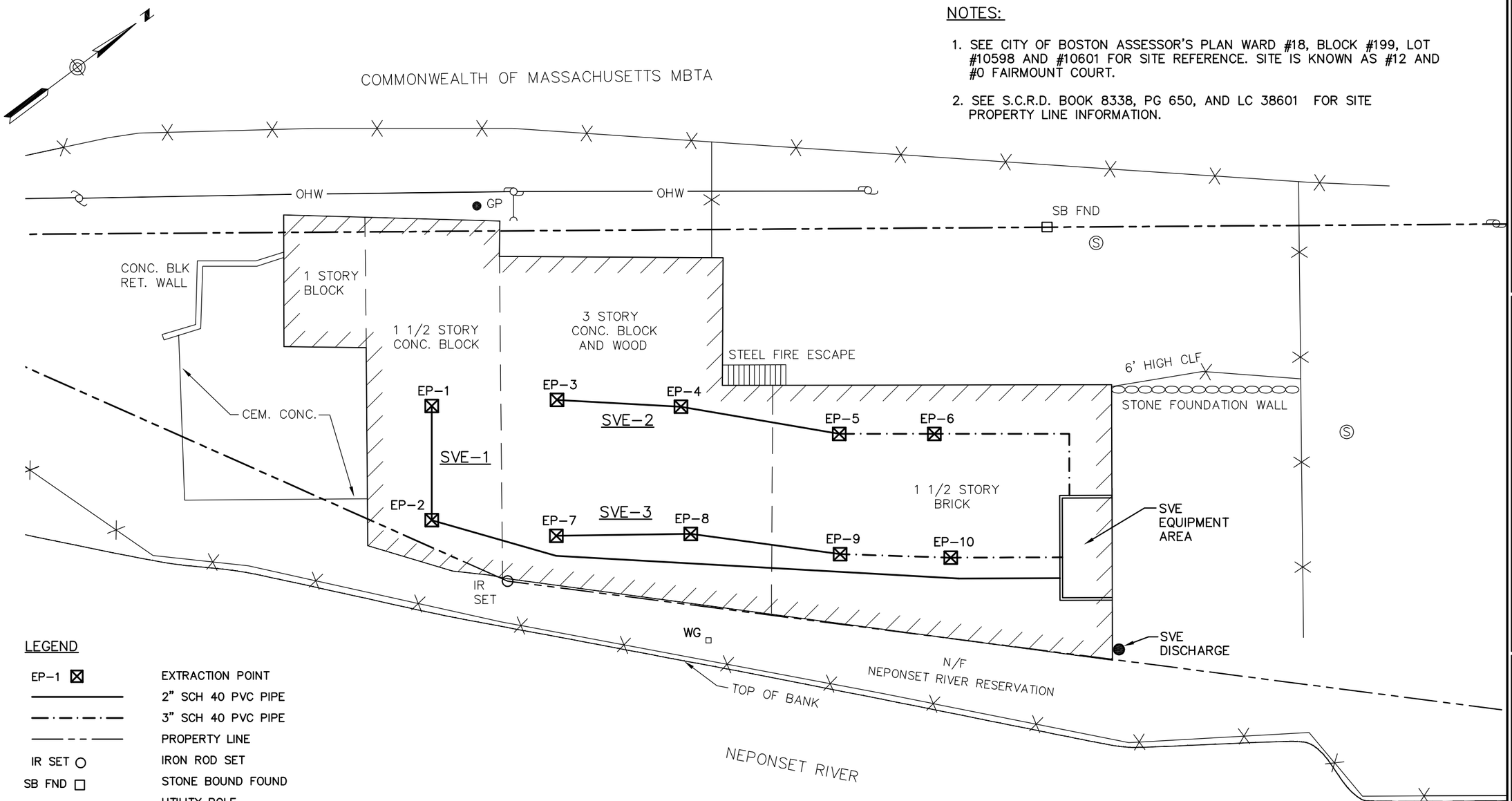
END OF SECTION 11500

Exhibit A

SVE
Conceptual
Design Drawings

NOTES:

1. SEE CITY OF BOSTON ASSESSOR'S PLAN WARD #18, BLOCK #199, LOT #10598 AND #10601 FOR SITE REFERENCE. SITE IS KNOWN AS #12 AND #0 FAIRMOUNT COURT.
2. SEE S.C.R.D. BOOK 8338, PG 650, AND LC 38601 FOR SITE PROPERTY LINE INFORMATION.



LEGEND

EP-1 ⊠	EXTRACTION POINT
———	2" SCH 40 PVC PIPE
—·—·—	3" SCH 40 PVC PIPE
— — —	PROPERTY LINE
IR SET ○	IRON ROD SET
SB FND □	STONE BOUND FOUND
	UTILITY POLE
Ⓢ	SEWER MANHOLE
	HYDRANT
WG □	WATER GATE
GP ●	GATE POST
RET.	RETAINING
CEM. CONC.	CEMENT CONCRETE
CONC. BLK	CONCRETE BLOCK
—x—x—	CHAIN LINK FENCE
—OHW—	OVERHEAD WIRES

20 0 20 40

SCALE IN FEET

980 WASHINGTON STREET
DEDHAM, MASSACHUSETTS 02026
781.251.0200 | www.woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

SVE SYSTEM PIPING LAYOUT

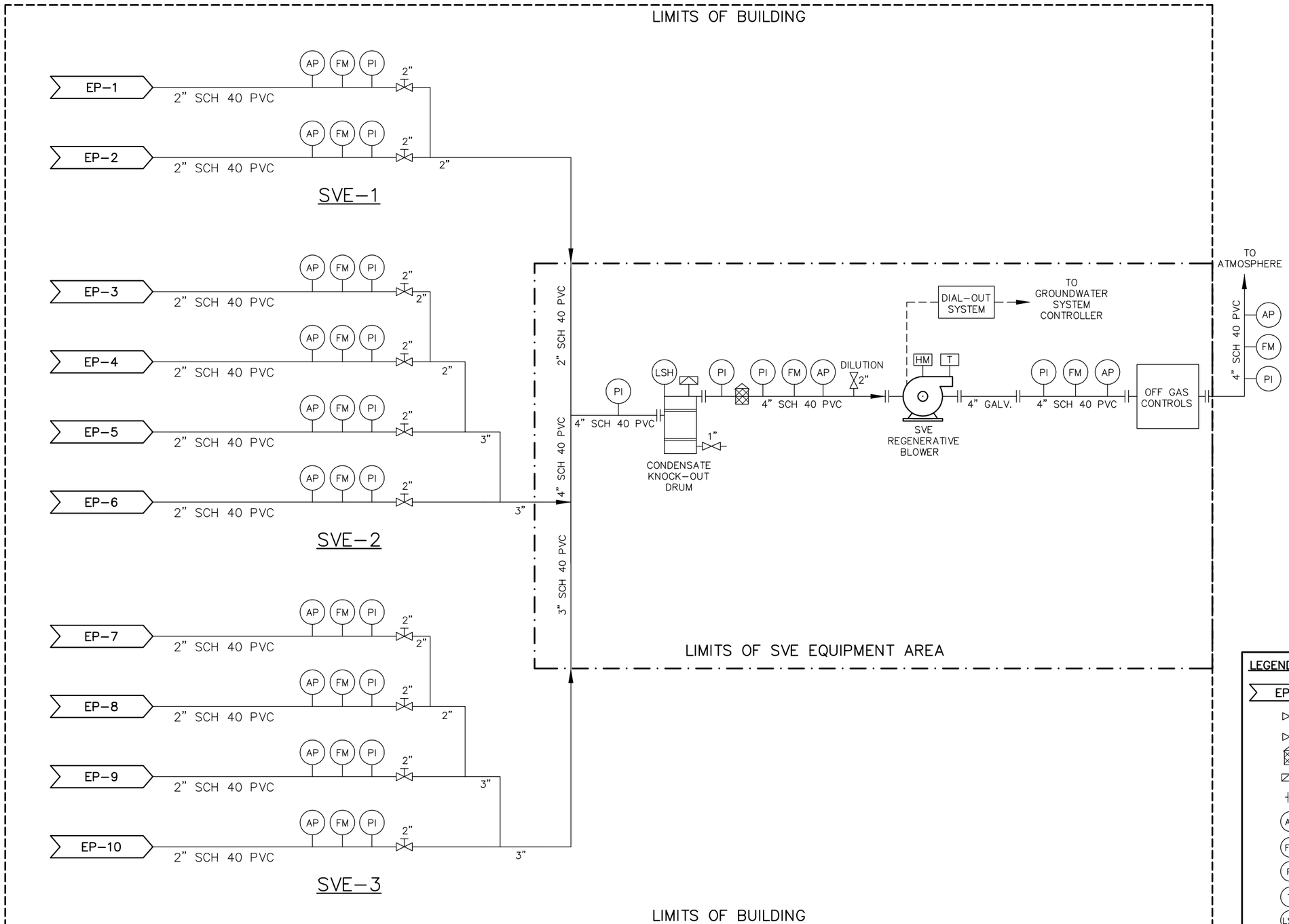
CHECKED BY: SLD
221375-SVE-Layout-FIG-1.dwg
DESIGNED BY: DRC
DRAWN BY: GA

CITY OF BOSTON
DEPARTMENT OF
NEIGHBORHOOD DEVELOPMENT

FORMER LEWIS CHEMICAL SITE

JOB NO: 221375
DATE: AUGUST 2009
SCALE: 1" = 20'

FIGURE 3



LEGEND:

EP-1	SVE EXTRACTION POINT
	GATE VALVE
	BALL VALVE
	PARTICULATE FILTER
	VACUUM RELIEF VALVE
	GALVANIZED UNION
AP	ANALYSIS PORT
FM	FLOW MEASUREMENT PORT
PI	PRESSURE INDICATOR
TI	TEMPERATURE INDICATOR
LSH	LEVEL SWITCH HIGH
HM	HOUR METER
T	TIMER

980 WASHINGTON STREET
DEDHAM, MASSACHUSETTS 02026
781.251.0200

COMMITMENT & INTEGRITY DRIVE RESULTS

WOODARD & CURRAN

SVE PIPING AND INSTRUMENTATION DIAGRAM

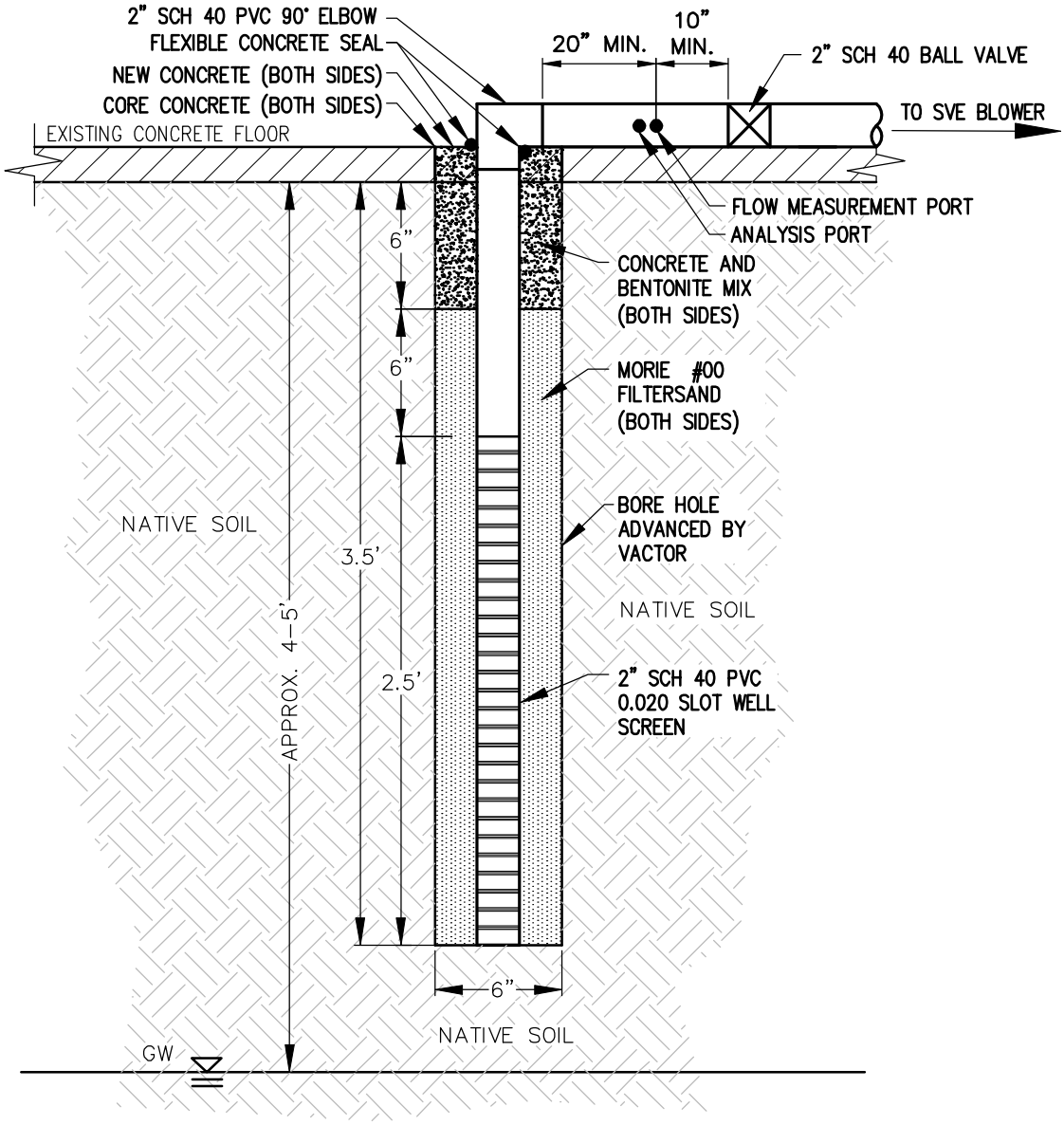
CHECKED BY: SLD
221375-SVE-PID_FIG-2.dwg
DESIGNED BY: DRC
DRAWN BY: GA

CITY OF BOSTON
DEPARTMENT OF
NEIGHBORHOOD DEVELOPMENT

FORMER LEWIS CHEMICAL SITE

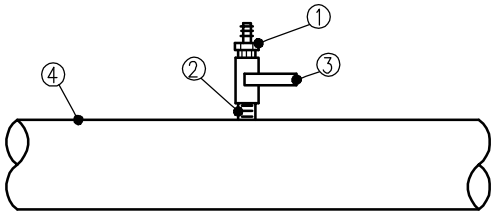
JOB NO: 221375
DATE: AUGUST 2009
SCALE: N.T.S.

FIGURE 4



SVE EXTRACTION POINT DETAIL

NOT TO SCALE

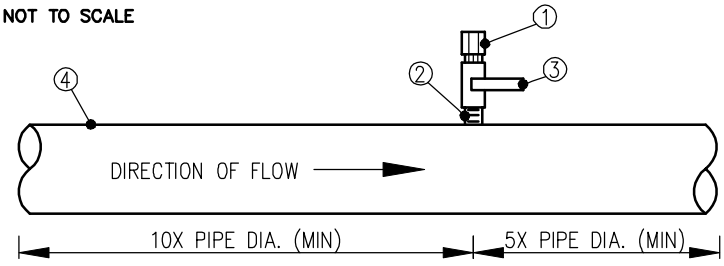


KEY:

① – 1/4" MNPT x3/16" ID TUBING BRASS BARBED FITTING
② – 1/4" GALVANIZED CLOSE NIPPLE
③ – 1/4" BRASS BALL VALVE
④ – SVE PIPING

(PRESSURE, TVOC–PID) ANALYSIS PORT DETAIL (TYP)

NOT TO SCALE



KEY:

① – SWAGE LOCK FITTING (CAMBRIDGE MODEL # B–600–1 (8 BT 3/8" I.D. x 1/2" MNPT)
② – 1/2" GALVANIZED CLOSE NIPPLE
③ – 1/2" BRASS BALL VALVE, BORE THROUGH
④ – SVE PIPING

(PITOT TUBE / ANEMOMETER) FLOW MEASUREMENT PORT DETAIL (TYP)

NOT TO SCALE

WOODARD &CURRAN | www.woodardcurran.com COMMITMENT & INTEGRITY DRIVE RESULTS	SVE EXTRACTION POINT AND PIPING DETAILS	CITY OF BOSTON DEPARTMENT OF NEIGHBORHOOD DEVELOPMENT	JOB NO: 221375
	DESIGNED BY: DRC, SLD / CHECKED BY: SLD		DATE: AUGUST 2009
	DRAWN BY: GA / 221375-SVE-DETAIL_FIG-3.dwg	FORMER LEWIS CHEMICAL SITE	SCALE: N.T.S.
			FIGURE 5

APPENDIX D: COPIES OF NOTIFICATION TO PUBLIC OFFICIALS

COMMITMENT & INTEGRITY
DRIVE RESULTS

35 New England Business Center
Suite 180
Andover, Massachusetts 01810
www.woodardcurran.com

T 866.702.6371
T 978.557.8150
F 978.557.7948

July 26, 2010

Mayor Thomas Menino
Boston City Hall
One City Hall Plaza
Boston, MA 02108

Re: Public Notice Requirement
Former Lewis Chemical Co. Site
12-24 Fairmount Court
Hyde Park, Massachusetts
MADEP RTN: 3-1616

Dear Mayor Menino:

This letter is sent to you to fulfill the public involvement provisions established by the Massachusetts Contingency Plan (MCP – 310 CMR 40.0000). The public involvement provisions of the MCP (310 CMR 40.1403(3)(d)) require that the Chief Municipal Officer and the Board of Health in the community in which a Release Abatement Measure (RAM) is to be completed at a disposal site are notified of the intention to complete a RAM. A RAM Plan for the location referenced above is being submitted to the Massachusetts Department of Environmental Protection (MassDEP).

The RAM is being conducted by Woodard & Curran, Inc. on behalf of the Boston Department of Neighborhood Development Real Estate Management and Sales Division in order to facilitate the removal of chlorinated solvents that have been historically released to the soil beneath the floor slab of the former Lewis Chemical Company building at the referenced disposal site. The RAM will consist of the installation and operation of a soil vapor extraction (SVE) system within the existing building at the site. The installation of the SVE system is expected to commence in July 2010 and the SVE system is scheduled to be in operation from September 2010 to September 2012.

Sincerely,
WOODARD & CURRAN INC.

Craig E. Blake, P.E., LSP
Vice President

221375.01

cc: MADEP NERO/BWSC
Thomas Barrasso, Boston DND

COMMITMENT & INTEGRITY
DRIVE RESULTS

35 New England Business Center
Suite 180
Andover, Massachusetts 01810
www.woodardcurran.com

T 866.702.6371
T 978.557.8150
F 978.557.7948

July 26, 2010

Mr. John Auerbach, Executive Director
Boston Public Health Commission
Office of Environmental Health, 2nd Floor
1010 Massachusetts Avenue
Boston, Massachusetts 02118

Re: Public Notice Requirement
Former Lewis Chemical Co. Site
12-24 Fairmount Court
Hyde Park, Massachusetts
MADEP RTN: 3-161

Dear Mr. Auerbach:

This letter is sent to you to fulfill the public involvement provisions established by the Massachusetts Contingency Plan (MCP – 310 CMR 40.0000). The public involvement provisions of the MCP (310 CMR 40.1403(3)(d)) require that the Chief Municipal Officer and the Board of Health in the community in which a Release Abatement Measure (RAM) is to be completed at a disposal site are notified of the intention to complete a RAM. A RAM Plan for the location referenced above is being submitted to the Massachusetts Department of Environmental Protection (MassDEP).

The RAM is being conducted by Woodard & Curran, Inc. on behalf of the Boston Department of Neighborhood Development Real Estate Management and Sales Division in order to facilitate the removal of chlorinated solvents that have been historically released to the soil beneath the floor slab of the former Lewis Chemical Company building at the referenced disposal site. The RAM will consist of the installation and operation of a soil vapor extraction (SVE) system within the existing building at the site. The installation of the SVE system is expected to commence in July 2010 and the SVE system is scheduled to be in operation from September 2010 to September 2012.

Sincerely,
WOODARD & CURRAN INC.

Craig E. Blake, P.E., LSP
Vice President

221375.01

cc: MADEP NERO/BWSC
Thomas Barrasso, Boston DND