Former Churchville Ford Site

VILLAGE OF CHURCHVILLE, TOWN OF RIGA
MONROE COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: V00658-8

Prepared for:
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Prepared by:

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12-06-11

Revisions to Final Approved Site Management Plan:

Revision #	Submitted Date	Summary of Revision	DEC Approval Date
1	August 2011	NYSDEC Comments	
2	October 2011	NYSDEC Comments	
3	December 2011	NYSDEC/NYSDOH Comments	

DECEMBER 2011

New York State Department of Environmental Conservation
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Joe Martens
Commissioner

January 3, 2012

Mr. Antonio Gabrielle
1214 Lake Road
Webster, New York 14580

Mr. Joseph Ognibene
5875 North Byron Road
Byron, New York 14422

Dear Messrs. Gabriele and Ognibene:

Re: Churchville Ford Site # V00658-8
Site Management Plan; Revised December 2011
Village of Churchville, Monroe County

The New York State Department of Environmental Conservation (NYSDEC) has completed its review of the document entitled *Site Management Plan* dated December 2011 (the SMP) and has determined that the SMP substantially addresses the requirements of the Voluntary Cleanup Agreement. The SMP is hereby approved. Please manage activities at the former Churchville Ford site in accordance with the SMP.

By **February 3, 2012**, please provide bound hardcopies of the SMP as follows:

- Frank Sowers (NYSDEC - Avon, 1 copy);
- The document repository at the Newman-Riga Library located at 1 Village Park, Churchville, NY 14428.

The next step for this site is the completion of the Final Engineering Report by **February 29, 2012**.

Thank you for your cooperation in this matter and please contact me at 585-226-5357 if you have any questions regarding the SMP or Final Engineering Report.

Sincerely,

Frank Sowers, P.E.
Environmental Engineer 2

ec:
Benjamin Bonarigo - Bonarigo & McCutcheon
Bart Putzig
Jeff Kosmala
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Gregory Andrus
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1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at the former Churchville Ford Site (hereinafter referred to as the "Site") under the New York State (NYS) Voluntary Cleanup Program (VCP) administered by New York State Department of Environmental Conservation (NYSDEC). The Site was remediated in accordance with Voluntary Cleanup Agreement (VCA) # B8-0640-03-09, Site # V00658-8 which was executed on September 29, 2003 and amended on April 9, 2009.

1.1.1 General

Antonio Gabriele and Joseph Ognibene entered into a VCA with the NYSDEC to remediate a 7.891-acre parcel located in the Village of Churchville, Town of Riga, Monroe County, New York. This VCA required the Remedial Party, Antonio Gabriele and Joseph Ognibene, to investigate and remediate contaminated media at the site. A figure showing the Site location and boundaries of this 7.891-acre "Site" is provided in Figures 1 and 1A. The boundaries of the Site are more fully described in the Metes and Bounds Site Description (Appendix B) that is part of the Deed Restriction (DR) (Appendix C) and in Section 1.2.1.

After completion of the remedial work described in the Remedial Action Work Plan (RAWP), some contamination was left in the subsurface at this Site, which is hereafter referred to as "remaining contamination". This Site Management Plan (SMP) was prepared to manage remaining contamination at the Site until the DR is extinguished in accordance with Environmental Conservation Law (ECL) Article 71, Title 36. All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in NYS.

This SMP was prepared by Lu Engineers, on behalf of Antonio Gabriele and Joseph Ognibene, in accordance with the requirements in NYSDEC Division of Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the Engineering Controls (ECs) and Institutional Controls (ICs) that are required by the DR for the site.

1.1.2 Purpose

The Site contains contamination left after completion of the Remedial Action (RA). ECs have been incorporated into the Site remedy to control exposure to remaining contamination during the use of the Site to ensure protection of public health and the environment. A DR recorded with the Monroe County Clerk, will require compliance with this SMP and all EC/ICs placed on the Site. The ICs place restrictions on Site use, and mandate operation, maintenance, monitoring and reporting measures for all EC/ICs. This SMP specifies the methods necessary ensure compliance with all EC/ICs required by the DR for contamination that remains at the Site. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the DR and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the Site after completion of the RAs, including: (1) implementation and management of all EC/ICs; (2) media monitoring; (3) operation and maintenance of all treatment, collection, containment, or recovery systems; (4) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports; and (5) defining criteria for termination of treatment system operations.

To address these needs, this SMP includes three plans: (1) an EC/IC Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; and (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual for complex systems).

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the Site-specific implementation procedures that are required by the DR. Failure to properly implement the SMP is a violation of the DR, which is grounds for revocation of the Release and Covenent;
- Failure to comply with this SMP is also a violation of the VCA (Index #B8-0640-03-09; Site #V00658-8) for the Site, and thereby subject to applicable penalties.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager NYSDEC may also initiate revisions to this plan.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The Site is located at 111 South Main Street in the Village of Churchville, Town of Riga, Monroe County, New York (Site Location Map, Figure 1). The original Site boundary was a 10.28-acre parcel (Tax ID #. 143.17-1-001.121) owned by Antonio Gabriele and Joseph Ognibene. The property was sold to the current owner, Meyers at Churchville, LLC, in April 2004. In 2006, the property was subdivided into three(3) separate parcels to allow for realignment of Sanford Road North, which now transects the original parcel. The parcels that comprise the former Site boundary are as follows:

- Tax ID # 143.17-1-50: A 6.083-acre parcel owned by Meyers at Churchville, LLC. This was the main portion of the Site and contains a 22,000-square foot(ft) truck and boat dealership with service bays, a small wooden shed, and parking lot.

- Tax ID # 143.17-1-51: A 1.808-acre parcel located south of Sanford Road; owned by Meyers at Churchville, LLC. This parcel consists of an undeveloped grassy area between I-490 and the new alignment of Sanford Road North.

- Sanford Road North Right of Way: This portion of the original Site consists of Sanford Road North and a stormwater retention basin owned by the New York State Department of Transportation (NYSDOT).

In September 2009, the VCA was amended to redefine the Site boundaries. The final (and current) Site consists solely of Tax ID # 143.17-1-50 (Site Plan, Figure 1A). The Site is zoned "Highway Commercial Use District".

The Site is located on the west side of South Main Street (NYS Route 36) and north side of Route I-490. The Town of Riga is located approximately sixteen(16) miles west/southwest of the City of Rochester. The Site is located on the southern edge of the Village of Churchville.

The Village of Churchville's main business district is located approximately 1.0-mile north of the Site. Surrounding properties include Interstate I-490 to the south; "Gatherings" party house to the north; a recreational vehicle sales facility to the west; and South Main Street and residential property to the east. The boundaries of the Site are more fully described in Appendix B – Metes and Bounds.

1.2.2 Site History

According to previous environmental reports, the Site was utilized as agricultural land until 1986, when it was developed as an automobile dealership. The facility began operations in 1987 as Gabriele Ford. According to information obtained from the Town of Riga Assessor's Office, the facility was taken over by the Ford Motor Company and operated as Churchville Ford from 1997-2001. The Site was vacant from approximately 2001 until Meyer's Campers purchased the property in 2004. The Site is currently owned by Meyer's at Churchville, LLC and utilized as Mark's Truck and Boat Center.

The main building was originally constructed in 1986, with two(2) additions reportedly constructed between 1996 and 1999. Operations at the site included sales and service of new and used vehicles as well as vehicle washing and detailing.

A 1,000-gallon aboveground storage tank (AST) was formerly located outside the southwest corner of the main building. This tank has been removed (removal date unknown). Historically, the tank contained gasoline, virgin oil, and/or waste oil. A 275-gallon virgin oil AST was located in the service area, and a 200-gallon waste oil AST was formerly located outside the service area. Other vehicle maintenance products including antifreeze, used antifreeze, parts washing solvents, lubricants, automotive fluids, cleaners, and waxes were reportedly used onsite and stored in containers of 55-gallons or less.

Contamination was discovered at the Site in 2002 during an environmental investigation conducted for Meyer's Campers, as part of a property transfer.

The Site has undergone a series of environmental investigations including:

- Preliminary Phase I Environmental Site Assessment (ESA), *Entrix, Inc.*, November 1997
- Preliminary Phase I ESA, *Entrix, Inc.,* August 2001
- Phase I ESA, *The Sear-Brown Group,* July 2002
- Phase II ESA, *The Sear-Brown Group,* August 2002

The Preliminary Phase I ESAs performed by Entrix in 1997 and 2001 were completed in preparation for a property transaction and reportedly concluded that "no potential environmental issues were identified", as stated in the July 2002 Phase I ESA. It was noted, however, that stained surfaces were observed outside the main building, in the area of the AST and waste drums.

The July 2002 Phase I ESA was conducted in accordance with American Society for Testing and Materials (ASTM) Standard E-1527-00. The report referenced information contained in the Preliminary Phase I ESA (August 2001). The 2002 Phase I ESA included three(3) parcels of land, only one(1) of which is relevant to this investigation, the original 10.28-acre parcel described as Tax Account No. 143.17-1-001.121 formerly occupied by Gabriele Ford. It should be noted that since the 2002 Phase I ESA, this parcel has been subdivided, as described in Section 1.2.1.

The July 2002 Phase I ESA noted the following findings:

- Staining was observed on the asphalt parking lot and the side of the building along the exterior western wall of the main building. Staining appeared to be associated with a waste oil AST that had been located inside a small storage building, adjacent to the west of the main building. Reportedly, the exterior western wall of the main building was also utilized for used solvent drum storage.

- Solid waste, including construction/demolition debris, and an empty 250-gallon AST were noted behind a small wooden shed located at the northwest corner of the Site.

- The former occupant of the Site, Churchville Ford, is listed as a Conditionally Exempt Small Quantity Generator (CESQG) of hazardous waste.

- The presence of an oily sheen on water in the oil/water separator was noted.

- Maps filed with the Village of Churchville indicated the potential presence of one(1) 500-gallon waste oil underground storage tank (UST) and one(1) 500-gallon gasoline UST near the northwest corner of the main building. No evidence of these USTs was found during the assessment.

Based on these findings, the following was recommended:

- Subsurface investigation near the northwest corner of the main building to identify the potential presence of suspected USTs.

- Appropriate disposal of oil/water separator contents and follow up investigation to determine the potential for subsurface contamination from this source.

- Subsurface investigation of the stained pavement area along the western exterior wall of the main building.
- Subsurface investigation in the area of a former air compressor storage shed, that was located along the exterior southern wall of the main building.
- Disposal of the solid waste observed on the northwestern portion of the Site and subsurface investigation of the area if impacts are observed.
- De-listing of the Site as a CESQG of hazardous waste.

The Phase II ESA completed in August 2002 consisted of a geophysical survey, fourteen (14) soil borings, and installation of four(4) temporary groundwater monitoring wells in areas of concern identified by the Phase I ESA. A total of seven (7) soil and four (4) groundwater samples were submitted for laboratory analysis.

Results of the 2002 Phase II investigation revealed the following:

- No anomalies representative of USTs were indicated by the geophysical survey.
- Volatile organic compounds (VOCs) related to petroleum products and degreasing solvents were detected at levels above NYSDEC Allowable Soil Concentrations (Technical and Administrative Guidance Memorandum (TAGM) 4046) in soil samples GP-1, GP-3, GP-6, GP-10, and GP-13. The highest concentrations were found in borings located near the southwest corner of the building.
- Semi-volatile organic compounds (SVOCs) related to petroleum products were detected at levels above allowable soil concentrations in soil samples from borings GP-1, GP-10, and GP-13. The source of the SVOCs appears to be from the former waste oil AST.
- VOCs related to petroleum products and/or degreasing solvents were detected at levels above NYSDEC Class GA groundwater standards in all four (4) of the wells. The highest concentration of chlorinated VOCs was detected in MW-3, located in the former solvent storage area.
- Approximately 0.3-0.5 ft of petroleum was present in MW-1, located in the area of the former waste oil AST.
- Groundwater flows generally to the south.

The following actions were recommended based on the findings of the Phase II ESA:

- Convert the temporary monitoring wells into permanent wells.
- Convert MW-1 into a permanent well with a larger diameter well to evaluate the thickness of the product layer.
- Install additional soil borings and groundwater monitoring wells on the northern, eastern, and western VOC plume boundaries.
- Install additional soil borings and groundwater monitoring wells in the vicinity of the oil/water separator for further delineation.

Previous Site investigation and assessment information was used in the development the Remedial Investigation (RI) work plan for the Site. The NYSDEC approved the Entrix *Investigation Work Plan* in 2004 and the Lu Engineers *Voluntary Cleanup Program Work Plan* in September 2006. Additional investigation points were added to the Lu Engineers work plan to address the noted areas of impact. All sample/test points and well locations are indicated on the Sample Location Plan (Figure 2).

1.2.3 Geologic Conditions

Regionally, the Village of Churchville lies within the glaciated lowlands of the Ontario Plain Physiographic Province of New York. Native soils in the vicinity of the Site consist of glacial till (silt mixed with varying amounts of gravel, clay, and sand) overlain by a silt-based loam. Although not encountered during this investigation, the bedrock underlying the site and surrounding area is comprised of dolostone and/or shale of the Camillus formation. This formation is Upper Silurian in age and a member of the Salina Group (Fisher et al 1970, 1977). Bedrock at the Site is greater than 45 ft below ground surface (bgs) and was not encountered during this investigation.

Soil types mapped for the site include Hilton and Ontario loam, each maintaining a slope of approximately 3-8 percent. Hilton soils are very deep, moderately well-drained soils formed in till of Wisconsin age, derived from sandstone and limestone. They are nearly level to sloping soils on till plains and glaciated dissected plateaus. Saturated hydraulic conductivity is moderately high or high in the mineral solum and moderately high to low in the substratum. Ontario soils are deep or very deep, well-drained soils formed in till which is strongly influenced by limestone and sandstone. They are nearly level to very steep soils on convex upland till plains and drumlins. Saturated hydraulic conductivity is moderately high or high in the solum and low to moderately high in the substratum.

Based on soil classifications of the three(3) soil borings completed by Lu Engineers at the Site, soils consist mainly of silt and fine sand. A stratigraphic analysis was performed as part of the RI using Lu Engineers' subsurface data from the well borings soil boring logs from the previous Phase II investigation, completed by Sear-Brown in 2002. The purpose of this analysis was to develop a conceptual depiction of subsurface geologic and hydrogeologic conditions.

As part of the analysis, geologic cross sections were completed to illustrate generalized subsurface conditions. Cross Section A-A' indicates subsurface conditions from MW-JCL-03 southward to MW-JCL-01. Cross Section B-B' depicts subsurface conditions from previous investigation points GP-12 eastward to GP-14. The soil cross sections are depicted on Figures 3A and 3B.

Overburden groundwater flow patterns at the Site were generated using groundwater level measurements from the on-Site wells. Figure 5 is the groundwater contour map generated using measurements collected in August 2010. Groundwater flow direction is oriented perpendicular to the projected groundwater contour lines and trends down-gradient. Groundwater elevations are highest on the northern portion of the property and lowest along the southern portion, resulting in a general southward groundwater flow direction. Groundwater elevations drop by up to 18 ft southward across the Site.

Rising and falling head slug tests were used to calculate hydraulic conductivity and groundwater velocities. Hydraulic conductivity (the relative mobility of groundwater through soils) data was obtained using the Bouwer and Rice Method (1976). Through the analysis of each rising and falling head slug test, an average hydraulic conductivity for the Site was determined to be approximately 2.058×10^{-6} ft/sec.

Groundwater velocity, the rate at which groundwater moves across the Site, was calculated across two(2) areas of the Site. The first groundwater velocity calculation was performed on the flat-lying area of the Site, in proximity to the building and contaminant source area. The velocity on this portion of the Site was calculated to be approximately 2.058×10^{-8} ft/sec and is considered the minimum velocity for the Site. The second groundwater velocity calculation was performed in the area of greatest topographic and hydrogeologic relief, south of the Site building. The slope in this area is relatively steep with relief of approximately 20 vertical ft over a horizontal distance of approximately 200 ft (10% +/-). The velocity on this portion of the Site was calculated to be approximately 1.544×10^{-7} ft/sec.

Hydraulic conductivity and groundwater level data collected during the RI have indicated the following:

- Overburden material underlying the Site consists primarily of silt with varying amounts of intermixed gravel, sand, and clay.
- Hydraulic conductivity measurements for on-site wells MW-1, MW-JCL-02 and MW-13 averaged 2.058×10^{-6} ft/sec.
- Groundwater velocities on the Site vary from 2.058×10^{-8} ft/sec to 1.544×10^{-7} ft/sec.
- The average depth to groundwater ranged between 4 and 6 ft bgs.
- Overall groundwater flow is generally from north to south, but includes a westerly component as well.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

A RI was performed to characterize the nature and extent of contamination at the Site. Sample and test locations noted in the following subsections are indicated on the attached "Sample Location Plan", Figure 2. The results of the RI are described in detail in the Remedial Investigation Report for the Site completed by Lu Engineers in September 2008, and in Figures 4 and 6.

Generally, the RI determined that the approximate area of the Site apparently underlain by contaminated groundwater exceeding 5 micrograms/liter (ug/l) is located on the southwestern portion of the interior and exterior of the main building. This area covers approximately 22,636 ft^2. The apparent vertical extent of chlorinated solvent contamination in subsurface soils has been estimated based on Lu Engineers soil boring logs, sample depths and results, and previous investigation findings. Lu Engineers estimated the vertical extent of soil contamination to be approximately 9 ft bgs. Prior investigations have identified similar maximum depths of contaminant occurrence. Detectable levels of contaminants in subsurface soils have not been identified at depths greater than 9 ft bgs. The deepest borings installed to date, MW-JCL-01 (44.5 ft bgs) and MW-JCL-02 (36.0 ft bgs), indicate no occurrence of contamination at greater depths.

Groundwater and soil vapor analyses indicate that the same area is contaminated with chlorinated solvents (i.e., trichloroethylene (TCE), tetrochloroethylene (PCE), and cis-1,2-dichloroethylene (cis-1,2-DCE)) resulting from former solvent storage in the area and degradation of PCE in the environment. This area was addressed during remedial activities. Lu Engineers has not identified indications of substantial contaminant mobility in Site groundwater.

The presence of identified compounds is attributed to the past use of areas within the Site for solvent storage and used oil storage, in particular, the western side of the vehicle service portion of the building. This portion of the building has been utilized for various vehicle maintenance and repair activities since at least the late 1980s.

Elevated levels of polycyclic aromatic hydrocarbons (PAHs) were found in surface soils in the eastern drainage ditch and storm water retention basin. Sediments in the catch basins also contained PAHs in exceedance of Restricted Commercial Use (RCU) Guidance Values. It appears that overland flow of contaminants from parking areas and adjacent roadways has impacted the retention basin. Recent roadway construction at the Site may also have attributed to the elevated levels of PAHs within the basin due to use of heavy construction equipment, paving activities, and earthwork. In addition, off-Site sources such as vehicle emissions and asphaltic debris from Main Street and I-490 may have attributed to the increased levels of PAHs in the retention basin.

Migration of TCE, PCE, and cis-1,2-DCE out of the source area has not been indicated by the findings of this investigation. This inference is supported by the low permeabilities and groundwater velocities observed to date. These compounds will break down naturally in the subsurface over time, however, three(3) rounds of groundwater sampling did not indicate a significant decrease in chlorinated solvent concentrations prior to implementation of remedial efforts in 2009.

Results of the soil vapor intrusion (SVI) sampling indicated the migration of contaminated soil vapor into the western portion of the building. TCE and PCE easily volatilize to air from contaminated soil and groundwater and vapors may accumulate below the building slab.

Findings of this investigation indicated that PAHs from surface soils and catch basin sediments have been transported by overland flow into the onsite catch basins, through the storm sewer system, and into the stormwater retention basin. Further migration is not anticipated based on the relatively low levels of PAHs detected beyond the basin outfall.

Some downward migration of PAHs into the subsurface may occur in the retention basin, but PAHs generally have low mobility in the environment. PAHs do not easily dissolve in water and adsorb tightly to soil particles. PAHs do not easily evaporate to the air.

Based on the RI findings, the following Conceptual Site Model was developed.

Table 1. Conceptual Site Model

Media	Known or Suspected Source of Contamination	Type of Contamination Identified (General)	Contaminants of Potential Concern (Specific)	Primary or Secondary Source Release Mechanism	Migration Pathways	Potential Receptors
Soil	1) Solvent storage area 2) Used oil AST	PAHs, Metals	Benzo(a) pyrene, PAHs, cadmium	Leaks, spills, poor disposal practices	Infiltration / percolation and overland flow	Human: direct contact if excavation occurs in contaminated areas
Sediment	1) catch basins 2) storm sewers 3) road drainage	PAHs, Metals	benzo(a)pyrene, indeno(1,23-cd) pyrene, dibenz (a,h) anthracene, arsenic	Deposition of vehicle emissions, surface runoff	Overland flow	Human: direct contact if excavation occurs in contaminated areas
Groundwater	Contaminated Soil (secondary source)	Chlorinated solvents	cis-1,2-DCE; TCE; PCE	Infiltration/ percolation from soils	Groundwater flow	Human or ecological receptors are not expected to be exposed
Air/Soil Vapor	Contaminated soil and groundwater beneath buildings	Chlorinated solvents	TCE, PCE, cis-1,2-DCE	Volatilization of contaminated groundwater and/or soil	Soil vapor intrusion into buildings	Human: Inhalation via indoor air, and during remedial activities

The following subsections provide a brief summary of Site conditions observed when the RI was performed in 2006-2008. References to previous investigation work are also included as appropriate.

Soil and Sediment

Sediment Sampling

Sediment was not sampled on the Site prior to 2006. Sediment analytical results yielded from the three(3) catch basin sediment samples obtained in 2006 provided the following information:

- All VOCs detected in the sediment samples were below RCU Guidance Values and Recommended Soil Cleanup Objectives (RSCOs) in TAGM 4046.

- SVOCs were detected above RCU Guidance Values and RSCOs in sample SED-03 located in the parking lot south of the building. The exceedances are all PAH compounds, which commonly result from the incomplete combustion of organic material including fossil fuels, such as coal or fuel oil, and are often found in ash, cinders, soot, and coal tar pitch.

- SED-03 exhibited the highest concentration of PAHs. The elevated concentrations may be attributed to small pieces of asphalt in the samples from the surrounding parking lot and roadways.

- Arsenic, cadmium, magnesium, and zinc were found to be above the RSCOs (TAGM 4046) and Eastern USA background values, however, only arsenic in SED-03 was also found above the Part 375 Guidance Values for RCU.

Surface Soil Sampling

A total of sixteen(16) surface soil samples were collected at the Site. Nine(9) surface soil samples were collected in 2004 by Entrix, and seven(7) surface soil samples were collected by Lu Engineers in 2006.

Surface soil analytical results indicated the following:

- VOC analytical results from these samples did not identify any compounds detected at levels above RCU Guidance Values or RSCOs in TAGM 4046.

- SVOCs were detected above RCU Guidance Values and RSCOs at four(4) of the Lu Engineers surface soil sample locations and one(1) of the Entrix locations: SS-01, SS-02, SS-05, SS-07, and SSB-9.

- The SVOCs found above guidance levels are PAHs. The highest PAH concentrations were detected in SS-07 and SSB-9 on the northeastern portion of the storm water retention basin, closest to the drainage inlet.

- Metals were not detected at concentrations above RCU Guidance values, however some metals were detected above Eastern USA background levels.

Subsurface Soil Sampling

A total of twenty-nine(29) subsurface soil samples were collected at the Site. Twenty-six (26) soil samples were collected by Entrix in 2004, and three (3) subsurface soil samples were collected from well borings by Lu Engineers, in 2006. No elevated photoionization detector (PID) readings were observed in borings MW-JCL-01 or MW-JCL-03. Elevated PID readings were observed in soil boring MW-JCL-02 between 1.8 and 8 ft bgs.

PID readings in this interval ranged from 32 parts per million (ppm) beginning at 1.8 ft to 127 ppm (the highest reading observed) at approximately 7 ft bgs. At 8 ft bgs, PID readings dropped to 1 ppm.

Subsurface soil sample analytical results obtained during 2008 RI work indicated:

- No VOCs were detected in subsurface soils above the RCU Guidance Values or RSCOs in TAGM 4046.
- PAH compounds were detected at concentrations above TAGM 4046, but below the RCU Guidance Values in SB-H, MW-JCL-1 and MW-JCL-3.
- Calcium, magnesium, and zinc were detected above Eastern USA Background levels at most of the sample locations, however, no metals were detected above the RCU Guidance Values.

Site-Related Groundwater

Groundwater samples were collected during three(3) rounds of sampling. On August 19, 2004, Entrix collected groundwater samples from six(6) of the on-Site monitoring wells, that were either installed by Entrix (MW-21 and MW-22) or upgraded from existing Sear-Brown Group monitoring wells (MW-1, MW-3, MW-6, and MW-13). On November 17-18, 2006 and June 14-15, 2007, Lu Engineers collected groundwater samples from all nine(9) groundwater monitoring wells. Sample locations are shown on Figure 2. Samples were collected using disposal polyethylene bailers attached to new polyethylene twine.

VOCs were detected at concentrations above NYS groundwater standards and guidance values, as shown on the following tables.

Table 2A. Detected VOCs in Groundwater (Entrix 2004)

PARAMETERS [1]	MW-1	MW-3	MW-6	Groundwater Standards Criteria [2]
vinyl Chloride	**5**	ND	ND	2
chloroethane**	2	ND	ND	5
acetone	ND	ND	ND	50*
carbon disulfide	ND	ND	ND	60*
trans-1,2-Dichloroethene**	1	1	ND	5
1,1-dichloroethane (1,1,-DCE)**	**12**	1	ND	5
cis-1,2-DCE**	**340**	**360**	ND	5
chloroform	ND	ND	ND	7
benzene	0.8	ND	ND	1
1,2-Dichloroethane	ND	ND	ND	0.6
TCE	3	**50**	**16**	5
PCE**	ND	**35**	**51**	5
dichlrordifluoromethane	3J	**6**	**8**	5
Xylenes**	ND	ND	ND	5

Table 2B. Detected VOCs in Groundwater (Lu Engineers 2006 & 2007)

PARAMETERS[1]	MW-1 (2006)	MW-1 (2007)	MW-3 (2006)	MW-3 (2007)	MW-6 (2006)	MW-6 (2007)	MW-22 (2006)	MW-22 (2007)	MW-JCL-1 (2006)	MW-JCL-2 (2006)	MW-JCL-2 (2007)	MW-JCL-3 (2006)	MW-JCL-3 (2007)	Groundwater Standards Criteria [2] (ppb)
vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2
chloroethane**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
acetone	ND	ND	ND	ND	ND	ND	ND	ND	19	ND	ND	ND	ND	50*
carbon disulfide	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	60*
trans-1,2-DCE**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
1,1-DCE**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
cis-1,2-DCE	**860**	**620**	**320**	**310**	ND	ND	ND	ND	ND	**560**	**60**	**10**	ND	5
chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	7
benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1
1,2-dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.6
TCE**	**10**	**20**	**270**	**360**	**8**	**8**	ND	ND	ND	**360**	**42**	**17**	ND	5
PCE**	ND	**10**	**300**	**470**	**26**	**35**	ND	ND	ND	**170**	**32**	**7**	ND	5
dichlrordifluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5
xylenes*	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5

1 Results represented in micrograms per liter (ug/L)
2 Ambient Groundwater Standards (6 NYCRR 703.5)
* Groundwater Guidance Value (NYSDEC TOGS 1.1.1)
** Principal Organic Contaminant (6NYCRR 700.1)
ND None Detected

Groundwater samples collected by Entrix in 2004 identified one SVOC at a concentration above the NYS Groundwater Standards and one SVOC was detected in groundwater samples collected by Lu Engineers in 2006 at a level above the NYS Groundwater Standards.

Pre-remedial groundwater conditions may be summarized as follows:

- VOCs detected in groundwater above NYS Standards included solvents and breakdown products of solvents formerly used at the facility.
- The highest levels of VOCs were found in MW-01, MW-03, and MW-JCL-02 located near the southwest corner of the building.
- TCE and PCE remained at levels exceeding NYSDEC Class GA standards in MW-1, located in the vicinity of the former solvent storage area and used oil AST; and in MW-6, located within the central portion of the main building.
- Apparent increases in PCE observed at MW-3, MW-6, and MW-1 prior to the remedial program may have been due to varying groundwater elevations.
- SVOCs bis (2-ethylhexyl) phthalate (a.k.a. DEHP) and (3+4)- methlyphenol were detected above NYS Groundwater Standards in MW-13, located south of the building. It is noted that DEHP is widely used as a plasticizer in the manufacture of polyvinyl chloride (PVC), and may have originated from protective gloves worn during sampling and/or analysis.

Pre-remedial groundwater results taken from June 2007 are indicated on Figure 4.

Site-Related Soil Vapor Intrusion

Two(2) rounds of SVI sampling were completed during the investigation. In August 2004, Entrix collected eight(8) sub-slab soil gas samples (SG-1 thru SG-8) from beneath the floor of the main building and office areas as well as two(2) ambient air samples (SG-9 and SG-10). The samples were collected over an 8-hour period in Summa canisters and analyzed for VOCs via Method TO-15. Sample locations are shown on Figure 6.

The results were compared to the New York State Department of Health (NYSDOH) decision matrices in the *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006),* and are summarized in the following table.

Table 3A. Soil Vapor Intrusion Sample Results (Entrix- August 2004)

Parameter	SG-1[1]	SG-2	SG-3	SG-4	SG-5	SG-6	SG-7	SG-8	SG-9 (Indoor Air)	SG-10 (Out-door Air)
Carbon Tetrachloride	19 J	74 J	ND	ND	ND	ND	ND	ND	ND	ND
TCE	199	32 J	ND	32 J	ND	1 J	32	32	3 J	ND
Vinyl Chloride[2]										
Recommended Action[3] (Matrix 1)	**Mitigate**	**Mitigate**	Take reasonable and practical actions to identify source and reduce exposures	Monitor	Take reasonable and practical actions to identify source and reduce exposures	Take reasonable and practical actions to identify source and reduce exposures	Monitor	Monitor	--	--
PCE	163	285	54	122 J	129 J	7	81	61	20	ND
1,1,1-TCA	11 J	44 J	33	27 J	44 J	ND	5	5	ND	ND
cis-1,2-DCE	75	40 J	ND	ND	ND	ND	8	4	0.8 J	ND
1,1-DCE[2]										
Recommended Action[4] (Matrix 2)	Monitor/ Mitigate	Monitor/ Mitigate	Take reasonable and practical actions to identify source and reduce exposures	Monitor/ Mitigate	Monitor/ Mitigate	Take reasonable and practical actions to identify source and reduce exposures	Take reasonable and practical actions to identify source and reduce exposures	Take reasonable and practical actions to identify source and reduce exposures	--	--

Results shown in micrograms per cubic meter (ug/m^3)
ND= Not detected at or above the limit of quantitation
J= Estimated value, the result is > the method detection limit and < the quantitation limit
1- SG-1 thru SG-8 are sub-slab samples
2- Not included in the list of analytes.
3- Recommended actions based on NYSDOH Soil Vapor/Indoor Air Matrix 1 for TCE, Carbon Tetrachloride, & Vinyl Chloride
4- Recommended actions based on NYSDOH Soil Vapor/Indoor Air Matrix 2 for PCE, TCA, cis-1,2-DCE, & 1,1-DCE

At the request of the NYSDEC, a second round of pre-remedial vapor intrusion sampling was performed by Lu Engineers in April 2007. Three(3) sub-slab vapor samples (SVS-JCL-01 thru -03) were collected from beneath the floor of the main building, along with three concurrent indoor air (IA-JCL-01 thru -03) and one outdoor air sample (OA-JCL-04). The sample locations were based on the location of building footers and an evaluation of the reported Entrix sub-slab soil vapor and indoor air results from 2004. The soil vapor samples, indoor air samples and the outdoor sample were collected and analyzed in accordance with the document entitled "Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York" dated October 2006 and NYSDEC's letter of February 21, 2007 regarding vapor intrusion.

These samples were sent to Centek Laboratories, Inc. for analysis of VOCs via Method TO-15. Results were compared to the NYSDOH decision matrices in the *Final Guidance for*

Evaluating Soil Vapor Intrusion in the State of New York (October 2006), and are summarized in the following table.

Table 3B. Soil Vapor Intrusion Sample Results (Lu Engineers- April 2007)

PARAMETERS	SVS[1]-JCL-01	IA[2]-JCL-01	SVS[1]-JCL-02	IA[2]-JCL-02	SVS[1]-JCL-03	IA[2]-JCL-03	OA[3]-JCL-04	OSHA TWA[6]
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ND	10,000
TCE	0.765	0.546	16.4	**6.39**	45.3	**6.39**	ND	537,000
Vinyl Chloride	ND	ND	ND	ND	12.0	ND	ND	1,000
Recommended Action[4] (Matrix 1)	Take reasonable and practical actions to identify source(s) and reduce exposures		**Mitigate**		**Mitigate**		--	NA
PCE	3.31	1.17	86.9	11.9	31.0	11.9	ND	25,000
1,1,1-TCA	ND	ND	26.6	1.11	41.0	1.39	ND	N/A
cis-1,2-DCE	ND	ND	0.443 J	ND	**1,570**	ND	ND	N/A
1,1-DCE	ND	ND	ND	ND	2.54	ND	ND	N/A
Recommended Action[5] (Matrix 2)	Take reasonable and practical actions to identify source(s) and reduce exposures		Take reasonable and practical actions to identify source(s) and reduce exposures		**Mitigate**		--	--

Results shown in micrograms per cubic meter (u/m^3)
ND Not detected at or above the limit of quantitation
J Estimated value, the result is > the method detection limit and < the quantitation limit
1 Sub-slab soil vapor sample
2 Indoor ambient air sample
3 Outdoor air sample
4 Recommended actions based on NYSDOH Soil Vapor/Indoor Air Matrix 1 for TCE, Carbon Tetrachloride, &d Vinyl Chloride
5 Recommended actions based on NYSDOH Soil Vapor/Indoor Air Matrix 2 for PCE, TCA, cis-1,2-DCE, & 1,1-DCE
6 Occupational Safety and Health Association (OSHA) Permissible Exposure Limits based on an 8-hour time weighted average (TWA). NOTE: OSHA Permissible exposure limits (PELs) are generally applicable only when the chemical is actively used at the facility.

Results of the pre-remedial SVI sampling reveal the following information:

- The highest sub-slab concentrations of TCE were detected in SVS-JCL-03 and SG-1, which were located in the southwest corner of the building, near the former solvent storage area.

- TCE was not identified in any of the products inventoried by Lu Engineers in April 2007.

- Vinyl chloride was detected in one sample (SVS-JCL-03), located in the southwest corner of the building. This compound was not detected in the indoor air samples and was not found in any of the products inventoried by Lu Engineers in April 2007. Vinyl chloride was detected in a nearby groundwater sample from MW-01 (Entrix 2004), but was not detected in any groundwater or soil samples collected by Lu Engineers.

- PCE was detected in all of the sub-slab and indoor air samples collected by Lu Engineers and Entrix. This compound was also detected in groundwater samples from nearby wells MW-1, MW-3, MW-JCL-02, and MW-6 at concentrations above NYS groundwater standards. Low levels of PCE were detected in Entrix soil samples SB-C, SB-M, SB-Q, and SB-T and Lu Engineers soil samples from MW-JCL-1 and MW-JCL-2.

- PCE was identified in four products used in the facility during the product inventory completed by Lu Engineers in April 2007. A 20 gallon drum of Zep Formula 300 Industrial Solvent for Cold Degreasing (containing 1,1,1-TCA), benzene, carbon tetrachloride, and PCE) was located along the western wall of the shop area. PID readings in this area were approximately 13 ppm at the time of sampling.

- Napa CRC "Brakleen" spray, Zep "Zepunch" Engine Degreaser, and Yamaha Silicone Protectant & Lube spray, which contain PCE, were observed in the workshop area and parts supply room. It appears that PCE detected in the indoor air samples may be related to the use of these products within the building.

- 1,1,1-TCA was detected in sub-slab and indoor air samples located in the western portion of the building. This compound was not detected in any of the soil or groundwater samples collected by Entrix and Lu Engineers, and was not identified in any of the products inventoried by Lu Engineers in April 2007. The source of TCA in the soil vapor intrusion samples is unknown.

- Cis -1,2- DCE was detected in sub-slab sample SVS-JCL-03, located in the southwest corner of the building, at a concentration of 1,570 ug/m^3, but not detected in the associated indoor air sample. Lower concentrations of cis-1,2-DCE were detected in the Entrix soil vapor samples collected in the same area.

- Cis-1,2-DCE was detected above NYS groundwater standards in MW-1, MW-3, and MW-JCL-02 which are located near the southwest corner of the building. This compound was also detected at low levels in soil samples MW-1, MW-3, SB-C, SB-E, and MW-JCL-2. None of the products inventoried contain cis-1,2-DCE; therefore, it appears that the source is from impacted groundwater. NYSDOH guidance recommends mitigation based on elevated levels in the sub-slab, even though the compound was not detected in the indoor air sample.

- 1,1-DCE was detected in sub-slab sample SVS-JCL-03 located in the southwest corner of the building. 1,1-DCE was not included in the analysis by Entrix. This compound was not identified in any of the products inventoried by Lu Engineers in April

2007 and was not detected in soil or groundwater samples collected by Lu Engineers or Entrix. The source of 1,1-DCE in the sub-slab sample is unknown.

It is noted that TCE was detected in groundwater samples from nearby wells MW-01, MW-03, and MW-JCL-02. TCE was also detected at low levels in soil samples MW-3, SB-C, SB-M, SB-Q, and SB-T collected by Entrix in 2004.

1.4 SUMMARY OF REMEDIAL ACTIONS

The Site was remediated in accordance with the NYSDEC-approved RAWP dated December 2008 and a minor amendment dated September 2009.

The following is a summary of the RAs performed at the Site:

1. Five(5) injection wells were installed in the western portion of the main building service area to a total depth of 11.5 ft bgs. One(1) deeper well was installed to a total depth of 17.5 ft bgs. In addition, it should be noted that replacement wells were installed for two(2) of the shallow injection wells. The wells consisted of 7.5 ft of one-inch diameter Schedule 40 PVC well screen with one-inch PVC riser connected to a PVC ball valve and cam-lock fitting at the well head. All injection wells were installed in May 2009 with flush–mounted, bolted well covers. The location of all injection wells is indicated on Figure 7, the Injection Well Location Plan.
2. In-situ chemical oxidation (ISCO) using injected sodium permanganate ($NaMnO_4$) was initiated in June 2009 and completed in January 2010 and included a total of eleven(11) injection events. This process included the direct injection of $NaMnO_4$ into the contaminated zone of the saturated soils and groundwater underlying the Site. The contaminated area directly affected by the injection process was approximately 80 ft by 80 ft and is an average of 5 ft thick based on RI findings. A total of approximately 1,230 gallons of 3% $NaMnO_4$ solution were injected into the subsurface.
3. Confirmatory groundwater and soil vapor testing was conducted in the area of concern to determine the effectiveness of the $NaMnO_4$ injection. As described in Section 1.4.3, dramatic reductions in groundwater contaminant levels were realized by the selected ISCO method. Results are provided in Tables 4D and 4E of the SMP.

4. Vapor mitigation issues were reviewed and a Sub-slab Depressurization System (SSDS) was installed. Details of the SSDS are discussed in Section 1.4.2 and results of the vapor mitigation testing are discussed in Section 1.4.3 of the SMP.
5. Execution and recording of a DR to restrict land use and prevent future exposure to any contamination remaining at the Site.
6. A Development and implementation of a SMP for long term management of remaining contamination as required by the DR, which includes plans for EC/ICs monitoring, operation and maintenance, and reporting.

RAs were completed at the Site between May 2010 and April 2011.

1.4.1 Removal of Contaminated Materials from the Site

A list of the soil cleanup objectives (SCOs), Groundwater Standards, and SVI decision matrices for the primary contaminants of concern (COCs) and applicable land use for this Site are provided in Tables 4A-4C.

Table 4A. Remedial Objectives for Soil and Groundwater

Parameter	Groundwater Standard[1]	Soil Cleanup Objective[2]
Trichloroethene (TCE)	5 ppb	200 ppm
Tetrachloroethene (PCE)	5 ppb	150 ppm
cis-1,2-dichloroethene (cis-1,2-DCE)	5 ppb	500 ppm

1- NYS Class GA Groundwater Quality Standards (6 NYCRR Part 703.5)
2- Restricted Commercial Use soil clean-up objectives (6 NYCRR Part 375-6)

Table 4B. NYSDOH Soil Vapor/Indoor Air Matrix 1
(TCE, Carbon Tetrachloride, and Vinyl Chloride Guidance Values)

Sub-slab Vapor Concentration of Compound (*u*g/m^3)	Indoor Air Concentration of Compound (*u*g/m^3)			
	< 0.25	0.25 to <1	1 to < 5.0	5.0 and above
< 5	1. No further action	2. Take reasonable and practical actions to identify source and reduce exposures	3. Take reasonable and practical actions to identify source and reduce exposures	4. Take reasonable and practical actions to identify source and reduce exposures
5 to < 50	5. No further action	6. MONITOR	7. MONITOR	8. MITIGATE
50 to < 250	9. MONITOR	10. MONITOR/MITIGATE	11. MITIGATE	12. MITIGATE
250 and above	13. MITIGATE	14. MITIGATE	15. MITIGATE	16. MITIGATE

Table 4C. NYSDOH Soil Vapor/Indoor Air Matrix 2
(PCE, 1,1,1-TCA, cis-1,2-DCE, and 1,1-DCE Guidance Values)

Sub-slab Vapor Concentration of Compound (ug/m^3)	Indoor Air Concentration of Compound (ug/m^3)			
	< 3	3 to <30	30 to < 100	100 and above
< 100	1. No further action	2. Take reasonable and practical actions to identify source and reduce exposures	3. Take reasonable and practical actions to identify source and reduce exposures	4. Take reasonable and practical actions to identify source and reduce exposures
100 to < 1,000	5. MONITOR	6. MONITOR/ MITIGATE	7. MITIGATE	8. MITIGATE
1,000 and above	9. MITIGATE	10. MITIGATE	11. MITIGATE	12. MITIGATE

Implementation of the ISCO program was considered to have effectively remediated contaminants of concern in Site groundwater and soils. The groundwater and subsurface soils were treated via ISCO using $NaMnO_4$. The chemical oxidant was applied through injection wells installed 4 to 17.5 ft deep to treat subsurface soils and well as groundwater. The oxidant was injected into the subsurface using specialized pumping equipment. This process was intended to remediate PCE concentrations in affected Site environmental media, as well as concentrations of PCE's attenuation "daughter" products such as TCE and vinyl chloride to concentrations below applicable regulatory values.

Soil excavation and/or extraction of environmental media was not conducted as part of the remedial program. As such, estimation of the mass of contaminant remediated or destroyed by the ISCO implementation is not considered to be readily quantifiable. The analytical results presented in Section 1.4.3 indicate the continued presence of low concentrations of residual target contaminants. It is contended that natural attenuation of these contaminants will continue through the processes of microbial degradation and dispersion. It is likely that the indigenous microbial population was impacted by the ISCO process. However, indigenous microbial activity is considered likely to rebound as the remaining sodium permanganate mass continues to be oxidized in the environment. Remedial objectives with respect to substantial reductions in the concentrations of target contaminants have been realized and natural attenuation will continue to degrade the residual contaminant concentrations.

As described previously, five(5) shallow injection points, three(3) existing monitoring wells, and one(1) deep injection point were used for oxidant injection. The chemical oxidant was injected during eleven(11) separate events over seven(7) months. During the implementation, groundwater concentrations were monitored and colorimetric testing was conducted to evaluate oxidant distribution.

Additional SVI sampling was conducted after the oxidant injection was complete to determine if additional vapor intrusion mitigation or long term monitoring is needed. Based on the results of this testing a SSDS was installed beneath the floor of the shop portion of the building as an EC. In addition, ICs are required in the form of a DR to mitigate potential exposures to contaminated soil and groundwater in the future.

1.4.2 Site-Related Treatment Systems

An SSDS was installed in June 2011in accordance with the NYSDEC-approved May 27, 2011 Sub-Slab Depressurization System Design prepared by Lu Engineers and the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006). The SSDS was installed by Mitigation Tech, a national Environmental Health Association (NEHA) certified mitigation contractor. The system provides a minimum negative air pressure differential of -0.002 inches water column to all areas of the sub-slab within the 1989 additional portion of the shop building. The size of the area requiring mitigation necessitated the installation of two fan units, one(1) on the north and one(1) on the south side of the shop building. Figure 8 shows the location and piping layout for each of the two(2) system components.

1.4.3 Remaining Contamination

Based on the analytical results of post-remedial SVI sampling conducted in March 2010 and groundwater sampling conducted in August 2010, it appears that residual dissolved-phase chlorinated VOCs are limited to saturated zone soils and groundwater in the immediate vicinity of the former solvent storage source area located inside and outside of the western exterior wall of the building.

Residual groundwater contamination exists at MW-3 and MW-JCL-02 (Figure 5). The chlorinated VOCs detected in this round of sampling were not detected in well MW-JCL-02 or in the other two(2) Site wells tested in February. It is noted that groundwater appears to flow to the southeast and down-gradient well MW-13 did not reveal any detectable levels of chlorinated VOCs in either post-remedial sample.

In addition, elevated levels of manganese was detected in MW-1, MW-3 MW-6 and MW-JCL-02. In MW-JCL-01, MW-JCL-02, and MW-JCL-03, the levels of manganese increased during remediation and decreased post remediation. The levels of manganese in MW-JCL-01 and MW-JCL-03 were below groundwater standards. Elevated levels of iron were also noted in MW-3. MW-6, MW-13, MW-JCL-01, and MW-JCL-03. Iron was also detected in MW-JCL-02 below groundwater standards.

SVI sample results from the March 2010 event indicate that sub-slab vapor still exists beneath the workshop portion of the building. SVI sample SVS-JCL-03b revealed detectable concentrations of chlorinated VOC contaminants in the source area inside the building including TCE (Figure 6). Sample SVS-JCL-02b collected from the eastern portion of the workshop area did not reveal detectable levels of TCE, but did reveal VOCs PCE and TCA.

Table 4D. Post Remedial Groundwater Sampling Results (Lu Engineers-August 2010)

PARAMETERS[1]	MW-1	MW-3	MW-6	MW-13	MW-JCL-1	MW-JCL-2	MW-JCL-3	Groundwater Standards Criteria [2] (ppb)
acetone	**104**	**52.9 B**	**62.2 J**	6.94 JB	19	ND	ND	50*
1,1-DCE**	1.17 J	ND	ND	ND	ND	ND	ND	5
cis-1,2-DCE	ND	ND	ND	ND	ND	29	ND	5
chloroform	ND	1.17 J	1.46 J	ND	ND	ND	ND	7
benzene	0.786	0.742	0.383J	ND	ND	ND	ND	1
TCE**	ND	ND	ND	ND	ND	**23.1**	ND	5
PCE**	ND	**16.2**	ND	ND	ND	2.68	ND	5
dichlrordifluoromethane	4.50 J	**98.2**	3.80 J	ND	ND	ND	ND	5
methyl-ethyl ketone (2-butonone)	9.14 J	7.53 J	5.53 J	ND	ND	ND	ND	50
methyl-Tert-Butyl Ether (MTBE)	1.71 J	ND	ND	ND	ND	ND	ND	10
tetrachloroethene								5
iron	ND	**468**	**3,760**	**1,790**	**639**	**145**	**8,610**	300
manganese	**117,000**	**24,600**	**78,000**	**501**	29	**622**	187	300

1 Results represented in micrograms per liter (ug/L)
2 Ambient Groundwater Standards (6NYCRR 703.5)
* Groundwater Guidance Value (NYSDEC TOGS 1.1.1)
** Principal Organic Contaminant (6NYCRR 700.1)
ND None Detected

Table 4E. Post Remedial Soil Vapor Intrusion Sample Results (Lu Engineers- March 2010)

PARAMETERS	SVS[1]-JCL-01	IA[2]-JCL-01	SVS[1]-JCL-02	IA[2]-JCL-02	SVS[1]-JCL-03	IA[2]-JCL-03	OA[3]-JCL-04	OSHA TWA[6]
Carbon Tetrachloride	Not Sampled	Not Sampled	ND	ND	ND	ND	0.615	10,000
TCE	Not Sampled	Not Sampled	ND	ND	305	ND	ND	537,000
Vinyl Chloride	Not Sampled	Not Sampled	ND	ND	**2,490**	ND	ND	1,000
Recommended Action[4] (Matrix 1)	NA		**No Further Action**		**Mitigate**		--	NA
PCE	Not Sampled	Not Sampled	ND	ND	60.5	ND	ND	25,000
1,1,1-TCA	Not Sampled	Not Sampled	ND	ND	18,500	ND	ND	N/A
cis-1,2-DCE	Not Sampled	Not Sampled	97.3	285	313	236	ND	N/A
1,1-DCE	Not Sampled	Not Sampled	12.3	ND	256	ND	ND	N/A
Recommended Action[5] (Matrix 2)	NA		Take reasonable and practical actions to identify source(s) and reduce exposures		**Mitigate**		--	--

Results shown in micrograms per cubic meter (u/m^3)
ND= Not detected at or above the limit of quantitation
J= Estimated value, the result is > the method detection limit and < the quantitation limit
4 Sub-slab soil vapor sample
5 Indoor ambient air sample
6 Outdoor air sample
4 Recommended actions based on NYSDOH Soil Vapor/Indoor Air Matrix 1 for TCE, Carbon Tetrachloride, &d Vinyl Chloride
5 Recommended actions based on NYSDOH Soil Vapor/Indoor Air Matrix 2 for PCE, TCA, cis-1,2-DCE, & 1,1-DCE
6 Occupational Safety and Health Association (OSHA) Permissible Exposure Limits based on an 8-hour time weighted average (TWA). NOTE: OSHA Permissible exposure limits (PELs) are generally applicable only when the chemical is actively used at the facility.

Post-remedial analytical findings are provided on Figures 4 and 6 and the tables above. These figures illustrate the sample locations and results of all groundwater and soil vapor samples collected at the Site following completion of RA.

Figure 4 also illustrates the samples that exceeded applicable groundwater standards for VOCs, and the metals iron and manganese at the Site after completion of the RA.

Since contaminated groundwater and soil vapor remain beneath the Site after completion of the RA, EC/ICs are required to protect human health and the environment. These EC/ICs are described in the following sections. Long-term management of these EC/ICs and residual contamination will be performed under the SMP approved by the NYSDEC.

2.0 ENGINEERING AND INSTITUTIONAL CONTROLS PLAN

2.1 INTRODUCTION

The imposition of ECs and ICs are required in the form of a DR that requires a) limiting the use and development of the property to commercial use, which will also permit industrial use; b) compliance with an approved SMP; c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH; and d) the property owner to complete and submit an annual certification of EC/ICs.

2.1.1 General

Since remaining contaminated soil, groundwater, and soil vapor exists beneath the Site, EC/ICs are required to protect human health and the environment. This EC/IC Plan describes the procedures for the implementation and management of all EC/ICs at the Site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the Site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the DR
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan(EWP) for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

2.2.1.1 Cap

Exposure to remaining contamination in soil/fill, groundwater and soil vapor at the Site is prevented by a soil cover system placed over the Site. This cover system is comprised of asphalt pavement, concrete-covered sidewalks, and concrete building slabs. The EWP that appears in Appendix A outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 3 of this SMP.

Procedures for maintaining the Cap are documented in the Operation and Maintenance Plan (Section 4 of this SMP). Procedures for monitoring the system are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the Site, occurs.

2.2.1.2 SSDS

Exposure to remaining contamination in soil vapor beneath the building is prevented by a SSDS installed beneath the western portion of the shop area of the building. The Procedures for the inspection and maintenance of this SSDS are provided in the Monitoring Plan included in Section 3 of this SMP.

Procedures for maintaining the SSDS are documented in the Operation and Maintenance Plan (Section 4 of this SMP). Procedures for monitoring the system are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the Site, occurs.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

2.2.2.1 Composite Cover System

The composite cover system is a permanent control and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity.

2.2.2.2 Monitored Natural Attenuation

Groundwater monitoring activities to assess natural attenuation will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over an extended period. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional source removal, treatment and/or control measures may be evaluated.

2.2.2.3 Sub-Slab Depressurization System (SSDS)

A SSDS was installed in June 2011in accordance with the NYSDEC-approved May 27, 2011 Sub-Slab Depressurization System Design prepared by Lu Engineers and the NYSDOH "Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006) (see Appendix J). The SSDS was installed by Mitigation Tech, a national Environmental Health Association (NEHA) certified mitigation contractor. The system provides a minimum negative air pressure differential of -0.002 inches water column to all areas of the sub-slab within the 1989 additional portion of the shop building. The size of the area requiring mitigation necessitated the installation of two fan units, one on the north and one on the south side of the shop building. Figure 8 shows the location and piping layout for each of the two system components.

Procedures for operating and maintaining the SSDS are documented in the Operation and Maintenance Plan (Section 4 of this SMP). Procedures for monitoring the system are included in the Monitoring Plan (Section 3 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition, which may affect controls at the site, occurs.

The active SSDS will not be discontinued unless prior written approval is granted by the NYSDEC. In the event that monitoring data indicates that the SSDS is no longer required, a proposal to discontinue the SSDS will be submitted by the property owner to the NYSDEC and NYSDOH.

2.3 INSTITUTIONAL CONTROLS

A series of ICs are required by the RAWP to: (1) implement, maintain and monitor EC systems; (2) prevent future exposure to remaining contamination by controlling disturbances of the subsurface contamination; and, (3) limit the use and development of the site to commercial and industrial uses only. Adherence to these ICs on the Site is required by the DR and will be implemented under this SMP. These ICs are:

- Limiting the use and development of the property to commercial use, which also permits industrial use;
- Compliance with the DR and this SMP by the Grantor and the Grantor's successors and assigns;
- Restricting the use of groundwater as a source of potable or process water (note: public water is supplied to the Site);
- All ECs must be operated and maintained as specified in this SMP;
- All ECs on the Controlled Property must be inspected at a frequency and in a manner defined in the SMP.
- Groundwater, soil vapor, and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in this SMP;
- The property owner must complete and submit annual certification of EC/ICs.

Institutional Controls identified in the DR may not be discontinued without an amendment to or extinguishment of the DR.

The Site has a series of ICs in the form of site restrictions. Adherence to these ICs is required by the DRs. Site restrictions that apply to the Controlled Property are:

- The property may only be used for commercial or industrial use provided that the long-term EC/ICs included in this SMP are employed.
- The property may not be used for a higher level of use, without additional remediation and amendment of the DR, as approved by the NYSDEC;

- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use;
- The potential for vapor intrusion must be evaluated for any buildings developed on the Site, any potential impacts that are identified must be monitored or mitigated;
- The Site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP.
- NYSDEC retains the right to access such Controlled Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.3.1 Excavation Work Plan

The Site has been remediated for restricted commercial or industrial use. Any future intrusive work that will encounter or disturb the remaining contamination, including any modifications or repairs to the existing cover system will be performed in compliance with the EWP that is attached as Appendix A to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) prepared for the Site.

Relevant Site-specific data for development of a HASP by future Site work is provided along with a CAMP as Appendix D to this SMP. It is understood that the HASP developed from this information must be in full compliance with DER-10, and 29 Code of Federal Regulations (CFR) 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. Based on future changes to State and federal health and safety requirements, and specific methods employed by future contractors, the HASP and CAMP will be updated and re-submitted with the notification provided in Section A-1 of the EWP. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be included in the periodic

inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The Site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). The Site owner will ensure that Site development activities will not interfere with, or otherwise impair or compromise, the ECs described in this SMP.

2.3.2 Soil Vapor Intrusion Evaluation

Prior to the construction of any enclosed structures located over areas that contain remaining contamination and once the potential for SVI has been identified, an SVI evaluation will be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, an SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. This mitigation system will include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting an SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Measures to be employed to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

Preliminary (unvalidated) SVI sampling data will be forwarded to the NYSDEC and NYSDOH for initial review and interpretation. Upon validation, the final data will be transmitted to the agencies, along with a recommendation for follow-up action, such as mitigation. Validated SVI data will be transmitted to the property owner within 30 days of validation. "If any indoor air test results exceed NYSDOH guidelines, relevant NYSDOH fact sheets will be provided to all tenants and occupants of the property within 15 days of receipt of validated data."

SVI sampling results, evaluations, and follow-up actions will also be summarized in the next Periodic Review Report. A copy of the Field Sampling Plan is included as Appendix G.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of all remedial components installed at the Site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive Site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the DR;
- Sampling and analysis of appropriate media during monitoring events;
- If Site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the Site by a qualified environmental professional as determined by NYSDEC.

2.4.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in Site use that are required under the terms of the VCA, 6NYCRR Part 375, and/or ECL.
- 15-day advance notice of any proposed ground-intrusive activities pursuant to the EWP.
- Notice within 48-hours of any damage or defect to the foundations structures that reduces or has the potential to reduce the effectiveness of other ECs and likewise any action to be taken to mitigate the damage or defect.

- Notice within 48-hours of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, including a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the VCA, and all approved work plans and reports, including this SMP;
- Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to Lu Engineers, if necessary. These emergency contact lists must be maintained in an easily accessible location at the Site.

Table 5: Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362
Lu Engineers	(585) 385-7417

* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

Site Location: 111 South Main Street, Churchville, New York

Nearest Hospital Name: Lakeside Memorial Hospital

Hospital Location: 156 West Avenue, Brockport, New York 14420

Hospital Telephone: (585) 637-3131

Directions to the Hospital:

1. Go north on Main Street 1.3 miles;
2. Turn left on Kendall Road and proceed 2.6 miles;
3. Turn right on Lake Road (Route 19) and proceed 7.3 miles;
4. Turn left on West Avenue and proceed 0.4 miles;
5. Hospital is on the right.

Total Distance: 11.7 miles

Total Estimated Time: 22 minutes

Map Showing Route from the Site to the Hospital:

Directions from the site to LAKESIDE MEMORIAL HOSPITAL:

Go north on Main St. 1.3 miles; turn left on Kendall Rd., go 2.6 miles; turn right on Lake Rd. (Rte. 19), go 7.3 miles; turn left on West Ave., go 0.4 miles, hospital is on right

2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at Section 2.5.1. The list will also posted prominently at the Site and made readily available to all personnel at all times.

3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, the soil cover system, and all affected site media identified below. Monitoring of other ECs (Cap and SSDS) is described in Chapter 4, Operation, Monitoring and Maintenance Plan. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (i.e., groundwater);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCG), particularly ambient groundwater standards.;
- Assessing achievement of the EC performance criteria. Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (i.e., well logs included in Appendix E);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

Semi-annual monitoring of the performance of the remedy and overall reduction in contamination on-site will be conducted. After the first year, the frequency may be modified upon NYSDEC approval. Trends in contaminant levels in groundwater will be evaluated if necessary to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 6 and outlined in detail in Sections 3.2 and 3.3 below.

Table 6: Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Matrix	Analysis
1	Biannually (seasonal high and low groundwater)	Groundwater	EPA Method 8260 EPA Method 6010 Manganese and Iron
2	Annually	SSDS	N/A
3	Biannually	Soil Cover	N/A

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH

3.2 SOIL COVER SYSTEM MONITORING

The integrity of the Site building floor will be maintained such that no cracks, penetrations or other structural issues will be allowed to exist. Any cracks that appear with the apparent potential to allow subsurface vapor to enter the building will be repaired immediately. Penetrations of the building floor will not be permitted unless adequate provisions are provided for protection of workers and building occupants from potential soil vapor, contaminated groundwater and/or soils.

The condition and continued effectiveness of soil cover system on the exterior of the building will be evaluated during the Site-wide inspection discussed in Section 3.4

3.3 MEDIA MONITORING PROGRAM

Monitoring of groundwater is the only on-going environmental media monitoring required for the Site. Groundwater wells remain to allow access to groundwater should future

RA be warranted. Based on available information, monitoring of future soils and/or other environmental media is considered necessary only if potential worker exposures are indicated in relation to site construction or re-development within allowable Site uses. Additional vapor intrusion monitoring will be needed prior to ceasing operation of the sub-slab depressurization system.

3.3.1 Groundwater Monitoring

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy. The network of monitoring wells has been installed to monitor both up-gradient and down-gradient groundwater conditions at the Site. The network of on-Site wells has been designed to assess conditions within the source area located on the west side of the main building, and up, cross and down-gradient groundwater conditions. The location of all wells is indicated on Figure 2.

Soil boring logs and well construction details are located in Appendix E. Baseline water levels are indicated on Figure 4. Baseline post-remedial groundwater quality conditions and flow patterns are provided in Section 1.4.3 and Figure 5. Post-remedial groundwater quality conditions are also documented on Figures 8 and 9 in the FER.

Table 7: Media Sampling and Analysis Summary

Sample Type	Sample Location	Analytical Parameters	Frequency	QA/QC	Total
Groundwater	MW-03, 06, 13, MW-JCL-02	EPA 8260 EPA 6010 Manganese and Iron	Semi-Annual (twice each year during seasonal high and low groundwater)	Trip Blank (1)	5

The sampling frequency may be modified with the approval of NYSDEC. The SMP will be modified to reflect changes in sampling plans approved by NYSDEC.

3.3.1.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and a groundwater-sampling log presented in Appendix F. Other observations (i.e., well integrity, etc.) will be noted on the well sampling log. The well sampling log will serve as the inspection form for the groundwater monitoring well network.

Static water levels will be measured to within 0.01-ft prior to purging and sampling. Purging and sampling of each well will be accomplished using dedicated disposable PVC bailers on new polypropylene line. All wells will be purged a minimum of three(3) volumes of water standing in the casing or to dryness. Temperature, pH, conductivity, and turbidity will be measured and recorded during purging.

Groundwater samples will be collected according to the following procedures.

- Water clarity will be quantified during sampling with a turbidity meter;
- When transferring water from the bailer to sample containers, care will be taken to avoid agitating the sample, since agitation promotes the loss of volatile constituents;
- Any observable physical characteristics of the groundwater (i.e., color, sheen, odor, turbidity) at the time of sampling will be recorded; and
- Weather conditions (i.e., air temperature, sky condition, recent heavy rainfall, drought conditions) at the time of sampling will be recorded.
- Groundwater monitoring well purge and development waters will be handled, transported and disposed of in accordance with applicable local, State, and Federal regulations. The water will be stored in a secure location in drums or an on-Site holding tank. Purge and development fluids will not be recharged back to the land surface or subsurface of the Site, but will be managed off-Site. Final disposal of water will be dependent on the results of the groundwater analyses conducted as part of this SMP.

All groundwater samples and their accompanying QA/QC samples will be analyzed as specified in the QAPP, included in Appendix I and as specified in Table 7 above,

3.3.1.2 Monitoring Well Repairs, Replacement And Decommissioning

If biofouling or silt accumulation occurs in the on-Site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, injection and monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable. Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be

performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Injection and monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

All monitoring wells and injection points installed under the Voluntary Cleanup Program (both on-site and off-site) will be properly decommissioned prior to final site closure or when it is determined that they are no longer necessary. Additionally, the US EPA underground injection control program will be notified of when and how the injection points were closed.

3.4 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed (Appendix H). The form is will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules included in the Operation and Maintenance Plan; and
- Confirm that Site records are up to date.

3.5 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

All sampling and analyses will be performed in accordance with the requirements of the Quality Assurance Project Plan (QAPP) prepared for the Site (Appendix I). Main Components of the QAPP include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
    - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
    - Sample holding times will be in accordance with the NYSDEC Analytical Service Protocol (ASP) requirements.
    - Field QC samples (i.e., trip blanks) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:

- All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.
- The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.

- Analytical Procedures- only ELAP certified laboratories will be used;
- Preparation of a DUSR, which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.6 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file on-Site. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. If required by NYSDEC, a letter report will also be prepared subsequent to each sampling event. The report (or letter) will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (i.e., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (i.e., well sampling logs, chain-of-custody documentation, etc.);

- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. All data will also be submitted in the DEC-approved Electronic Data Deliverable (EDD). Moreover, the data will be submitted on a continuous basis immediately after data validation occurs but in no event more than 90 days after the data has been submitted to the remedial party, the property owner or its consultant(s). A summary of the monitoring program deliverables are summarized in Table 8 below.

Table 8: Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Groundwater Sampling	Annually
SSDS Inspection	Annually
Site-Wide Inspection	Annually

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC.

It should be noted that these reports will be submitted in a single comprehensive report annually to the NYSDEC.

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

The only ECs in place at the Site are the building floor slab, sidewalks and asphalt pavement, collectively referred to as the "Cap", and an SSDS installed in the westernmost portion of the Site building (shop area). Operation and maintenance is limited to periodic inspection of the Cap and SSDS, which are documented using the Site-Wide Inspection Form provided in Appendix H. This Operation and Maintenance Plan describes the measures necessary to operate, monitor and maintain the mechanical components of the remedy selected for the Site. This Operation and Maintenance Plan:

- Includes the steps necessary to allow individuals unfamiliar with the Site to operate and maintain the SSDS;
- Includes an operation and maintenance contingency plan; and,
- Will be updated periodically to reflect changes in site conditions or the manner in which the SSDS is operated and maintained.

Information on non-mechanical ECs (i.e., soil cover system) is provided in Section 3 - Engineering and Institutional Control Plan. A copy of this Operation and Maintenance Plan, along with the complete SMP, will be kept at the Site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of the SMP.

4.2 ENGINEERING CONTROL SYSTEM OPERATION AND MAINTENANCE

4.2.1 SUB-SLAB DEPRESSURIZATION SYSTEM

4.2.1.1 Scope of Work

Become familiar with the SSDs which has been permanently installed in this building to mitigate the potential intrusion of harmful soil vapor. This system consists of a vacuum fan, pipes, indicator gauge and other components designed to create vacuum beneath the concrete slabs.

4.2.1.2 System Start-Up and Testing

The system testing described above will be conducted if, in the course of the SSDS lifetime, significant changes are made to the system, and the system must be restarted.

4.2.1.3 System Operation: Routine Operation Procedures

- Leave the fan in continuous operation, except for emergency conditions. Fans restart automatically in event of power loss. The fan has an on/off switch at the roof mounted fan and is powered from circuit breaker panel on the north wall of the service area. In the event of unusual fan noise, failure to start, or repeated circuit breaker trip, turn fan off and call for service.
- Regularly inspect fan gauge to verify that value, indicated by a mark on the gauge, has not changed significantly from the position of the mark. Gauge is inspected by observing the level of colored fluid.
- Normal system operation requires unchanged structural conditions. 4.2.1.4 System Operation: Routine Equipment Maintenance

4.2.1.4 System Operation: Routine Equipment Maintenance

Periodically inspect the following:

- Visual inspection of the complete System (i.e., vent fan, piping, vacuum gauge, labeling, etc.)
- Inspection of all components for condition and proper operation

- Identification of any leaks in accordance with Sections 4.3.1(a) of the NYS DOH Guidance
- Inspection discharge point to verify that no air intakes have been located nearby
- Performance of pressure field extension testing (to ensure that the system is maintaining a vacuum beneath the slab)

Annually inspect the following:

- Conduct a visual inspection of the complete System (i.e., vent fan, piping, warning device, labeling on systems, etc.);
- Conduct an inspection of all surfaces to which vacuum is applied;
- Inspect all components for condition and proper operation;
- Identify and repair any leaks in accordance with Sections 4.3.1(a) and 4.3.4(a) of the NYSDOH Guidance (i.e.; with the systems running, smoke tubes will used to check for leaks through concrete cracks, floor joints and at the suction points and any leaks will be resealed until smoke is no longer observed flowing through the opening).
- Inspect the exhaust or discharge point to verify that no air intakes have been located nearby;
- Conduct pressure field extension testing (to ensure that the system is maintaining a vacuum beneath the entire slab) ; and
- Interview an appropriate occupant seeking comments and observations regarding the operation of the System.

4.2.1.5 SYSTEM OPERATION: NON-ROUTINE EQUIPMENT MAINTENANCE

Report any changes to the System, building structure, HVAC systems, slab conditions, etc., so that the change can be evaluated for impact on the SSDS. For service, call MITIGATION TECH at 1-800-637-9228

4.3 ENGINEERING CONTROL SYSTEM PERFORMANCE MONITORING

4.3.1 MONITORING SCHEDULE

The SSDS will be inspected on an annual basis. However, the inspection frequency is subject to change with the approval of the NYSDEC. Unscheduled inspections and/or sampling may take place when a

suspected failure of the SSDS system has been reported or an emergency occurs that is deemed likely to affect the operation of the system. Monitoring deliverables for the SSDS system are specified later in this Plan.

4.3.2 GENERAL EQUIPMENT MONITORING

A visual inspection of the complete system will be conducted during the monitoring event. SSDS system components to be monitored include, but are not limited to, the vacuum blower and general system piping.

A complete list of components to be checked is provided in the Inspection Checklist, presented in Appendix H. If any equipment readings are not within their typical range, any equipment is observed to be malfunctioning, or the system is not performing within specifications, maintenance and repair as per the Operation and Maintenance Plan are required immediately, and the SSDS system restarted.

4.3.3 SYSTEM MONITORING DEVICES AND ALARMS

THE SSDS SYSTEM HAS A WARNING DEVICE TO INDICATE THAT THE SYSTEM IS NOT OPERATING PROPERLY in the form of a manometer located on the main suction line for each of the two system elements**. IN THE EVENT THAT THE** manometer indicates a system failure**, APPLICABLE MAINTENANCE AND REPAIRS WILL BE CONDUCTED, AS SPECIFIED IN THE OPERATION AND MAINTENANCE PLAN, AND THE** SSDS **SYSTEM RESTARTED. OPERATIONAL PROBLEMS WILL BE NOTED IN THE SUBSEQUENT PERIODIC REVIEW REPORT.**

4.3.4 SAMPLING EVENT PROTOCOL

This section is not applicable to the subject Site as no sampling will be required in the maintenance of the SSDS.

4.4 MAINTENANCE AND PERFORMANCE MONITORING REPORTING REQUIREMENTS

Maintenance reports and any other information generated during regular operations at the site will be kept on-file on-site. All reports, forms, and other relevant information generated will be available upon request to the NYSDEC and submitted as part of the Periodic Review Report, as specified in the Section 5 of this SMP.

4.4.1 Routine Maintenance Reports

Checklists or forms (see Appendix H) will be completed during each routine maintenance event. Checklists/forms will include, but not be limited to the following information:

- Date;
- Name, company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and,
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

4.4.2 Non-Routine Maintenance Reports

During each non-routine maintenance event, a form will be completed which will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Presence of leaks;

- Date of leak repair;
- Other repairs or adjustments made to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and,
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

5.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan and Section 4 Operation and Maintenance Plan of this SMP. At a minimum, a Site-wide inspection will be conducted annually and be documented in the form provided as Appendix H to the SMP.

Inspections of remedial components will also be conducted when a breakdown of any treatment system component has occurred or whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate form for the respective system which is contained in Appendix H. Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see Appendix H). These forms are subject to NYSDEC revision.

All applicable inspection records, including all media sampling data generated for the Site during the reporting period will be provided in electronic format in the Periodic Review Report. Forms for periodic sampling testing and inspections are provided in Appendices F, G and H of the SMP.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and Site monitoring data will be evaluated as part of the IC certification to confirm that the:

- ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- Operation and maintenance activities are being conducted properly; and, based on the above items,

- The Site remedy continues to be protective of public health and the environment and is performing as designed in the RAWP and Final Engineering Report (FER).

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

A Professional Engineer will prepare the following certification in accordance with the schedule established by NYSDEC. If a certification form is provided by NYSDEC, then NYSDEC form and language will be used for the certification:

For each EC/IC identified for the Site, I certify that all of the following statements are true:

- The EC/IC employed at this Site is unchanged from the date the control was put in place, or last approved by the NYSDEC;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any SMP for this control;
- Access to the Site will continue to be provided to the Department, to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the Site is compliant with the DR;
- All EC/ICs are in place and functioning as designed;
- The Periodic Review report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and the information presented in the Periodic review Report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law.

5.3 PERIODIC REVIEW REPORT

A Periodic Review Report will be submitted to the Department every year, beginning eighteen (18) months after the Release and Covenant is issued. In the event that the site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the site described in Appendix B (Metes and Bounds). The report will be prepared in accordance with NYSDEC DER-10 and submitted within 45 days of the end of each certification period. Media sampling results will also incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all EC/ICs required by the remedy for the Site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the Site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format(s);
- The certification of EC/ICs;
- Comments, conclusions, and recommendations based on data evaluation, possibly including corrective action and/or optimization strategies if any portion of the remedy is not achieving the Remedial Action Objectives (RAO);
- A description of breakdowns and/or repairs (i.e., monitoring well maintenance, cap repairs, etc).
- A Site evaluation, which includes the following:

- The compliance of the remedy with the requirements of the Site-specific RAWP, ROD or Decision Document;
- The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
- Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;
- Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
- The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in hard-copy format, to the NYSDEC Regional Office in which the site is located, and in electronic format to NYSDEC Regional Office, the Monroe County Health Department (MCHD) and the NYSDOH Bureau of Environmental Exposure Investigation.

5.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an EC/IC, a corrective measures plan will be submitted to the NYSDEC for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

Figures

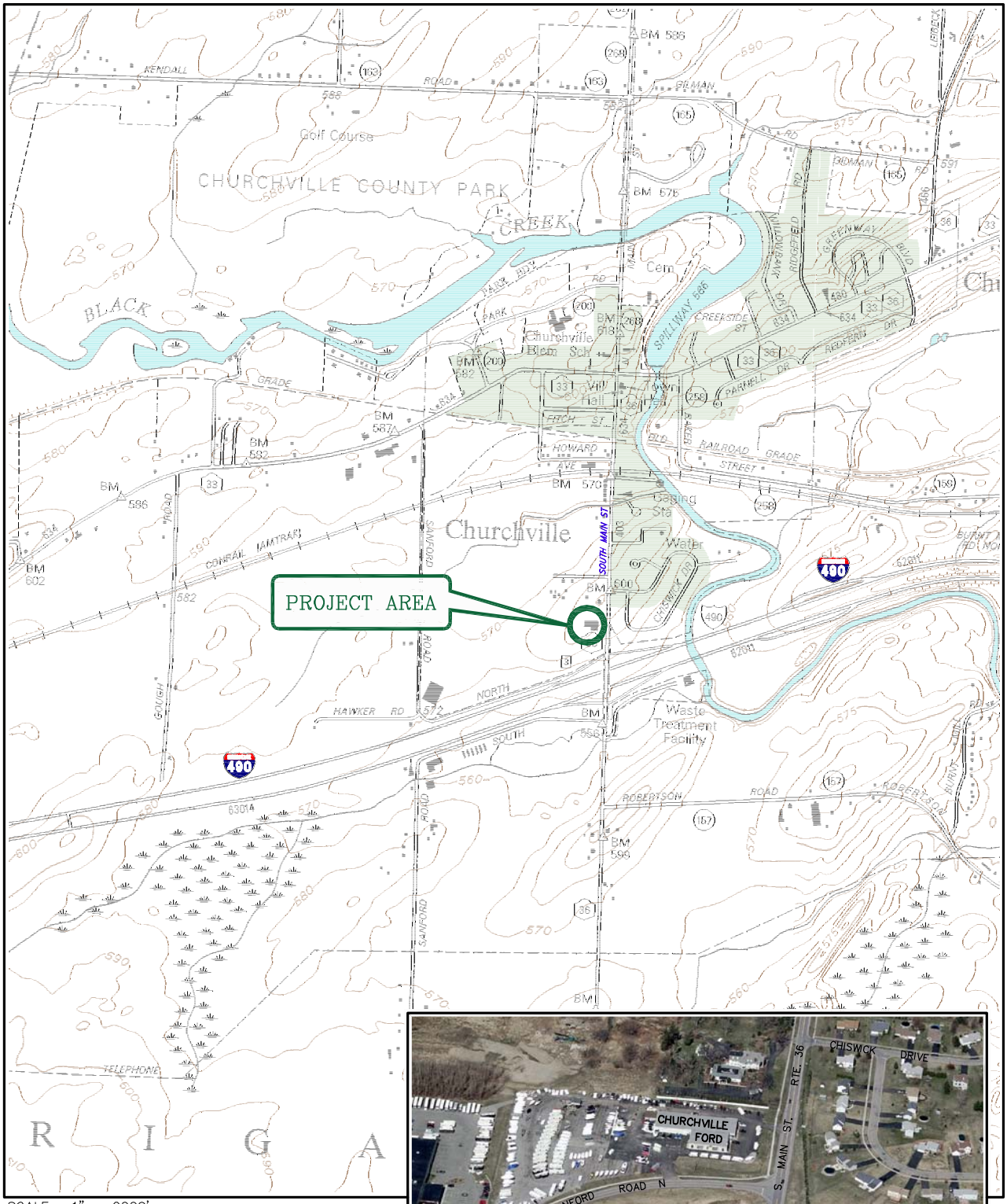

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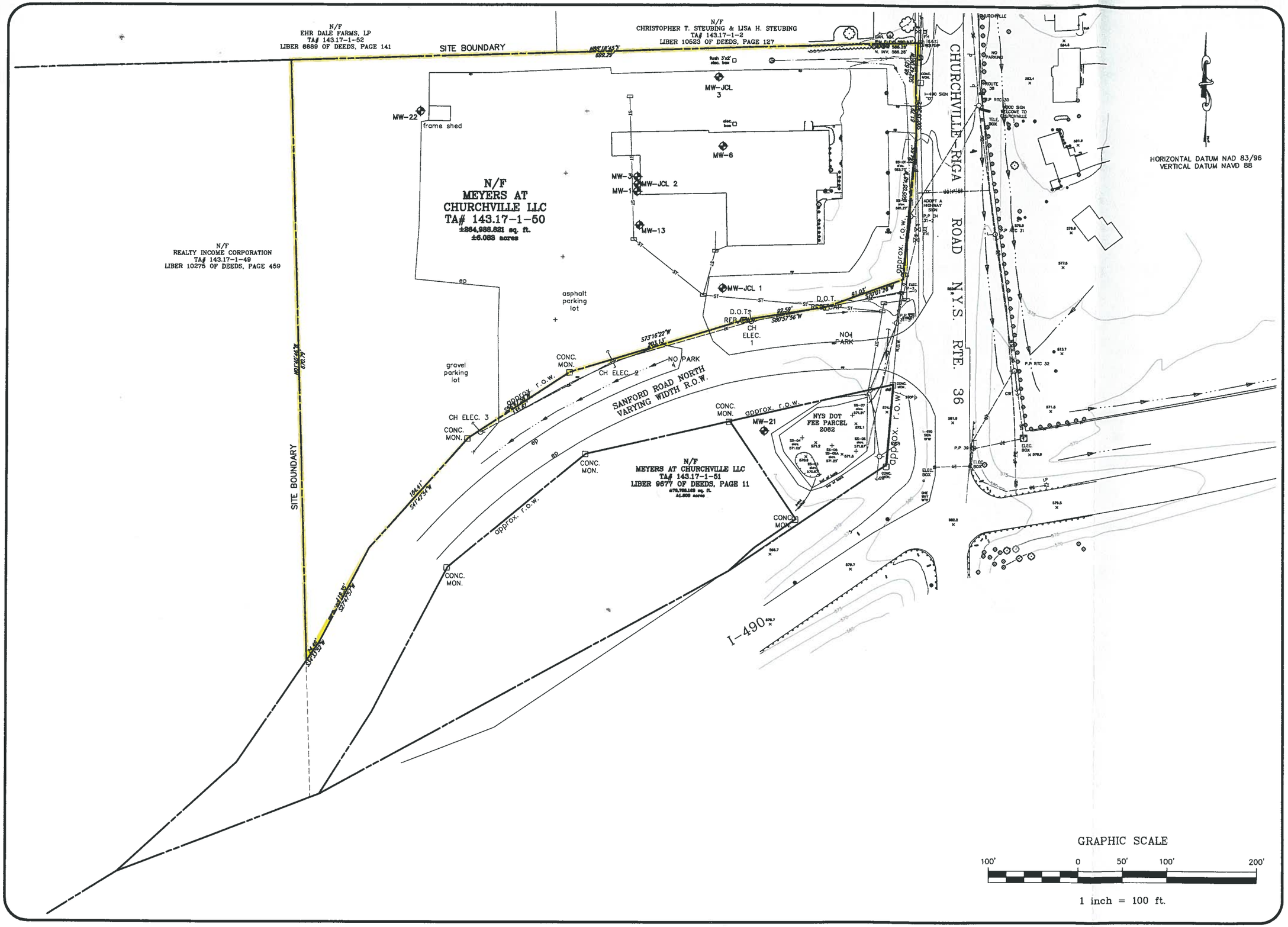
FIGURE 1.
SITE LOCATION MAP

BONARIGO & McCUTCHEON, PLLC
FORMER CHURCHVILLE FORD
SITE MANAGEMENT PLAN

DATE:	MARCH 2010
SCALE:	1:24,000
DRAWN BY:	DLS

MAP SOURCE: NYS DOT RASTER QUADRANGLE, CHURCHVILLE & CLIFTON / NEW YORK, MONROE COUNTY DOT EDITION DATE: 1997 / USGS CONTOUR DATA: 1950



J:\Projects\5701 Okar-Brockport\5701-11 Okar\Cadd\0_Site Management Plan\1A_(survey) Site Plan.dwg, 10/11/2011 2:27:07 PM, diane*AC2009

DATE	REVISIONS	BY

DRAWING ALTERATION

WARNING: It is a violation of the New York State Education Law, Article 145, Section 7209, Special Provision 2, for any person unless he is acting under the direction of a Licensed Professional Engineer or Land Surveyor to alter an item in any way. If an item bearing the seal of an engineer or land surveyor is altered, the altering engineer or land surveyor shall affix to the item his seal and notation "altered by" followed by his signature and date of such alteration, and a specific description of the alteration.

STATE OF NEW YORK
JAMES A. LEWIS
050640
LICENSED LAND SURVEYOR

BY:

DATE: 10/11/11

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL
175 Sully's Trail, Suite 202
Corporate Crossings Office Park
Pittsford, NY 14534
Ph: 385.7417 | Fax: 385.3741
luengineers.com

PROJECT:

FORMER
CHURCHVILLE FORD
SITE MANAGEMENT PLAN

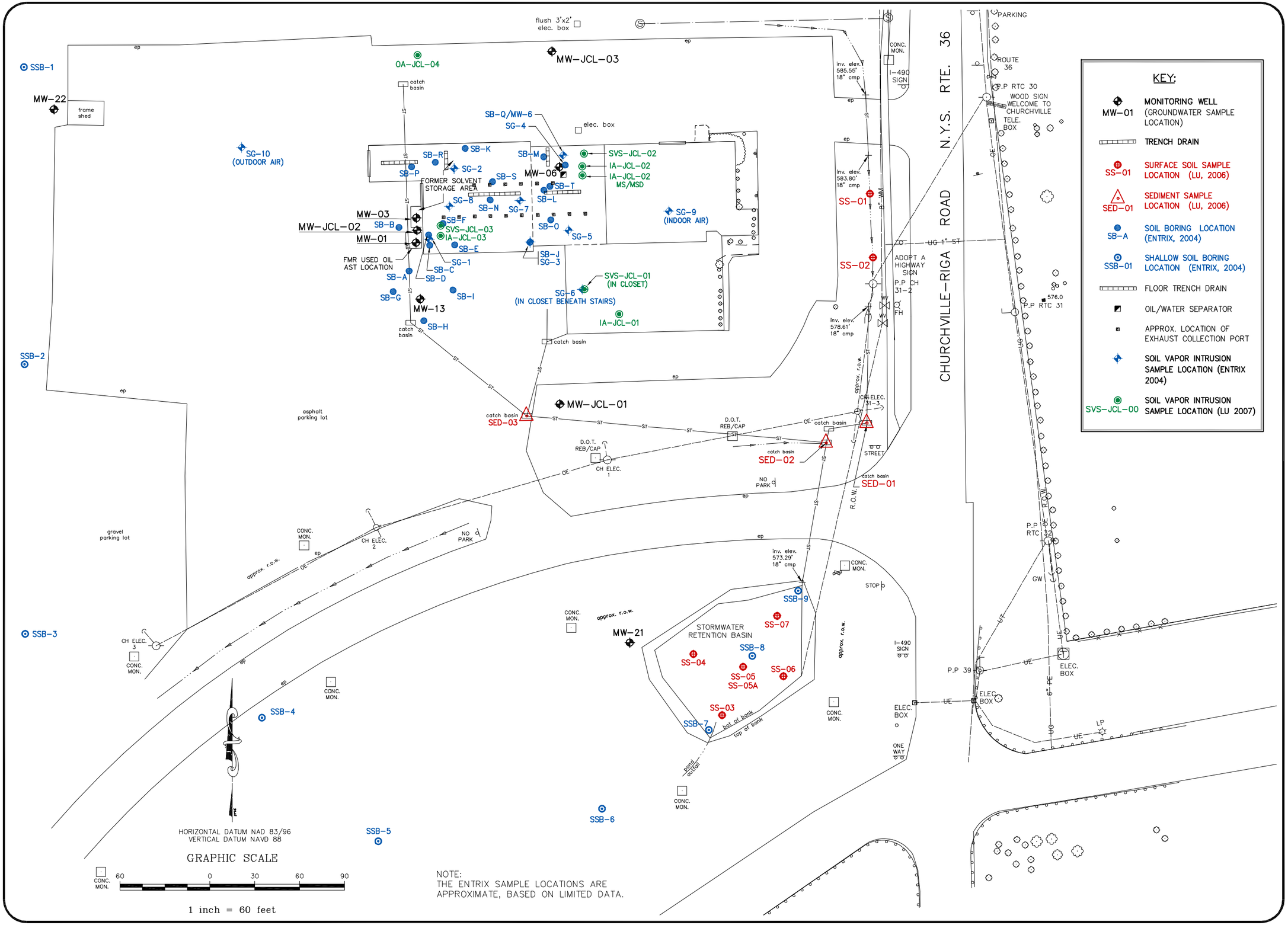
CLIENT:

BONARIGO &
McCUTCHEON, PLLC

DRAWING TITLE:

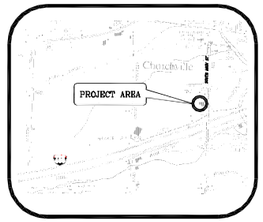
FIG. 1A
NEW SITE PLAN
(SUB-DIVISION)

DESIGNED BY: ED/LS	SCALE: 1" = 100'
DRAWN BY: CJR/DLS	DATE: February 2011
CHECKED BY: GLA	PROJECT No. 5701-11
SHEET OF	DRAWING No.



KEY:

- MW-01 — MONITORING WELL (GROUNDWATER SAMPLE LOCATION)
- TRENCH DRAIN
- SS-01 — SURFACE SOIL SAMPLE LOCATION (LU, 2006)
- SED-01 — SEDIMENT SAMPLE LOCATION (LU, 2006)
- SB-A — SOIL BORING LOCATION (ENTRIX, 2004)
- SSB-01 — SHALLOW SOIL BORING LOCATION (ENTRIX, 2004)
- FLOOR TRENCH DRAIN
- OIL/WATER SEPARATOR
- APPROX. LOCATION OF EXHAUST COLLECTION PORT
- SOIL VAPOR INTRUSION SAMPLE LOCATION (ENTRIX 2004)
- SVS-JCL-00 — SOIL VAPOR INTRUSION SAMPLE LOCATION (LU 2007)



DATE	REVISIONS	BY

DRAWING ALTERATION

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BY: _____

DATE: _____

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Corporate Crossings Office Park
Pittsford, NY 14534
Ph: 385.7417 | Fax: 385.3741
luengineers.com

PROJECT:

FORMER CHURCHVILLE FORD
SITE MANAGEMENT PLAN

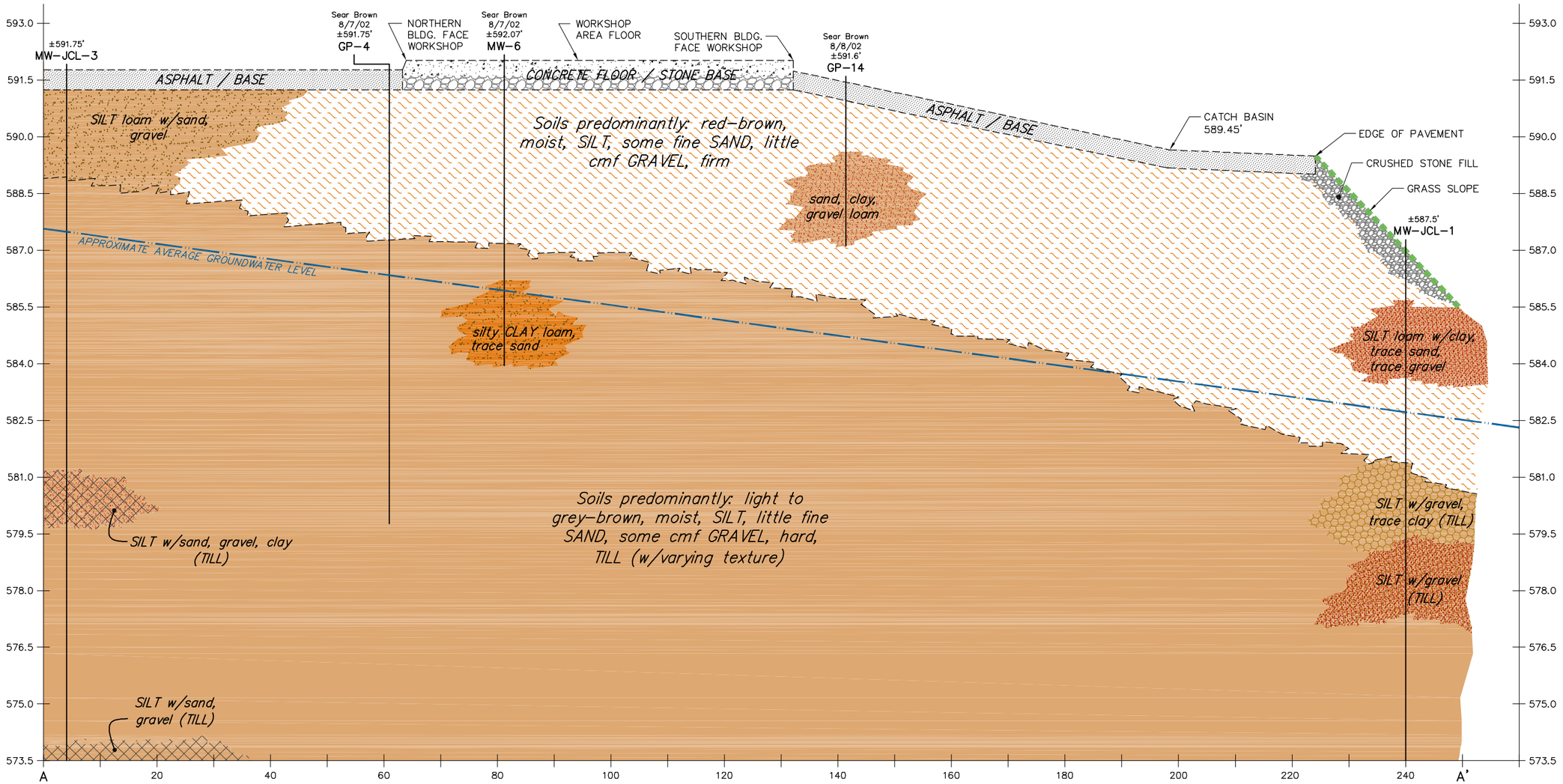
CLIENT:

BONARIGO & McCUTCHEON, PLLC

DRAWING TITLE:

FIG. 2
SAMPLE LOCATION PLAN

DESIGNED BY: ED/LS	SCALE: 1" = 60'
DRAWN BY: CJR/DLS	DATE: February 2011
CHECKED BY: GLA	PROJECT No. 5701-11
SHEET OF	DRAWING No.



SOIL CROSS SECTION A–A'

1" = 20' HORIZONTAL

1" = 3' VERTICAL

1.5'

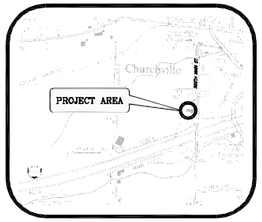
VERTICAL SCALE: 1" = 3'

HORIZONTAL SCALE: 1" = 20'

20'

NOTE: GEOPROBE BORINGS LOGGED BY SEAR BROWN, INTERPRETED BY LU ENGINEERS.

J:\5701–11 Okar\Cadd\soilX sections.dwg, diane 7–08



DATE	REVISIONS	BY

DRAWING ALTERATION

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BY: _____

DATE: _____

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Corporate Crossings Office Park
Pittsford, NY 14534
Ph: 385.7417 | Fax: 385.3741
luengineers.com

PROJECT:

FORMER
CHURCHVILLE FORD
SITE MANAGEMENT PLAN

CLIENT:

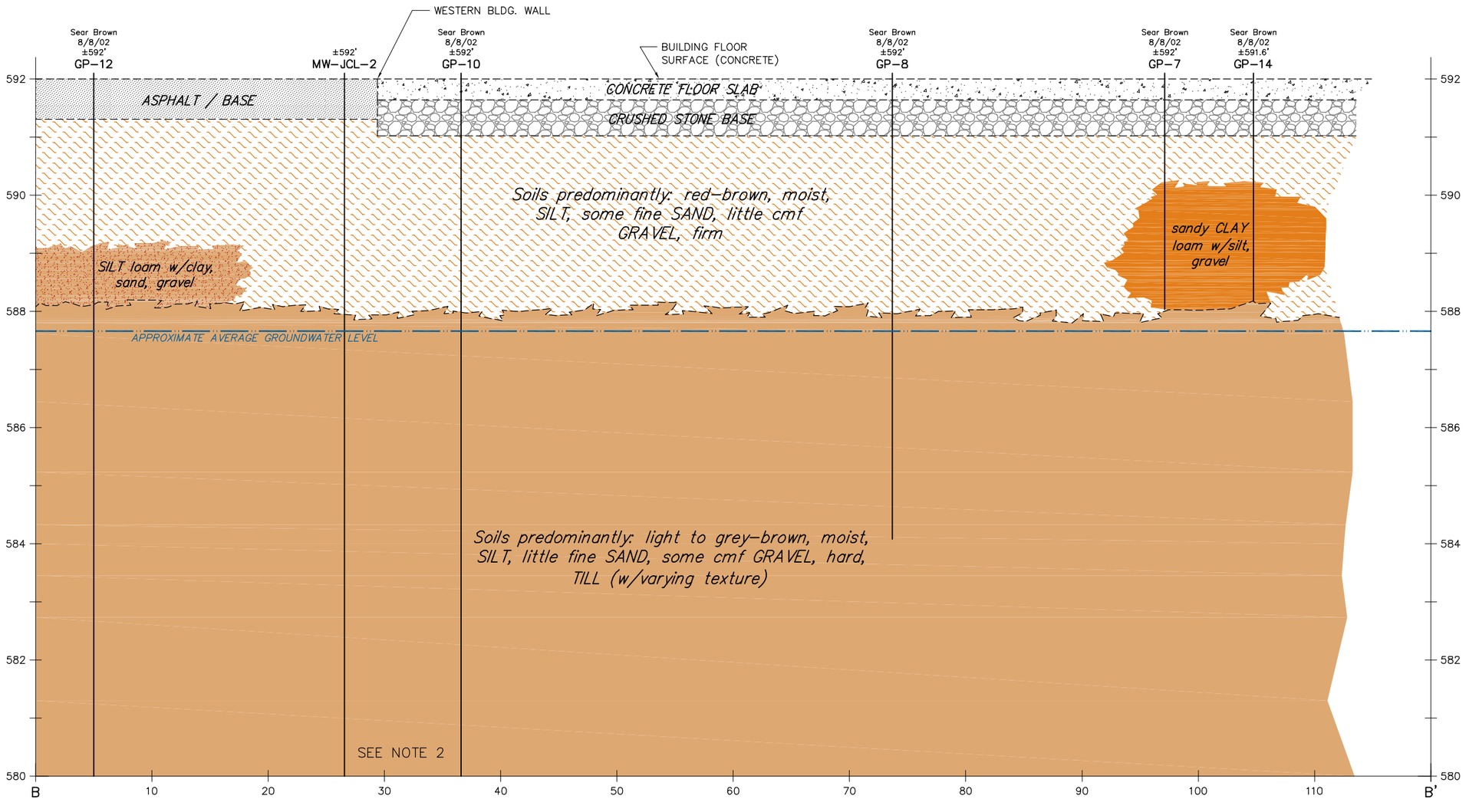
BONARIGO &
McCUTCHEON, PLLC

DRAWING TITLE:

FIG. 3A
SOIL CROSS SECTION
A - A'

DESIGNED BY: ED	SCALE: AS SHOWN
DRAWN BY: DS	DATE: March 2010
CHECKED BY: GA	PROJECT No. 5701–11

SHEET OF	DRAWING No.



SOIL CROSS SECTION B–B'

1" = 10' HORIZONTAL
1" = 2' VERTICAL

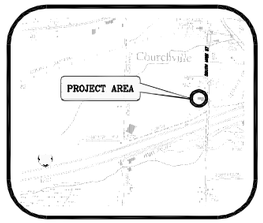
NOTES:

1. GEOPROBE BORINGS LOGGED BY SEAR BROWN, INTERPRETED BY LU ENGINEERS.
2. NO SUBSTANTIAL LITHOLOGIC CHANGES NOTED BELOW 580'.

1'
VERTICAL SCALE: 1" = 2'

HORIZONTAL SCALE: 1" = 10'
10'

J:\5701-11 Okar\Cadd\soil\sections.dwg, diane 7-08



DATE	REVISIONS	BY

DRAWING ALTERATION

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BY: _____

DATE: _____

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Corporate Crossings Office Park
Pittsford, NY 14534
Ph: 385.7417 | Fax: 385.3741
luengineers.com

PROJECT:

FORMER CHURCHVILLE FORD
SITE MANAGEMENT PLAN

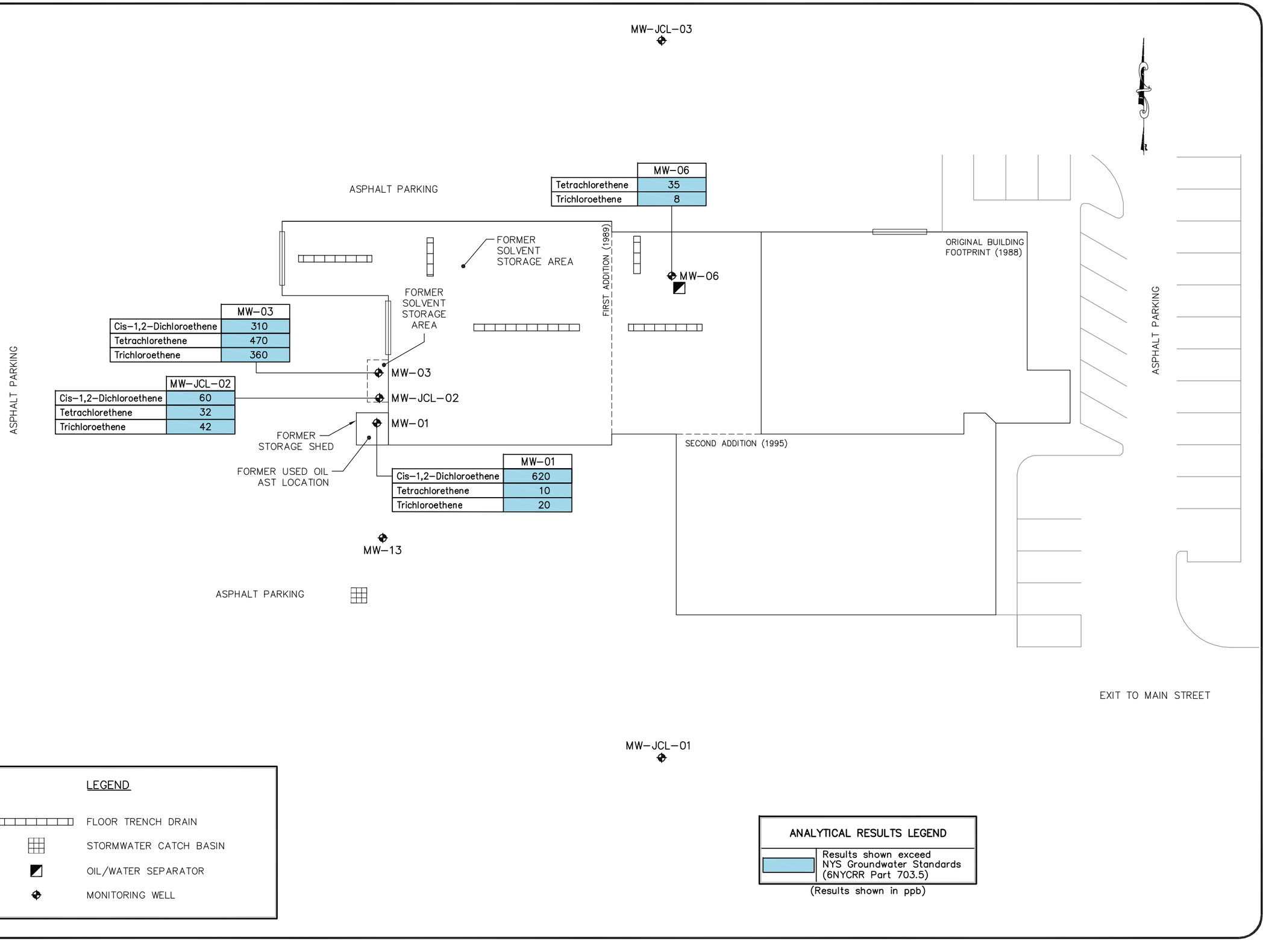
CLIENT:

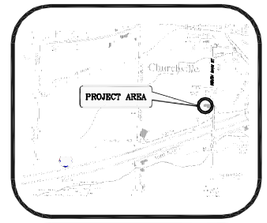
BONARIGO & McCUTCHEON, PLLC

DRAWING TITLE:

FIG. 3B
SOIL CROSS SECTION
B - B'

DESIGNED BY: ED	SCALE: AS SHOWN
DRAWN BY: DS	DATE: March 2010
CHECKED BY: GA	PROJECT No. 5701–11
SHEET OF	DRAWING No.





DATE	REVISIONS	BY

DRAWING ALTERATION

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BY: _____

DATE: _____

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Corporate Crossings Office Park
Pittsford, NY 14534
Ph: 385.7417 | Fax: 385.3741
luengineers.com

PROJECT:

FORMER CHURCHVILLE FORD
SITE MANAGEMENT PLAN

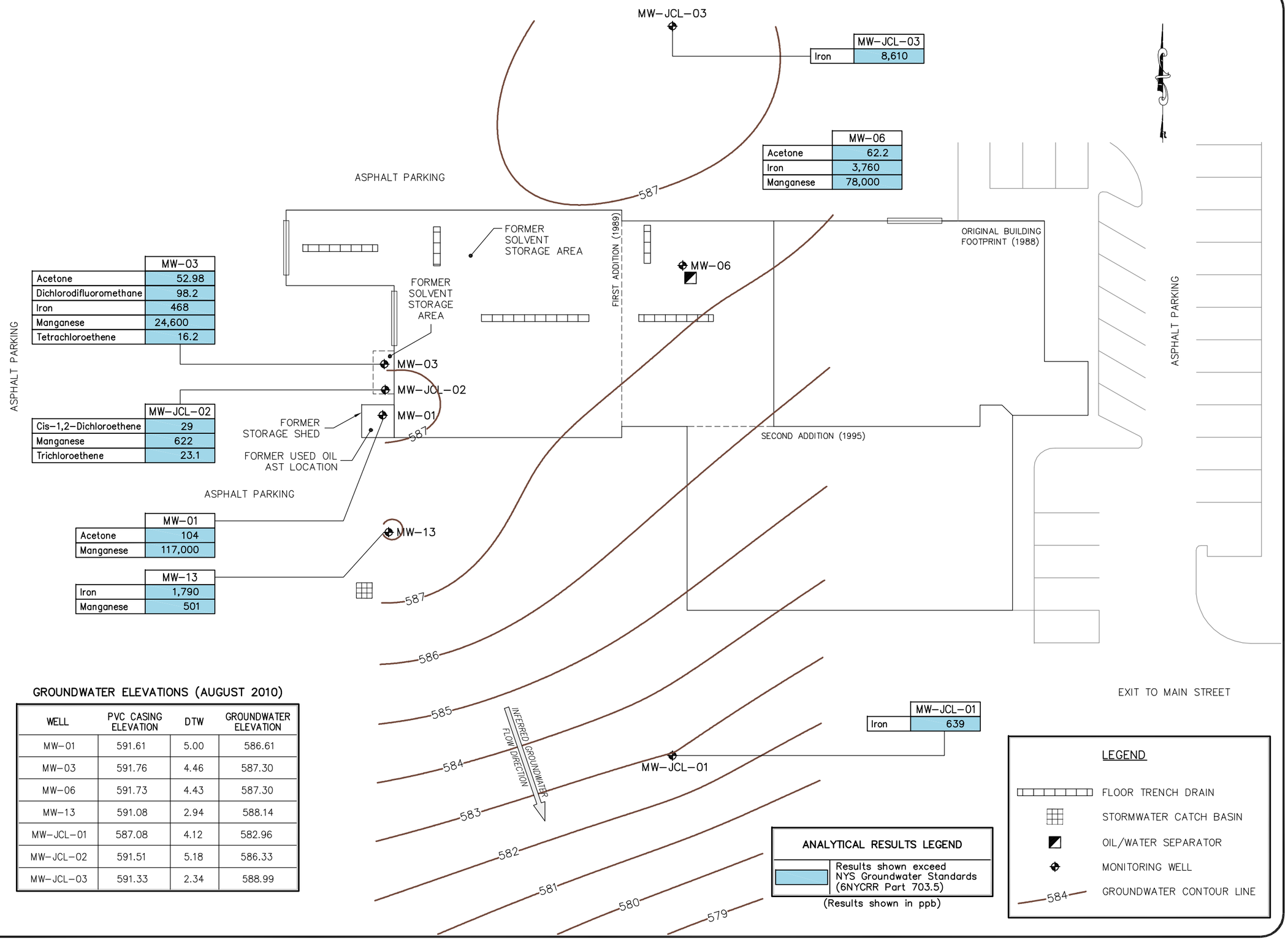
CLIENT:

BONARIGO & McCUTCHEON, PLLC

DRAWING TITLE:

FIG. 4
PRE-REMEDIATION BASELINE CONCENTRATIONS (2007)

DESIGNED BY: ERD	SCALE: 1" = 30'
DRAWN BY: DLS	DATE: February 2011
CHECKED BY: GLA	PROJECT No. 5701-11
SHEET OF	DRAWING No.



GROUNDWATER ELEVATIONS (AUGUST 2010)

WELL	PVC CASING ELEVATION	DTW	GROUNDWATER ELEVATION
MW-01	591.61	5.00	586.61
MW-03	591.76	4.46	587.30
MW-06	591.73	4.43	587.30
MW-13	591.08	2.94	588.14
MW-JCL-01	587.08	4.12	582.96
MW-JCL-02	591.51	5.18	586.33
MW-JCL-03	591.33	2.34	588.99

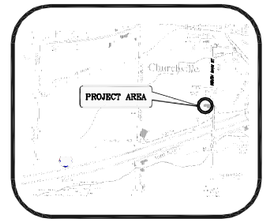
ANALYTICAL RESULTS LEGEND

Results shown exceed NYS Groundwater Standards (6NYCRR Part 703.5)

(Results shown in ppb)

LEGEND

- FLOOR TRENCH DRAIN
- STORMWATER CATCH BASIN
- OIL/WATER SEPARATOR
- MONITORING WELL
- 584 GROUNDWATER CONTOUR LINE



DATE	REVISIONS	BY

DRAWING ALTERATION

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BY: _____

DATE: _____

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Pittsford, NY 14534
Ph: 385.7417 | Fax: 385.3741
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PROJECT:

FORMER CHURCHVILLE FORD
SITE MANAGEMENT PLAN

CLIENT:

BONARIGO & McCUTCHEON, PLLC

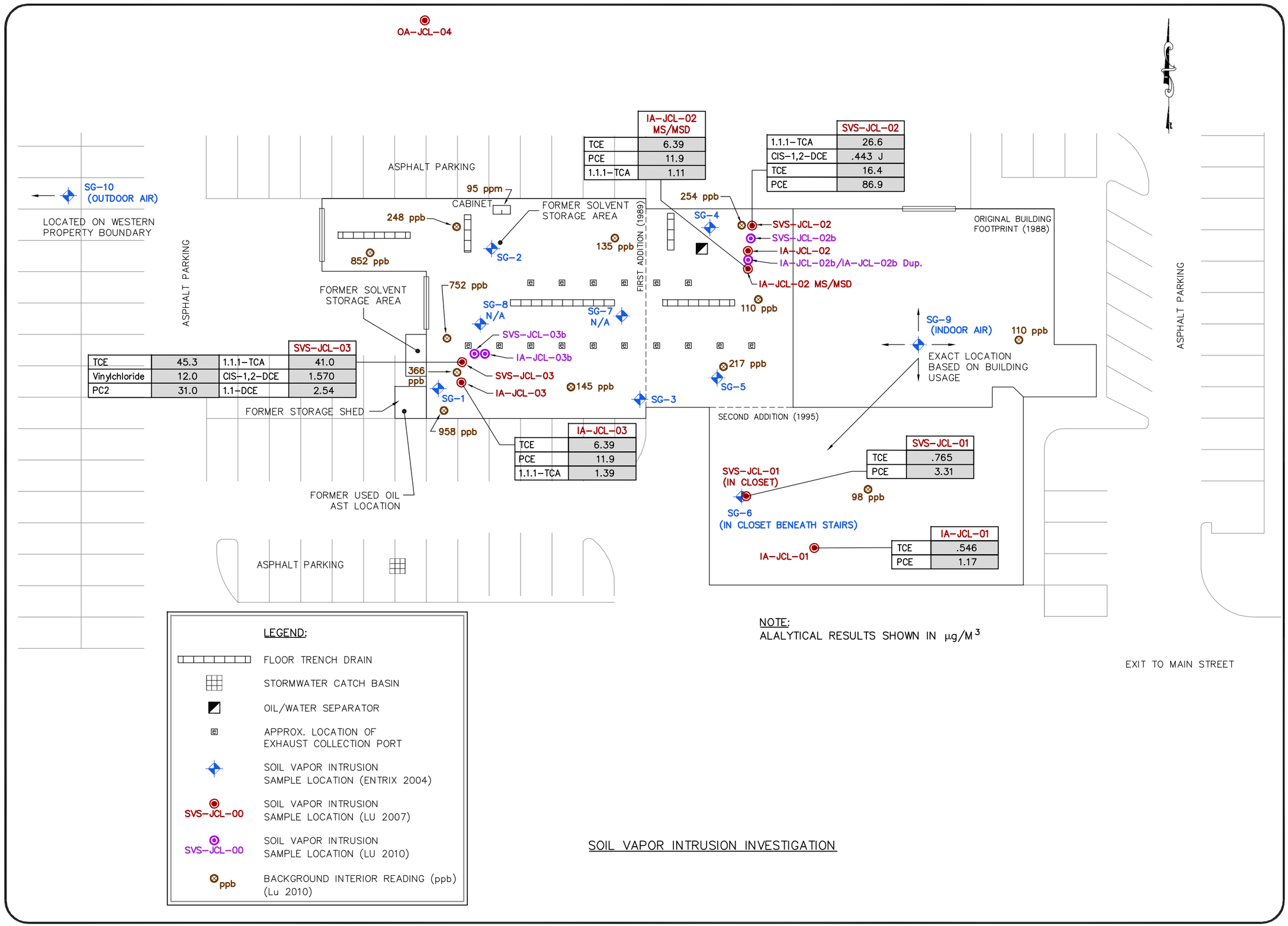
DRAWING TITLE:

FIG. 5
POST-REMEDIAL GROUNDWATER RESULTS & GROUNDWATER CONTOURS
(AUGUST 2010)

DESIGNED BY: ERD	SCALE: 1" = 30'
DRAWN BY: DLS	DATE: February 2011
CHECKED BY: GLA	PROJECT No. 5701-11

SHEET OF

DRAWING No.

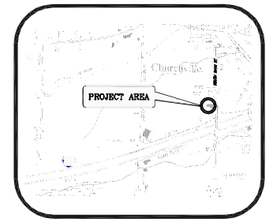


LEGEND:

- FLOOR TRENCH DRAIN
- STORMWATER CATCH BASIN
- OIL/WATER SEPARATOR
- APPROX. LOCATION OF EXHAUST COLLECTION PORT
- SOIL VAPOR INTRUSION SAMPLE LOCATION (ENTRIX 2004)
- SVS-JCL-00 — SOIL VAPOR INTRUSION SAMPLE LOCATION (LU 2007)
- SVS-JCL-00 — SOIL VAPOR INTRUSION SAMPLE LOCATION (LU 2010)
- ppb — BACKGROUND INTERIOR READING (ppb) (Lu 2010)

NOTE:
ALALYTICAL RESULTS SHOWN IN $\mu g/M^3$

SOIL VAPOR INTRUSION INVESTIGATION



DATE	REVISIONS	BY

DRAWING ALTERATION

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BY: _____

DATE: _____

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Corporate Crossings Office Park
Pittsford, NY 14534
Ph: 385.7417 | Fax: 385.3741
luengineers.com

PROJECT:
FORMER
CHURCHVILLE FORD
SITE MANAGEMENT PLAN

CLIENT:
BONARIGO &
McCUTCHEON, PLLC

DRAWING TITLE:
FIG. 6
REMEDIAL
INVESTIGATION
SOIL VAPOR DATA

DESIGNED BY: JMB/ERD	SCALE: 1" = 30'
DRAWN BY: DLS	DATE: April 2011
CHECKED BY: GLA	PROJECT No. 5701-11
SHEET OF	DRAWING No.

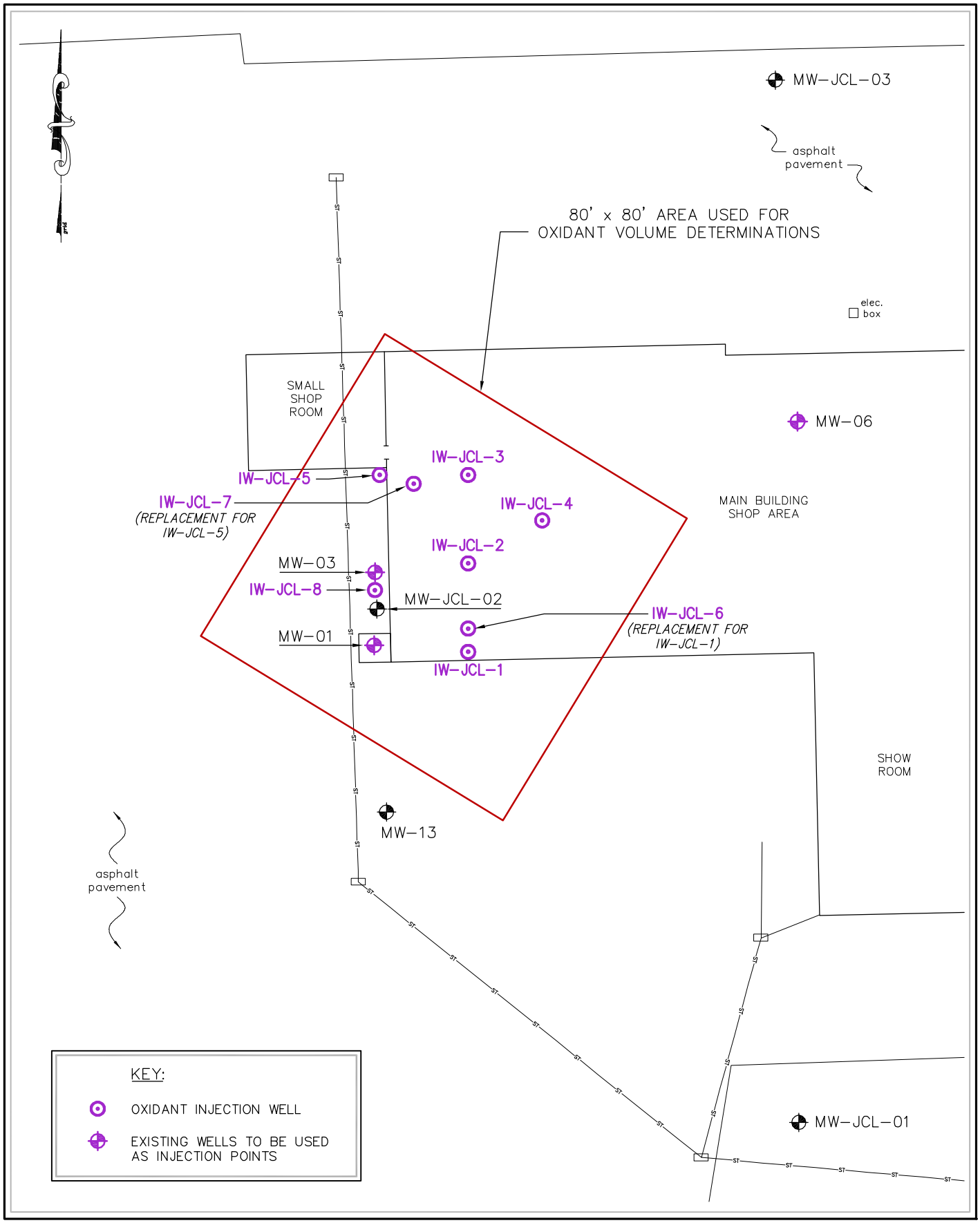

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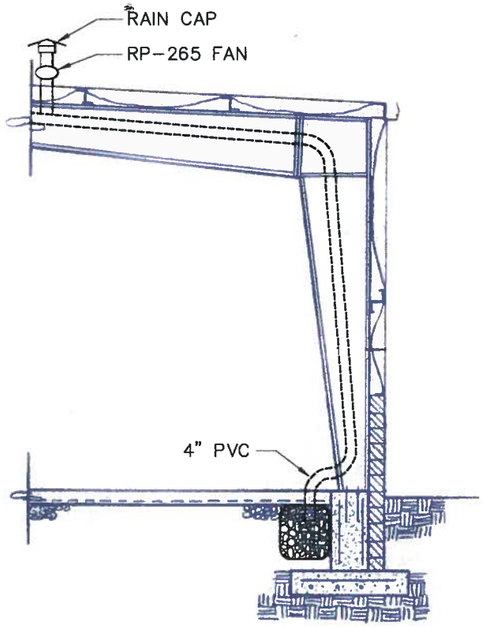
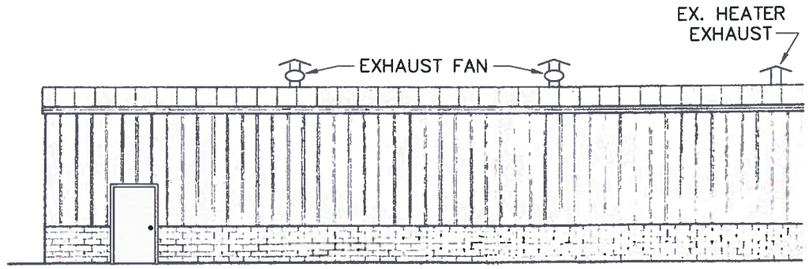
FIGURE 7.
INJECTION WELL LOCATION PLAN

BONARIGO & McCUTCHEON, PLLC
FORMER CHURCHVILLE FORD
SITE MANAGEMENT PLAN

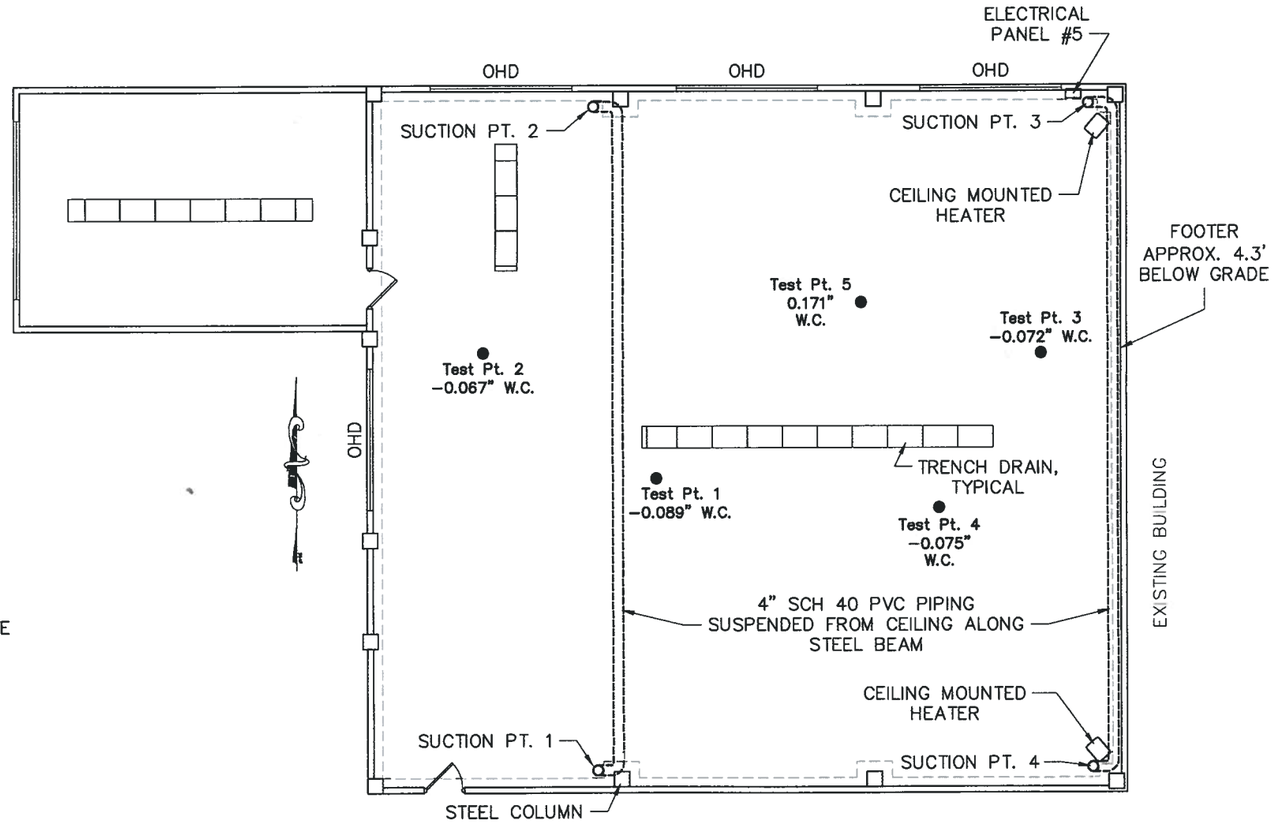
DATE:	FEBRUARY 2011
SCALE:	1" = 30'
DESIGNED/DRAWN/CHECKED	GLS/DLS
P.N.	5701-11



ROOF EXHAUST POINT DETAIL
N.T.S.



SOUTH ELEVATION
N.T.S.

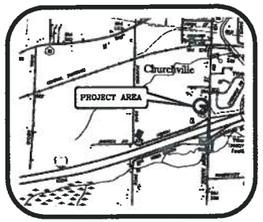


FOUNDATION PLAN – 1989 ADDITION
APPROX. SCALE: 1" = 15'

● PRESSURE FIELD TEST POINTS (6/13/2011)

NOTES:

1. SYSTEM INSTALLED IN ACCORDANCE WITH SPECIFICATIONS IN DESIGN PLAN LETTER DATED MAY 27, 2011. SYSTEM PERFORMANCE OBJECTIVE IS TO PROVIDE A MINIMUM −0.002" W.C. PRESSURE DIFFERENTIAL.
2. SUCTION POINTS 1 AND 2 ARE PIPED TO A RadonAway® RP−265 FAN LOCATED ABOVE THE ROOF.
3. SUCTION POINTS 3 AND 4 ARE PIPED TO A SEPARATE RadonAway® RP−265 FAN LOCATED ABOVE THE ROOF.
4. FANS ARE ON A DEDICATED CIRCUIT – CIRCUIT #8 ON PANEL #5. SHUT−OFF SWITCH MOUNTED ON WALL ABOVE PANEL #5.



DATE	REVISIONS	BY
10.11.11	AS−BUILT UPDATES	ED

DRAWING ALTERATION

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STATE OF NEW YORK · SUSAN ADELAIDE HILTON · 079942 · LICENSED PROFESSIONAL ENGINEER

BY: Susan Hilton

DATE: 10/12/2011

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL
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Corporate Crossings Office Park
Pittsford, NY 14534
Ph: 385.7417 | Fax: 385.3741
luengineers.com

PROJECT:
FORMER CHURCHVILLE FORD
SITE MANAGEMENT PLAN

CLIENT:
Bonarigo and McCutcheon, Attorneys at Law

DRAWING TITLE:
FIG. 8
SSDS AS-BUILT

DESIGNED BY: LMS	SCALE: 1" = 15'
DRAWN BY: DLS	DATE: October 2011
CHECKED BY: SAH	PROJECT No. 5701−11
SHEET OF	DRAWING No.

J:\Projects\5701 Okun-Brockport\5701-11 Okun\Cadd\0_Site Management Plan\8_SSDS-AsBuiltAwg, 10/12/2011 10:07:07 AM, diane*AC2009

Appendix A
Excavation Work Plan

APPENDIX A – EXCAVATION WORK PLAN

A-1 NOTIFICATION

At least fifteen(15) days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the Department. Currently, this notification will be made to:

Frank Sowers, P.E.
Regional Hazardous Waste Remediation Engineer
New York State Department of Environmental Conservation (NYSDEC)
Division of Environmental Remediation (DER), Region 8
6274 East Avon-Lima Road, Avon, New York 14414

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for Site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control (EC);
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A summary of the applicable components of this Excavation Work Plan (EWP),
- A statement that the work will be performed in compliance with this EWP and 29 Code of Federal Regulation (CFR) 1910.120,
- A copy of the contractor's health and safety plan, in electronic format, if it differs from the Health and Safety Plan (HASP) provided in Appendix D the Soil Management Plan (SMP),
- Identification of disposal facilities for potential waste streams,
- Identification of sources of any anticipated backfill, along with all required chemical testing results.

A-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening including, but not limited to the use of a photoionization detector (PID) or equivalent instrument for monitoring of volatile organic vapor, will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the Release and Covenant.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

A-3 STOCKPILE METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the Site and available for inspection by NYSDEC.

A-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the Site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the Site.

Loaded vehicles leaving the Site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and New York State Department of Transportation (NYSDOT) requirements (and all other applicable transportation requirements).

A truck wash will be operated on-Site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the Site until the activities performed under this section are complete.

Locations where vehicles enter or exit the Site shall be inspected daily for evidence of off-Site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the Site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to Site-derived materials.

A-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 New York Codes, Rules, and Regulations (NYCRR) Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the Site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the Site. Truck wash waters will be collected and disposed of off-Site in an appropriate manner.

Truck transport to and from the Site is facilitated by the presence of Interstate 490 (I-490) located to the immediate south of the Site. Trucks would follow NY Route 36 south for approximately 100 feet(ft) to access the west-bound ramp to I-490. The relative location of I-490 to the Site is indicated on Figures 1 and 2. Trucks loaded with Site soil

will proceed directly to I-490 for transport to an approved facility to be determined in coordination with NYSDEC, as appropriate.

All trucks loaded with Site materials will exit the vicinity of the Site using only these approved truck routes. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-Site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport.

Trucks will be prohibited from stopping and idling in the neighborhood outside the Site.

Egress points for truck and equipment transport from the Site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-Site in order to minimize off-Site disturbance. Off-Site queuing will be prohibited.

A-6 MATERIALS DISPOSAL OFF-SITE

All soil/fill/solid waste excavated and removed from the Site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this Site is proposed for unregulated off-Site disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this Site will not occur without formal NYSDEC approval.

Off-Site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e., hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, construction/demolition (C/D) recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-Site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted Soil Cleanup Objectives (SCOs) is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

A-7 MATERIALS REUSE ON-SITE

Before materials originating from the Site during future excavation work can be reused, certain criteria must be met. These criteria will be determined by sampling the materials for the presence of volatile organics by United States Environmental Protection Agency (USEPA) Method 8260 (Target Compound List(TCL)) in accordance with applicable sampling protocols and NYSDEC guidance. Analytical results obtained from soils to be reused will be compared to the restricted commercial soil use criteria found at 6NYCRR Part 375. One sample for every 50 cubic yards of staged material will be required. Soils found to exceed the restricted commercial use criteria will be disposed of off-Site as hazardous or non-hazardous waste at an appropriately permitted facility. Soils that exceed the restricted commercial use criteria may be non-hazardous waste, but could also be characteristic hazardous waste or listed hazardous waste.

Stockpiled soils will meet all of the requirements of Section A-3 above. Based on analytical results, soils should be stockpiled on a level, impermeable surface such as asphalt and covered with polyethylene sheeting for the entire period of time soils are awaiting re-use. Paved areas on the western and northern portions of the Site (see Figure 2) will be used for staging, as appropriate. The size of the staging pile(s) will be dependent on the amount of excavation work planned and the availability of level impermeable surfaces adequate for use.

Sampling of visually uncontaminated concrete or other C/D derived materials is not considered necessary unless otherwise directed by NYSDEC or the qualified environmental professional.

Chemical criteria for on-Site reuse of material have been approved by NYSDEC and are listed in 6 NYCRR Part 375, for restricted commercial use (RCU). The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-Site. Contaminated on-Site material, including historic fill and contaminated soil, that is acceptable for re-use on-Site will be placed below the demarcation layer or impervious surface, and will not be

reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-Site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-Site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the Site will not be reused on-Site.

A-8 FLUIDS MANAGEMENT

All liquids to be removed from the Site, including excavation dewatering and groundwater monitoring well purge and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to the land surface or subsurface of the Site, but will be managed off-Site.

Discharge of water generated during large-scale construction activities to surface waters (i.e., a local pond, stream or river) will be performed under a State Pollution Discharge Elimination System (SPDES) permit.

A-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the Remedial Action Work Plan (RAWP). A demarcation layer, consisting of orange snow fencing material or equivalent material will be replaced to provide a visual reference to the top of the 'Remaining Contamination Zone', the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this SMP.

If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the upper surface of the 'Remaining Contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the SMP.

A-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the Site will be approved by the Professional Engineer and will be in compliance with provisions in this SMP prior to receipt at the Site. Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the Site.

All imported soils will be analyzed in accordance with Table 5.4(e)10 in Section 5.4(e)10 of DER-10 and meet the backfill and cover soil quality standards established in Appendix 5 of DER-10 (May 2010 and future updates) for Commercial Use sites. Soils that meet 'exempt' fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the Site without prior approval by NYSDEC. Solid waste will not be imported onto the Site.

Trucks entering the Site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

A-11 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

Since the provisions and content of a stormwater pollution prevention plan (SWPPP) are dependent on the size, configuration and type of possible future construction activity at the Site, it is not possible to develop a specific SWPPP as part of the SMP. It is understood that a SWPPP will be required for any Site construction activity and that it will be developed in compliance with applicable NYSDEC requirements and protocols. Before construction can occur, NYSDEC review and approval of the SWPPP will be necessary.

A-12 CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes (target analyte list (TAL) metals; TCL volatiles and semi-volatiles, TCL pesticides and polychlorinated biphenyls (PCBs)) or as otherwise warranted based on the type of contamination indicated and in concurrence with the NYSDEC. If alternative sampling protocols are to be used, a list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 5 of the SMP.

A-13 COMMUNITY AIR MONITORING PLAN

The Community Air Monitoring Plan (CAMP) will follow the requirements of NYSDEC's DER 10 guidance document. Prevailing winds in the area of the Site are southwest to northeast. Air monitoring locations will be selected Depending on weather conditions at the time intrusive work is to take place.

These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations. Sensitive receptors are not known to exist sufficiently close to the Site such that the creating of a permanent air monitoring station is warranted.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued.
- If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.
- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 ft downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 ft, is below 5 ppm over background for the 15-minute average.
- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and Department of Health (DOH)) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

Exceedances of action levels listed in the Community CAMP will be reported to NYSDEC and NYSDOH Project Managers.

A-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the

responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

A-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved though the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-Site roads will be limited in total area to minimize the area required for water truck sprinkling.

A-16 OTHER NUISANCES

A plan for rodent control will be developed and utilized by the contractor prior to and during Site clearing and Site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

Appendix B
Metes and Bounds Description

Metes and Bounds Description

ALL THAT TRACT OR PARCEL OF LAND:

Situate in the Town of Riga, Village of Churchville, Monroe County, State of New York, being part of Town Lot 52, Township 2, Range 2 of the West Pultney Tract, and being more particularly described as follows;

Beginning at a point on the division line between N/F Christopher T. Steubing & Lisa H. Steubing Tax Account Number 143.17-1-2 on the north and N/F Meyers at Churchville, LLC Tax Account Number 143.17-1-50 on the south said point is also on the westerly right-of-way of Churchville-Riga Road NYS Rte. 36; thence along the above mentioned westerly right-of-way the following three (3) courses and distances;

1) South 02°-42'-06" West a distance of 48.62 feet to a point; thence

2) South 00°-35'-20" East a distance of 61.79 feet to a point; thence

3) South 05°-05'-48" West a distance of 154.55 feet to a point on the northerly right-of-way of Sanford Road North; thence along the above mentioned northerly right-of-way the following seven (7) courses and distance;

1) South 70°-01'26" West a distance of 91.03 feet to a point; thence

2) South 80°-57'-56" West a distance of 92.59 feet to a point; thence

3) South 73°-16'-22" West a distance of 203.13 feet to a point; thence

4) South 56°-47'-58" West a distance 135.61 feet to a point; thence

5) South 41°-42'-54" West a distance 164.41 feet to a point; thence

6) South 27°-47'-57" West a distance of 119.35 feet to a point; thence

7) South 34°-33'-52" West a distance of 24.46 feet to a point on the division line between N/F Realty Income Corporation Tax Account Number 143.17-1-49 on the west and N/F Meyers at Churchville, LLC Tax Account Number 143.17-1-50 on the east; thence

8) North 01°-40'-46" West along the last mentioned division line a distance of 670.79 feet to a point on the division line between N/F Meyers at Churchville, LLC Tax Account Number 143.17-1-50 on the south and N/F HER Dale Farms, L.P. Tax Account Number 143.17-1-52 on the north; thence

9) North 88°-18’-45” East along the last mentioned division line and passing along the division of N/F Meyers at Churchville, LLC on the south and N/F Christopher T. Steubing & Lisa H. Steubing Tax Account Number 143.17-1-2 on the north a distance of 699.29 feet to the point of beginning.

Containing ±264,988.821 square feet or ±6.083 acres of land more or less.

Appendix C
Environmental Easement/Deed Restriction

MONROE COUNTY CLERK'S OFFICE

ROCHESTER, NY

THIS IS NOT A BILL. THIS IS YOUR RECEIPT

Receipt # 599296

Index DEEDS

Book 11046 Page 11

No. Pages : 5

Instrument DECLARATION OF RESTRICTION AND COVENANTS

Date : 09/27/2011

Time : 10:08:49AM

Control # 201109270318

TT # TT0000002803

Ref 1 #

Employee : RebeccaZ

Return To:
BOX 14 1/2
WFD
-

MEYERS AT CHURCHVILLE LLC

COUNTY FEE TP584	$	5.00
MISCELLANEOUS COUNTY FEE	$	0.00
COUNTY FEE NUMBER PAGES	$	20.00
RECORDING FEE	$	45.00
STATE FEE TRANSFER TAX	$	0.00

Total $ 70.00

State of New York

MONROE COUNTY CLERK'S OFFICE

WARNING - THIS SHEET CONSTITUTES THE CLERKS ENDORSEMENT, REQUIRED BY SECTION 317-a(5) & SECTION 319 OF THE REAL PROPERTY LAW OF THE STATE OF NEW YORK. DO NOT DETACH OR REMOVE.

TRANSFER AMT

TRANSFER AMT $1.00

CHERYL DINOLFO

MONROE COUNTY CLERK

PI182-201109270318-5

Box 1448 WNED

CORRECTIVE DECLARATION of COVENANTS and RESTRICTIONS

THIS COVENANT is made the 26th day of September, 2011, by Meyer's at Churchville, LLC, a New York limited liability corporation and having an office for the transaction of business at 111 South Main Street, Churchville, New York 14428.

WHEREAS, the former Churchville Ford Site is the subject of a Voluntary Cleanup Agreement executed by Joseph Ognibene and Antonio Gabriele as part of the New York State Department of Environmental Conservation's (the "Department's") Voluntary Cleanup Program, namely that parcel of real property located on 111 South Main Street in the Town of Riga in the Village of Churchville, County of Monroe, State of New York, which is part of lands conveyed by Joseph Ognibene and Antonio Gabriele to Meyer's at Churchville, LLC by deed dated April 23, 2004 and recorded in the Monroe County Clerk's Office in Liber 9947 of Deeds, Page 428 and being more particularly described in Appendix "A", attached to this declaration and made a part hereof, and hereinafter referred to as "the Property"; and

WHEREAS, the Department approved a remedy to eliminate or mitigate all significant threats to the environment presented by the contamination disposed at the Property and such remedy requires that the Property be subject to restrictive covenants.

NOW, THEREFORE, Meyer's at Churchville, LLC, for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration of Covenants and Restrictions is as shown on a map attached to this declaration as Appendix "B" and made a part hereof.

Second, unless prior written approval by the Department or, if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens, hereinafter referred to as "the Relevant Agency," is first obtained, where contamination remains at the Property subject to the provisions of the Site Management Plan ("SMP"), there shall be no construction, use or occupancy of the Property that results in the disturbance or excavation of the Property which threatens the integrity of the engineering controls or which results in unacceptable human exposure to contaminated soils.

Third, the owner of the Property shall not disturb, remove, or otherwise interfere with the installation, use, operation, and maintenance of engineering controls required for the Remedy, which are described in the SMP, unless in each instance the owner first obtains a written waiver of such prohibition from the Department or Relevant Agency.

Fourth, the owner of the Property shall prohibit the Property from ever being used for purposes other than for commercial and/or industrial use without the express written waiver of such prohibition by the Department or Relevant Agency.

Fifth, the owner of the Property shall prohibit the use of the groundwater underlying the Property without treatment rendering it safe for drinking water or industrial purposes, as

appropriate, unless the user first obtains permission to do so from the Department or Relevant Agency.

Sixth, the owner of the Property shall provide a periodic certification, prepared and submitted by a professional engineer or environmental professional acceptable to the Department or Relevant Agency, which will certify that the institutional and engineering controls put in place are unchanged from the previous certification, comply with the SMP, and have not been impaired.

Seventh, the owner of the Property shall continue in full force and effect any institutional and engineering controls required for the Remedy and maintain such controls, unless the owner first obtains permission to discontinue such controls from the Department or Relevant Agency, in compliance with the approved SMP, which is incorporated and made enforceable hereto, subject to modifications as approved by the Department or Relevant Agency.

Eighth, this Declaration is and shall be deemed a covenant that shall run with the land, and shall be binding upon all future owners of the Property, and shall provide that the owner and its successors and assigns consent to enforcement by the Department or Relevant Agency of the prohibitions and restrictions that the Voluntary Cleanup Agreement requires to be recorded, and hereby covenant not to contest the authority of the Department or Relevant Agency to seek enforcement.

Ninth, any deed of conveyance of the Property, or any portion thereof, shall recite, unless the Department or Relevant Agency has consented to the termination of such covenants and restrictions, that said conveyance is subject to this Declaration of Covenants and Restrictions.

THE SOLE PURPOSE OF THIS DOCUMENT IS TO CORRECTLY RECITE THE NAME OF THE GRANTOR FROM MEYER'S OF CHURCHVILLE, LLC TO MEYER'S AT CHURCHVILLE, LLC. Recorded in Book 11045 page 117 on 09/23/11

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

MEYER'S AT CHURCHVILLE, LLC

By: _____
Mark D. Meyer, Sole Member and Manager

STATE OF NEW YORK)
COUNTY OF MONROE) ss.:

On the 26th day of September, in the year 2011, before me, the undersigned, personally appeared Mark D. Meyer, personally known to me or proved to me on the basis of satisfactory evidence to be the individual whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his capacity, and that by his signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public

WAYNE F. DeHOND
Notary Public, State of New York
No. 02DE0903433
Qualified in Monroe County
Commission Expires November 30, 2013

5592357.1

SURVEY DESCRIPTION

ALL THAT TRACT OR PARCEL OF LAND situate in part of Lot 52, Township 2, Range 2, West Pultney Tract, Phelps & Gorham Purchase, Village of Churchville, County of Monroe, and State of New York and more particularly described as follows:

Beginning at a point on the north line of N.Y.S.D.O.T. Acquisition Map No. 2061, Parcel No. 2061 by deed on file in the Monroe County Clerk's Office in Liber 10214 of Deeds, page 89 said point being the southeast corner of Lot 1 of the Meyers Subdivision by map on file in the Monroe County Clerk's office in Liber 326 of Maps, page 56, thence;

1) N 01°44'00" W and along the east line of said Lot 1 of the Meyers Subdivision, a distance of 670.79 feet to a point being the northeast corner thereof, thence;

2) N 88°16'00" E a distance of 703.23 feet to a point on the west right-of-way line of South Main Street (N.Y.S, Route 36) (66' R.O.W.), thence;

3) S 00°33'20" E and along the said west right-of-way line of South Main Street, a distance of 43.40 feet to a point, thence;

4) S 05°00'14" W and continuing along the said west right-of-way line of South Main Street, a distance of 222.08 feet to a point on the northeast corner of said N.Y.S.D.O.T. Acquisition Map No. 2061, Parcel No. 2061, thence;

5) S 70°02'39" W and along the said north line of N.Y.S.D.O.T. Acquisition Map No. 2061, Parcel No. 2061, a distance of 90.67 feet to a point, thence;

6) S 80°57'18" W and continuing along the said north line of N.Y.S.D.O.T. Acquisition Map No. 2061, Parcel No. 2061, a distance of 92.60 feet to a point, thence;

7) S 73°15'39" W and continuing along the said north line of N.Y.S.D.O.T. Acquisition Map No. 2061, Parcel No. 2061, a distance of 203.14 feet to a point, thence;

8) S 56°47'09" W and continuing along the said north line of N.Y.S.D.O.T. Acquisition Map No. 2061, Parcel No. 2061, a distance of 135.60 feet to a point, thence;

9) S 41°42'12" W and continuing along the said north line of N.Y.S.D.O.T. Acquisition Map No. 2061, Parcel No. 2061, a distance of 164.41 feet to a point, thence;

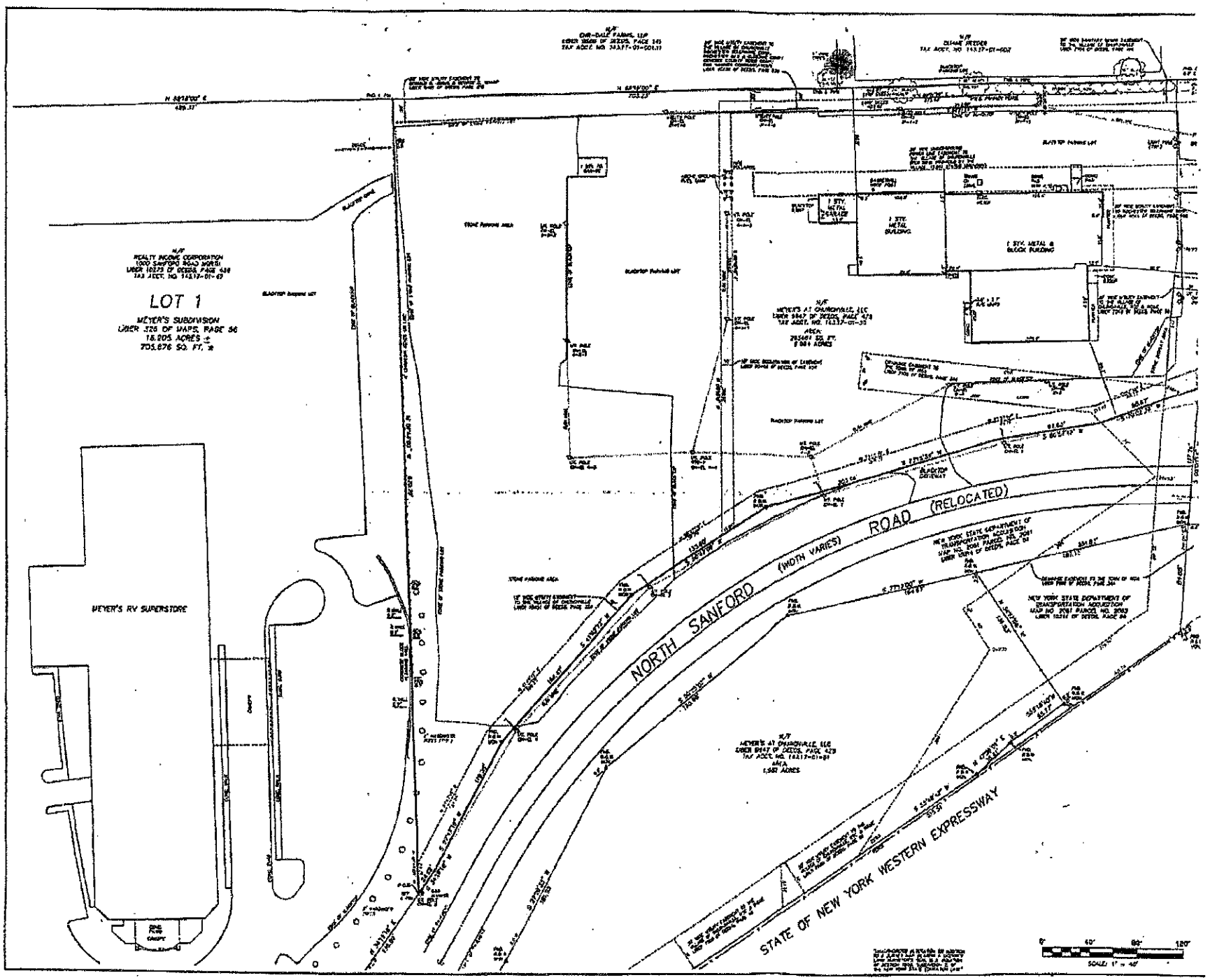
10) S 27°47'16" W and continuing along the said north line of N.Y.S.D.O.T. Acquisition Map No. 2061, Parcel No. 2061, a distance of 119.35 feet to a point, thence;

11) S 34°19'18" W and continuing along the said north line of N.Y.S.D.O.T. Acquisition Map No. 2061, Parcel No. 2061, a distance of 24.82 feet to the point and place of beginning.

Containing 6.094 acres of land more or less.

PROPERTY ADDRESS: 111 South Main Street, Churchville, NY 14428

TAX ACCOUNT NO.: 143.17-1-50


LOT 1
MEYER'S SUBDIVISION
LIBER 328 OF MAPS, PAGE 56
18.205 ACRES ±
793,676 SQ. FT. ±
MEYER'S RV SUPERSTORE
NORTH SANFORD (WIDTH VARIES) ROAD (RELOCATED)
STATE OF NEW YORK WESTERN EXPRESSWAY
1 STY. METAL BUILDING
1 STY. METAL & BRICK BUILDING
SCALE: 1" = 40'

Appendix D
Health and Safety Plan and Community Air Monitoring Plan

Former Churchville Ford

MONROE COUNTY, NEW YORK

Health and Safety Information

NYSDEC Site Number: V00658-8

Prepared for:

Bonarigo & McCutcheon, PLLC

18 Ellicott Street

Batavia, New York 14020

Prepared by:

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

175 Sullys Trail, Suite 202
Corporate Crossings Office Park
Pittsford, New York 14534

FEBRUARY 2011

Lu Engineers
Health & Safety Information

A. GENERAL INFORMATION

Project Title: Former Churchville Ford Project No. _____

Project Manager: _____ Project Director: _____

Location: 111 South Main Street
Village of Churchville, Monroe County, New York

Prepared by: _____ Date Prepared: _____
Revised by: _____ Date Revised: _____

Approved by: _____ Date Approved: _____

Scope/Objective of Work: TBD

Proposed Date of Field Activities: _____

Background Information: [X] Complete [ ] Preliminary

Overall Chemical Hazard: [ ] Serious [ ] Moderate
[X] Low [ ] Unknown

Overall Physical Hazard: [ ] Serious [ ] Moderate
[X]Low [ ] Unknown

The development of a Health and Safety Plan (HASP) is required to be completed as set forth in NYSDEC DER-10, subdivision 1.9 (c), and in accordance with the provisions outlined in OSHA 1910.120.

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

[X] Liquid [X] Solid [ ] Sludge [X] Gas/Vapor

Characteristic(s):

[ ] Flammable/Ignitable [X] Volatile [X] Corrosive [ ] Acutely Toxic

[ ] Explosive (moderate) [X] Reactive [X] Carcinogen [ ] Radioactive

Physical Hazards:

[X] Overhead [ ] Confined Space [ ] Below Grade [X] Trip/Fall

[X] Puncture [ ] Burn [X] Cut [ ] Splash

[X] Noise [X] Other: Heat Stress/Cold Stress

Site History/Description and Unusual Features:
The Churchville Ford Site is located at 111 South Main Street in the Village of Churchville, Town of Riga, Monroe County, New York (SMP Figure 1). The Site consists of one parcels totaling 6.083 acres that contain a RV and marine dealership building, a wooden storage shed and paved parking areas.

Mark's RV and Marine currently operates a recreational vehicle and boat sales and service center on property. The facility was previously utilized as Churchville Ford. Concentrations of chlorinated solvents (trichloroethene (TCE), tetrachloroethene (PERC), and cis-1,2-dichloroethene) were detected in subsurface soils and groundwater at the Site. The area of residual contamination of groundwater is located near the southwestern portion of the building, where solvents and fuels were previously stored.

Locations of Chemicals/Wastes: Saturated soil and groundwater.

Estimated Volume of Chemicals/Wastes: unknown

Site Currently in Operation: Yes

C. HAZARD EVALUATION

Physical Hazards	Hazard Control Measures
Biological (flora, fauna, etc.)	• Establish site-specific procedures for working around identified hazards.
Cold Stress/Heat Stress	• Provide warm/cool break areas and adequate breaks. • Provide warm/cool non-caffeinated beverages. • Promote cold/heat stress awareness. • See Attachment B-1.
Drilling	• Hard hats, eye protection, steel-toed boots, ear protection. • Keep safe distance from equipment.
Fire and Explosion	• Inform personnel of the location(s) of potential fire/explosion hazards. • Establish site-specific procedures for working around flammables. • Ensure that appropriate fire suppression equipment and systems are available and in good working order. • Define requirements for intrinsically safe equipment. • Identify special monitoring needs. • Remove ignition sources from flammable atmospheres. • Coordinate with local fire-fighting groups regarding potential fire/explosion situations. • Establish contingency plans and review daily with team members.
Heavy Equipment Operation	• Define equipment routes, traffic patterns, and site-specific safety measures. • Ensure that operators are properly trained and equipment has been properly inspected and maintained. Verify back-up alarms. • Ensure that ground spotters are assigned and informed of proper hand signals and communication protocols. • Identify special PPE and monitoring needs. • Ensure that field personnel do not work in close proximity to operating equipment. • Ensure that lifting capacities, load limits, etc., are not exceeded. • Other: Overhead obstructions and falling objects.
Noise	• Establish noise level standards for on-site equipment/operations. • Inform personnel of hearing protection requirements. • Areas of potentially high sound levels (>85dBA) will be restricted to authorized personnel only.
Overhead Hazards/ Falling Objects	• Wear hard hat. • Identify overhead hazards prior to each task.
Power Tools	• Ensure compliance with 29 CFR 1910 Subpart P.
Sunburn	• Apply sunscreen. • Wear hats/caps and long sleeves.
Utility Lines	• Identify/locate existing utilities prior to work. • Ensure overhead utility lines are at least 25 feet away from project activities. • Contact utilities to confirm locations, as necessary.
Weather Extremes	• Potential hazards: High wind or Heavy rains. • Establish site-specific contingencies for severe weather situations. • Provide for frequent weather broadcasts. • Weatherize safety gear, as necessary (e.g., ensure eye wash units cannot freeze, etc.) • Identify special PPE needs. • Discontinue work during severe weather. • Drink plenty of fluids. • Other: Take frequent breaks on high humidity days.

CHEMICAL HAZARD EVALUATION

	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	PID	
		PEL	REL	TLV					Correction Factor**	Ioniz. Poten. (eV)
	Cis-1,2-Dichloroethene	260 ppm	---	262 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, mucous membranes and GI, headache, vertigo, fatigue, giddiness, tremors, vomiting, nausea, may burn skin, visual disturbance, paresthesia, cardiac arrhythmias	Colorless liquid, aromatic odor	0.5	9.25
	Tetrachloroethylene (PCE)	50 ppm	---	25 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, nose, upper respiratory tract, throat; skin, flush face, dizziness, giddiness, headache, intoxication, nausea, vomiting, abdominal pain, diarrhea, systemic effects	Colorless liquid, mild chloroform odor	---	9.32
	Trichloroethene (TCE)	100 ppm (per 6/97 NIOSH Pocket Guide)			Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, mucous membranes and GI, headache, vertigo, fatigue, giddiness, tremors, vomiting, nausea, may burn skin, visual disturbance, paresthesia, cardiac arrhythmias	Colorless liquid, sometimes dyed blue, chloroform odor	---	9.45
	Sodium Permanganate	5 mg Mn per m^3 of air	---	0.2 Mn per m^3 of air	Y	Inh, Ing, Abs, Con	Damaging to eye tissue, irritating to skin, respiratory tract, and may cause burns to mucous membranes of the mouth, throat, esophagus and stomach if swallowed.	Dark purple solution, odorless (boiling point $105^{O}C$	-----	-----

KEY:
PEL = Permissible Exposure Limit (OSHA)
REL = Recommended Exposure Limit (NIOSH)
TLV = Threshold Limit Value (ACGIH)
ppm = Parts per million

Inh = Inhalation
Ing = Ingestion
^{sk} = Skin Notation
GI = Gastrointestinal

Abs = Skin Absorption
Con = Skin and/or eye Contact
mg/m^3 = Milligrams per cubic meter

--- = Information not available
NR = No Response
N/A = Not Available, Not Listed

* = Chemical is a known or suspected carcinogen
** = Correction factors applicable only to MiniRAE^{2000} PID using 10.6 eV lamp. (8/22/00)

D. EMERGENCY INFORMATION

LOCAL RESOURCES

Ambulance	911
Hospital Emergency Room	Lakeside Memorial Hospital (585) 637-3131 156 West Avenue Brockport, New York 14420
Poison Control Center	911 or 1-800-222-1222
Police (include local, county sheriff, state)	911
Fire Department	911
Airport	N/A
Local Laboratory	
UPS/Federal Express	Fed Ex Express 2580 Manitou Rd. Rochester, NY 14624 Hours: Mon – Fri. 8:30am-8:30pm

SITE RESOURCES

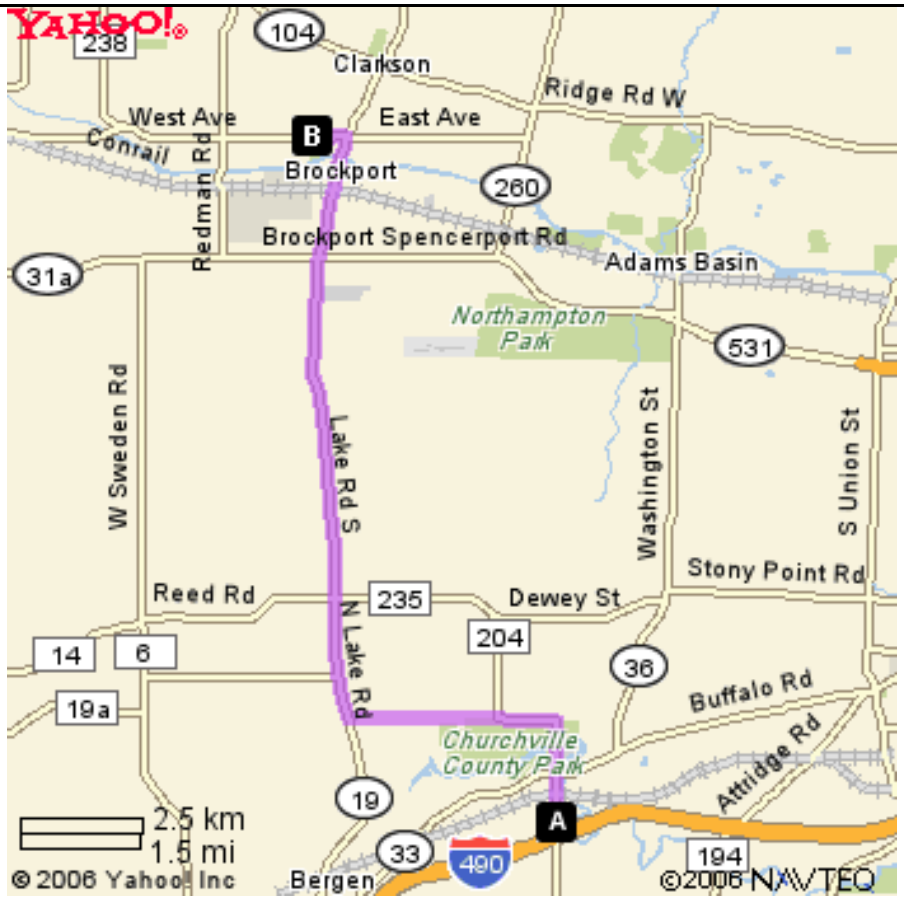
Site Emergency Evaluation Alarm Method	• One long blast: Evacuate the area by nearest emergency exit. • Two short blasts: Localized problem (not dangerous to workers. • Two long blasts: All clear
Water Supply Source	Located in Mark's RV and Marine
Telephone Location, Number	TBD
Cellular Phone, if Available	TBD
Radio	N/A

EMERGENCY ROUTES

(Note: Field team must know route(s) prior to start of work.)

Directions from the site to LAKESIDE MEMORIAL HOSPITAL:

Go north on Main St. 1.3 miles; turn left on Kendall Rd., go 2.6 miles; turn right on Lake Rd. (Rte. 19), go 7.3 miles; turn left on West Ave., go 0.4 miles, hospital is on right



New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m_3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m_3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m_3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m_3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

Source: DRAFT DER-10 Technical Guidance for Site Investigation and Remediation, December 2002- Appendix 1A

Appendix E
Monitoring Well Boring and Construction Logs, Geological Cross Sections

LU ENGINEERS 2230 PENFIELD ROAD Civil and Environmental PENFIELD, NEW YORK 14526	PROJECT Former Churchville Ford - VCA Remedial Investigation	BORIN(MW-JCL-01 SHEET 1 OF 3 JOB #:5701-11 CHKD. BY: N/A

CONTRACTOR: Nothnagle Drilling Co.
DRILLER: Jay
JCL GEOLOGIST:Eric Detweiler

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/18/06 END DATE: 9/18/06

TYPE OF DRILL RIG:CME 75
CASING SIZE AND TYPE: 4.25" (HS Augers)
OVERBURDEN SAMPLING METHOD: Continuous - Split Spoons
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	2	1		NA	60%	@0': reddish topsoil, moist	0 ppm
1	5					@0-1.0': silty topsoil; reddish, dry; @1.0; crushed stone fill	
	2					@1.5': red-brown SILT w/CLAY; trace f SAND, trace angular GRAVEL	
2	1						
	2	2			60%		0 ppm
3	2						
	2						
4	2					@4.0'; red-brown SILT w/cCLAY; trace f GRAVEL; moist	0 ppm
	1	3			25%		
5	2						
	4						
6	9					@6.2'; rounded f-c GRAVEL; dry-moist; firm SILT; trace CLAY; red-brown; TILL	
	13	4			80%		0 ppm
7	14						
	15						
8	15					@8.0'; no CLAY; sub angular to rounded f-c GRAVEL	
	6	5			85%		0 ppm
9	11						
	18						
10	25					@10.0'; red-brown SILT; trace f SAND;dry-moist; firm-hard	
	30	6			88%		
11	21						0 ppm
	35						
12	24					@12.0'; SILT TILL; trace f SAND; f-c subangular-rounded GRAVEL; dry; hard	
	10	7			100%		0 ppm
13	15						
	20					@13.5'; grading from red-brown to grey-brown	
14	20						
	9	8			100%		0 ppm
15	13						
	17						
16	20					14.0-16.0'; grey-brown SILT TILL w/f SAND; rounded-subrounded f-c GRAVEL; hard; dry to	
	23	9			100%	moist	0 ppm
17	25						
	31						
18	30						
	11	10			100%	@18.9'; 2" broken rock frags (siltstone)	0 ppm
19	25						
	23						
20	20						

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING #

LU ENGINEERS 2230 PENFIELD ROAD Civil and Environmental PENFIELD, NEW YORK 14526	PROJECT Former Churchville Ford - VCA Remedial Investigation	BORING MW-JCL-01 SHEET 2 OF 3 JOB #:5701-11 CHKD. BY: N/A

CONTRACTOR: Nothnagle Drilling Co.
DRILLER: Jay
JCL GEOLOGIST:Eric Detweiler

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/18/06 END DATE: 9/18/06

TYPE OF DRILL RIG:CME 75
CASING SIZE AND TYPE: 4.25" (HS Augers)
OVERBURDEN SAMPLING METHOD: Continuous - Split Spoons
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
21	17	11			100%		0 ppm
	29						
	24						
22	28						
	16	12			71%		0 ppm
23	28						
	100/0.5						
24						@24.0'; grey SILT TILL w/f SAND; f-m GRAVEL; dry; hard	
	100/0.4	13			92%		0 ppm
25							
26							
	19	14			91%	@26.0; red-brown SILT TILL w/ trace f SAND; f-c subangular to rounded GRAVEL; dry; hard	0 ppm
27	52						
	57						
28	68						
	19	15			95%	@28.0'; grey-brown; as above	0 ppm
29	36						
	33					@29.2'; trace CLAY	
30	33						
	12	16			88%	@30'; grey-brown SILT TILL w/ GRAVEL; moist-wet	0 ppm
31	23					@30.5'; moist	
	45						
32	49						
	17	17			100%		0 ppm
33	27						
	39						
34	39						
	17	18			95%	@34.0'; red-brown SILT TILL; some CLAY; moist	0 ppm
35	33					@35.0'; grey-brown SILT /f SAND; wet; dense (silt/sand mix); no gravel	
	44						
36	40						
	13	19			19%	@36.0'; SAND /SILT; wet; no gravel	0 ppm
37	41						
	100/0.6					@37.0'; w/GRAVEL; moist-wet	
38						@37.5'; pushed through cobble	
	43	20			100%	@38.0'; SILT/SAND/GRAVEL TILL; moist-wet	0 ppm
39	100/0.6						
						@39.3'; brown SILT/SAND mix w/f-c GRAVEL (TILL); wet	
40							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING #

LU ENGINEERS 2230 PENFIELD ROAD Civil and Environmental PENFIELD, NEW YORK 14526	PROJECT Former Churchville Ford - VCA Remedial Investigation	BORING MW-JCL-01 SHEET 3 OF 3 JOB #:5701-11 CHKD. BY: N/A

CONTRACTOR: Nothnagle Drilling Co.
DRILLER: Jay
JCL GEOLOGIST:Eric Detweiler

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/18/06 END DATE: 9/18/06

TYPE OF DRILL RIG:CME 75
CASING SIZE AND TYPE: 4.25" (HS Augers)
OVERBURDEN SAMPLING METHOD: Continuous - Split Spoons
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

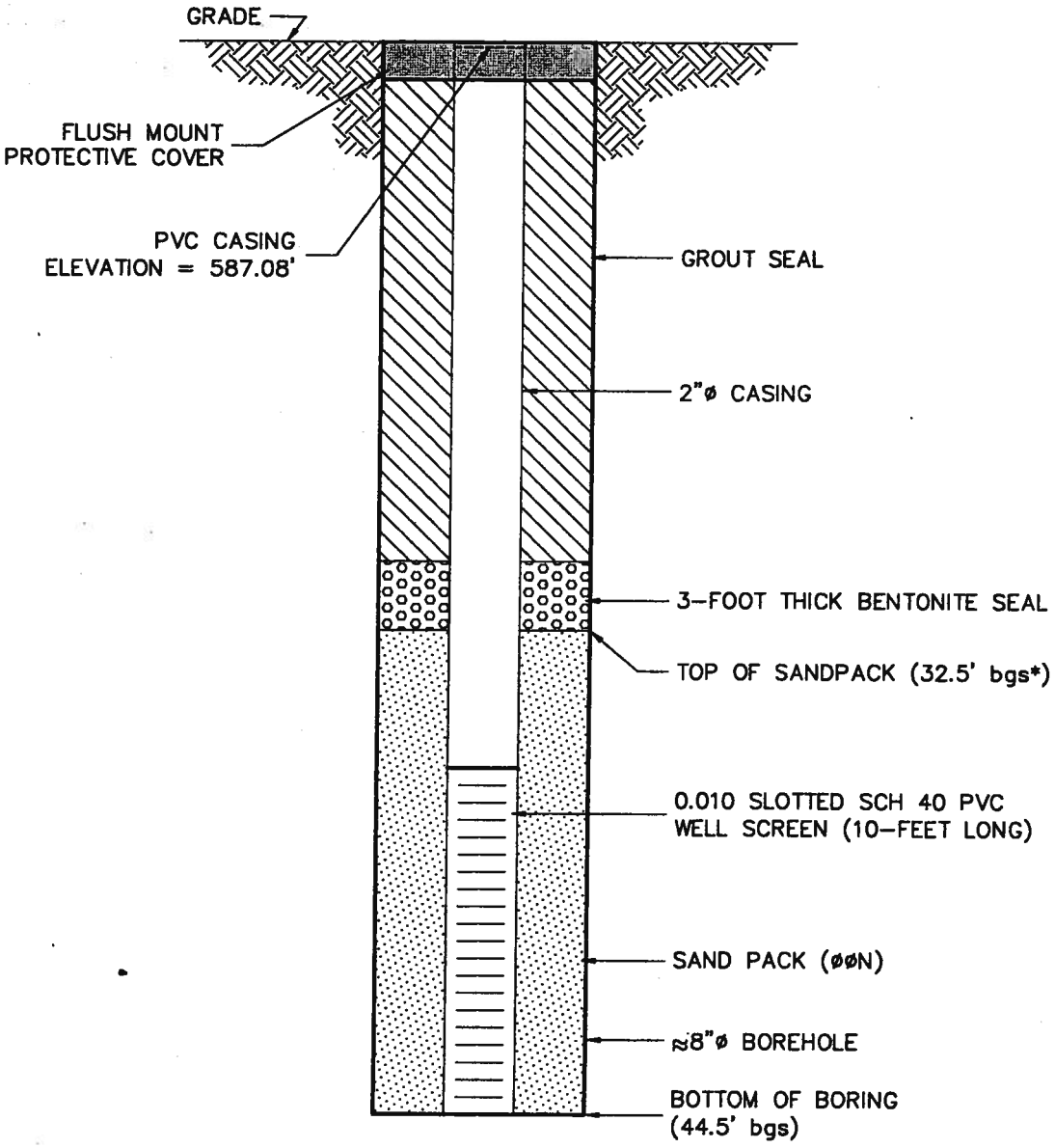
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
	51	21			100%	@40.0'; grey-brown SILT/SAND mix; TILL; w/f-c GRAVEL; wet; dense	0 ppm
41	100/0.4						
42							
	31	22			100%	@42.0'; brown f sandy SILT; w/f-m gravel; moist	0 ppm
43	100/0.5						
44							
45							
46							
47							
48						T.D. = 44.5' bgs	
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING #



MONITORING WELL CONSTRUCTION DETAIL

NOT TO SCALE

*bgs = below grade surface

LU ENGINEERS
Civil and Environmental

JOSEPH C. LU ENGINEERING AND LAND SURVEYING, P.C.
2230 PENFIELD ROAD PENFIELD, NEW YORK 14526
PHONE: 585.377.1450 FAX: 585.377.1266

MW-JCL-1

CHURCHVILLE FORD
REMEDIAL INVESTIGATION

DATE:	DECEMBER 2007
SCALE:	NONE
DESIGNED/DRAWN/CHECKED	ED/DS/GA
P.N.	5701-11

LU ENGINEERS 2230 PENFIELD ROAD Civil and Environmental PENFIELD, NEW YORK 14526	PROJECT Former Churchville Ford - VCA Remedial Investigation	BORING MW-JCL-02 SHEET 1 OF 2 JOB #:5701-11 CHKD. BY: N/A

CONTRACTOR: Nothnagle Drilling Co.
DRILLER: Jay
JCL GEOLOGIST:Eric Detweiler

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/19/06 END DATE: 9/20/06

TYPE OF DRILL RIG:CME 75
CASING SIZE AND TYPE: 4.25" (HS Augers)
OVERBURDEN SAMPLING METHOD: Continuous - Split Spoons
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	NA	1		NA	12%	@0-0.5'; asphalt /base, no odor	0 ppm
1						@0.5'; grey-brown SILT, little f SAND; trace GRAVEL; moist; soft; solvent-odor (stale)	
	1						31.8 ppm @
2	1						1.8'
	1	2			64%		
3	1						4.6 ppm
	1						
4	1					@4.1'; red-brown f sandy SILT TILL; w/f-c GRAVEL; dry; hard	1.3 ppm
	6	3			84%		7.7 ppm
5	7						20.1 ppm
	8					@5.9'; wet	
6	8					@6.2'; f sandy SILT w/ f-c GRAVEL	79 ppm
	8	4			94%		72 ppm
7	7						127 ppm
	9						@7.0' +/-
8	7					@8.2'; red-brown f sandy SILT w/GRAVEL; soft; wet	0.9 ppm
	2	5			88%		0 ppm
9	3					@9.0'; soft	
	7						
10	6						
	3	6			50%		
11	6						0 ppm
	8						
12	10					@12.0'; ; red-brown f sandy SILT; w/f-c GRAVEL; trace CLAY; soft-firm; wet	
	7	7			98%		0 ppm
13	8						
	8						
14	12						
	4	8			95%	@14.9'; as above; grey-brown; trace CLAY; moist; firm; rounded to sub-rounded GRAVEL	0 ppm
15	6						
	8						
16	11					16.0'-16.5'; wet, then moist to 18.0'; as above	
	12	9			100%		0 ppm
17	10						
	11						
18	24					@18.0'; light brown SILT w/f SAND & f-c GRAVEL; wet; pushed through stone @18.8'	
	17	10			35%		0 ppm
19	39						
	51						
20	47					@20'; brown gravelly (f-c) SILT; some f SAND; moist; hard	

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING #

LU ENGINEERS 2230 PENFIELD ROAD Civil and Environmental PENFIELD, NEW YORK 14526	PROJECT Former Churchville Ford - VCA Remedial Investigation	BORING MW-JCL-02 SHEET 2 OF 2 JOB #:5701-11 CHKD. BY: N/A

CONTRACTOR: Nothnagle Drilling Co.
DRILLER: Jay
JCL GEOLOGIST:Eric Detweiler

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/19/06 END DATE: 9/20/06

TYPE OF DRILL RIG:CME 75
CASING SIZE AND TYPE: 4.25" (HS Augers)
OVERBURDEN SAMPLING METHOD: Continuous - Split Spoons
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

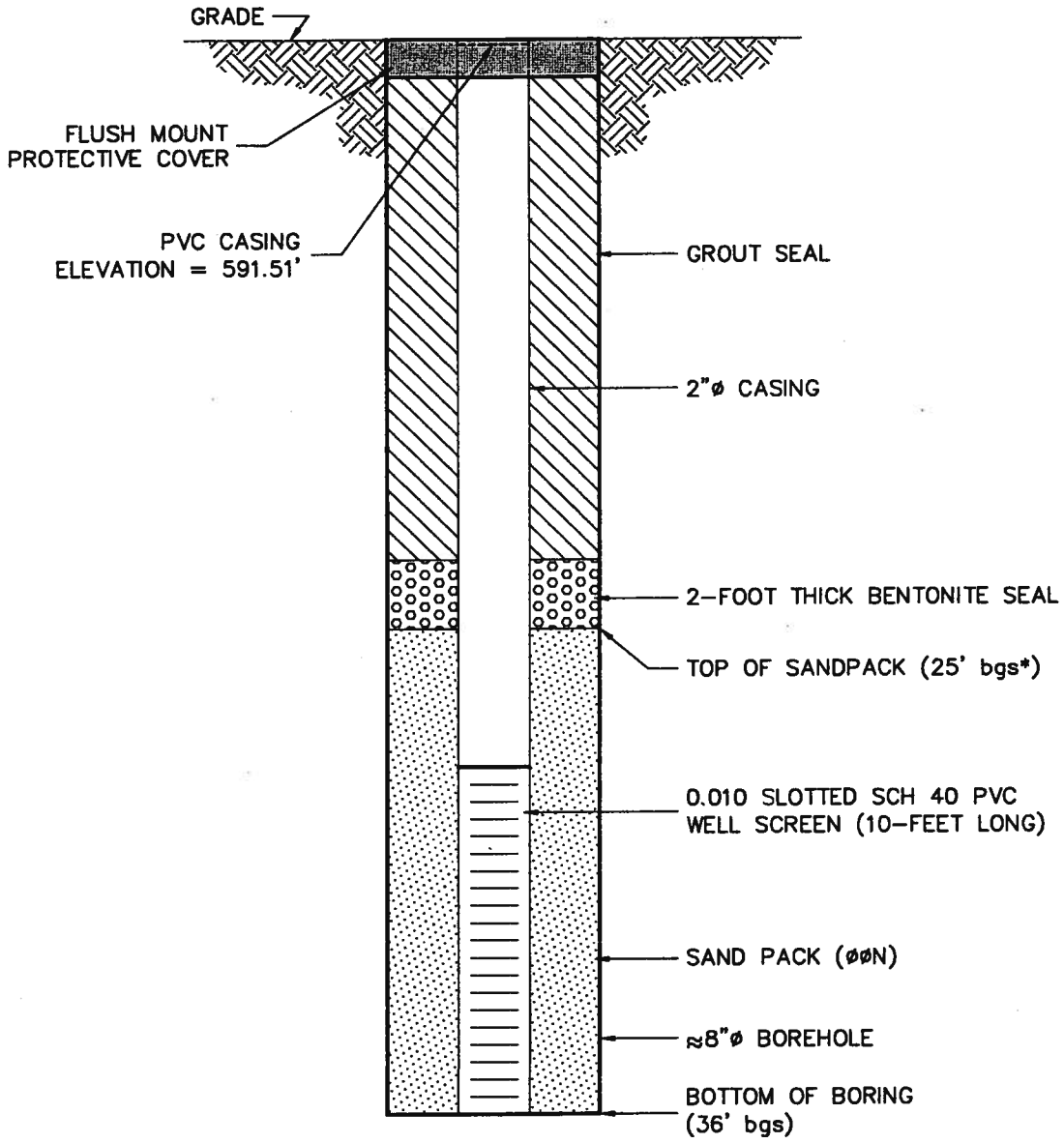
DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
	8	11			90%		0 ppm
21	11						
	8						
22	13					@22.0'; brown f sandy SILT w/ GRAVEL; moist; hard	
	28	12			100%		0 ppm
23	23						
	21						
24	21						
	9	13			72%		0 ppm
25	14						
	100/4						
26						@26.0; grey-brown SILT & f SAND; some f-c GRAVEL; moist; dense	0 ppm
	52	14			100%	@26.5; pushed quartz-like stone	
27	100/2						
28						@28.0'; as above w/more GRAVEL	0 ppm
	100/0.5	15			100%		
29							
						Encounter auger refusal @29.5' (temporary)	
30						@30'; grey-brown f SAND w/ SILT, f-c GRAVEL; moist-wet; dense	0 ppm
	34	16			100%		
31	48						
	100/2						
32						@32.3'; medium brown SILT w/ f SAND & GRAVEL; moist; hard	0 ppm
	46	17			100%		
33	100/4						
34							0 ppm
	52	18			100%	Sampled to 34.9'	
35	100/5						
36							
37							
38						T.D. = 36.0' bgs	
39							
40							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

After encountering auger refusal @29.5', drillers were able to pull out 2 sections of augers, then retry augering again. 2nd attempt was successful in reaching total augered depth of 36' bgs.

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING #



MONITORING WELL CONSTRUCTION DETAIL

NOT TO SCALE

*bgs = below grade surface

LU ENGINEERS
Civil and Environmental

JOSEPH C. LU ENGINEERING AND LAND SURVEYING, P.C.
2230 PENFIELD ROAD PENFIELD, NEW YORK 14526
PHONE: 585.377.1450 FAX: 585.377.1266

MW-JCL-2

CHURCHVILLE FORD
REMEDIAL INVESTIGATION

DATE:	DECEMBER 2007
SCALE:	NONE
DESIGNED/DRAWN/CHECKED	ED/DS/GA
P.N.	5701-11

LU ENGINEERS 2230 PENFIELD ROAD Civil and Environmental PENFIELD, NEW YORK 14526	PROJECT Former Churchville Ford - VCA Remedial Investigation	BORIN(MW-JCL-03 SHEET 1 OF 2 JOB #:5701-11 CHKD. BY: N/A

CONTRACTOR: Nothnagle Drilling Co.
DRILLER: Jay
JCL GEOLOGIST:Eric Detweiler

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/19/06 END DATE: 9/19/06

TYPE OF DRILL RIG:CME 75
CASING SIZE AND TYPE: 4.25" (HS Augers)
OVERBURDEN SAMPLING METHOD: Continuous - Split Spoons
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	NA	1		NA	82%	@0-0.5'; asphalt, base	0 ppm
1	3					@0.5'; red-brown SILT, some f SAND & f-m GRAVEL; hard	
	6						
2	7					@2.0'; red-brown SILT TILL w/ f SAND; f-c angular to subangular GRAVEL; dry; firm	
	9	2			68%		0 ppm
3	10						
	14					@3.6'; wet	
4	14						
	3	3			44%		0 ppm
5	6						
	10						
6	10					@6.0'; moist-wet; light brown; rounded GRAVEL	
	11	4			28%		0 ppm
7	10						
	10						
8	11					@8.0'; as above; trace CLAY; moist-wet	
	2	5			100%		0 ppm
9	2						
	4						
10	5						
	7	6			100%	@10.5'; light brown SILT TILL w/ f SAND & CLAY & GRAVEL; subrounded to rounded (f-c);	
11	7					firm	0 ppm
	9						
12	10						
	6	7			100%	@12.5'; trace CLAY; moist-wet	0 ppm
13	7						
	8						
14	11						
	8	8			100%		0 ppm
15	9						
	9						
16	16						
	8	9			100%		0 ppm
17	6						
	8						
18	13						
	5	10			100%	@18.4; light red-brown SILT TILL w/f-c GRAVEL; some f sand; moist; hard	0 ppm
19	11						
	14						
20	19						

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING #

LU ENGINEERS 2230 PENFIELD ROAD Civil and Environmental PENFIELD, NEW YORK 14526	PROJECT Former Churchville Ford - VCA Remedial Investigation	BORING MW-JCL-03 SHEET 2 OF 2 JOB #:5701-11 CHKD. BY: N/A

CONTRACTOR: Nothnagle Drilling Co.
DRILLER: Jay
JCL GEOLOGIST:Eric Detweiler

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/18/06 END DATE: 9/18/06

TYPE OF DRILL RIG:CME 75
CASING SIZE AND TYPE: 4.25" (HS Augers)
OVERBURDEN SAMPLING METHOD: Continuous - Split Spoons
ROCK DRILLING METHOD: NA

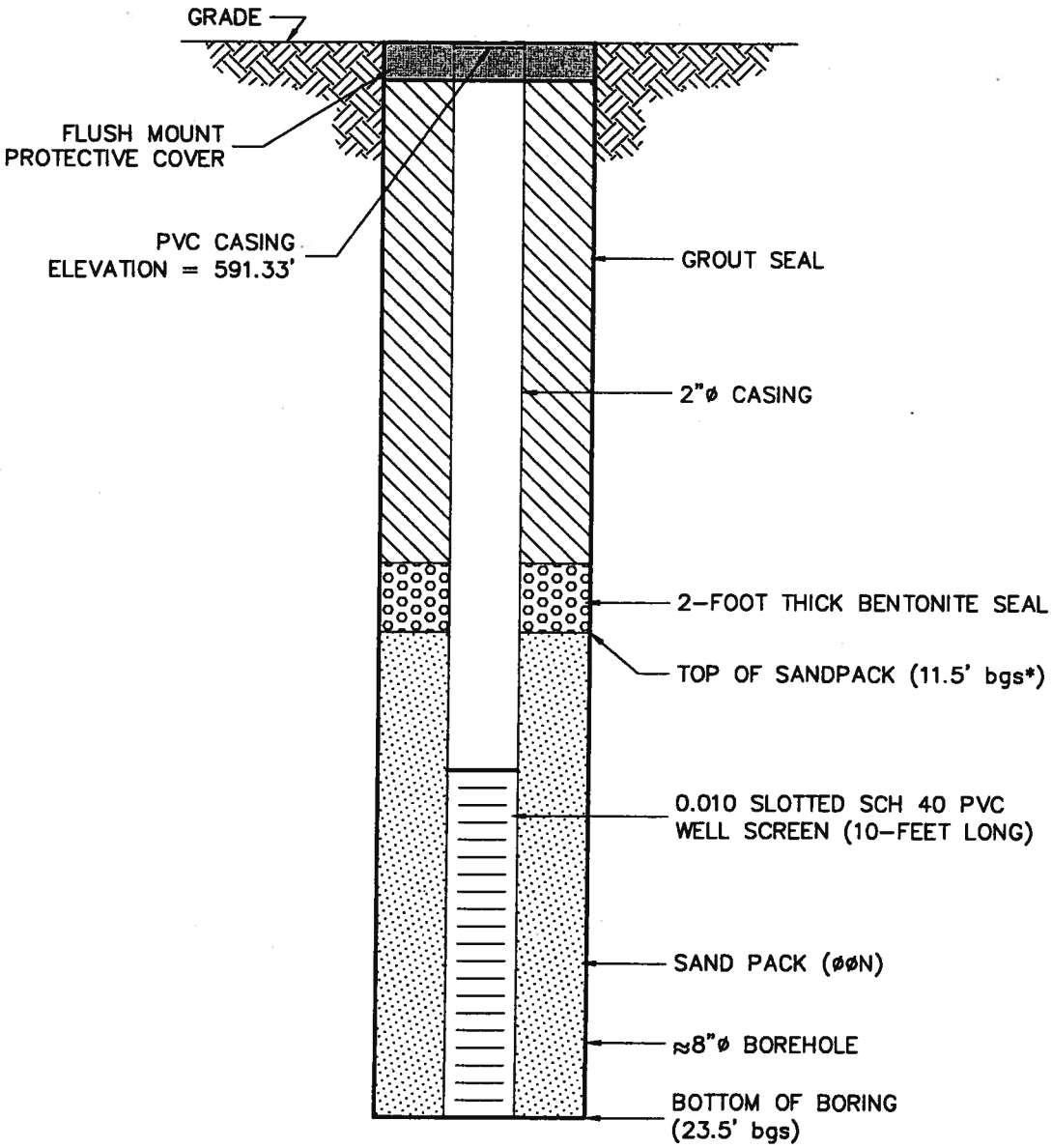
WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	2	11			90%		0 ppm
21	4						
	10						
22	19					@22.0'; grey-brown f SAND w/ SILT; some f-c GRAVEL; hard	
	25	12			100%		0 ppm
23	36					@23.1'; grey to light-brown f SAND w/f-c GRAVEL; trace SILT; poorly graded; moist	
	65						
24	86						
25						T.D. = 24' bgs	
26							
27							
28							
29							
30							
31							
32							
33							
34							
35							
36							
37							
38							
39							
40							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING #



MONITORING WELL CONSTRUCTION DETAIL

NOT TO SCALE

*bgs = below grade surface

LU ENGINEERS
Civil and Environmental

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MW-JCL-3

CHURCHVILLE FORD
REMEDIAL INVESTIGATION

DATE:	DECEMBER 2007
SCALE:	NONE
DESIGNED/DRAWN/CHECKED	ED/DS/GA
P.N.	5701-11

LU ENGINEERS 2230 PENFIELD ROAD Civil and Environmental PENFIELD, NEW YORK 14526	PROJECT Former Churchville Ford - VCA Remedial Investigation	BORING MW-JCL-01 SHEET 3 OF 3 JOB #:5701-11 CHKD. BY: N/A

CONTRACTOR: Nothnagle Drilling Co.
DRILLER: Jay
JCL GEOLOGIST:Eric Detweiler

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/18/06 END DATE: 9/18/06

TYPE OF DRILL RIG:CME 75
CASING SIZE AND TYPE: 4.25" (HS Augers)
OVERBURDEN SAMPLING METHOD: Continuous - Split Spoons
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

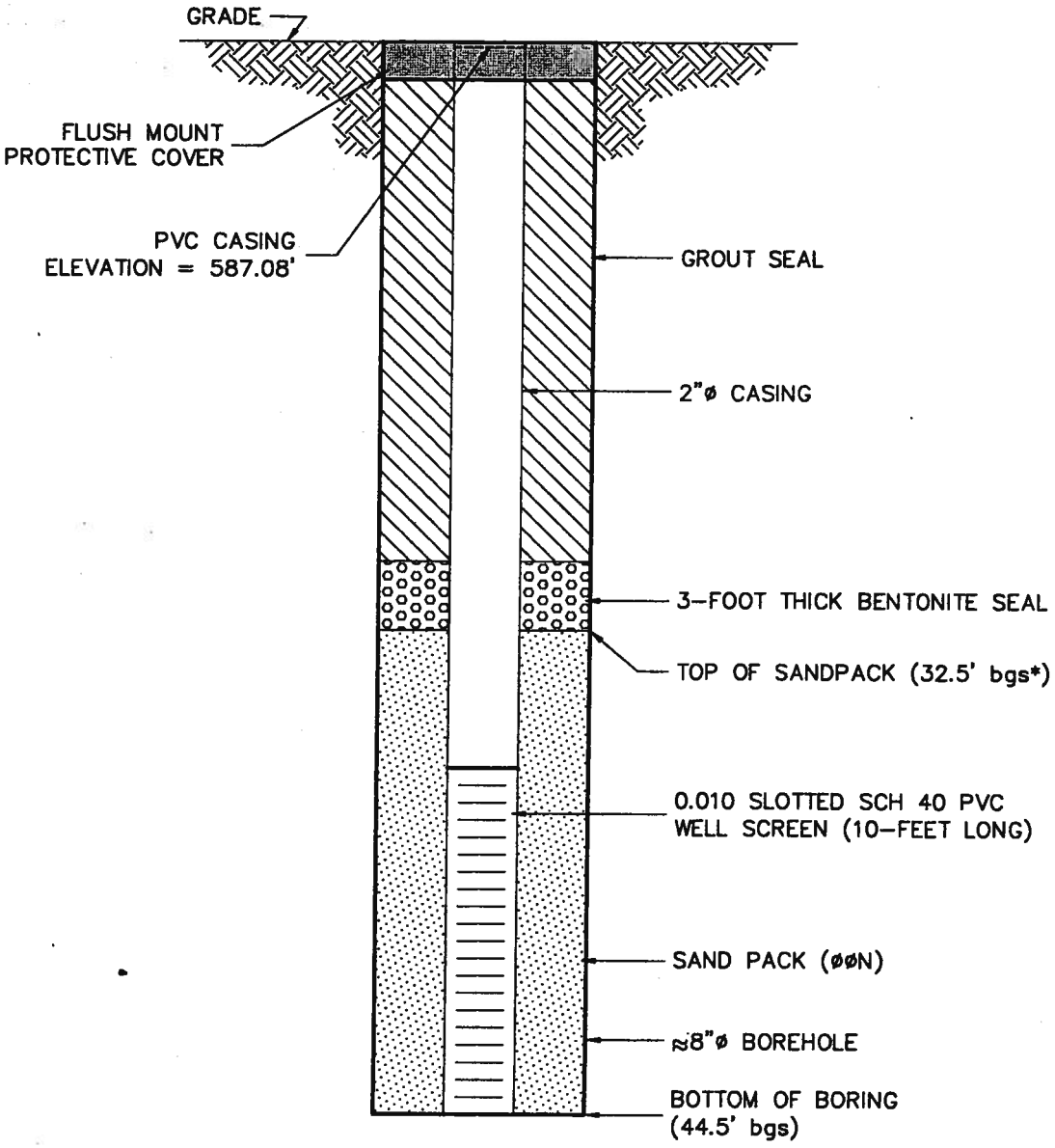
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
	51	21			100%	@40.0'; grey-brown SILT/SAND mix; TILL; w/f-c GRAVEL; wet; dense	0 ppm
41	100/0.4						
42							
	31	22			100%	@42.0'; brown f sandy SILT; w/f-m gravel; moist	0 ppm
43	100/0.5						
44							
45							
46							
47							
48						T.D. = 44.5' bgs	
49							
50							
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING #



MONITORING WELL CONSTRUCTION DETAIL

NOT TO SCALE

*bgs = below grade surface

LU ENGINEERS
Civil and Environmental

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PHONE: 585.377.1450 FAX: 585.377.1266

MW-JCL-1

CHURCHVILLE FORD
REMEDIAL INVESTIGATION

DATE:	DECEMBER 2007
SCALE:	NONE
DESIGNED/DRAWN/CHECKED	ED/DS/GA
P.N.	5701-11

LU ENGINEERS 2230 PENFIELD ROAD Civil and Environmental PENFIELD, NEW YORK 14526	PROJECT Former Churchville Ford - VCA Remedial Investigation	BORING MW-JCL-02 SHEET 1 OF 2 JOB #:5701-11 CHKD. BY: N/A

CONTRACTOR: Nothnagle Drilling Co.
DRILLER: Jay
JCL GEOLOGIST:Eric Detweiler

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/19/06 END DATE: 9/20/06

TYPE OF DRILL RIG:CME 75
CASING SIZE AND TYPE: 4.25" (HS Augers)
OVERBURDEN SAMPLING METHOD: Continuous - Split Spoons
ROCK DRILLING METHOD: NA

WATER LEVEL DATA

DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA					SAMPLE DESCRIPTION	PID
	BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)		
	NA	1		NA	12%	@0-0.5'; asphalt /base, no odor	0 ppm
1						@0.5'; grey-brown SILT, little f SAND; trace GRAVEL; moist; soft; solvent-odor (stale)	
	1						31.8 ppm @
2	1						1.8'
	1	2			64%		
3	1						4.6 ppm
	1						
4	1					@4.1'; red-brown f sandy SILT TILL; w/f-c GRAVEL; dry; hard	1.3 ppm
	6	3			84%		7.7 ppm
5	7						20.1 ppm
	8					@5.9'; wet	
6	8					@6.2'; f sandy SILT w/ f-c GRAVEL	79 ppm
	8	4			94%		72 ppm
7	7						127 ppm
	9						@7.0' +/-
8	7					@8.2'; red-brown f sandy SILT w/GRAVEL; soft; wet	0.9 ppm
	2	5			88%		0 ppm
9	3					@9.0'; soft	
	7						
10	6						
	3	6			50%		
11	6						0 ppm
	8						
12	10					@12.0'; ; red-brown f sandy SILT; w/f-c GRAVEL; trace CLAY; soft-firm; wet	
	7	7			98%		0 ppm
13	8						
	8						
14	12						
	4	8			95%	@14.9'; as above; grey-brown; trace CLAY; moist; firm; rounded to sub-rounded GRAVEL	0 ppm
15	6						
	8						
16	11					16.0'-16.5'; wet, then moist to 18.0'; as above	
	12	9			100%		0 ppm
17	10						
	11						
18	24					@18.0'; light brown SILT w/f SAND & f-c GRAVEL; wet; pushed through stone @18.8'	
	17	10			35%		0 ppm
19	39						
	51						
20	47					@20'; brown gravelly (f-c) SILT; some f SAND; moist; hard	

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING #

LU ENGINEERS 2230 PENFIELD ROAD Civil and Environmental PENFIELD, NEW YORK 14526	PROJECT Former Churchville Ford - VCA Remedial Investigation	BORING MW-JCL-02 SHEET 2 OF 2 JOB #:5701-11 CHKD. BY: N/A

CONTRACTOR: Nothnagle Drilling Co.
DRILLER: Jay
JCL GEOLOGIST:Eric Detweiler

BORING LOCATION: SEE PLAN
GROUND SURFACE ELEVATION: N/A DATUM: N/A
START DATE: 9/19/06 END DATE: 9/20/06

TYPE OF DRILL RIG:CME 75
CASING SIZE AND TYPE: 4.25" (HS Augers)
OVERBURDEN SAMPLING METHOD: Continuous - Split Spoons
ROCK DRILLING METHOD: NA

WATER LEVEL DATA				
DATE	TIME	WATER	CASING	REMARKS

DEPTH	SAMPLE DATA BLOW /6"	NO.	DEPTH (FT.)	N-VALUE /RQD(%)	RECOVERY (%)	SAMPLE DESCRIPTION	PID
	8	11			90%		0 ppm
21	11						
	8						
22	13					@22.0'; brown f sandy SILT w/ GRAVEL; moist; hard	
	28	12			100%		0 ppm
23	23						
	21						
24	21						
	9	13			72%		0 ppm
25	14						
	100/4						
26						@26.0; grey-brown SILT & f SAND; some f-c GRAVEL; moist; dense	0 ppm
	52	14			100%	@26.5; pushed quartz-like stone	
27	100/2						
28						@28.0'; as above w/more GRAVEL	0 ppm
	100/0.5	15			100%		
29							
						Encounter auger refusal @29.5' (temporary)	
30						@30'; grey-brown f SAND w/ SILT, f-c GRAVEL; moist-wet; dense	0 ppm
	34	16			100%		
31	48						
	100/2						
32						@32.3'; medium brown SILT w/ f SAND & GRAVEL; moist; hard	0 ppm
	46	17			100%		
33	100/4						
34							0 ppm
	52	18			100%	Sampled to 34.9'	
35	100/5						
36							
37							
38						T.D. = 36.0' bgs	
39							
40							

LEGEND
S- SPLIT SPOON SOIL SAMPLE
U- UNDISTURBED SOIL SAMPLE
C- ROCK CORE SAMPLE

After encountering auger refusal @29.5', drillers were able to pull out 2 sections of augers, then retry augering again. 2nd attempt was successful in reaching total augered depth of 36' bgs.

GENERAL NOTES:
1) STRATIFICATION LINES REPRESENT APPROXIMATE BOUNDARY BETWEEN SOIL TYPES, TRANSITIONS MAY BE GRADUAL.
2) WATER LEVEL READINGS HAVE BEEN MADE AT TIMES AND UNDER CONDITIONS STATED, FLUCTUATIONS OF GROUNDWATER MAY OCCUR DUE TO OTHER FACTORS THAN THOSE PRESENT AT THE TIME MEASUREMENTS WERE MADE.

BORING #

Appendix F
Groundwater Monitoring Well Sampling Log Form

Groundwater Sampling Field Record

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

Project Name _____ Job #_____
Location ID _____ Field Sample ID _____ Sampling Event # _ _
Activity Time _____ Sample Time _____ Date _____

SAMPLING NOTES

Initial Depth to Water _____ feet Measurement Point TOR _____ Well Diameter _____
Final Depth to Water _____ feet Well Depth _____ feet Well Integrity:
Screen Length _____ feet Pump Intake Depth _____ Cap _____
Total Volume Purged _____ gallons PID Well Head _____ Casing _____
[purge volume (milliliters per minute) x time duration (minutes) x 0.00026 gal/milliliter] Locked _____
Volume of Water in casing – 2" diameter = 0.163 gallons per foot of depth, 4" diameter = 0.653 gallons per foot of depth Collar _____

PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	ORP (mV)	Comments

Purge Observations: _____
Purge Water Containerized: _____

EQUIPMENT DOCUMENTATION

Type of Pump:_____
Type of Tubing:_____
Type of Water Quality Meter: _____ Calibrated: _____

ANALYTICAL PARAMETERS

Parameter Volumes Sample Collected

_____
_____
_____
_____
_____

LOCATION NOTES

_____
_____
_____
_____
_____
_____
_____

Signature: _____
Checked By: _____

ADDITIONAL PURGE DATA

Time	Depth to Water (ft)	Purge Rate (ml/min)	Temp. (deg. C)	pH (units)	Dissolved O2 (mg/L)	Turbidity (NTU)	Cond. (mS/cm)	Redox (mV)	Comments

Appendix G
Field Sampling Plan

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name _____ Date/Time Prepared _____

Preparer's Affiliation _____ Phone No._____

Purpose of Investigation_____

1. OCCUPANT:

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

Number of Occupants/persons at this location _____ Age of Occupants _____

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y / N

Last Name: _____First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: _____

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? _____

If the property is commercial, type?

Business Type(s) _____

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors_____ Building age_____

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

_____

_____

_____

Airflow near source

_____

_____

_____

Outdoor air infiltration

_____

_____

_____

Infiltration into air ducts

_____

_____

_____

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	wood frame	concrete	stone	brick
b. Basement type:	full	crawlspace	slab	other _____
c. Basement floor:	concrete	dirt	stone	other _____
d. Basement floor:	uncovered	covered	covered with _____	
e. Concrete floor:	unsealed	sealed	sealed with _____	
f. Foundation walls:	poured	block	stone	other _____
g. Foundation walls:	unsealed	sealed	sealed with _____	
h. The basement is:	wet	damp	dry	moldy
i. The basement is:	finished	unfinished	partially finished	
j. Sump present?	Y / N			
k. Water in sump?	Y / N / not applicable			

Basement/Lowest level depth below grade: _____(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

_____

_____

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other _____

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: _____

Boiler/furnace located in:	Basement	Outdoors	Main Floor	Other_____
Air conditioning:	Central Air	Window units	Open Windows	None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

_____

_____

_____

_____

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level	**General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**
Basement	_____
1st Floor	_____
2nd Floor	_____
3rd Floor	_____
4th Floor	_____

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA
Please specify_____

d. Has the building ever had a fire? Y / N When?_____

e. Is a kerosene or unvented gas space heater present? Y / N Where? _____

f. Is there a workshop or hobby/craft area? Y / N Where & Type? _____

g. Is there smoking in the building? Y / N How frequently? _____

h. Have cleaning products been used recently? Y / N When & Type? _____

i. Have cosmetic products been used recently? Y / N When & Type? _____

j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____

k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____

l. Have air fresheners been used recently? Y / N When & Type? _____

m. Is there a kitchen exhaust fan? Y / N If yes, where vented? _____

n. Is there a bathroom exhaust fan? Y / N If yes, where vented? _____

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type? _____

Are there odors in the building? Y / N
If yes, please describe: _____

Do any of the building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) Unknown
Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply: Public Water Drilled Well Driven Well Dug Well Other: _____

Sewage Disposal: Public Sewer Septic Tank Leach Field Dry Well Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: _____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

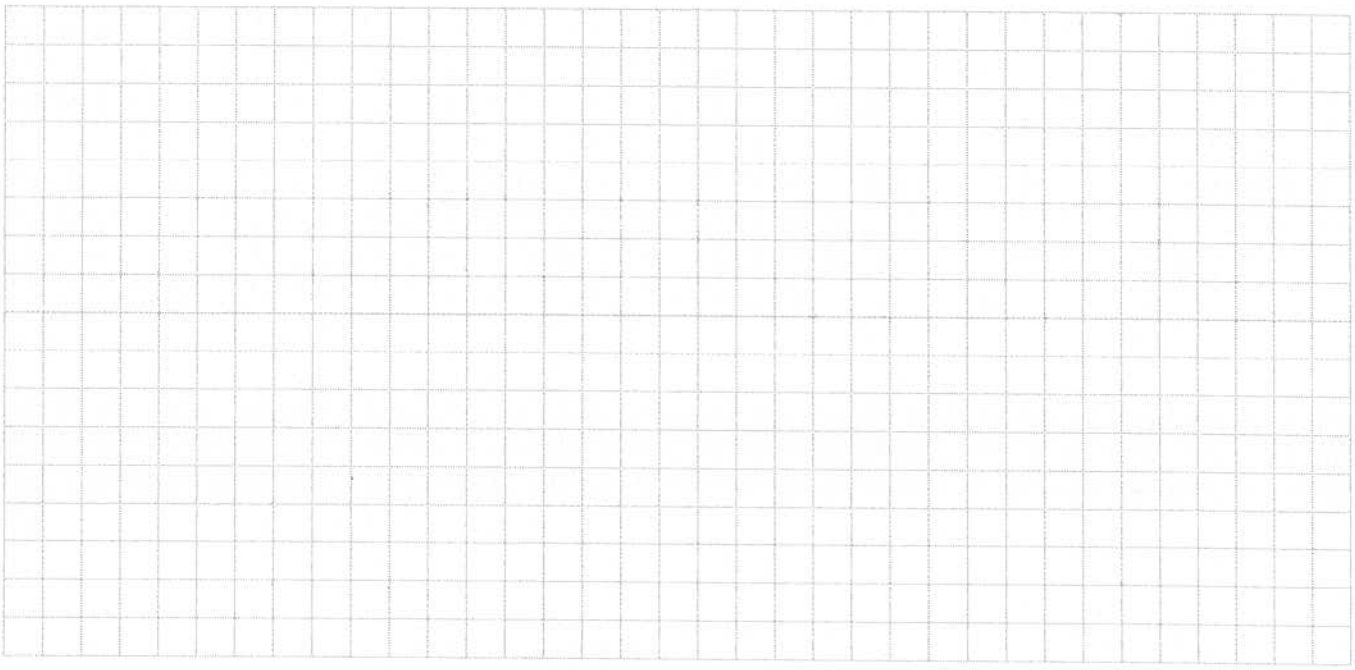
c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

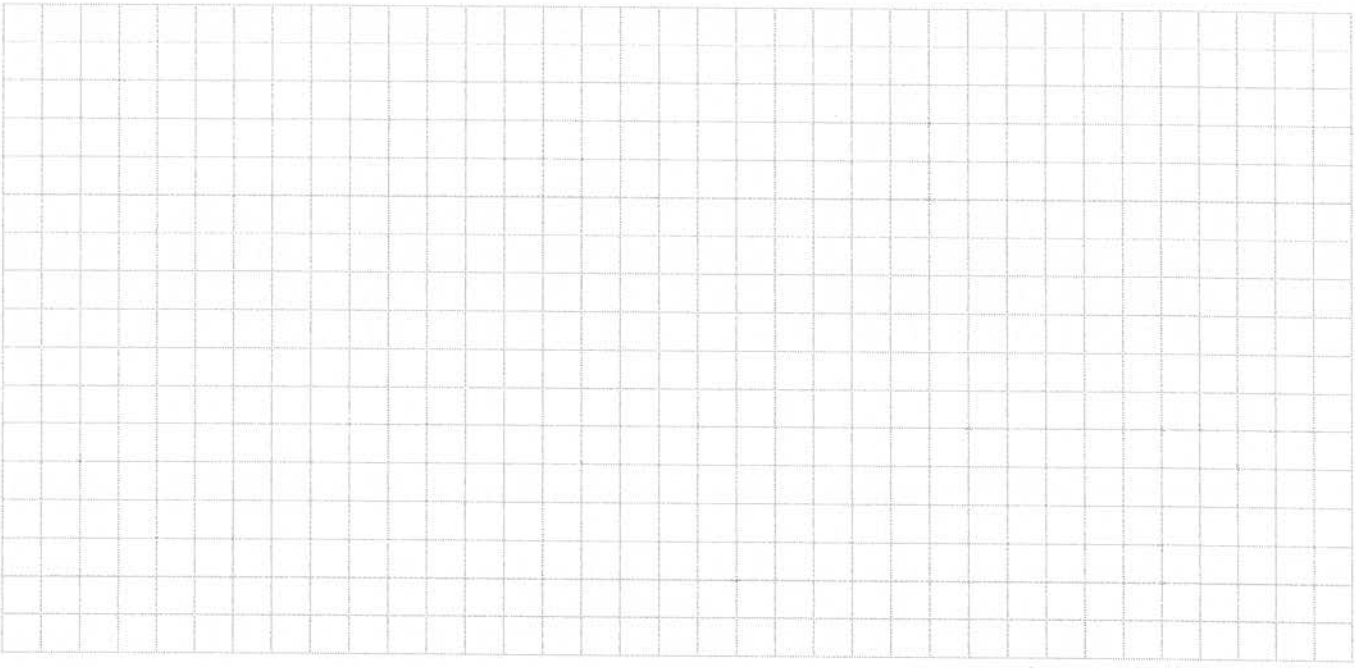
11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:



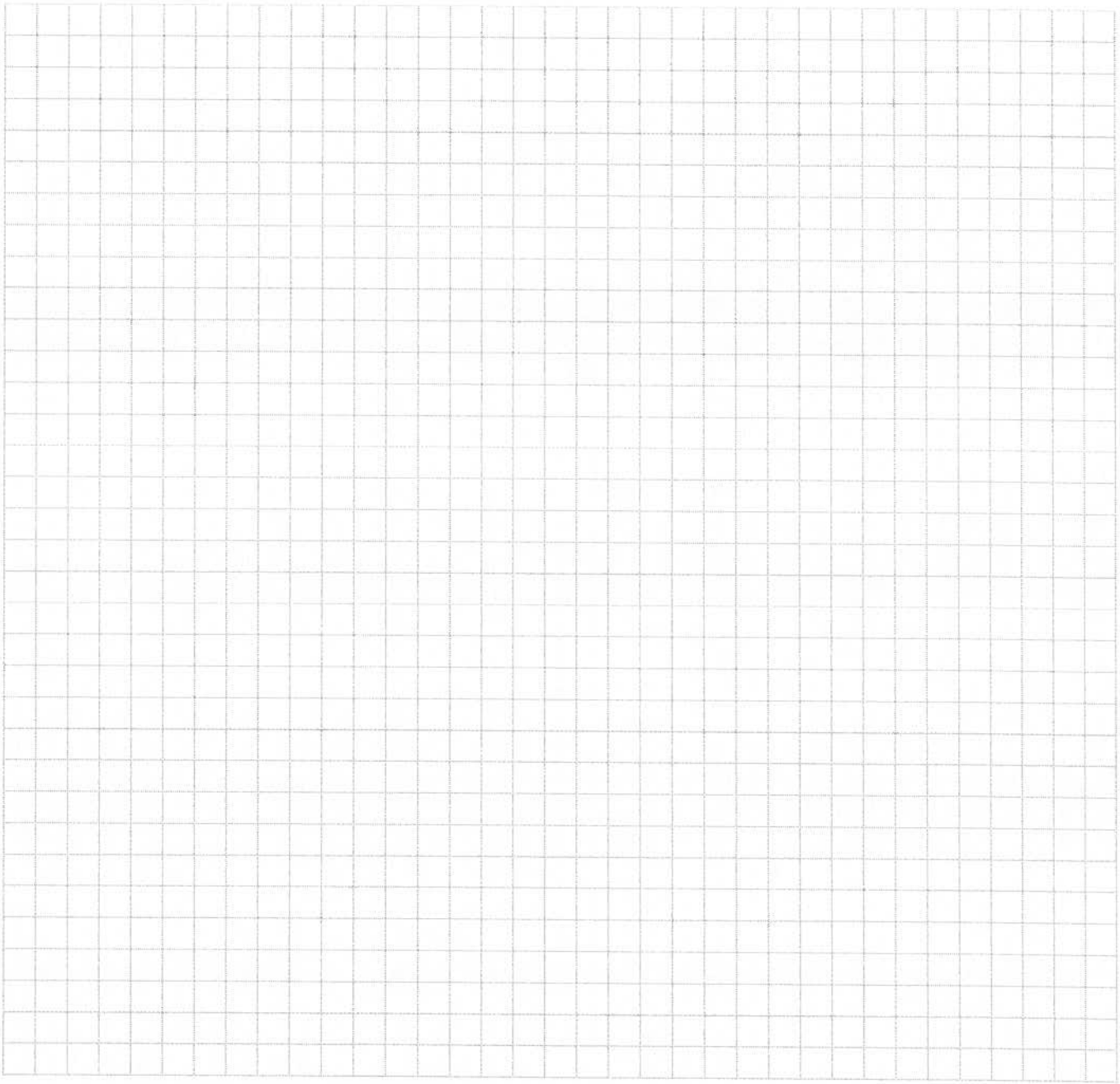
First Floor:



12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: _____

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo ** Y / N

* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

SUMMA Canister Field Data Sheet

Project Name: _____ Date: _____

Project #: _____ Sampler(s): _____

Sampling Location: _____

Sub-Slab Vapor Sample		Indoor Air Sample		Associated Outdoor Air Sample	
Sample ID:		Sample ID:		Sample ID:	
Can #:		Can #:		Can #:	
Regulator #:		Regulator #:		Regulator #:	
Start Date/Time:		Start Date/Time:		Start Date/Time:	
Start Pressure:		Start Pressure:		Start Pressure:	
Stop Date/Time:		Stop Date/Time:		Stop Date/Time:	
Stop Pressure:		Stop Pressure:		Stop Pressure:	
Slab Thickness:		Location:		Direction from bldg:	
Floor Surface:		Indoor Air Temp:		Distance from bldg:	
Odors?:		Odors?:		Odors?:	
PID Reading (ppb):		PID Reading (ppb):		PID Reading (ppb):	

Comments/Location Sketch:

Appendix H
Site-wide Inspection Form

SITE-WIDE INSPECTION FORM
FORMER CHURCHVILLE FORD VCP SITE

Date:

Name:

Company:

Position of person(s) conducting maintenance/inspection activities:

Document the following information during each biannual site visit for groundwater sampling:

1. Compliance with all ECs/ICs, including site usage

2. An evaluation of the condition and continued effectiveness of the Site Cap and SSDS

3. General site conditions at the time of the inspection

4. The site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection

5. Compliance with permits and schedules included in the Operation and Maintenance Plan

6. Confirm that site records are up to date

7. Conduct a visual inspection of the complete SSDS (i.e., vent fan, piping, warning device, labeling on systems, etc.).

8. Conduct an inspection of all surfaces to which vacuum is applied.

9. Inspect all components for condition and proper operation. Are both fans operational?

10. Inspect the exhaust or discharge point to verify that no air intakes have been located nearby.

11. Conduct a visual inspection of the complete System (i.e., vent fan, piping, warning device, labeling on systems, etc.);

12. Conduct an inspection of all surfaces to which vacuum is applied;

13. Inspect all components for condition and proper operation;

14. Identify and repair any leaks in accordance with Sections 4.3.1(a) and 4.3.4(a) of the NYSDOH Guidance (i.e.; with the systems running, smoke tubes will used to check for leaks through concrete cracks, floor joints and at the suction points and any leaks will be resealed until smoke is no longer observed flowing through the opening).

15. Inspect the exhaust or discharge point to verify that no air intakes have been located nearby;

16. Conduct pressure field extension testing (to ensure that the system is maintaining a vacuum beneath the entire slab) ;

Interview an appropriate occupant seeking comments and observations regarding the operation of the System.

Any Questions or Service needed to the SSDS call MITIGATION TECH at 1-800-637-9228

End of Inspection Form

Appendix I
Quality Assurance Project Plan

Voluntary Cleanup Program
Former Churchville Ford Site (#V00658-8)
111 South Main Street
Village of Churchville
Monroe County, New York

Quality Assurance Project Plan

Site Management Plan

Prepared For:

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18 Ellicott Street
Batavia, New York 14020

Prepared By:

Lu Engineers
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Project No: 5701-11

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Tables

1.0 Introduction

This Quality Assurance Project Plan (QAPP) was prepared as an integral part of the Site Management Plan (SMP) for the Former Churchville Ford Site and is subject to the review and approval by the New York State Department of Environmental Conservation (NYSDEC). Project-specific descriptions can be found in the SMP.

This QAPP presents the policies, organization, objectives, functional activities, and specific quality assurance (QA) and quality control (QC) activities to be implemented by the owner or owner's representative conducting the work activities outlined in the SMP for this project. This QAPP is designed to ensure that all technical data generated is accurate, representative, and will ultimately withstand legal scrutiny.

All QA/QC procedures are implemented in accordance with applicable professional technical standards, NYSDEC and Environmental Protection Agency (EPA) requirements, government regulations and guidelines, and specific project goals and requirements. This QAPP is prepared in accordance with NYSDEC and EPA QAPP guidance documents.

This QAPP incorporates the following activities:

- Sample Management and chain of custody;
- Document control;
- Laboratory quality control; and
- Review of project deliverables.

Analytical samples will be collected in the field utilizing standard operating procedures (SOPs) and sent to the contracted New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) Contract Laboratory Program (CLP)-certified laboratory for analysis, as necessary. All analysis will be completed by ELAP certified laboratories. Field data compilation, tabulation, and analysis will be checked for accuracy. Calculations and other post-field tasks will be reviewed by field personnel and the project manager.

Equipment used to take field measurements will be maintained and calibrated in accordance with established procedures. Records of calibration and maintenance will be kept in the field logbook.

Document control procedures will be used to coordinate the distribution, coding, storage, retrieval, and review of all data collected during all sampling tasks. These include, but are not limited to, the sampling of groundwater and soil vapor.

In addition, the laboratory has developed SOPs for individual analytical methods and internal QC procedures. These documents are an important aspect of their QA program and are available for review upon request.

2.0 Project Objectives

The intent of this project is to implement a groundwater and soil vapor intrusion monitoring program to monitor residual contamination in saturated soils and groundwater beneath and surrounding the southwestern portion of the main building. Semi-annual groundwater sampling and soil vapor slab maintenance and long-term monitoring have been proposed for the Site. Sampling of soil vapor and groundwater will be used to evaluate the long-term effectiveness of the remedial injection program.

A complete project description, including Site history and background information, and the scope of work is described in the SMP.

3.0 Project Organization

The personnel anticipated for this project are not known at this time; qualifications will be included prior to initiating Site work.

4.0 Sampling Procedures

4.1 Sampling Design

Sampling for this project is designed to evaluate the effectiveness of the previous oxidant injections. Groundwater samples will be collected semi-annually to evaluate and monitor the long-term effectiveness of the remedy. Analytical parameters for groundwater and soil vapor samples will be determined prior to the initiation of field activities with concurrence by the NYSDEC.

Vapor intrusion sample collection locations will be determined prior to the initiation of work and will be based on evaluation of the previous vapor intrusion sample results. Samples will be collected in accordance with the guidance provided in the NYSDOH *Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006).*

4.2 QC Samples

Various types of field QC samples are used to check the cleanliness and effectiveness of field handling methods. They are analyzed in the laboratory as samples, and their purpose is to assess the sampling and transport procedures as possible sources of sample contamination and document overall sampling and analytical precision. Rigorous documentation of all field QC samples in the Site logbooks is mandatory.

- **Trip Blanks** are similar to field blanks with the exception that they are not exposed to field conditions. Their analytical results help assess the potential for cross-contamination of volatile organics while samples are held in a cooler and transported. Trip blanks are prepared at the lab prior to the sampling event and shipped with the sample bottles. Trip blanks are prepared by adding organic-free water to a 40-ml VOA vial. One trip blank will be used with every batch of water samples shipped for volatile organic analysis.

Each trip blank will be transported to the sampling location, handled like a sample, and returned to the laboratory for analysis without being opened in the field.

- **Field Equipment/Rinsate Blanks** are blank samples designed to demonstrate that sampling equipment has been properly prepared and cleaned before field use and that cleaning procedures between samples are sufficient to minimize cross-contamination. Rinsate blanks are prepared by passing analyte-free water over sampling equipment and analyzing the samples for all applicable parameters. If a sampling team is familiar with a particular site, its members may be able to predict which areas or samples are likely to have the highest concentration of contaminants. Unless other constraints apply, these samples should be taken last to avoid excessive contamination of sampling equipment. Rinsate blanks are not required if dedicated sampling equipment is used for sample collection.
- **Field Duplicates** consist of a set of two (2) samples collected independently at a sampling location during a single sampling event. Field duplicates can be sent to the laboratory so that they are indistinguishable from other analytical samples and personnel performing the analysis are not able to determine which of the samples are field duplicates. Field duplicates are designed to assess the consistency of the overall sampling and analytical system.
- **Matrix Spike (MS) Samples** are used to assess matrix interference effects on the laboratory method, as well as to evaluate instrument performance, as well as to evaluate instrument performance. A sample spike is prepared by adding to an environmental sample (before extraction or digestion) a known amount of pure compound of the same type that is to be assayed for in the environmental sample. Spikes are added at one to 10 times the expected sample concentration or approximately 10 times the method detection limit. These spikes simulate the background and interferences found in the actual samples, and the calculated percent recovery of the spike is taken as a measure of the accuracy of the total analytical method.
- **Matrix Spike Duplicate (MSD) Samples** are aliquots of the same sample that are split prior to analysis and treated exactly the same throughout the analytical method. Spikes and duplicates for the batch are normally aliquots of the same sample. For organics, spikes are added at approximately 10 times the method detection limit. The relative percent difference (RPD) between the values of the matrix spike and matrix spike duplicate for organics or between the original and the duplicate for inorganics is taken as a measure of the precision of the analytical method. In general, the tolerance limit for RPDs between laboratory duplicates should not exceed 20% for validation in homogeneous samples.

Field QC samples and the frequency of analysis for this project are summarized in Table 1 of this QAPP.

4.3 Decontamination Procedures

All decontamination will be performed in accordance with NYSDEC approved procedures. Sampling methods and equipment have been chosen to minimize decontamination requirements and prevent the possibility of cross-contamination.

Waters generated by decontamination or by developing, purging, or pumping the wells will be stored in a secure location in drums or an onsite holding tank. Purge and development fluids will not be recharged back to the land surface or subsurface of the Site, but will be managed off-Site. Final disposal of water will be dependent on the results of the groundwater analyses conducted as part of this SMP.

4.4 Sampling Methods

4.4.1 Groundwater Sampling Procedures

Static water levels will be measured to within 0.01-foot prior to purging and sampling. Purging and sampling of each well will be accomplished using either dedicated disposable PVC bailers on new polypropylene line or low-flow sampling methods. If sampled by bailer, all wells will be purged a minimum of three volumes of water standing in the casing or to dryness. If sampled by low-flow methods, all wells will be purged until stabilization of water quality parameters have been achieved. Temperature, pH, conductivity, and turbidity will be measured and recorded during purging.

Groundwater samples will be collected according to the following procedures.

- Water clarity will be quantified during sampling with a turbidity meter;
- When transferring water from the bailer or low-flow sampling tubing to sample containers, care will be taken to avoid agitating the sample, since agitation promotes the loss of volatile constituents;
- Any observable physical characteristics of the groundwater (e.g., color, sheen, odor, turbidity) at the time of sampling will be recorded; and
- Weather conditions (i.e., air temperature, sky condition, recent heavy rainfall, drought conditions) at the time of sampling will be recorded.

All groundwater samples and their accompanying QA/QC samples will be analyzed as determined by the owner or owner's representative in conjunction with the NYSDEC.

4.4.2 Vapor Intrusion Sampling

Sub-slab soil vapor samples will be obtained from beneath the concrete floor slab of the building. Sub-slab samples will be collected in accordance with the NYSDOH *Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006)*. Samples shall be obtained using the following procedure:

- Prior to sampling, a NYSDOH Indoor Air Quality Questionnaire and Building Inventory including a product inventory, floor plan sketch, and background PID readings will be completed for the sampling area. The concrete floor will be inspected for cracks and

penetrations. A floor plan sketch with locations of sumps, drains, penetrations, odors and PID readings will be noted.

- A one-inch diameter penetration will be made in the slab to a depth of approximately one inch, utilizing a hammer drill. A 3/8-inch diameter hole will be drilled to a depth of 1-2 inches below the slab.

- A temporary probe consisting of ¼-inch polyethylene tubing will be inserted approximately 1-inch below the slab. A rubber stopper may be used to hold the tubing in place.

- The surface will be sealed with 100% pure melted beeswax or equivalent.

- One to three tubing volumes will be purged using a purge pump and collected in a Tedlar bag. Flow rate of the purge pump will be < 0.2 liters per minute.

- Samples will be collected using stainless steel Summa® canisters equipped with low-flow regulators. Canisters shall be pre-cleaned by the contract laboratory prior to sampling.

- Photographs of the sampling set-up and surrounding area will be taken. Beginning and ending air pressures of the Summa canisters will be recorded on Summa Can Data Sheets and the chain-of-custody.

- Eight hour samples will be collected. Upon completion of the sampling, the tubing will be removed and the penetration sealed with a concrete patch.

If deemed appropriate, field duplicates for sub-slab samples will be collected by attaching a T-fitting supplied by the laboratory to two Summa® canisters with attached regulators. The inlet for the T-fitting will then be attached to the sub-slab sample tubing. Both Summa® canister valves are opened and closed simultaneously for sampling.

Summa® canisters will be submitted to the contracted laboratory for analysis of VOCs via EPA Method TO-15. Analytical results will be provided in ASP Category B format and a Data Usability Summary Report (DUSR) will be prepared.

4.5 Sample Documentation

4.5.1 Logbooks

All field activities will be documented in a field logbook. This logbook will provide a record of activities conducted at the site. All entries will be signed and dated at the end of each day of fieldwork. The field logbook will include the following: date and time of all entries; names of all personnel on site; weather conditions (temperature, precipitation, etc.); location of activity; and description of activity.

In addition, the owner or owner's representative will complete the following standard field forms as necessary:

- Groundwater elevations, development, and sampling logs
- Summa canister data sheets
- Chain of custody for all analytical laboratory sampling

As with any data logbooks, no pages will be removed for any reason. If corrections are necessary, these must be made by drawing a single line through the original entry (so that the original entry can still be read) and writing the corrected entry alongside it. The correction must be initialed and dated.

4.5.2 Sample Identification

All containers of samples collected as part of the project will be identified using a format identified in the field on a label affixed to the sample container (labels are to be covered with Mylar tape). Each sample I.D. will be unique for the site so that the same I.D. isn't used twice during the project. Generally, the format will include the following.

- Two or three letters identifying the type of sample:
  - MW- groundwater sample
  - SVS- sub-slab soil vapor sample
  - IA- indoor air sample
  - OA- outdoor air sample
- Two numbers identifying a sample location;
- The date that the sample was collected
- Additional letters identifying special parameters, if applicable.
  - D – Field Duplicate
  - MS – Matrix Spike
  - MD- Matrix Spike Duplicate

Example: SVS-03-8/1/2011 a sub-slab soil vapor sample collected from location 03 on August 1, 2011.

Each sample will be labeled and sealed immediately after collection. The sample label will be filled out using waterproof ink and will be firmly affixed to the sample containers and protected with Mylar tape. The sample label will give the sample number, the date of the collection, analysis required, and pH and preservation, if appropriate.

The laboratory sample number will appear on a barcode label affixed to each sample, extract, or digestate.

4.6 Field Instrumentation

All instruments and equipment used during sampling and analysis will be operated, calibrated and maintained according to manufacture's guidelines and recommendations. Operation,

calibration, and maintenance will be performed by personnel properly trained in these procedures. Documentation of calibration information will be maintained in the appropriate log book or reference file and will be available upon request. Instruments will be calibrated before each use.

5.0 Sample Handling and Custody

This section describes procedures for sample handling and chain-of-custody to be followed by sampling personnel of the owner or owner's representative and the analytical laboratory. The purpose of these procedures is to ensure that the integrity of the samples is maintained during their collection, transportation, storage, and analysis. Chain-of-custody requirements are compliant with EPA sample-handling protocols.

Sample identification documents will be carefully prepared so that sample identification and chain-of-custody can be maintained and sample disposition controlled. Sample identification documents include field notebooks, sample labels, custody seals, chain-of-custody records, and laboratory sample log-in and tracking forms.

The primary objective of the chain-of-custody procedures is to provide an accurate written record that can be used to trace the possession and handling of a sample from the moment of its collection through it analyses. A sample is in custody if it is:

- In someone's physical possession;
- In someone's view;
- Locked up; or
- Kept in a secured area that is restricted to authorized personnel.

5.1 Sample Containers and Preservation

For all groundwater sampling, new sample containers obtained from a reliable supplier will be provided by the analytical laboratory. All containers provided by the laboratory are precleaned (Level 1), with certificates of analysis available for each bottle type. Certifications of Analysis provided by the vendor are kept on file by the laboratory.

All samples will be stored on ice pending delivery to the laboratory. In addition, all water samples for volatile analysis will be preserved with HCl to a pH of less than 2. A list of preservatives and holding times for each type of analysis is included on the attached Table 2.

Sample preservation will be verified at the lab prior to extraction, digestion, and/or analysis and the pH will be recorded in the extraction/digestion logbook. The pH may be checked upon arrival, if desired. If the samples are improperly preserved, a QA/QC discrepancy form will be submitted to the lab manager and QA coordinator for appropriate follow-up action (i.e., evaluation of the data during the data validation process and, if necessary, additional instruction of personnel regarding proper procedures).

5.2 Field Custody Procedures

- Sample bottles must be obtained precleaned from the laboratory or directly from an approved retail source. All containers will be prepared in a manner consistent with the NYSDEC ASP 1991 bottle-washing procedures. Coolers or boxes containing cleaned bottles should be sealed with a custody tape seal during transport to the field or while in storage prior to use.
- All containers will have assigned lot numbers to ensure traceability through the supplier.
- As few persons as possible should handle samples.
- The sample collector is personally responsible for the care and custody of samples collected until the samples are transferred to another person or dispatched properly under chain-of-custody rules.
- The sample collector will record sample data in the field notebook.
- The project manager will determine whether proper custody procedures were followed during the fieldwork and decide if additional samples are required.

5.2.1 Custody Seals

Custody seals are preprinted adhesive-backed seals with security perforations designed to break if the seals are disturbed. A custody seal is placed over the cap of individual sample bottles by the sampling technician. Sample shipping containers (coolers, cardboard boxed, etc., as appropriate) are sealed in as many places as necessary to ensure security. Seals must be signed and dated before use. Strapping tape should be placed around the lid to ensure that seals are not accidentally broken during shipment and in a manner that allows easy removal by laboratory personnel. On receipt at the laboratory, the custodian must check (and certify, by completing logbook entries) that seals on boxes and bottles are intact.

5.2.2 Chain-of-Custody Record

The chain-of-custody record must be fully completed in duplicate, using black carbon paper where possible, by the field technician who has been designated by the project manager as responsible for sample shipment to the appropriate laboratory for analysis. In addition, if samples are known to require rapid turnaround in the laboratory because of project time constraints or analytical concerns (i.e., extraction time or sample retention period limitations, etc.), the person completing the chain-of-custody record should note these constraints in the "Remarks" section of the custody record.

5.3 Sample Handling, Packaging and Shipping

The transportation and handling of samples must be accomplished in a manner that not only protects the integrity of the sample but also prevents any detrimental effects due to the possible hazardous nature of samples. Regulations for packaging, marking, labeling, and shipping hazardous materials are promulgated by the United States Department of Transportation (DOT) in the Code of Federal Regulations, 49 CFR 171 through 177.

5.3.1 Sample Packaging

Samples must be packaged carefully to avoid breakage or contamination and must be shipped to the laboratory at proper temperatures. The following sample packaging requirements will be followed:

- Sample bottle lids must never be mixed. All sample lids must stay with the original containers.
- The sample bottle should never be completely filled except for VOA bottles. At a minimum, a 10% void space should be left in the bottle to allow for expansion.
- All sample bottles must be sealed around the neck or the jar lid with clear tape. Any custody seals should be affixed prior to sealing the bottle.
- All sample bottles shall be placed in plastic Zip-lock bags to minimize contact with inert packing material, unless foam inserts are used.
- Foam inserts should be used as inert packing material when shipping low hazard water samples via a common carrier to the laboratory.
- Low-hazard environmental samples are to be cooled. "Blue ice" or some other artificial icing material, or ice placed in plastic bags, may be used. Ice will not be used as a substitute for packing material.
- A duplicate custody record must be placed in a plastic bag and taped to the inside of the cooler lid. Custody seals are affixed to the sample cooler.
- The cooler will be labeled as containing a hazardous material if it contains medium or high-hazard samples. Labeling requirements differ depending on the type of material being shipped; the majority of soil samples may be shipped as a class "9" hazardous material with the proper shipping name "OTHER REGULATED SUBSTANCES (ENVIRONMENTAL SAMPLES)."
- A hazardous material shipping manifest will be completed for each cooler of medium to high-hazard samples and affixed to the lid of the cooler.
- Low-hazard environmental samples do not require a hazardous material shipping manifest. The words "LABORATORY SAMPLES" should be printed on the top of the cooler for low-hazard samples.
- Samples packaged and shipped as limited-quantity radioactive material must comply with DOT and shipper regulations for package contamination limits, surface exposure rate, and airbill completion.

5.3.2 Shipping Containers

Environmental samples will be properly packaged and labeled for transport and dispatched for analysis to the appropriate subcontracted laboratory for geotechnical analyses. A separate chain-of-custody record must be prepared for each container. The following requirements for marking and labeling of shipping containers will be observed:

- Use abbreviations only where specified;

- The words "This End Up" or "This Side Up" must be clearly printed on the top of the outer package. Upward-pointing arrows should be placed on the sides of the package. The words "Laboratory Samples" should also be printed on the top of the package; and
- After a container has been closed, two custody seals are placed on the container—one on the front and one on the back. The seals are protected from accidental damage by placing strapping tape over them.

Field personnel will make timely arrangements for transportation of samples to the laboratory. When custody is relinquished to a shipper, field personnel will telephone the laboratory custodian to inform him of the expected time of arrival of the sample shipment and to advise him of any time constraints on sample analysis.

5.3.3 Shipping Procedures

- The coolers in which the samples are packed must be accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them must sign, date, and note the time on the record. This record documents sample custody transfer.
- Samples must be dispatched to the laboratory for analysis with a separate chain-of-custody record accompanying each shipment. Shipping containers must be sealed with custody seals for shipment to the laboratory. The method of shipment, name of courier, and other pertinent information are entered in the "Remarks" section of the chain-of-custody record.
- All shipments must be accompanied by the chain-of-custody record identifying their contents. The original record accompanies the shipment, and the yellow copy is retained by the site team leader.
- If sent by mail, the package is registered with return receipt requested. If sent by common carrier, a bill of lading is used. Freight bills, Postal Service receipts, and bills of lading are retained as part of the permanent documentation.
- Samples must be shipped and/or relinquished to the analytical laboratory within 24 to 48 hours from the time of collection.

5.4 Laboratory Custody Procedures

The designated sample custodian at the laboratory will be responsible for maintaining the chain-of-custody for samples received at the lab. Among other things, the custodian must adhere to the following basic requirements:

- When the sample arrives at the lab, the custodian will complete a Cooler Receipt & Preservation Form for each cooler/package container.
- Upon receipt, the coolers are examined for the presence and condition of custody seals, locks, shipping papers, etc. Shipping labels are removed and placed on scrap paper and added to the receiving paper work. The custodian then completes the chain-of-custody record by signing and recording the date and time the package is opened.

- Acceptance criteria for cooler temperature is 0-6^{o}C. If a cooler exhibits a temperature outside this range, the anomaly is noted on the Cooler Receipt & Preservation Form.
- The custodian will then unload the samples from the cooler(s)/container(s), assign an identification number to each sample container, and affix a barcode label to each sample container for logging in and out of the sample tracking system.

Adherence to this procedure will ensure that all samples can be referenced in the computer tracking system. All sample control and chain-of-custody procedures applicable to the analytical laboratory are presented in laboratory SOPs available for review.

6.0 Analytical Methods

Groundwater sample analysis will be performed by a NYSDOH ELAP-certified analytical laboratory. If ASP-B analysis is required, a properly certified laboratory will be the used for groundwater analysis. Soil vapor intrusion sample analysis will be performed by an appropriately accredited laboratory. General analytical and organic methods to be performed by the laboratory for this project will be determined by the owner or owner's representative, subject to approval by the NYSDEC. Analytical parameters for groundwater and soil vapor samples will be determined prior to the initiation of field activities with concurrence by the NYSDEC.

6.1 Analytical Capabilities

The analytical laboratory is fully equipped for analysis of all types of water, air, and soil samples for chemical contaminants, bacteriological quality, and general characterization. Proven and approved analytical techniques are used, backed up by a rigorous system of QC and QA checks to ensure reliable and defensible data. All laboratory work is performed in accordance with guidelines established by EPA, the NYSDOH, and the NIOSH.

Organic analysis is accomplished by gas chromatography (GC), high performance liquid chromatography (HPLC), and or GC/mass spectrometry (MS). Liquid, soil, and air samples are analyzed routinely for pesticides, polychlorinated biphenyls (PCBs), volatile organics, extractable organics, and other groups of compounds, as necessary.

Laboratory procedures to be utilized for sample preparation and analysis are referenced in the NYSDEC ASP.

Method Detection Limits
Method detection limits are determined according to procedures outlined in 40 CFR Part 136, Appendix B or EPA CLP. General analytical detection limits are usually determined by the lowest point on the curve. Detection limits are determined at least annually for all appropriate analytical methods. A listing of the laboratory's method detection limits is available upon request.

Reporting limits for analysis of the soil vapor and indoor air samples via EPA Method TO-15 are included in Attachment C-1. The detection limit for most compounds is 1 ug/m^3. Indoor and outdoor air samples for Matrix 1 compounds have a lower detection limit of 0.25 ug/m^3.

6.2 Quality Control Samples

Laboratory QC consists of analysis of laboratory blanks, duplicates, spikes, standards, and QC check samples as appropriate to the methodology. These laboratory QC samples are described below.

6.2.1 Laboratory Blanks

Three types of laboratory blanks, one or more of which will be utilized depending on the analysis are described below:

- Method blanks consist of analyte-free water and are subjected to every step of the analytical procedure to determine possible contamination.
- Reagent blanks are similar to method blanks but incorporate only one of the preparation reagents in the analysis. When a method blank indicates significant contamination, one or more reagent blanks are analyzed to determine the source.
- Calibration blanks consist of pure reagent matrix and are used to zero an instrument's response, thus establishing the baseline.

6.2.2 Calibration Standards

A calibration standard may be prepared in the laboratory by dissolving a known amount of a pure compound in an appropriate matrix. The final concentration calculated from the known quantities is the true value of the standard. The results obtained from these standards are used to generate a standard curve and thereby identify the concentration of the compound in the environmental sample. A minimum of three calibration standards will be used to generate a standard curve for all analyses.

6.2.3 Reference Standard

A reference standard is prepared in the same manner as a calibration standard but from a different source. Reference standards may be obtained from the EPA. The final concentration calculated from the known quantities is the "true" value of the standard. The important difference in a reference standard is that it is not carried through the same process used for the environmental samples, but is analyzed without digestion or extraction. A reference standard result is used to validate an existing concentration calibration standard file or calibration curve.

6.2.4 Spike Sample

A sample spike is prepared by adding to an environmental sample (before extraction or digestion) a known amount of pure compound of the same type that is to be assayed for in the environmental sample. Spikes are added at one to 10 times the expected sample concentration or approximately 10 times the method detection limit. These spikes simulate the background and interferences found in the actual samples, and the calculated percent recovery of the spike is taken as a measure of the accuracy of the analytical method.

A blank spike is the same as a spike sample except the spike is added to analyte-free water. The blank spike is used to determine whether the sample preparation and analysis are under control.

6.2.5 Surrogate Standard

A surrogate is prepared by adding a known amount of pure compound to the environmental sample; the compound selected is not one expected to be found in the sample, but is similar in nature to the compound of interest. Surrogate compounds are added to the sample prior to extraction or digestion. Surrogate spike concentrations indicate the percent recovery of the analytes and, therefore, the efficiency of the methodology.

6.2.6 Internal Standard

Internal standards are similar to surrogate standards in chemical composition but are used to quantify the concentration of analytes sampled based on the relative response factor. Internal standards are added to the environmental sample prior to instrumental analysis.

6.2.7 Laboratory Duplicate or Matrix Spike Duplicate

Laboratory duplicates are aliquots of the same sample that are split prior to analysis and treated exactly the same throughout the analytical method. Spikes and duplicates for the batch are normally aliquots of the same sample. For organics, spikes are added at approximately 10 times the method detection limit. The RPD between the values of the matrix spike and matrix spike duplicate for organics or between the original and the duplicate for inorganics is taken as a measure of the precision of the analytical method.

In general, the tolerance limit for RPDs between laboratory duplicates should not exceed 20% for validation in homogeneous samples.

6.2.8 Check Standard/Samples

Inorganic and organic check standards or samples are prepared with reference standards or are available from the EPA. They are used as a means of evaluating analytical techniques of the analyst. Check standards or samples are subjected to the entire sample procedure, including extraction, digestion, etc., as appropriate for the analytical method utilized. The check standard or sample can provide information on the accuracy of the analytical method independent of various sample matrices.

6.3 Laboratory Instrumentation

Laboratory capabilities will be demonstrated initially for instrument and reagent/ standards performance as well as accuracy and precision of analytical methodology. A discussion of reagent/standard procedures and brief descriptions of calibration procedures for major instrument types follow.

All standards are obtained directly from EPA or through a reliable commercial supplier with a proven record for quality standards. All commercially supplied standards will be traceable to EPA or NIST reference standards and appropriate documentation will be obtained from the

supplier. In cases where documentation is not available, the laboratory will analyze the standard and compare the results to a known EPA-supplied or previous NIST-traceable standard.

All sections of the laboratory will have SOP for standard and reagent procedures to document specific standard receipt, documentation, and preparation activities. In general, the individual SOPs incorporate the following items:

- Documentation and labeling of date received, lot number, date opened, and expiration date;
- Documentation of traceability;
- Preparation, storage, and labeling of stock and working solutions; and
- Establishing and documenting expiration dates and disposal of unusable standards.

Each laboratory instrument will be labeled clearly with a unique identifier that relates to all laboratory calibration documentation. Laboratory SOPs and calibration procedures are detailed in the laboratory's Quality Assurance Manual, available upon request.

7.0 Data Reporting and Validation

7.1 Deliverables

Once the contract laboratories have provided all analytical data and sampling information has been evaluated, the owner or owner's representative will prepare a Final Report in accordance with the procedures outlined in the site specific SMP and NYSDEC DER-10 documents. The report will carefully document all sampling activities and results and will be supplemented with photographic documentation, maps, figures, tables, sample logs, DUSRs (when applicable for final samples with Cat B deliverables), and lab results.

7.1.1 Category A and B Data Package

It is anticipated that results of routine samples collected at the Site will be reported by the laboratory with NYSDEC Cat A deliverables. It is anticipated that the final round of groundwater samples and all vapor intrusion samples will be reported by the laboratory with NYSDEC ASP Category B deliverables. The Category B data package includes:

- A detailed summary of the report contents and any quality control outliers or corrective actions taken.
- Chain of Custody documentation
- Sample Information including: date collected, date extracted, date analyzed, and analytical methods.
- Data (including raw data) for:
    - samples
    - laboratory duplicates
    - method blanks
    - spikes and spike duplicates

  - surrogate recoveries
  - internal standard recoveries
  - calibrations
  - any other applicable QC data
- Method detection limits and/or instrument detection limits
- Run logs, standard preparation logs, and sample preparation logs
- Percent solids (where applicable).

7.1.2 Quality Assurance Reports

For the laboratory, a general QA report summarizing problems encountered throughout the laboratory effort, including sample custody, analyses, and reporting, will be provided to the owner or owner's representative by the laboratory QA coordinator. This report identifies areas of concern and possible resolutions in an effort to ensure data quality.

Upon completion of a project sampling effort, analytical and QC data will be included in a comprehensive report that summarizes the work and provides a data evaluation. A discussion of the validity of the results in the context of QA/QC procedures will be made, as well as a summation of all QA/QC activity.

Serious analytical or sampling problems will be reported to NYSDEC. Time and type of corrective action, if needed, will depend on the severity of the problem and relative overall project importance. Corrective actions may include altering procedures in the field, conducting an audit, or modifying laboratory protocol. All corrective actions will be implemented after notification and approval of NYSDEC.

In addition to the laboratory report narrative, QA data validation reports that include any contractual requirements will also be provided to NYSDEC. These QA reports will be submitted with the analytical data, on a monthly basis, or at the conclusion of the project.

7.2 Data Validation and Usability

Prior to the submission of the report to NYSDEC, all data will be evaluated for precision, accuracy, and completeness.

QA/QC requirements from both methodology and company protocols will be strictly adhered to during sampling and analytical work. All data generated will be reviewed by comparing and interpreting results from instrumental responses, retention time, determination of percent recovery of spiked samples or blanks, and reproducibility of duplicate sample results. All calculations and data manipulations are included in the appropriate methodology references. Control charts and calibration curves will be used to review the data and identify outlying results.

7.2.1 Data Validation

It is anticipated that a third-party validator will be responsible for an independent review of analytical work performed under the NYSDEC ASP-CLP protocol for final samples with ASP

Cat B deliverables. The functions will be to assess and summarize the quality and reliability of the data for the purpose of determining its usability and to document for the historical record of each site any factors affecting data usability, such as discrepancies, poor laboratory practices, and site locations that are difficult to analyze. The data validator will be responsible for determining completeness and compliance. Lu Engineers' QA officer will be responsible for determining data usability and overseeing the work of the data validator.

Information available to the data validator and the QA officer for performance of these functions include the NYSDEC ASP Category B data package, information from the sampling team regarding field conditions and field QA samples, chain-of-custody and shipping forms. The data package is designed to provide all necessary documentation to verify compliance with NYSDEC ASP CLP protocol and the accuracy and reliability of the reported results.

The laboratory will deliver the data package to the project QA coordinator for processing prior to submission to the data validator. The project QA coordinator will review the report for immediate problems, summarize the data for in-house use, and process the work order for the third-party data-validation subcontract within five working days.

In order to effectively review the data package, the data validator will obtain a general overview of each case. This includes the exact number of samples, their assigned numbers, and their matrix. The data validator will deliver the data validation report within 30 days of receipt of the data package.

If a problem arises between the data validator and the laboratory, the data validator must submit written questions to the laboratory. The laboratory will be required to respond in writing within 10 working days to correct any deficiencies. If the data validator does not receive a written response from the laboratory within the specified time period, the data in question shall be considered noncompliant.

Sampling locations will be obtained from the sampling records, such as the chain-of-custody forms. This information is necessary for preparation of the data summary, evaluation of adherence to sample holding times, discussion of matrix problems, and discussion of contaminants detected in the samples.

The following is a brief outline of the data validation process:

- Compilation of all samples with the dates of sampling, laboratory receipt, and analysis;
- Compilation of all QC samples, such as field blanks, field duplicates, MS/MSD samples, laboratory blanks, and laboratory replicates;
- Review of chain-of-custody documents for completeness and correctness;
- Review of laboratory analytical procedure and instrument performance criteria;
- Qualification of data outside acceptable QC criteria ranges;
- Preparation of a memorandum summarizing any problems encountered and the potential effects on data usability;

- Preparation of a data summary, including validated results, with sample matrix, location, and identification; and
- Tabulation of field duplicates, laboratory replicate, and blank results.

Copies of data validation and usability reports, as well as data summary packages, will be provided to the NYSDEC project manager. In addition, copies of analytical raw data will be provided to NYSDEC electronically, on CD in pdf format.

7.2.2 Data Usability

A Data Usability Summary Report (DUSR) will be provided after review and evaluation of the analytical data package for final samples that were reported by the laboratory with an ASP Cat B data package. It is noted that a DUSR can not be completed for a Cat A data package (for routine samples). The DUSR will contain required elements listed in Appendix 2B of *DER-10 Technical Guidance for Site Investigation and Remediation*.

The DUSR will include a description of the samples and analytical procedures used. Any data deficiencies, protocol deviations, or quality control problems will be discussed as to their effect on data results. The report will also include any suggestions for resampling or reanalysis.

Tables

Table 1
Proposed Sampling and Analysis Summary

Sample Type	Sample Location	Anticipated Analytical Parameter	Analytical Method	Anticipated Reporting Level	Estimated# Field Samples	Field Duplicates	Blanks		MS/MSD	Total
							Equip	Trip		
Groundwater	To be determined (TBD)	TBD	TBD	Category A; final round Category B	**TBD**	-	-	-	-	**TBD**
Soil Vapor	Sub-slab	VOCs	TO-15	Category B	**TBD**	**TBD**	-	-	-	**TBD**
Ambient Air	Indoors @ sub-slab locations 1 Outdoor- upwind	VOCs	TO-15	Category B	**TBD**	-	-	-	-	**TBD**

Table 2
Sample Preservation and Holding Times

Anticipated Parameter	Method Number	Container Type and Size	Preservation	Holding Time*
Groundwater				
TCL VOCs	8260	2 x 40-ml. VOA	Cool to 4°C; minimize headspace; HCl to pH<2	5 days unpreserved / 12 days preserved
Manganese, Iron	6010	1 x 250-ml. plastic	HNO_3	6 months
Soil Vapor				
VOCs	TO-15	6-L. Summa canister or 1-L. Minican	None	10 days

* Holding times are based on verified time of sample receipt (VTSR) at the laboratory

Appendix J
Sub-Slab Depressurization System Design

Lu Engineers
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PASSION
EXPERIENCE
RESULTS
luengineers.com

May 27, 2011

Frank Sowers, P.E.
New York State Department of Environmental Conservation
Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road
Avon, New York 14414

Subject: **Churchville Ford Site #V00658-8**
Sub-Slab Depressurization System Design

Dear Mr. Sowers,

This letter details the proposed design plan for installation of a sub-slab depressurization system (SSDS) at the Former Churchville Ford Site. Installation of a mitigation system was selected as the appropriate action to address remaining soil vapor intrusion concerns for the western portion of the shop building.

Background
Soil vapor intrusion sampling was performed by Lu Engineers on March 17, 2010. Results of this sampling indicated elevated levels of trichloroethene (TCE) and related compounds in soil vapor beneath the floor slab at location SVS-JCL-03b, as shown on the attached plan (Figure 1). The 'Volunteers' have elected to install a SSDS to mitigate concerns with soil vapor intrusion in the western portion of the shop building (a.k.a. 1989 addition). The 1989 shop addition consists of a steel frame building with a concrete slab on grade foundation. The slab is in good condition with a thickness of approximately 6- inches.

Communication Testing
On February 16, 2011, Lu Engineers teamed with Mitigation Tech, vapor intrusion specialists, to perform communication testing. The objective of the sub-slab air communication testing was to identify the number and location of suction points and determine fan requirements. The test procedure consisted of drilling a 4-inch diameter suction point along the south wall of the building (proposed suction point #1 - Figure 2) and installing small diameter test holes into the slab at typical vacuum monitoring points. Using a radon fan, a vacuum was applied at the suction point while differential pressure measurements were obtained at various test points across the slab to estimate the expected radius of influence.

Communication test point locations are shown on the attached plan. Results are summarized below.

Test point	Distance	Pressure reading (in. H_20)
1	30 ft.	-0.040
2	43 ft.	-0.013
3	60 ft.	-0.001
4	37 ft.	-0.012
5	53 ft.	0.000

The general finding was that sub-slab depressurization is a viable strategy to mitigate potential soil vapor intrusion at this Site. The sub-slab material was moderately permeable and included void spaces at the southern perimeter conducive to air flow. The trench drain located in the center of the shop appeared to be limiting communication to the northern portion of the sub-slab. Trench drain depth is unknown. Based on these observations, it was determined that two (2) suction fans, each connected to two (2) suction points (four (4) suction points total) along the north and south perimeter of the shop building (see attached Figure 2) will provide adequate sub-slab depressurization.

SSDS Specifications

Installation shall be performed in accordance with the New York State Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York" (October 2006) by Mitigation Tech, a National Environmental Health Association (NEHA) certified mitigation contractor. The proposed system performance objective is to provide a minimum negative air pressure differential of -0.002 inches water column to all areas of the sub-slab within the 1989 addition portion of the shop building. It is estimated that a total of four (4) suction points will be required to achieve adequate depressurization, as shown on the attached floor plan. Actual quantity and location of suction points may vary during construction, based on field measurements and site conditions.

1. Floor Slab Preparation

Small gaps and cracks in the floor slab shall be filled with an elastomeric joint sealant, as defined in American Society for Testing and Materials (ASTM) C920-87.

2. Suction Point Installation

A total of four (4) suction points are proposed, as shown on Figure 2. Suction points shall be installed by drilling a 5-inch diameter core hole through the slab and excavating a cavity of up to 1 cubic foot of sub-slab material. The cavity shall be backfilled with pea stone (or equivalent material).

All suction points shall be constructed of 4-inch diameter Schedule 40 PVC with a screened or slotted opening beneath the floor slab. Suction points shall be sealed at the floor surface with a non-shrink grout. Suction points will be installed along the north and south perimeter walls so as not to interfere with shop operations.

3. **Piping Installation**

Interior vapor collection piping shall consist of 4-inch diameter Schedule 40 PVC. Vertical pipes from each extraction point shall be connected to a horizontal header pipe hung on pipe hangers, spaced at least every six (6) feet, from the ceiling and run along the existing steel ceiling beams. Horizontal piping runs will be sloped back to the first suction point to allow condensate to drain back to the sub-slab. All pipe joints and connections to be permanently sealed with adhesives as specified by the manufacturer of the pipe material so as to be gas tight, except for connections at the fan housings. Vertical piping shall be secured to the walls.

Header pipes shall exit the building through two (2) roof penetrations as depicted on Figure 2. Suction fans will be installed above the roof and the exhaust pipes shall terminate at least 12-inches above the roof and meet the following requirements:

1. be at least 10-feet above the ground;
2. at least 10-feet away from any opening that is less than 2-feet below the exhaust point; and
3. at least 10-feet from any air intakes, windows, or other building openings.

A rain cap will be installed at the top of each exhaust pipe to prevent infiltration of precipitation.

4. Fans

Two (2) in-line exhaust fans will be installed in the vertical exhaust pipes, as shown on Figure 2. The fans shall be of type RadonAway RP-265. The building owner will provide an electrical service of adequate capacity (i.e., minimum of 20 A/110 V) to be run to each fan housing. Individual shut-off switches will be installed near each of the fans.

System Labeling and Indicator Devices

The SSDS piping and components will be clearly labeled to prevent accidental changes that could disrupt the system. The system will be equipped with U-shaped manometers installed on vertical pipe runs in the shop area to monitor system performance. Proper operation of the manometers will be verified by the contractor and communicated to the building owner and/or manager. A telephone number will be provided next to the manometer to call Mitigation Tech for service if the device indicates a system malfunction.

Waste Management

Excavation of contaminated sub-slab material is not anticipated during the SSDS installation. If material is removal is necessary, it will be screened with a MiniRAE 2000 photoionization detector (PID) for the presence of volatile organic compounds (VOCs). If elevated PID readings are observed, the material will be containerized, sampled, and sent for laboratory analysis to determine proper disposal. Waste containers will be stored in a secure on-Site location pending disposal. Lu Engineers will work closely with the NYSDEC to evaluate disposal options, if necessary. Other waste materials generated (i.e., scrap PVC, concrete, etc.) will be disposed of as solid waste by Mitigation Tech.

Health and Safety Plan

A site-specific Health and Safety Plan (HASP) has been prepared for this project and is included as Attachment A. The HASP also includes provisions for work zone air monitoring using a MiniRAE 2000 PID, or equivalent.

Lu Engineers' employees and subcontracted personnel will have completed the OSHA 40-hour HAZWOPER training with current refresher courses. A copy of the HASP will be available on-Site at all times during remedial activities.

Community Air Monitoring

The NYSDOH Community Air Monitoring Plan (CAMP) is included in Attachment B. It should be noted, however that community air monitoring is not anticipated during the SSDS installation due to the fact that any intrusive work will performed within the service building. Intrusive work is limited to drilling/coring through the floor slab at extraction point locations. Removal of sub-slab material is not anticipated due to the presence of a large void space adjacent to the exterior column footer. Therefore, no handling or disruption of subsurface material is expected. Provisions for handling sub-slab material is discussed above in the event sub-slab materials will require removal.

Post Mitigation Testing

Upon completion, a pressure field extension test shall be conducted to confirm a pressure differential of at least -0.002" w.c. has been established across the slab. A minimum of four (4) test points shall be installed to verify adequate depressurization of the 1989 building addition portion of the building. The test will be performed similar to the pre-construction communication testing, by installing small diameter penetrations in the slab and

monitoring the pressure differential using a digital micromanometer. Pressure field extension test results will be documented by Lu Engineers.

If the contractor has concerns about backdrafting potential in the building, the contractor shall recommend that a qualified person inspect the natural draft combustion appliances and venting systems for compliance with local codes and regulations.

Reporting and Schedule

Upon receipt and review of all necessary data, the Final Engineering Report (FER) and Site Management Plan (SMP) will be revised to include the required documentation of the SSDS installation and on-going monitoring requirements.

In accordance with Section 5.6 of the NYSDOH Guidance of Evaluating Soil Vapor Intrusion in New York State, all applicable information relative to the SSDS will be provided to the building owner and tenants as part of the SMP. The SMP will include necessary details regarding the long-term operation maintenance and monitoring of the SSDS.

A project schedule, including all anticipated fieldwork and report submission, is included in Attachment C.

Periodic progress reports will be submitted to NYSDEC and include a description of work completed during the reporting period, problems encountered, sampling results, and any changes to the scope of work. These reports will be submitted electronically in portable document format (PDF) with searchable text, by the 10th day of each month, until the FER is approved.

If you have any questions regarding the proposed system design, please contact me at (585) 385-7417 ext. 215.

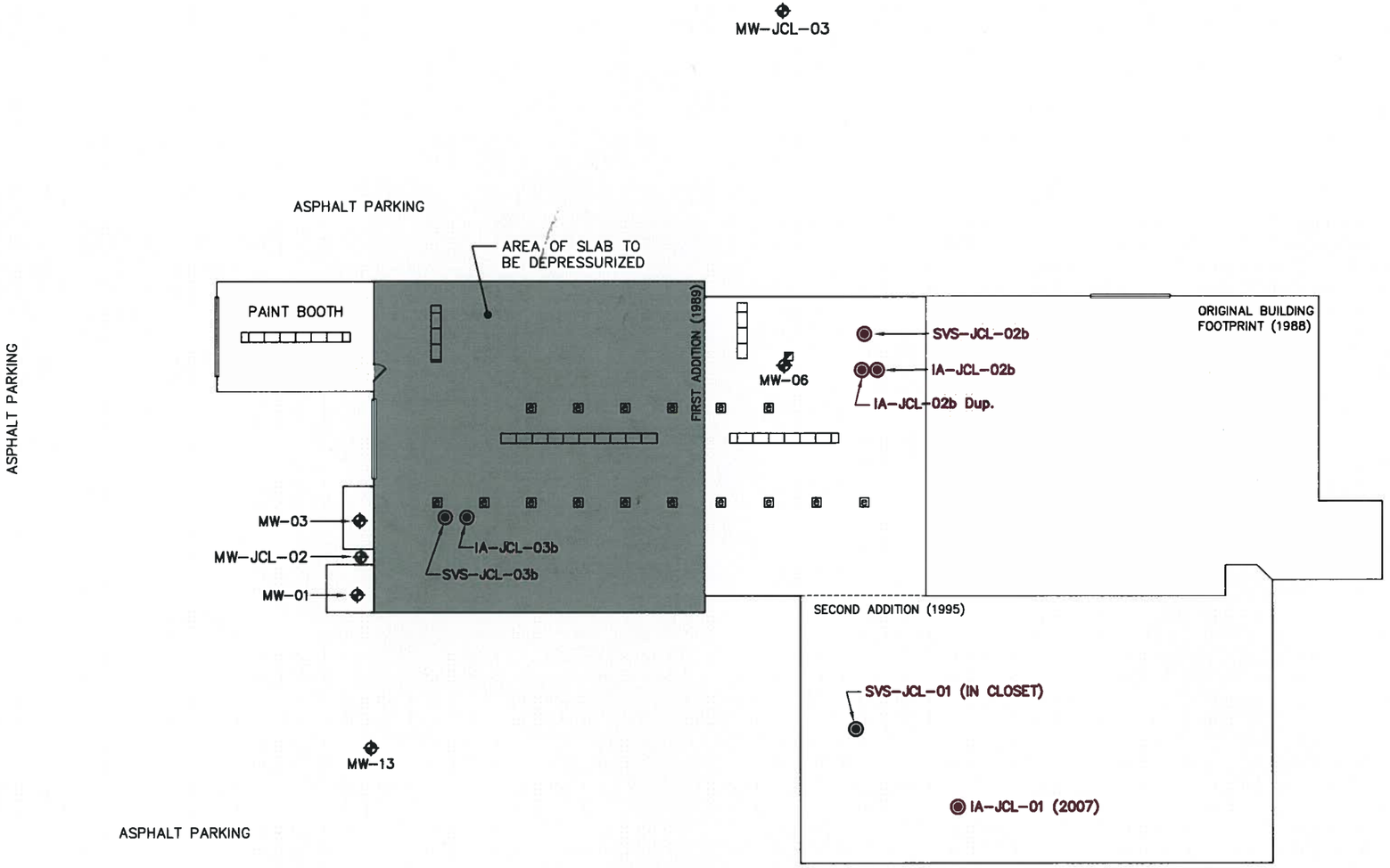
Sincerely,

Gregory L. Andrus, CHMM
Investigation/Remediation Group Leader

"I, Susan A. Hilton, certify that I am currently a NYS registered professional engineer and that this Supplemental Remedial Action Work Plan was prepared in accordance with all applicable statues and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10)."

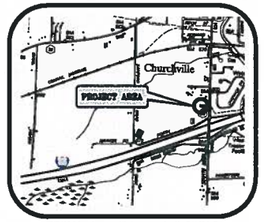
Susan A. Hilton, P.E.
Asbestos, Water, and Wastewater Group Leader
Associate

Enclosure(s): Figure 1 – Site Plan
Figure 2 – Proposed SSDS
Attachment A- Health and Safety Plan
Attachment B- Community Air Monitoring Plan
Attachment C- Schedule



LEGEND

- FLOOR TRENCH DRAIN
- OIL/WATER SEPARATOR
- APPROX. LOCATION OF EXHAUST COLLECTION PORT IN FLOOR
- MW-13 MONITORING WELL



DATE	REVISIONS	BY

DRAWING ALTERATION

WARNING: It is a violation of the New York State Education Law, Article 145, Section 7209, Special Provision 2, for any person unless he is acting under the direction of a Licensed Professional Engineer or Land Surveyor to alter an item in any way. If an item bearing the seal of an engineer or land surveyor is altered, the altering engineer or land surveyor shall affix to the item his seal and notation "altered by" followed by his signature and date of such alteration, and a specific description of the alteration.

BY: _____

DATE: _____

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL
175 Sully's Trail, Suite 202
Corporate Crossings Office Park
Pittsford, NY 14534
Ph: 385.7417 | Fax: 385.3741
luengineers.com

PROJECT:

FORMER CHURCHVILLE FORD
PROPOSED SSDS DESIGN

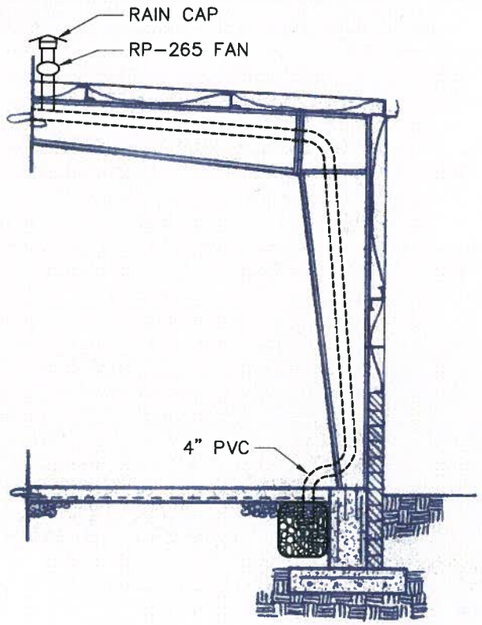
CLIENT:

Bonarigo and McCutcheon, Attorneys at Law

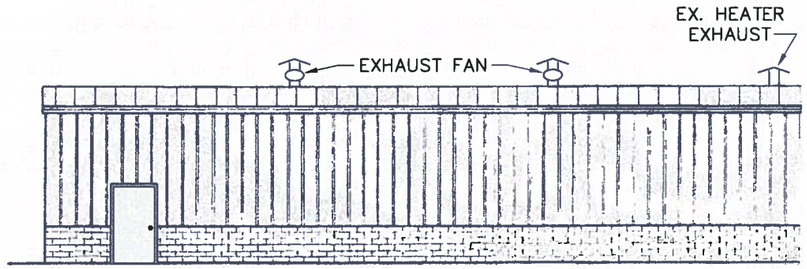
DRAWING TITLE:

FIG. 1
SITE PLAN

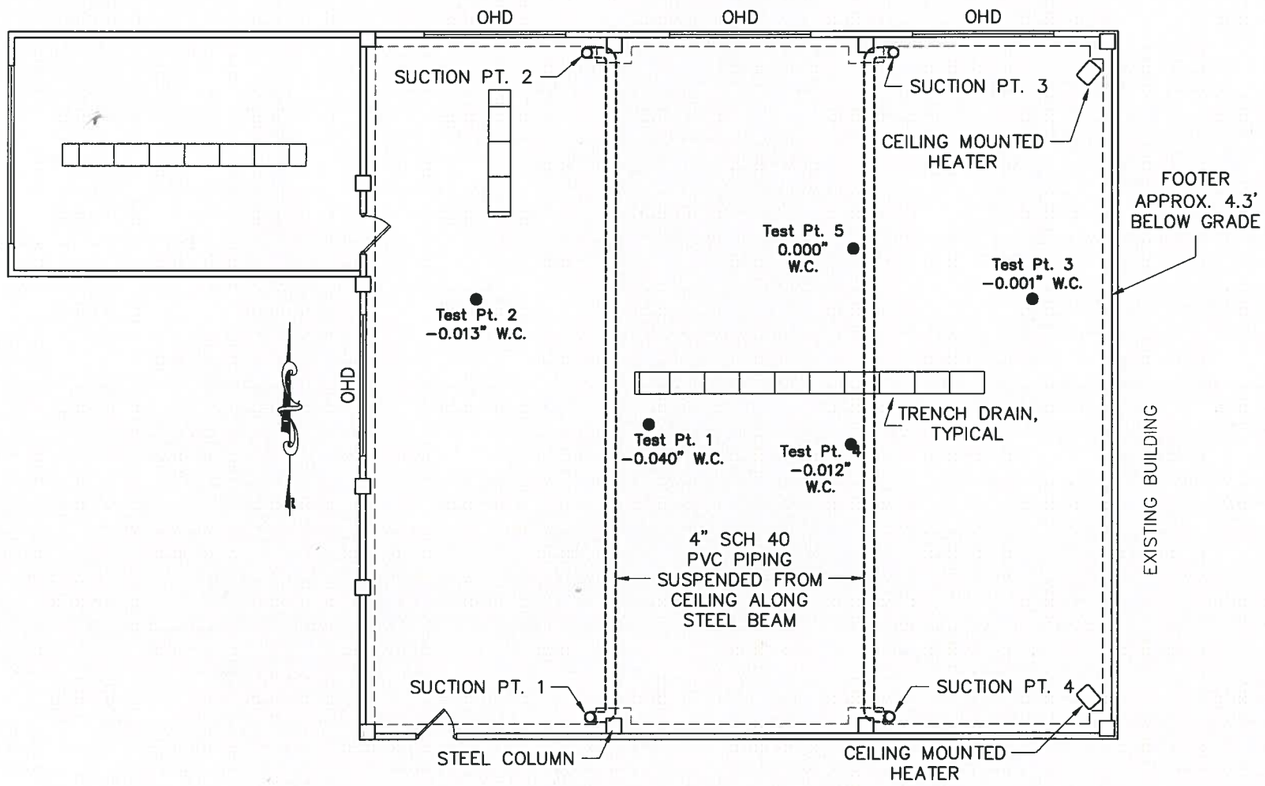
DESIGNED BY: LMS	SCALE: 1" = 30'
DRAWN BY: DLS	DATE: April 2011
CHECKED BY: SAH	PROJECT No. 5701-11
SHEET OF	DRAWING No.



ROOF EXHAUST POINT DETAIL
N.T.S.



SOUTH ELEVATION
N.T.S.

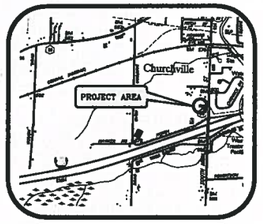


FOUNDATION PLAN – 1989 ADDITION
APPROX. SCALE: 1" = 15'

● COMMUNICATION TEST POINTS

NOTES:

1. SYSTEM TO BE INSTALLED WITH SPECIFICATIONS IN DESIGN PLAN LETTER DATED MAY 10, 2011. SYSTEM PERFORMANCE OBJECTIVE IS TO PROVIDE A MINIMUM –0.002" W.C. PRESSURE DIFFERENTIAL.
2. SUCTION POINTS 1 AND 2 WILL BE PIPED TO A RadonAway® RP–265 FAN LOCATED ABOVE THE ROOF.
3. SUCTION POINTS 3 AND 4 WILL BE PIPED TO A SEPARATE RadonAway® RP–265 FAN LOCATED ABOVE THE ROOF.



DATE	REVISIONS	BY

DRAWING ALTERATION

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STATE OF NEW YORK · SUSAN ADELAIDE HARTON · 079943 · LICENSED PROFESSIONAL ENGINEER

BY: Susan Harton
DATE: 5/26/2011

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PROJECT:
FORMER CHURCHVILLE FORD
PROPOSED SSDS DESIGN

CLIENT:
Bonarigo and McCutcheon, Attorneys at Law

DRAWING TITLE:
FIG. 2
PROPOSED SSDS DESIGN

DESIGNED BY: LMS	SCALE: 1" = 15'
DRAWN BY: DLS	DATE: April 2011
CHECKED BY: SAH	PROJECT No. 5701–11
SHEET OF	DRAWING No.

Former Churchville Ford
Town of Churchville
Monroe County, New York
NYSDEC Site # V00658-8

Health and Safety Plan
Sub-Slab Depressurization System

Prepared For:

Bonarigo & McCutcheon, Attorneys at Law
18 Ellicot Street
Batavia, New York 14020

Prepared By:

Lu Engineers
ENVIRONMENTAL • TRANSPORTATION • CIVIL

175 Sully's Trail, Suite 202
Pittsford, New York 14534

May 2011

Project No. 5701-11

Table of Contents

Attachments

Lu Engineers
Health & Safety Plan

A. GENERAL INFORMATION

Project Title:	Churchville Ford Sub-Slab Depressurization System	Project No.	5701-11
Project Manager:	Gregory L. Andrus, CHMM	Project Director:	Steven A. Campbell, CHMM
Location:	111 South Main Street Village of Churchville, Monroe County, New York		
Prepared by:	Janet M. Bissi, CHMM	Date Prepared:	May 2011
Revised by:		Date Revised:	
Approved by:	Gregory L. Andrus, CHMM	Date Approved:	5/26/11

Scope/Objective of Work: Installation of a Sub-Slab Depressurization System.

- Task 1: Floor slab preparation
- Task 2: Installation of four (4) extraction points through the floor slab
- Task 3: Installation of 4-inch diameter Schedule 40 PVC piping
- Task 4: Installation of two (2) in-line fans
- Task 5: Post-mitigation testing

Proposed Date of Field Activities: Summer 2011

Background Information: [X] Complete [ ] Preliminary

Overall Chemical Hazard: [ ] Serious [ ] Moderate
[X] Low [ ] Unknown

Overall Physical Hazard: [ ] Serious [ ] Moderate
[X]Low [ ] Unknown

B. SITE/WASTE CHARACTERISTICS

Waste Type(s):

[ ] Liquid [ ] Solid [ ] Sludge [X] Gas/Vapor

Characteristic(s):

[ ] Flammable/Ignitable [X] Volatile [ ] Corrosive [ ] Acutely Toxic

[ ] Explosive (moderate) [ ] Reactive [ ] Carcinogen [ ] Radioactive

Physical Hazards:

[X] Overhead [ ] Confined Space [ ] Below Grade [X] Trip/Fall

[X] Puncture [ ] Burn [X] Cut [ ] Splash

[X] Noise [X] Other: Heat Stress/Cold Stress

Site History/Description and Unusual Features:
The Churchville Ford Site is located at 111 South Main Street in the Village of Churchville, Town of Riga, Monroe County, New York (see Sub-Slab Depressurization System (SSDS) Letter Figure1). The Site consists of three (3) parcels totaling 10.28 acres that contain a truck and boat dealership building, a wooden storage shed, paved parking areas, an access road (Sanford Road North), and a stormwater retention basin.

Mark's Truck and Boat Center currently operates a truck and boat sales and service center on property. The facility was previously utilized as Churchville Ford. Contamination was discovered at the Site in 2002 during an environmental investigation conducted for Meyer's Campers, as part of a property transfer. Concentrations of chlorinated solvents (trichloroethene (TCE), tetrachloroethene (PCE), and cis-1,2-dichloroethene) were detected in subsurface soils and groundwater at the Site. The source area of contaminated groundwater was located near the southwestern portion of the building, where solvents and fuels were previously stored.

A Remedial Investigation (RI) was conducted by Entrix Environmental and Lu Engineers between 2004 and 2008. Two rounds of pre-remedial soil vapor intrusion (SVI) sampling were conducted in 2004 and 2007. Elevated levels of TCE, PCE, and associated breakdown compounds were also detected in sub-slab soil vapor and/or indoor air samples located near the southwest corner of the building. Volatilization to indoor air was identified as a potential exposure route, as elevated levels of TCE were identified in two (2) of the three(3) Lu Engineers' indoor air sampling locations.

Based on the findings of the RI, remedial action was recommended to address chlorinated solvents detected in groundwater at levels exceeding NYS Groundwater Standards and NYSDEC guidance (TOGS 1.1.1). This remedial action includes the installation of a SSDS.

Locations of Chemicals/Wastes: Saturated soil and groundwater.

Estimated Volume of Chemicals/Wastes: The proposed remedy is designed to treat a source area of 3,600 ft^2 over a seven-foot depth interval.

Site Currently in Operation: Yes

C. HAZARD EVALUATION

PHYSICAL HAZARD EVALUATION:		
TASK	**HAZARD(S)**	**HAZARD PREVENTION**
Tasks 1-4	General physical hazards associated with drilling and using a scissor lift.	Hard hats, eye protection, and steel-toed boots required at all times. Keep safe distance from machines and all moving parts. Only operator and helper are to be in "work zone".
	Contact with or inhalation of contaminants, potentially in high concentration in sampling media and/or fire and explosion.	To minimize exposure to chemical contaminants, a thorough review of suspected contaminants should be completed and implementation of an adequate protection program. Under-ground vaults to be ventilated during inspections.
	Contact with or inhalation of decontamination solutions.	Material Safety Data Sheets for all decon solutions. First aid equipment available. **See Appendix C.**
	Slip/ tripping/ fall	Observe flooring and equipment while walking to minimize slips and falls. Steel-toed boots provide additional support and stability. Use adequate lighting. Wear hard hat. Inspect all lifting equipment prior to use.
	Back strain and muscle fatigue, ergonomic stress due to lifting.	Use proper lifting techniques and limit load to prevent back strain.
	Noise	Areas of potentially high sound pressure levels (>85 dBA) will be restricted to authorized personnel only. Engineering controls will be used to the extent possible. Hearing protection will be made available to all workers on site. Exposure to time-weighted average levels in excess of 85 dBA is not anticipated.
	Heat stress/ cold stress exposure	Implement heat stress management techniques such as shifting work hours, increasing fluid intake, and monitoring employees**. See Appendix A.**
	Sunburn	Apply sunscreen, wear appropriate clothing.
	Weather Extremes	Establish site-specific contingencies for severe weather situations. Discontinue work in severe weather.
	Native wildlife presents the possibility of insect bites and associated diseases.	Avoid wildlife when possible. Use insect repellant.

Physical Hazard Evaluation: Basic health and safety protection (steel-toed boots, work clothes, and safety glasses or goggles) will be worn by all personnel at all times. Any allergies should be reported to the Site Safety Officer prior to the start of the project.

D. SITE SAFETY PLAN

Perimeter Identified?	**[Y]**	**Site Secured?**	**[N]**
Work Areas Designated?	**[Y]**	**Zone(s) of contamination identified?**	**[Y]**

Site Control: Specific work areas will be delineated relative to the location of the work activity. Designated work areas will be set up inside the main building during extraction point and PVC piping installation. Exclusion Zones will be established surrounding each of locations where work will be performed. The Exclusion Zone will be designated by the use of cones and warning tape, as necessary to prevent building personnel from entering the work area.

In addition, all sub-slab penetrations and soil vapor conduits will be capped to reduce soil vapor infiltration into the building during the system installation.

Anticipated Level of Protection (cross-reference task numbers in Section C):

A	B	C	D
		Available	X

All Site work will be performed at Level D (steel-toed boots, work clothes, eye protection, gloves and hard hats) unless monitoring indicates otherwise. Gloves will be worn if contact with Site soil, sediment or water is anticipated, due to concerns of contamination. Level C will be available, and used when indicated by elevated PID readings.

Air Monitoring:

Contaminant	Monitoring Device	Frequency
Organic Vapors	MiniRAE 2000 PID	As Necessary

Action Level:
PID readings of **>5 ppm to 10 ppm** above background in the breathing zone, sustained for greater than 1 minute,
Action: Hault work activities and move away from the vapor source. Consider vapor suppression actions. If PID readings drop to within 5 ppm above background, work may resume with continuous air monitoring.

PID readings of **10 ppm to <25 ppm** above background at breathing zone, sustained for greater than 1 minute,
Action: Stop work and consider upgrade to Level C protection.

PID readings of **>25 ppm** above background at breathing zone, sustained for greater than 1 minute,
Action: Stop work.

All air monitoring results as well as wind direction and speed (estimates) will be documented in the site-specific log book.

Decontamination Solutions and Procedures for Equipment, Sampling Gear, etc.
Specified in work plan.

Personnel Decon Protocol: Soap, water, and paper towels or baby wipes will be available for all personnel and will be used before eating, drinking or leaving the site. Personnel will shower upon return to home or hotel. Disposable PPE will be rendered unusable and disposed of as stated in work plan.

Decon Solution Monitoring Procedures, if Applicable: Contractor's controlled/ decon waste container.

Special Site Equipment, Facilities or Procedures (Sanitary Facilities and Lighting Must Meet 29CFR 1910.120):
Restrooms and potable water are available for use in Mark's Truck and Boat Center.

Site Entry Procedures and Special Considerations: Level D/D^{+} will be used based on the results of previous investigations.

Work Limitations (time of day, weather conditions, etc.) and Heat/Cold Stress Requirements:
All work will be completed during daylights hours. Heavy equipment will not be used during electrical storms.

General Spill Control, if Applicable: N/A

Investigation Derived Material (i.e., Expendables, Decon Waste, Cuttings) Disposal:
Will be disposed of according to applicable regulations, as specified in the SSDS Letter.

Sampling Handling Procedures Including Protective Wear: All sample handling will be performed while wearing chemically-resistant gloves. To minimize hazards to lab personnel, sample volumes will be no larger than necessary, and the outside of all sample containers will be wiped clean prior to shipment.

Accident and Injury Reporting: Any work-related incident, accident, injury, illness, exposure, or property loss must be reported to the Lu Engineers project manager. This includes:

- Accident, injury, illness, or exposure of an employee;
- Injury of a subcontractor;
- Damage, loss, or theft of property, and/or
- Any motor vehicle accident regardless of fault, which involves a company vehicle, rental vehicle, or personal vehicle while employee is acting in the course of employment.

E. TRAINING REQUIREMENTS

All personnel conducting field activities on site are required to have completed training sessions in accordance with Occupational Safety and Health Administration (OSHA) for Parts 1926 and 1910 (Title 29 Code of Federal Regulations [CFR] Part 1926.65 and Part 1910.120 - Hazardous Waste Operations and Emergency Response- 'HazWOPER'). This training shall consist of a minimum of 40 hours of instruction off-site and three days of actual field experience under the direct supervision of a trained, experienced supervisor. Each employer will maintain documentation stating that its on-site personnel have complied with this regulation.

In addition, all personnel will have reviewed this HASP and received a site-specific health and safety briefing prior to participating in field work.

All visitors entering the work area must review the HASP and be equipped with the proper PPE. All site personnel and visitors shall sign the last page of the HASP as an acknowledgement that they have read and understand the Site health and safety requirements.

Medical Surveillance Requirements: All Lu Engineers' field staff who engage in on-Site activities for 30 days or more per year participate in a medical monitoring program and have completed applicable training per 29CFR 1910.120. Respiratory protection program meets requirements of 29CFR 1910.134.

Team Member*	**Responsibility**
Susan Hilton, P.E.	Project Director
Greg Andrus	Project Manager
Eric Detweiler	Field Geologist
Laura Neubauer	Environmental Specialist

* All entries into the work zone require "Buddy System" use. All Lu Engineers' field staff participated in a medical monitoring program and have completed applicable training per 29CFR 1910.120. Respiratory protection program meets requirements of 29CFR 1910.134.

F. EMERGENCY INFORMATION

LOCAL RESOURCES

Ambulance	911
Hospital Emergency Room	Lakeside Memorial Hospital (585) 637-3131 156 West Avenue Brockport, New York 14420
Poison Control Center	911 or 1-800-222-1222
Police (include local, county sheriff, state)	911
Fire Department	911
Airport	N/A
Local Laboratory	Paradigm Environmental Services (585) 647-2530 Upstate Laboratories (716) 472-2071
UPS/Federal Express	Federal Express 2580 Manitou Rd. Rochester, NY 14624 Hours: Mon – Fri. 8:30am-8:30pm

SITE RESOURCES

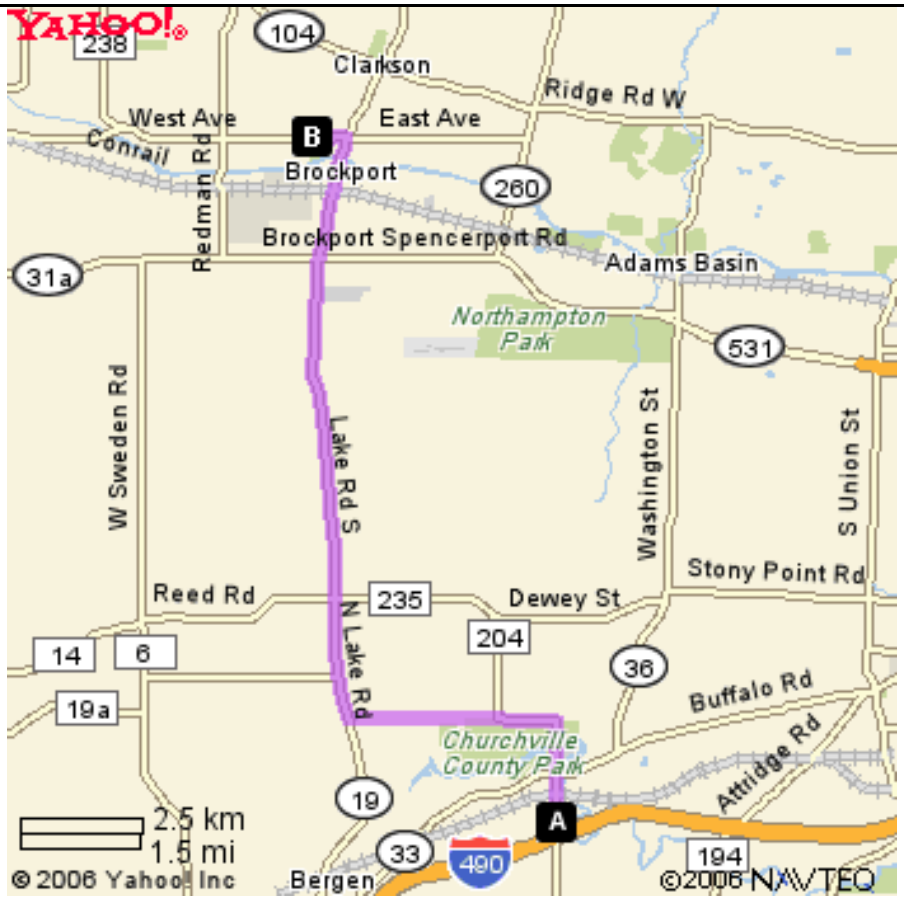
Site Emergency Evaluation Alarm Method	• One long blast: Evacuate the area by nearest emergency exit. • Two short blasts: Localized problem (not dangerous to workers. • Two long blasts: All clear
Water Supply Source	Located in Mark's Truck & Boat Center
Telephone Location, Number	TBD
Cellular Phone, if Available	TBD
Radio	N/A

EMERGENCY ROUTES

(Note: Field team must know route(s) prior to start of work.)

Directions from the site to LAKESIDE MEMORIAL HOSPITAL:

Go north on Main St. 1.3 miles; turn left on Kendall Rd., go 2.6 miles; turn right on Lake Rd. (Rte. 19), go 7.3 miles; turn left on West Ave., go 0.4 miles, hospital is on right



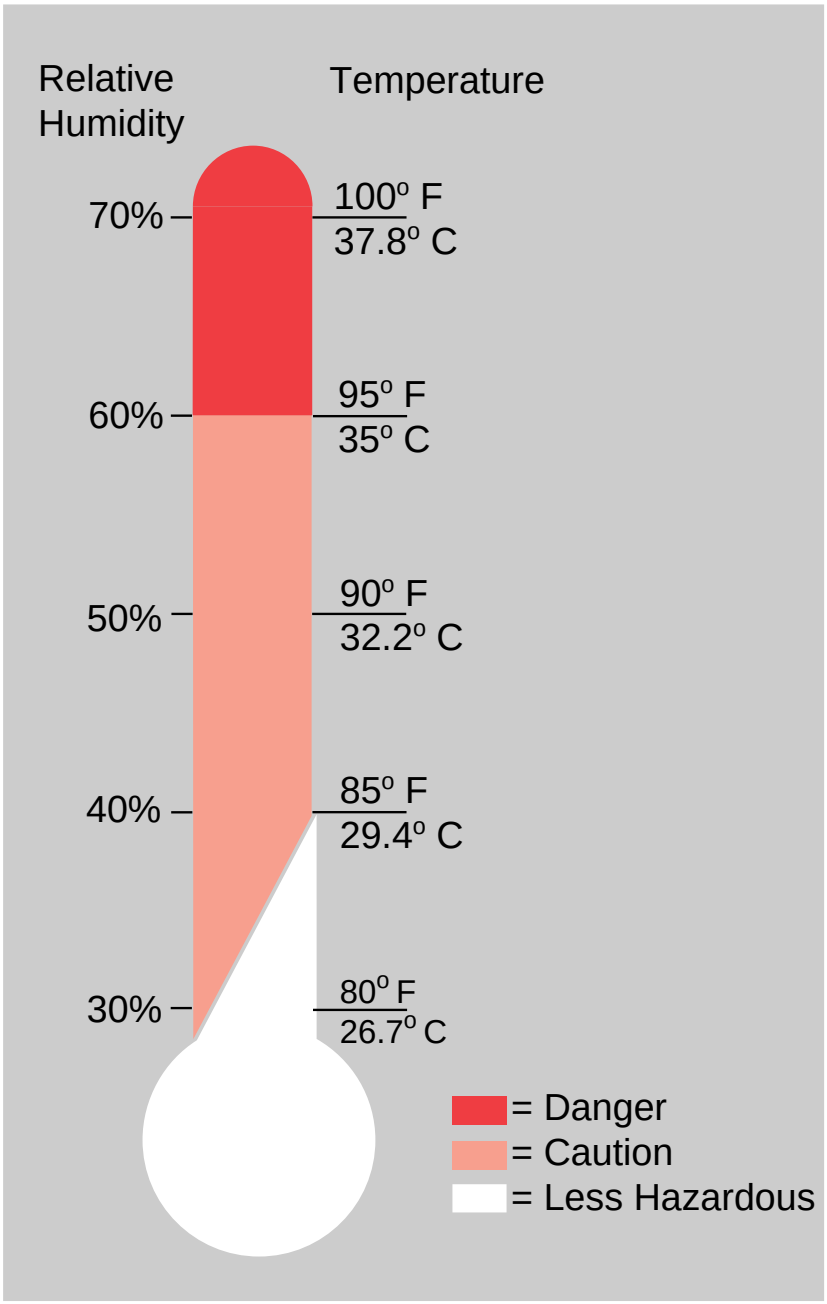
APPENDIX A

HEAT STRESS AND COLD EXPOSURE

THE HEAT EQUATION

HIGH TEMPERATURE + HIGH HUMIDITY + PHYSICAL WORK = HEAT ILLNESS

When the body is unable to cool itself through sweating, **serious** heat illnesses may occur. The most severe heat-induced illnesses are **heat exhaustion** and **heat stroke**. If actions are not taken to treat heat exhaustion, the illness could progress to heat stroke and possible **death**.



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Occupational Safety and Health Administration

OSHA 3154
1998

HEAT EXHAUSTION

What Happens to the Body:

HEADACHES, DIZZINESS/LIGHT HEADEDNESS, WEAKNESS, MOOD CHANGES (irritable, or confused/can't think straight), FEELING SICK TO YOUR STOMACH, VOMITING/THROWING UP, DECREASED and DARK COLORED URINE, FAINTING/PASSING OUT, and PALE CLAMMY SKIN.

What Should Be Done:

- Move the person to a cool shaded area to rest. Don't leave the person alone. If the person is dizzy or light headed, lay them on their back and raise their legs about 6-8 inches. If the person is sick to their stomach lay them on their side.
- Loosen and remove any heavy clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water or wet cloth.
- If the person does not feel better in a few minutes call for emergency help (Ambulance or Call 911).

(If heat exhaustion is not treated, the illness may advance to heat stroke.)

HEAT STROKE—A MEDICAL EMERGENCY

What Happens to the Body:

DRY PALE SKIN (no sweating), HOT RED SKIN (looks like a sunburn), MOOD CHANGES (irritable, confused/not making any sense), SEIZURES/FITS, and COLLAPSE/PASSED OUT (will not respond).

What Should Be Done:

- Call for emergency help (Ambulance or Call 911).
- Move the person to a cool shaded area. Don't leave the person alone. Lay them on their back and if the person is having seizures/fits remove any objects close to them so they won't strike against them. If the person is sick to their stomach lay them on their side.
- Remove any heavy and outer clothing.
- Have the person drink some cool water (a small cup every 15 minutes) if they are alert enough to drink anything and not feeling sick to their stomach.
- Try to cool the person by fanning them. Cool the skin with a cool spray mist of water, wet cloth, or wet sheet.
- If ice is available, place ice packs under the arm pits and groin area.

How to Protect Workers

- Learn the signs and symptoms of heat-induced illnesses and what to do to help the worker.
- Train the workforce about heat-induced illnesses.
- Perform the heaviest work in the coolest part of the day.
- Slowly build up tolerance to the heat and the work activity (usually takes up to 2 weeks).
- Use the buddy system (work in pairs).
- Drink plenty of cool water (one small cup every 15-20 minutes)
- Wear light, loose-fitting, breathable (like cotton) clothing.
- . Take frequent short breaks in cool shaded areas (allow your body to cool down).
- Avoid eating large meals before working in hot environments.
- Avoid caffeine and alcoholic beverages (these beverages make the body lose water and increase the risk for heat illnesses).

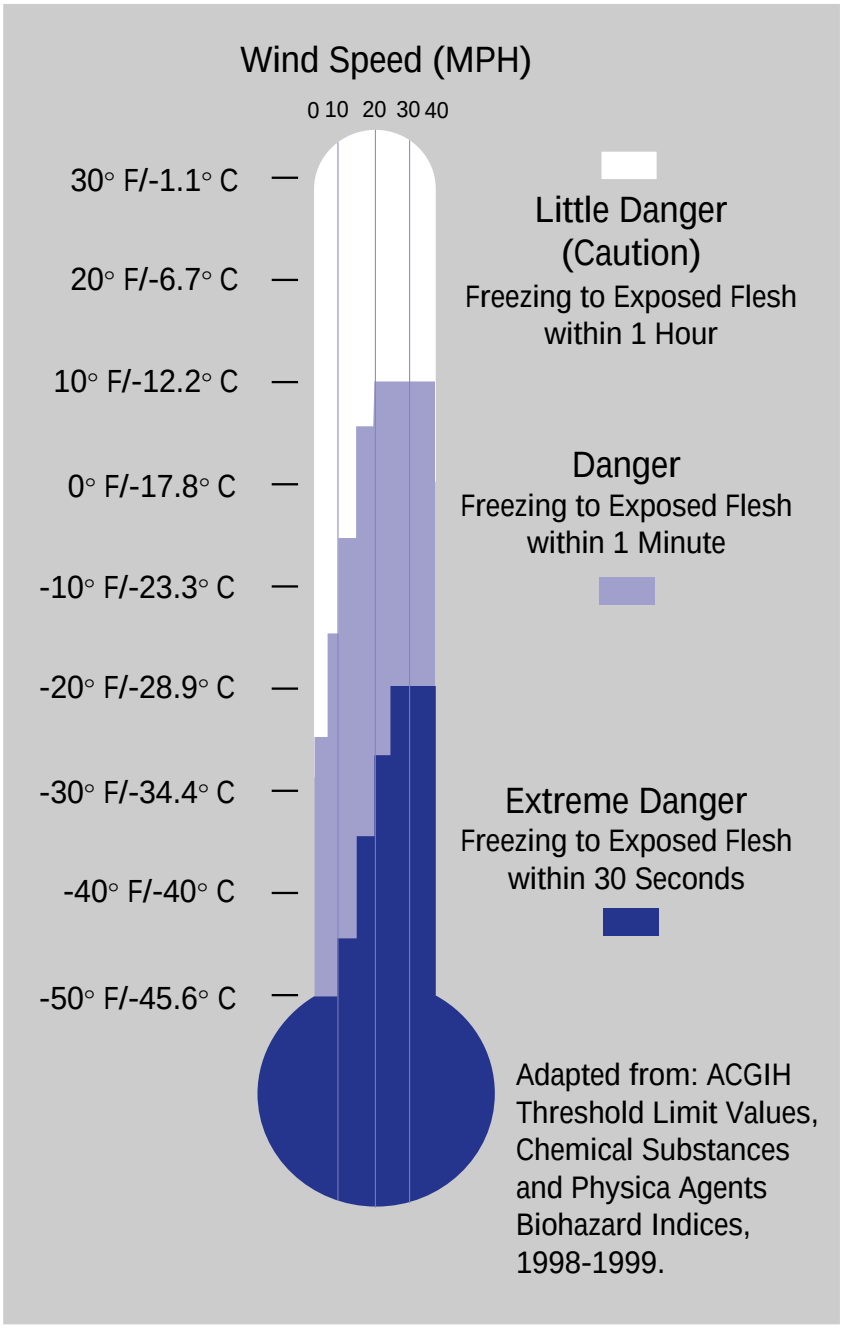
Workers Are at Increased Risk When

- They take certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you when working in hot environments).
- They have had a heat-induced illness in the past.
- They wear personal protective equipment (like respirators or suits).

THE COLD STRESS EQUATION

LOW TEMPERATURE + WIND SPEED + WETNESS = INJURIES & ILLNESS

When the body is unable to warm itself, serious cold-related illnesses and injuries may occur, and permanent tissue damage and death may result. **Hypothermia** can occur when *land temperatures* are **above** freezing or *water temperatures* are below 98.6°F/ 37°C. Cold-related illnesses can slowly overcome a person who has been chilled by low temperatures, brisk winds, or wet clothing.



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Occupational Safety and Health Administration

OSHA 3156
1998

FROST BITE

What Happens to the Body:

FREEZING IN DEEP LAYERS OF SKIN AND TISSUE; PALE, WAXY-WHITE SKIN COLOR; SKIN BECOMES HARD and NUMB; USUALLY AFFECTS THE FINGERS, HANDS, TOES, FEET, EARS, and NOSE.

What Should Be Done: (land temperatures)

- Move the person to a warm dry area. Don't leave the person alone.
- Remove any wet or tight clothing that may cut off blood flow to the affected area.
- **DO NOT** rub the affected area, because rubbing causes damage to the skin and tissue.
- **Gently** place the affected area in a warm (105°F) water bath and monitor the water temperature to **slowly** warm the tissue. Don't pour warm water directly on the affected area because it will warm the tissue too fast causing tissue damage. Warming takes about 25-40 minutes.
- After the affected area has been warmed, it may become puffy and blister. The affected area may have a burning feeling or numbness. When normal feeling, movement, and skin color have returned, the affected area should be dried and wrapped to keep it warm. **NOTE:** If there is a chance the affected area may get cold again, do not warm the skin. If the skin is warmed and then becomes cold again, it will cause severe tissue damage.
- Seek medical attention as soon as possible.

HYPOTHERMIA - (Medical Emergency)

What Happens to the Body:

NORMAL BODY TEMPERATURE (98.6° F/37°C) DROPS TO OR BELOW 95°F (35^0 C); FATIGUE OR DROWSINESS; UNCONTROLLED SHIVERING; COOL BLUISH SKIN; SLURRED SPEECH; CLUMSY MOVEMENTS; IRRITABLE, IRRATIONAL OR CONFUSED BEHAVIOR.

What Should Be Done: (land temperatures)

- Call for emergency help (i.e., Ambulance or Call 911).
- Move the person to a warm, dry area. Don't leave the person alone. Remove any wet clothing and replace with warm, dry clothing or wrap the person in blankets.
- Have the person drink warm, sweet drinks (sugar water or sports-type drinks) if they are alert. **Avoid drinks with caffeine** (coffee, tea, or hot chocolate) or alcohol.
- Have the person move their arms and legs to create muscle heat. If they are unable to do this, place warm bottles or hot packs in the arm pits, groin, neck, and head areas. **DO NOT** rub the person's body or place them in warm water bath. This may stop their heart.

What Should Be Done: (water temperatures)

- Call for emergency help (Ambulance or Call 911). Body heat is lost up to 25 times faster in water.
- **DO NOT** remove any clothing. Button, buckle, zip, and tighten any collars, cuffs, shoes, and hoods because the layer of trapped water closest to the body provides a layer of insulation that slows the loss of heat. Keep the head out of the water and put on a hat or hood.
- Get out of the water as quickly as possible or climb on anything floating. **DO NOT** attempt to swim unless a floating object or another person can be reached because swimming or other physical activity uses the body's heat and reduces survival time by about 50 percent.
- If getting out of the water is not possible, wait quietly and conserve body heat by folding arms across the chest, keeping thighs together, bending knees, and crossing ankles. If another person is in the water, huddle together with chests held closely.

How to Protect Workers

- Recognize the environmental and workplace conditions that lead to potential cold-induced illnesses and injuries.
- Learn the signs and symptoms of cold-induced illnesses/injuries and what to do to help the worker.
- Train the workforce about cold-induced illnesses and injuries.
- Select proper clothing for cold, wet, and windy conditions. Layer clothing to adjust to changing environmental temperatures. Wear a hat and gloves, in addition to underwear that will keep water away from the skin (polypropylene).
- Take frequent short breaks in warm dry shelters to allow the body to warm up.
- Perform work during the warmest part of the day.
- Avoid exhaustion or fatigue because energy is needed to keep muscles warm.
- Use the buddy system (work in pairs).
- Drink warm, sweet beverages (sugar water, sports-type drinks). Avoid drinks with caffeine (coffee, tea, or hot chocolate) or alcohol.
- Eat warm, high-calorie foods like hot pasta dishes.

Workers Are at Increased Risk When…

- They have predisposing health conditions such as cardiovascular disease, diabetes, and hypertension.
- They take certain medication (check with your doctor, nurse, or pharmacy and ask if any medicines you are taking affect you while working in cold environments).
- They are in poor physical condition, have a poor diet, or are older.

APPENDIX B

ADDITIONAL POTENTIAL PHYSICAL AND CHEMICAL HAZARDS

ADDITIONAL POTENTIAL PHYSICAL AND CHEMICAL HAZARDS	
POTENTIAL PHYSICAL HAZARDS	**CONTROL METHODS**
Overhead Hazards/Falling Objects	Overhead hazards will be identified prior to each task (i.e., inspecting drill rig mast, building structure). Hard hats will be required for each task that poses an overhead hazard.
Contact with Utilities	Prior to initiating site activities, all utilities will be located by the appropriate utility company and will be marked and/or barricaded to minimize the potential of accidental contact. A minimum distance of 25 feet between the derrick and overhead power lines must be maintained at all times.
Noise Exposure	Areas of potentially high sound pressure levels (>85 dBA) will be restricted to authorized personnel only. Engineering controls will be used to the extent possible. Hearing protection will be made available to all workers on site. Exposure to time-weighted average levels in excess of 85 dBA is not anticipated.
POTENTIAL CHEMICAL HAZARDS	**GENERAL CONTROL METHODS**
Contaminant Inhalation	Direct reading instruments (Op-Tech) and/or olfactory indications will be used to monitor airborne contaminants. Established Lu Engineers' action levels will limit exposure to safe levels. Respiratory protection will be used as appropriate.
Contaminant Ingestion	Standard safety procedures such as restricting eating, drinking, and smoking to the support zone and utilizing proper personal decontamination procedures will minimize ingestion as a potential route of exposure.
Dermal Contaminant Contact	The proper selection and use of personal protective clothing and decontamination procedures will minimize dermal contaminant contact.
Potential contact with lower concentration waste and naturally occurring contaminants (i.e., methane)	Dermal contact with contaminants will be minimized by proper use of the following PPE: • Tyvex coveralls • Neoprene gloves • Booties (latex) or over-boots.

APPENDIX C

HAZARD EVALUATION SHEETS / MSDS

CHEMICAL HAZARD EVALUATION

Task Number	Compound	Exposure Limits (TWA)			Dermal Hazard (Y/N)	Route(s) of Exposure	Acute Symptoms	Odor Threshold/ Description	FID/PID	
		PEL	REL	TLV					Relative Response	Ioniz. Poten. (eV)
1-5	Trichloroethene (TCE)	100 ppm (per 6/97 NIOSH Pocket Guide)			Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, mucous membranes and GI, headache, vertigo, fatigue, giddiness, tremors, vomiting, nausea, may burn skin, visual disturbance, paresthesia, cardiac arrhythmias	Colorless liquid, sometimes dyed blue, chloroform odor	---	9.45
1-5	Tetrachloroethylene (PCE)	100 ppm	---	25 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, nose, upper respiratory tract, throat; skin, flush face, dizziness, giddiness, headache, intoxication, nausea, vomiting, abdominal pain, diarrhea, systemic effects	Colorless liquid, mild chloroform odor	---	9.32
1-5	Cis-1,2-Dichloroethene	260 ppm	---	262 ppm	Y	Inh, Abs, Ing, Con	Irritation to eyes, skin, mucous membranes and GI, headache, vertigo, fatigue, giddiness, tremors, vomiting, nausea, may burn skin, visual disturbance, paresthesia, cardiac arrhythmias	Colorless liquid, aromatic odor	0.5	9.25

KEY:
PEL = Permissible Exposure Limit Inh = Inhalation Abs = Skin Absorption
REL = Recommended Exposure Limit Ing = Ingestion Con = Skin and/or eye Contact
--- = Information not available mg/m^3 = Milligrams per cubic meter ppm = Parts per million
TLV = Threshold Limit Value(ACGIH) * = Chemical is a known or suspected carcinogen sk = Skin notation

APPENDIX D

EQUIPMENT CHECKLIST

EQUIPMENT CHECKLIST

PROTECTIVE GEAR			
LEVEL A	**N/A**	**LEVEL B**	**N/A**
SCBA		SCBA	
SPARE AIR TANKS		SPARE AIR TANKS	
ENCAPSULATING SUITE (Type)		PROTECTIVE COVERALL (Type)	
SURGICAL GLOVES		RAIN SUIT	
NEOPRENE SAFETY BOOTS		BUTYL APRON	
BOOTIES		SURGICAL GLOVES	
GLOVES (Type)		GLOVES (Type)	
OUTER WORK GLOVES		OUTER WORK GLOVES	
HARD HAT		NEOPRENE SAFETY BOOTS	
CASCADE SYSTEM		BOOTIES	
5-MINUTE COOLING VEST		HARD HAT WITH FACE SHIELD	
		CASCADE SYSTEM	
		MANIFOLD SYSTEM	
LEVEL C		**LEVEL D**	
ULTRA-TWIN RESPIRATOR		ULTRA-TWIN RESPIRATOR (available)	
POWER AIR PURIFYING RESPIRATOR		CARTRIDGES (Type GMC-H)(available)	
CARTRIDGES (Type GMC-H)		5-MINUTE ESCAPE MASK (available)	
5-MINUTE ESCAPE MASK		PROTECTIVE COVERALL (Type Tyvek/Saranax)	
PROTECTIVE COVERALL (Type Tyvek/Saranax)		RAIN SUIT (available)	X
RAIN SUIT		NEOPRENE SAFETY BOOTS	
BUTYL APRON		BOOTIES (available)	
SURGICAL GLOVES		NITRILE	
GLOVES (Type: Nitrite/Neoprene)		HARD HAT (available)	X
OUTER WORK GLOVES		SAFETY GLASSES	X
NEOPRENE SAFETY BOOTS		GLOVES (Type: Surgical)	X
HARD HAT WITH FACE SHIELD		WORK GLOVES (Type: Leather, Neoprene/Nitrile)(available)	X
BOOTIES		SAFETY BOOTS	X
HARD HAT		SAFETY VEST (Green and yellow with reflective stripes)	

EQUIPMENT CHECKLIST

INSTRUMENTATION	NO.	FIRST AID EQUIPMENT	NO.
OVA		FIRST AID KIT	X
THERMAL DESORBER		OXYGEN ADMINISTRATOR	
O_2/EXPLOSIMETER W/CAL.KIT (Drilling)		STRETCHER	
PHOTOVAC TIP		PORTABLE EYE WASH	
PID	X	BLOOD PRESSURE MONITOR	
MAGNETOMETER		FIRE EXTINGUISHER	X
PIPE LOCATOR			
WEATHER STATION		**DECON EQUIPMENT**	
DRAEGER PUMP, TUBES ( )		WASH TUBS	
BRUNTON COMPASS		BUCKETS	X
MONITOX CYANIDE		SCRUB BRUSHES	X
HEAT STRESS MONITOR		PRESSURIZED SPRAYER	
NOISE EQUIPMENT		DETERGENT (Type: Alconox) = TSP	X
PERSONAL SAMPLING PUMPS		SOLVENT (HEXANE)	
MINI-RAM (Particulates) (Drilling)		PLASTIC SHEETING	
		TARPS AND POLES	
		TRASH BAGS	X
RADIATION EQUIPMENT		TRASH CANS	
DOCUMENTATION FORMS		MASKING TAPE	
PORTABLE RATEMETER		DUCT TAPE	X
SCALER/RATEMETER		PAPER TOWELS	X
NaI Probe		FACE MASK	
ZnS Probe		FACE MASK SANITIZER	
GM Pancake Probe		FOLDING CHAIRS	
GM Side Window Probe		STEP LADDERS	
MICRO R METER		DISTILLED WATER	X
ION CHAMBER			
ALERT DOSIMETER			
MINI-RAD			

EQUIPMENT CHECKLIST

SAMPLING EQUIPMENT	NO.	MISCELLANEOUS (cont.)	NO.
4-OZ BOTTLES		BUNG WRENCH	
1 LITER AMBER BOTTLES		SOIL AUGER	
VOA BOTTLES		PICK	
SOIL SAMPLING (CORING) TOOL		SHOVEL	X
SOIL VAPOR PROBE		CATALYTIC HEATER	
THIEVING RODS WITH BULBS		PROPANE GAS	
SPOONS		BANNER TAPE	
GENERAL TOOL KIT		SURVEYING METER STICK	
FILTER PAPER		CHAINING PINS AND RING	
PERSONAL SAMPLING PUMP SUPPLIES		TABLES	
4-OZ JARS		WEATHER RADIO	
Micronanometer	X	BINOCULARS	
VAN EQUIPMENT		MEGAPHONE	
TOOL KIT		PORTABLE RADIOS (2)	
HYDRAULIC JACK		CELL PHONE	X
LUG WRENCH		CAMERA	
TOW CHAIN		HEARING PROTECTION	X
VAN CHECK OUT			
GAS		**SHIPPING EQUIPMENT**	
OIL		COOLERS	
ANTIFREEZE		PAINT CANS WITH LIDS, 7 CMIPS EACH	
BATTERY		VERMICULITE	
WINDSHIELD WASH		SHIPPING LABELS	
TIRE PRESSURE		DOT LABELS: “DANGER”, “UP”;	
		“INSIDE CONTAINER COMPLIES...”;	
MISCELLANEOUS		“HAZARD GROUP”	
PITCHER PUMP		STRAPPING TAPE	
SURVEYOR’S TAPE		BOTTLE LABELS	
100 FIBERGLASS TAPE		BAGGIES	
300 NYLON ROPE		CUSTODY SEALS	
NYLON STRING		CHAIN-OF-CUSTODY FORMS	
SURVEYING FLAGS		FEDERAL EXPRESS FORMS	
FILM		CLEAR PACKING TAPE	
WHEEL BARROW			

Attachment B- Community Air Monitoring Plan

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

Source: DRAFT DER-10 Technical Guidance for Site Investigation and Remediation, December 2002- Appendix 1A

Sub-Slab Depressurization System Schedule

Former Churchville Ford Site # V00658-8

Remedial Action	**Month**															
Task/ Milestone	May				June				July				August			
Work Plan Review & Approval																
Final WorkPlan Approval																
Remedial Measures																
Install Sub-Slab Depressurizaton System																
Testing																
Submissions & Deliverables																
Revised FER submission																
Revised SMP submission																
Agency Review & Approval																
Final FER Submission																
Record deed restrictions																
Final SMP Submission																
Release & Covenant Not to Sue issued																