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November 19, 2010 ***TRANSMITTED VIA EMAIL***
Revised March 16, 2011

Mr. David Yaman
Cortland Commerce Center, LLC
839 NYS Route 13
Cortland, NY 13045

Reference: Former Smith Corona – Revised Soil Vapor Extraction Pilot Test
NYSDEC Site No. 712006
Cortlandville, NY

Dear Mr. Yaman:

This document presents the proposed methods and procedures for conducting a soil vapor extraction pilot test in the vicinity of the former tumbling area inside the building.

The purpose of the work is to determine the system configuration and equipment necessary to induce negative subsurface vapor pressures in and around the former tumbling area. The goal of the planned system is two-fold: induce a negative pressure under the floor slab to minimize the potential for subsurface vapors to enter the building and to reduce subsurface contaminant concentrations in the vicinity of the former tumbling area.

Background

Previous sub-slab vapor testing at the facility indicated elevated concentrations of chlorinated solvents, particularly trichloroethene (TCE), in the vicinity of the former tumbling area. In response to the discovery, a monitoring well was installed through the tumbling area. The well (designed MW–L16) is constructed of 2-inch diameter PVC and is 60.5 feet deep. The well has two screened intervals, one from 5.5 feet to 15.5 feet and a second, from 45.5 to 60.5 feet. The purpose of this was to allow the well to be used as both a groundwater monitoring point (water was encountered at 50.5 feet when the well was installed) and to allow soil vapors to be simultaneously drawn from the former tumbling area (upper screened interval) and from near the water table (lower screened interval). A discussion of the well installation was previously forwarded to NYSDEC by Buck Engineering, LLC on January 7, 2009.

Pilot Test

Prior to conducting the pilot test, a series of sub-slab vapor pressure monitoring points will be installed. The proposed locations of the vapor pressure monitoring points in relation to the former tumbling area and MW–L16 are shown on Drawing No. 1. The vapor pressure monitoring points are located at nominal increments of 5 feet from MW–L16 and are intended to provide information both under and around the former tumbling area (note: the number designation associated with each vapor monitoring point indicates the distance from MW–L16).

Note: additional temporary monitoring points may be installed during the course of the pilot test in order to completely define the extent of the negative pressure field. In addition, should the negative pressure field extend to either set of walls northwest and southwest of the former tumbling area, temporary vapor monitoring points will be installed on the other side of the walls

to better evaluate what, if any, the possible presence of footers under the walls may have on the pressure field.

Once the maximum negative pressure field is established, two additional temporary vapor monitoring points will be installed at the maximum observed distance and at 120 degree angles from the farthest monitoring point and the extraction point (MW-L16).

The information from the temporary monitoring points will be used to evaluate the uniformity of the subsurface conditions and the resulting negative pressure field.

An effort will be made to extend the depth of any monitoring points that suggest poor communication with the subsurface during the course of the pilot test. This may necessitate removal and reinstallation of the monitoring point.

The monitoring points will be constructed by first drilling a ¼-inch hole through the concrete floor into the sub-base material. The upper 4 inches of the hole will then be enlarged to 5 inches to accommodate a flush-mount protective cover for the vapor monitoring point. A ¼-inch O.D. stainless steel tube will be inserted into the hole. The stainless steel tube will be fitted with a Swagelok fitting at the top to allow both vapor pressure readings and analytical samples to be obtained. A plug will be placed in the Swagelok fitting when the vapor monitoring point is not in use to prevent vapors from entering the building via the monitoring point. The annulus around the stainless steel tubing will be sealed using a self leveling construction-grade caulk and the monitoring fitted with a flush-mounted cover.

Prior to conducting the pilot test, a “sweep 90” degree elbow will be connected to the top of MW–L16 via a Fernco connector. Solid, rigid 4-inch diameter PVC pipe to be laid across the floor from MW–L16 to the building exterior (approximately 100 feet, Drawing No. 3). The PVC pipe will be connected to the “sweep 90” and the extraction blower located outside of the building with reducing Fernco fittings (Drawing No. 2). The PVC pipe will have bell joints connecting the piping sections; the joints will be taped to minimize leakage during the tests. Smoke tests will be conducted at each joint during the pilot test to verify the joints are not leaking.

Pressure and flow monitoring and sampling fittings will be installed both at the well head and before the extraction blower to allow an assessment of piping loss between the well head and the blower. The fittings will be positioned approximately 3.5 feet after the well head connection and before the extraction blower.

Magnehelic gauges with the following ranges of vacuum will be available:

0-0.25 inches of water
0-0.50 inches of water
0-1.0 inches of water
0-2.0 inches of water
0-10.0 inches of water

Air flow rates will be measured with a Dwyer Model 477-1 Digital Manometer.

The blower discharge will be passed through a Carbtrol G-3 vapor phase carbon canister prior to discharge to the atmosphere.

The pilot test will involve extracting soil vapor from well MW–L16 while simultaneously monitoring the sub-slab vapor pressures at the monitoring points. It is planned that several different extraction configurations will be used so the sphere of influence (SOI) under a variety of vacuums and flow rates can be assessed:

Extraction of vapors simultaneously from both screen sections;

Extraction of vapors from the upper screen section only;

Extraction of vapors from the lower screen section only.

To allow the testing of the individual screen sections, an inflatable packer will be placed in the well. The packer will be deployed between the two screen sections and will serve to isolate the upper and lower screens. The inflation tubing for the packer will pass through a vapor tight fitting in the extraction piping at the top of the well head when the upper screen is being tested. It should be noted that the "through port" in the packer will be ¾-inch diameter (Drawing No. 2). This may limit the amount of vapor that can be extracted from the deep screen section.

A variety of the blowers will be available for use during the pilot test:

Single Phase Blowers

Model	Maximum Flow (SCFM)	Maximum Vacuum (Inches WG)
Rotron EN 404	107	52
Rotron EN 505	160	60
Rotron EN 523	82	138
Gast R6125-2	180	50
Gast R5125-2	120	45

Three Phase Blowers

Model	Maximum Flow (SCFM)	Maximum Vacuum (Inches WG)
Rotron EN 606	200	75
Gast R4H3060	120	180
Gast R6350A-2	280	84
Gast R6340R-50	180	65

It is planned that the initial test will utilize the EN 505 blower. The selection of the subsequent blowers to be used will depend on the flow rates and vacuums observed while using the EN 505 blower. Each extraction configuration (both screen and blower) will be allowed to run until the subsurface pressures stabilize for 60 minutes. The subsurface pressures will be allowed to return to static conditions between each test. Data from the individual tests will be recorded using the attached data form.

Samples will be collected at the following vapor monitoring points and testing intervals:

VP-5, VP-25, VP-40 and VP-55	Pre-testing.
MW-L16	2 minutes after the initiation of the first test.
VP-5, VP-25, VP-40, VP-55, MW-L16	At the conclusion of the maximum flow test utilizing the combined screen sections.
MW-L16	At the conclusion of the maximum flow test utilizing the upper screen section.
MW-L16	At the conclusion of the maximum flow test utilizing the lower screen section.

Vapor samples will be grab samples (sample interval $\leq$ 1 minute) taken with 6L SUMMA canisters supplied by the analytical laboratory. The samples will be analyzed by EPA Method TO-15 for the site specific target analytes (1,1,1-Trichloroethane, 1,1-Dichloroethene, 1,2-Dichloroethene, Trichloroethene, Tetrachloroethene, Vinyl Chloride).

At completion of the pilot testing, all above-grade equipment will be removed. The monitoring points will be sealed and remain in-place for future monitoring of the final system.

Report

Information from the pilot test will be presented in a report. The report will include a plan showing the pilot test layout, the vacuum and flow readings associated with each extraction interval, the analytical data and recommendations for the configuration, including blower size and piping dimensions for the final system. An analysis of the project vapor discharge concentrations will be made and the recommendations for a vapor treatment system included. Should the pilot testing indicate that additional extraction points are warranted, recommendations for their location and construction will be provided.

Schedule

The schedule for the work is depicted below:

Task	**Wk 1**	**Wk 2**	**Wk 3**	**Wk 4**	**Wk 5**	**Wk 6**	**Wk 7**	**Wk 8**	**Wk 9**	**Wk 10**	**Wk 11**	**Wk 12**	**Wk 13**
Review/Approval of Plan													
Material Procurement													
Pilot Test													
Sample Analysis													
Data Analysis													
Report Preparation													
Review/Approval of Report													
Finalize Report													

To minimize disturbance to employees, it is planned that the pilot testing will be conducted in the evening after 6 PM. The building HVAC system will remain in a normal day time operating mode while the pilot testing is conducted. It is tentatively planned that the work will require three to four days to complete; with the construction of the vapor monitoring points requiring one to two days and the actual pilot testing two to three days.

Once formal approval of the pilot test plan is approved, the work will be coordinated with the building owner. The Department will be provided 10 working days notice prior to the initiation of the fieldwork.

Please do not hesitate to call should you have any questions.

Sincerely;

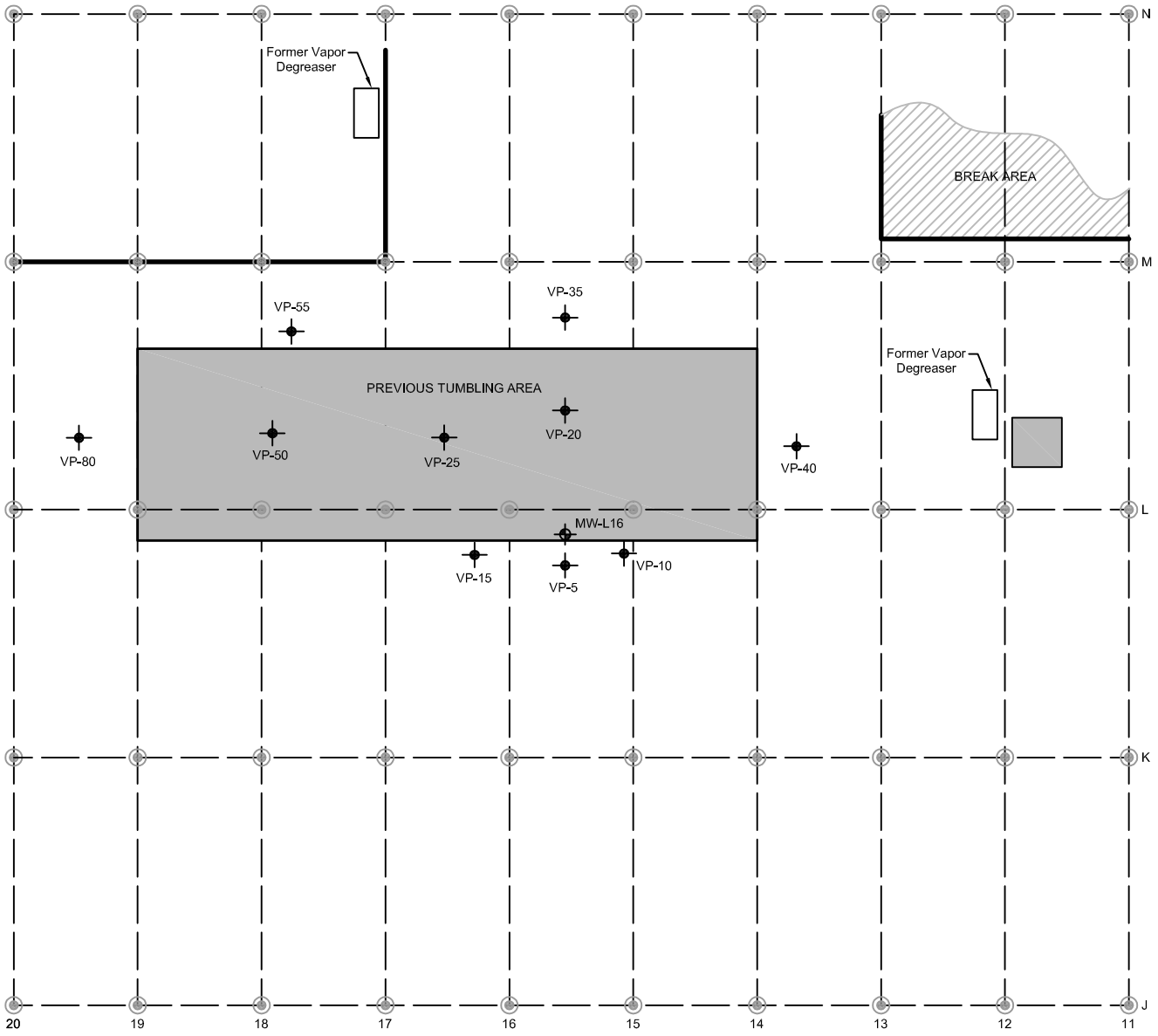
GeoLogic NY, Inc.

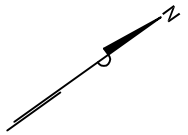
Forrest Earl
President/Principal Hydrogeologist

Enc: Drawings (1, 2, 3), Field Data Form

cc: *All via e-mail*
Tom Festa, P.E., NYSDEC
Carl Cuipylo, NYSDEC
Harry Warner, P. E., NYSDEC
Pat Reidy, CCS & WCD
John Helgren, P.E., CCHD
Mike Shafer, Esq., RSS
Stephen Kalette, Esq. SCM
Jim Baranello, Esq.

File: ..210087\Report\SVE\SVE Pilot Test Plan





LEGEND:

- STRUCTURAL COLUMN
- PATCHED CONCRETE
- WALL/PARTITION
- MONITORING WELL LOCATION
- VP-20 — VAPOR PRESSURE MONITORING POINT (# = Distance From MW-L16)

NOTES:

1. THIS DRAWING DOES NOT CONSTITUTE A SURVEY AND IS INTENDED TO CONVEY APPROXIMATE SAMPLE LOCATIONS AND SITE FEATURES.
2. THIS DRAWING WAS BASED ON: AREA OF INTEREST SUBSLAB SAMPLING, FIGURE 3, PREPARED BY BUCK ENGINEERING, LLC, DATED 12/21/2008.

APPROXIMATE SCALE:

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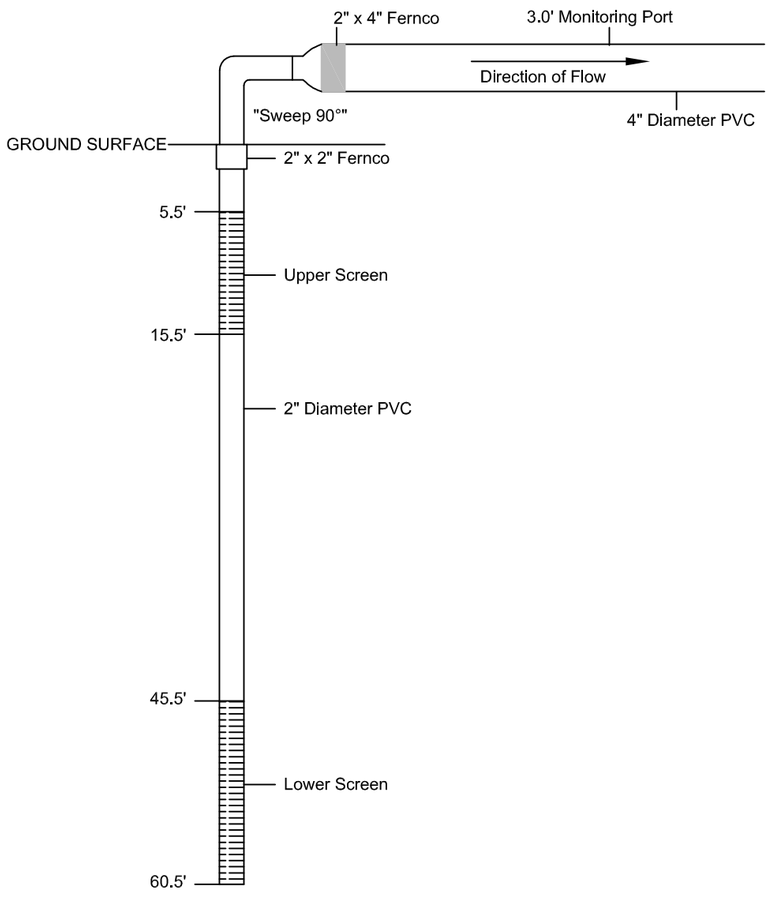
GeoLogic NY, Inc.

SVE PILOT TEST FORMER TUMBLING AREA
FORMER SMITH CORONA
NYSDEC SITE NO. 712006
CORTLANDVILLE, NEW YORK

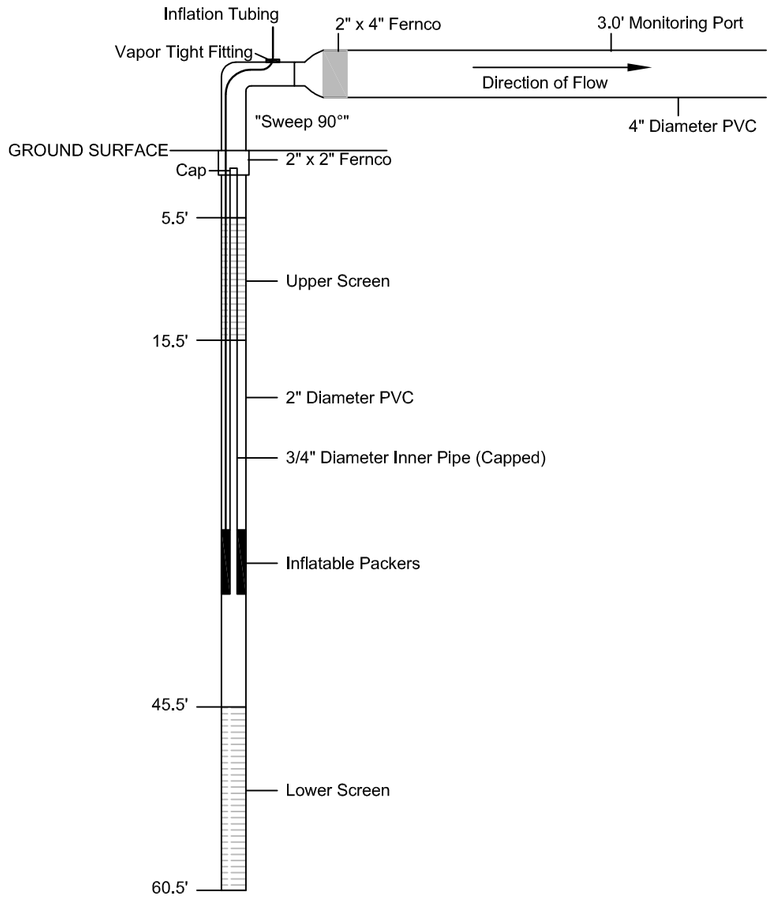
DR. BY:	SCALE:	PROJ. NO:
FCE/SDW	AS SHOWN	210087
REVD BY:	DATE:	DRWG. NO:
	NOV. 2010	1

\..\210087\TECH\TUMBLING AREA.DWG

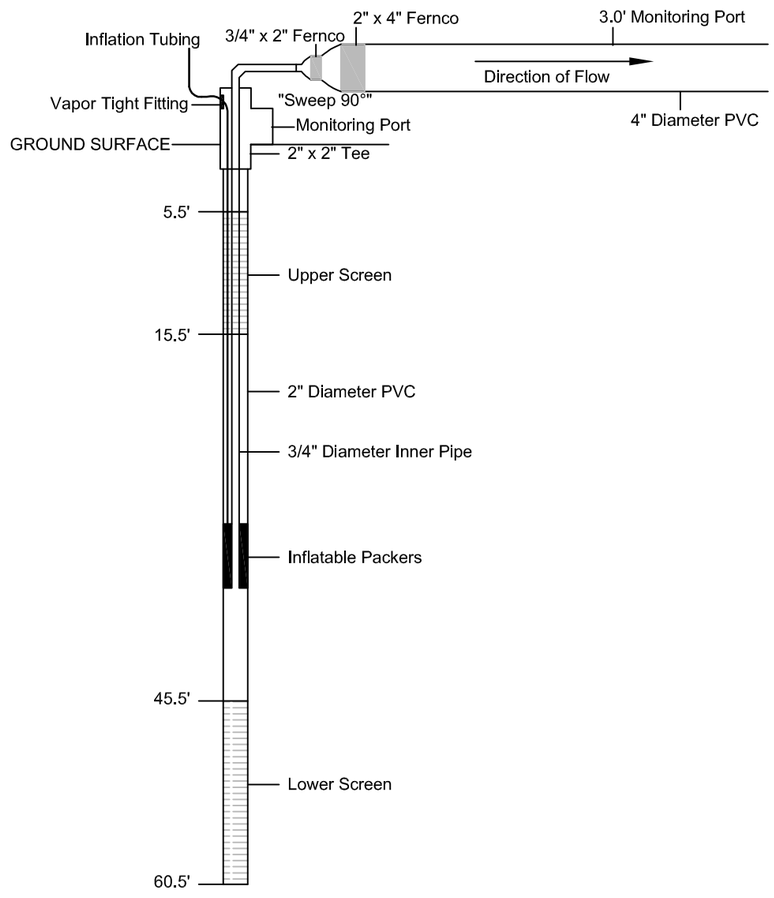
TEST CONFIGURATION FOR DUAL SCREEN



TEST CONFIGURATION FOR UPPER SCREEN



TEST CONFIGURATION FOR LOWER SCREEN



/../210087/TECH/Pilot Test Schematic.dwg

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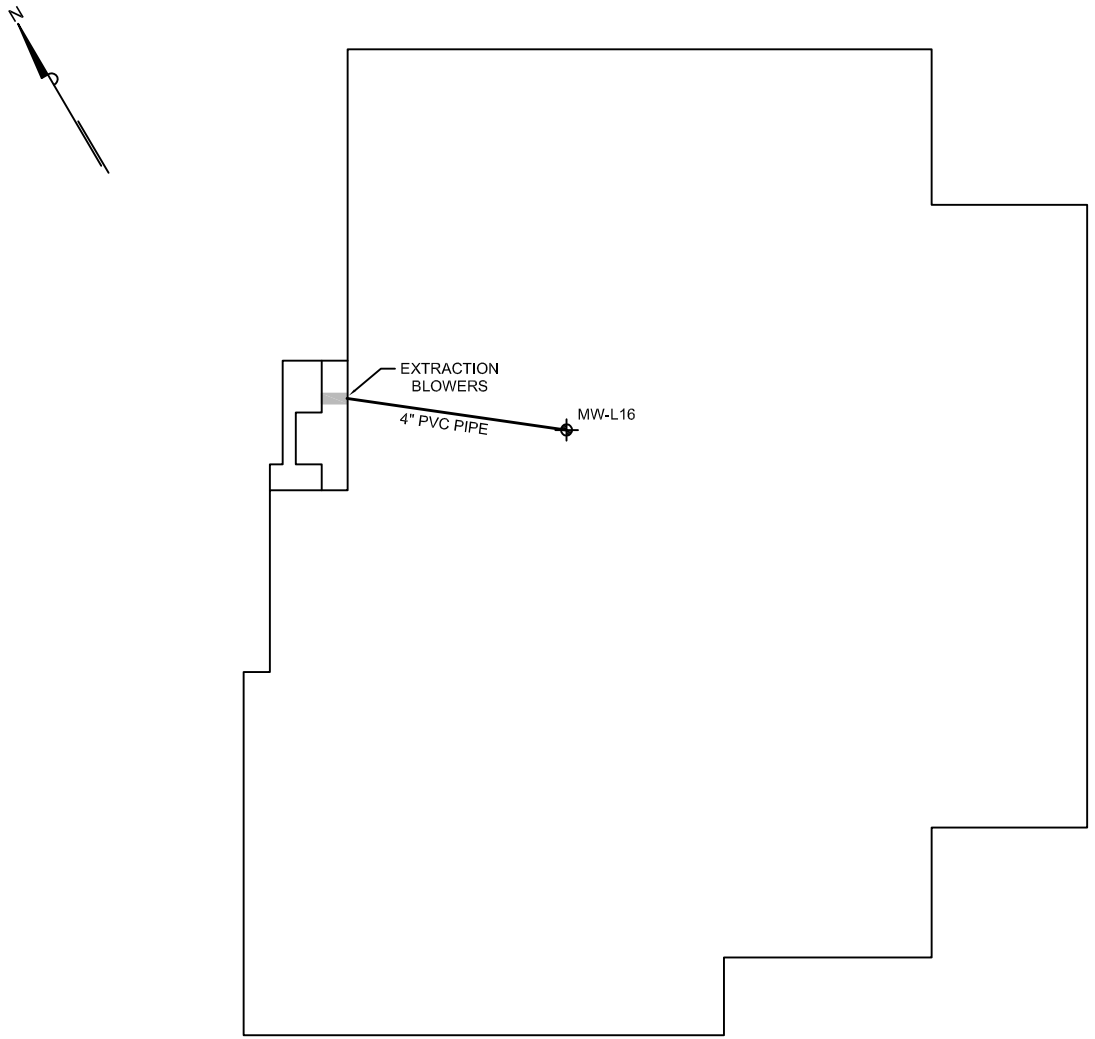
PILOT TEST SCHEMATIC
FORMER SMITH CORONA
NYSDEC SITE NO. 712006
CORTLANDVILLE, NEW YORK

DR. BY:	SCALE:	PROJ. NO:
FCE/SDW	N/A	210087
REVD BY:	DATE:	DRWG. NO:
	NOV. 2010	2



LEGEND:

MONITORING WELL LOCATION

APPROXIMATE SCALE:

0' 50' 100' 200'

NOTE:

DRAWING BASED ON DEEP WELL GROUNDWATER CONTOUR MAP 11-11-2009, PREPARED BY BUCK ENGINEERING, LLC, DATED 12-15-09. BASE MAP SOURCE PROVIDED BY: STOCKWIN SURVEYING, 69 JAMES STREET, HOMER, NY DATED 2/22/2006.

THIS MAP DOES NOT CONSTITUTE A SURVEY AND IS INTENDED TO CONVEY APPROXIMATE SAMPLE LOCATIONS AND SITE FEATURES.

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SVE PILOT TEST LAYOUT
FORMER SMITH CORONA
NYSDEC SITE NO. 712006
CORTLANDVILLE, NEW YORK

DR. BY:	SCALE:	PROJ. NO:
FCE/SDW	AS SHOWN	210087
REVD BY:	DATE:	DRWG. NO:
	NOV. 2010	3

SVE PILOT TEST DATA FORM

DATE: _____ **TEST NO.:** _____

JOB NO: _____ **SCREEN CONFIGURATION (circle):** **Dual** **Upper** **Lower**

EXTRACTION POINT -			MONITORING POINT									
TIME	VACUUM	FLOW	VACUUM	VACUUM	VACUUM	VACUUM	VACUUM	VACUUM	VACUUM	VACUUM	VACUUM	VACUUM
INTITIAL												

BLOWER MODEL:

ANALYTICAL SAMPLE:										

NOTES: