PROPOSED REMEDIAL ACTION PLAN
MODOCK ROAD SPRINGS/DLS SAND AND GRAVEL, INC. SITE

Town of Victor, Ontario County, New York
Site No. 8-35-013

October 2009

Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the Modock Road Springs/DLS Sand and Gravel, Inc. site. The presence of hazardous waste has created significant threats to human health and/or the environment that are addressed by this proposed remedy. As more fully described in Sections 3 and 5 of this document, past operations or activities on the site have resulted in the disposal of hazardous wastes, including chlorinated volatile organic compounds (CVOCs). These wastes have contaminated the groundwater, surface water, and soil vapor at the site, and have resulted in:

- a significant threat to human health associated with potential exposure to groundwater, surface water, and soil vapor.
- a significant environmental threat associated with the current and potential impacts of contaminants to groundwater, surface water, and soil vapor.

To eliminate or mitigate these threats, the Department proposes a long-term plume management monitoring program to ensure plume stability and the natural reduction of the CVOC contamination over time with a contingency for zero valent iron injection to reduce the contaminant mass in the more concentrated plume area should natural reduction prove to be less effective than expected as the remedy for the Modock Road Springs/DLS Sand and Gravel, Inc. site.

The proposed remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

This Proposed Remedial Action Plan (PRAP) identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for this preference. The Department will select a final remedy for the site only after careful consideration of all comments received during the public comment period.

The Department has issued this PRAP as a component of the Citizen Participation Plan developed pursuant to the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375. This document is a summary of the information that can be found in greater detail in the December 2008 Remedial Investigation (RI) Report the August 2009 Feasibility Study (FS), and other relevant documents. The public is encouraged to review the project documents, which are available at the following repositories:

Victor Free Library
15 West Main Street
Victor, N.Y. 14564
(585) 924-2637

Victor Free Library Hours Mon - Thurs: 10:00 AM - 9:00 PM, Fri: 10:00 AM - 6:00 PM,
Sat: 10:00 AM - 4:00 PM, Sun: 2:00 PM - 4:00 PM

By appointment only:
Jason Pelton, Project Manager
NYSDEC Central Office
625 Broadway
Albany, New York 12233-7013
(518) 402-9814
(888) 459-8667

Lisa LoMaestro Silvestri, Citizen Participation Specialist
NYSDEC Region 8 Office
6274 E. Avon-Lima Road
Avon, New York 14414
(585) 226-5350

The Department seeks input from the community on all PRAPs. A public comment period has been set from October 14, 2009 to November 16, 2009 to provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for October 27, 2009 at the Town of Victor Town Hall Room beginning at 7:00 P.M.

At the meeting, the results of the RI/FS will be presented along with a summary of the proposed remedy. After the presentation, a question-and-answer period will be held, during which verbal or written comments may be submitted on the PRAP. Written comments may also be sent to Mr. Jason Pelton at the above address through November 16, 2009.

The Department may modify the proposed remedy or select another of the alternatives presented in this PRAP, based on new information or public comments. Therefore, the public is encouraged to review and comment on all of the alternatives identified here.

Comments will be summarized and addressed in the responsiveness summary section of the Record of Decision (ROD). The ROD is the Department's final selection of the remedy for this site.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Modock Road Springs/DLS Sand and Gravel, Inc. site is located in a rural/suburban area in the Town of Victor, Ontario County, New York. As shown on Figure 1, the actual site is the 173-acre Syracusa Sand and Gravel, Inc. property located on the east side of Malone Road and approximately 1,000 feet south of Dryer Road. Based on the results of groundwater sampling at wells located at and downgradient of the site, dissolved-phase CVOC groundwater contamination extends from the Syracusa Sand and Gravel, Inc. property approximately 5,000 feet off-site to the north where groundwater discharges to surface water via a series of springs to the south of Modock Road (Figures 1 and 2).

Land use is agricultural and residential adjacent to and north of the Syracusa Sand and Gravel, Inc. property, in the area of the dissolved-phase CVOC contamination. Farther to the north, between Dryer Road and Modock Road (shown on Figure 2), land use is rural/suburban with some recent home construction. Sand and gravel mines are located to the east and west of the Syracusa Sand and Gravel, Inc. property. The topography in the area of the dissolved-phase CVOC contamination generally slopes downward to the north, but consists of rolling hills with elevations varying from approximately 620 feet above mean sea level (AMSL) near the Modock Road Springs to approximately 900 feet AMSL near the Syracusa Sand and Gravel, Inc. property.

The Syracusa Sand and Gravel, Inc. mine, along with nearby aggregate mining operations along the crest of this kame moraine complex, have exposed thick sequences of stratified sands, gravels, and occasional silt and clay layers which underlie the region's hummocky topography. The central and southern portion of the Syracusa Sand and Gravel, Inc. site consists of lacustrine sand while outwash sand and gravel is present from the northern portion of the site to Dryer Road. Lacustrine sand is present from Dryer Road to the Modock Road Springs and outwash sand and gravel is generally present north of Modock Road. The permeable soils of this moraine complex provide significant groundwater recharge. At distinct changes in topography (e.g., toe of slope) and stratigraphy (e.g., clay layers), groundwater may discharge to the surface as springs and wetlands. These conditions exist south of Modock Road and produce the Modock Road Springs.

The depth to groundwater varies from less than ten (10) feet beneath ground surface near the springs to approximately 80 feet below ground surface along the north-side of the site. A low permeability clay layer underlies the uppermost zone of saturated sand and gravel and appears to be continuous over the entire area of the dissolved-phase CVOC groundwater plume. A zone of high permeability gravel and sand is present in the western portion of the dissolved-phase CVOC plume at Dryer Road (at MW-24S/D on Figure 2). The arch-like groundwater flow pattern from south to north, along with contaminant distribution, is influenced by this high permeability zone. Bedrock was not encountered in soil borings drilled during the remedial investigation, but information from residential wells indicates that the top of bedrock (Bertie Formation/Onondaga Limestone) is approximately 150 to 200 feet below ground surface (bgs).

SECTION 3: <u>SITE HISTORY</u>

3.1: Operational/Disposal History

The 173-acre parcel was acquired by Syracusa in 1953. Prior to Syracusa ownership and the mining operations, the property was used for agricultural purposes. The excavation of sand and gravel likely began shortly after the property acquisition in approximately 1954. The property operated under the name of D.L.S. Sand and Gravel until 1973 when the corporate name was changed to Syracusa Sand and Gravel. From 1966 to 1971, a portion of the property was leased to Rochester Block, Inc.

Data collected during the RI did not provide information on when and for what duration solvent disposal actually occurred at the site. The data does generally show that the solvents, including trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), and 1,1-dichloroethene (1,1-DCE), were released on the property and have contributed to both on-site and off-site solvent contamination.

3.2: Remedial History

In 2001, the Department listed the site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where hazardous waste presents a significant threat to the public health or the environment and action is required.

The CVOC contamination, including TCE, 1,1,1-TCA, and 1,1-DCE, was initially discovered in the Modock Road Springs in February 1990 during a NYSDOH initiative to sample small community water supplies across New York State. This initiative included the sampling of the Village of Victor community water system which had relied on the Modock Road Springs (Figure 2) as a source of supply since approximately 1925. Both TCE and 1,1,1-TCA were detected in the spring water at concentrations (11 and 35 ug/L, respectively) greater than the NYSDOH maximum contaminant level (MCL) of 5 ug/L. As a result, the use of the springs as a public water supply ceased and the Village of Victor connected to the Monroe County Water Authority as a source of drinking water. Earlier sampling of the Modock Road Springs drinking water source in 1980 did not reveal the presence of the solvent contamination.

Immediate investigation activities by the Town of Victor suggested that the contamination appeared to be localized and in a direction southeast of the Modock Road Springs (Engineering-Science,1990). Following discovery of the CVOC contamination in the Modock Road Springs, the sampling of nearby private water supply wells was immediately started to determine if surrounding domestic water supplies were impacted, the Village of Victor connected to the Monroe County Water Authority municipal water supply, public water lines were extended to the area, and a series of investigations were completed by the Department and NYSDOH to identify a source for the CVOC contamination. Given the rural/suburban nature of the community upgradient of the springs, there were no obvious suspect source areas.

During the Department's investigation activities, approximately 100 domestic water supply wells in the vicinity of the Modock Road Springs were sampled for laboratory analysis. The sampling showed that the contaminants were also present in three (3) residential wells at concentrations exceeding the drinking water standards. These three homes were subsequently connected to municipal water as part of an interim remedial measure (IRM).

Between 1995 and 2000, the Department completed a series of sequential investigations upgradient of the Modock Road Springs to delineate the dissolved-phase CVOC groundwater plume and determine the potential source of the groundwater contamination. Based on these groundwater sample results, along with groundwater flow directions, the data suggested that the TCE, 1,1,1-TCA, and 1,1-DCE detected in the Modock Road Springs and groundwater upgradient of the springs was originating from the Syracusa Sand and Gravel, Inc. property. Figure 3 shows the approximate CVOC plume boundary combined with groundwater contours and flow directions.

Based on the Department's findings, Syracusa Sand and Gravel, Inc. installed 11 monitoring wells (SS&G MW-1 through SS&G MW-11 on Figure 2) in 2001 (Leader Professional Services, 2002). The majority of these wells were installed on Syracusa Sand and Gravel, Inc. property. Groundwater samples collected for laboratory analysis from these wells confirmed the presence of TCE, 1,1,1-TCA, and 1,1-DCE in the central and northern portions of the Syracusa Sand and Gravel, Inc. property.

The investigation data led to the listing of the Syracusa Sand and Gravel, Inc. site as a Class 2 Inactive Hazardous Waste Disposal Site in 2001, the subsequent completion of the Modock Road Springs/DLS Sand and Gravel, Inc. Site RI/FS, and the development of this PRAP.

SECTION 4: ENFORCEMENT STATUS

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

The PRPs for the site, documented to date, include: Syracusa Sand & Gravel, Inc.

The PRPs declined to implement the RI/FS at the site when requested by the Department. After the remedy is selected, the PRPs will again be contacted to assume responsibility for the remedial program. If an agreement cannot be reached with the PRPs, the Department will evaluate the site for further action under the State Superfund. The PRPs are subject to legal actions by the state for recovery of all response costs the state has incurred.

SECTION 5: SITE CONTAMINATION

A remedial investigation/feasibility study (RI/FS) has been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Remedial Investigation

The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between January 2007 and December 2008. The field activities and findings of the investigation are described in the RI report.

The RI included the following activities:

- Environmental samples were collected from the following media and submitted for laboratory analysis: soil vapor, indoor air, outdoor air, surface soil, subsurface soil, groundwater, and surface water;
- Direct push/Geoprobe® drilling program where 56 shallow soil borings were advanced;
- Installation of 15 groundwater monitoring wells;
- Excavation of eleven (11) test pits/trenches;
- Permeability testing of 24 of the existing and newly installed monitoring wells;
- Review of aerial photographs; and
- Site survey.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil vapor, indoor air, outdoor air, surface soil, subsurface soil, groundwater, and surface water contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on the Department's Cleanup Objectives included in 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives.

- Concentrations of VOCs in air were evaluated using the air guidelines provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. Specifically, the subslab and indoor air data were compared to Soil Vapor/Indoor Air Matrix 1 for TCE and Soil Vapor/Indoor Air Matrix 2 for 1,1-DCE, and 1,1,1-TCA.

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

5.1.2: Nature and Extent of Contamination

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

As described in the RI report, many soil vapor, indoor air, outdoor air, surface soil, subsurface soil, groundwater, and surface water samples were collected to characterize the nature and extent of contamination. As seen in Figures 4, 5, and 6 and summarized in Table 1, the main categories of contaminants that exceed their SCGs are chlorinated volatile organic compounds (CVOCs). For comparison purposes, where applicable, SCGs are provided for each medium.

Chemical concentrations are reported in parts per billion (ppb) for water and parts per million (ppm) for soil. Air samples are reported in micrograms per cubic meter ($\mu g/m^3$).

Figures 4, 5, and 6 and Table 1 summarize the degree of contamination for the contaminants of concern in soil vapor, indoor air, shallow soil, subsurface soil, groundwater, and surface water and compare the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Shallow Soil (approximately 0-1 foot)

No site-related shallow soil contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for surface soil.

Subsurface Soil (greater than 1 foot below ground surface)

To better understand the nature and extent of contamination and to identify a possible disposal area/areas, a total of 89 subsurface soil samples were collected for laboratory analysis during the RI. The locations selected for subsurface soil sampling were based on the results of a passive soil gas sampling program along with known dimensions of the groundwater plume and where anecdotal information suggested past disposal may have occurred. A total of 42 subsurface soil samples were collected during a direct-push drilling program, 17 subsurface soil samples were collected during a test pit/trench excavation program, 23 subsurface soil samples were collected when soil borings were advanced prior to the installation of groundwater monitoring wells, and seven (7) subsurface soil samples were collected from the active mining face and floor. Figure 4 illustrates the locations where subsurface soil samples were collected as part of RI source characterization efforts and locations where TCE was detected in subsurface soil samples.

As summarized in Table 1, TCE was the site contaminant most frequently detected in subsurface soil samples collected during the RI. Specifically, TCE was detected in a total of 26 of the 89 subsurface soil samples. Of these 26 locations, TCE was only detected above the unrestricted SCG of 0.470 ppm in two (2) of the subsurface soil samples. As shown on Figure 4, TCE was detected at a concentration of 0.99 ppm in subsurface soil collected at the monitoring well MW-17S location and at a concentration of 0.70 ppm in subsurface soil collected at the monitoring well MW-17D location. At both these locations (MW-17S and MW-17D), the subsurface soil samples were collected from the saturated zone, at a depth of 65 to 67 feet below ground surface and in the center of the groundwater plume where groundwater TCE concentrations range from approximately 1,000 ppb to 2,300 ppb.

1,1,1-TCA and 1,1-DCE were detected in a total of eight (8) and six (6) subsurface soil samples respectively, but not at concentrations exceeding the unrestricted SCGs of 0.68 ppm for 1,1,1-TCA and 0.33 ppm for 1,1-DCE. 1,1,1-TCA was detected at a maximum concentration of 0.1 ppm and 1,1-DCE was detected at a maximum concentration of 0.018 ppm. These 1,1,1-TCA and 1,1-DCE concentrations were from a saturated soil sample collected from a depth of 65 to 67 feet bgs at the MW-17D location within the approximate center of the groundwater plume (Figure 4).

The results of the subsurface soil sampling indicate that a highly contaminated subsurface soil source may no longer exist in unsaturated zone subsurface soil. Instead, the consistent presence and distribution of low concentrations (below the respective SCGs) of the site contaminants indicate that past releases occurred at the site, but that the contaminants have been transported downward to the saturated zone. No site-related subsurface soil contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for subsurface soil.

Groundwater

As summarized in Table 1, a total of 91 groundwater samples were collected during two separate sampling events from a network of existing monitoring wells installed during earlier investigation work and from monitoring wells installed as part of the Modock Road Springs/DLS Sand & Gravel, Inc. RI. Figure 5 illustrates the CVOC groundwater sampling results from the August 2008 sampling event.

Three CVOCs, including TCE, 1,1,1-TCA, and 1,1-DCE were detected at concentrations exceeding their respective SCGs and TCE was the CVOC detected at the highest concentration in groundwater. Specifically, TCE was detected in 36 of the 91 groundwater samples at concentrations exceeding the SCG and at a maximum concentration of 2,300 ppb in groundwater from monitoring well MW-17S. 1,1,1-TCA and 1,1-DCE were detected in 30 and 15 of the 91 groundwater samples respectively at concentrations exceeding the respective SCGs.

During the August 2008 sampling event, TCE, 1,1,1-TCA, and 1,1-DCE were detected at concentrations exceeding the SCGs in groundwater samples collected from 18 of the monitoring wells. As shown on Figure 5, the highest TCE, 1,1,1-TCA, and 1,1-DCE concentrations were detected in groundwater samples collected from monitoring wells installed along the north-side of the Syracusa Sand & Gravel, Inc. property. The groundwater contamination extends approximately 2,000 feet further upgradient from this area and onto the south-central portion of the Syracusa Sand & Gravel, Inc. property near monitoring well SS&G MW-5 (Figure 5). Monitoring well SS&G MW-5 is located approximately 7,500 feet upgradient of the Modock Road Springs. During the RI, monitoring well SS&G MW-5 contained TCE at a maximum concentration of 450 ppb and the most downgradient well (Test Well on Figure 5), prior to groundwater discharge to the Modock Springs, contained TCE at a maximum concentration of 120 ppb.

To evaluate the potential for downward migration of site contaminants, a well pair (MW-17S (shallow) and MW-17D (deep) was installed adjacent to the north-central portion of the Syracusa Sand & Gravel, Inc. property. The shallow well was installed to a depth of 68 feet below grade and the deep well was installed to a depth of approximately 95 feet below grade. Monitoring well MW-17D was screened in a low permeability silty clay and monitoring well MW-17S was installed in a permeable sand. During the August 2008 sampling event, the highest TCE, 1,1,1-TCA, and 1,1-DCE concentrations were detected in a groundwater sample collected from shallow monitoring well MW-17S and TCE, 1,1,1-TCA, and 1,1-DCE were not detected in the groundwater sample collected from MW-17D. The groundwater quality data, combined with groundwater elevation data and the presence of the underlying clay layer, indicate that site contaminants are not migrating downward through the low permeable clay layer.

During the RI, a total of 73 groundwater samples were collected from domestic water supply wells. The majority of the private wells sampled were within a one-mile radius to the west, north, and east of the site. No CVOCs were detected in domestic wells at concentrations exceeding the SCGs.

As shown on Figure 5, the groundwater sampling data shows a well defined, long and narrow dissolved phase CVOC groundwater plume. The plume boundaries are defined by the consistent collection of groundwater samples from 21 monitoring wells that have either contained very low CVOC concentrations or no CVOCs. Based on this sampling the average width of the groundwater plume is approximately 1,200 to 1,300 feet. The groundwater sampling data, combined with hydrogeologic data, indicate that the highest CVOC groundwater concentrations (410 - 2,300 ppb in the MW-14 and MW-17S area and 84 - 120 ppb further downgradient in the Test Well and MW-4 area) are mostly restricted to a narrow high permeability zone that on average is approximately 800 feet in width and does not extend downward beneath the low permeability clay layer.

Review of CVOC groundwater data since the earliest sampling in 1995 suggests that groundwater CVOC concentrations are declining. Groundwater samples collected from monitoring wells throughout the entire length of the plume have shown approximate percent reductions ranging from 26% to 96%. The highest percent reductions in CVOC groundwater concentrations have occurred in monitoring wells within the area of residual contamination. Specifically, at the monitoring well MW-14 area, the total CVOC concentrations detected in 2000 and 2001 were 16,200 ppb and 4,300 ppb respectively. The total CVOC concentrations in MW-14 in June 2008 and May 2009 declined to 550 ppb and 570 ppb respectively.

In addition to the collection of groundwater samples for VOC analysis, a series of groundwater samples were collected and analyzed for inorganic compounds, pesticides, PCBs, and semi-volatile organic compounds from four (4) locations. Based on these analyses, no pesticides, PCBs, and SVOCs were detected in site groundwater at concentrations exceeding SCGs. Two (2) metals, including iron and sodium were detected in a groundwater sample collected from monitoring well MW-26 and magnesium was detected in a groundwater sample collected from monitoring well SS&G MW-15 at concentrations exceeding the respective SCGs. These three (3) inorganic compounds commonly occur naturally and are not associated with disposal at the site.

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

Surface Water

During the RI, a total of 19 surface water samples were collected from the Modock Road Springs and the small un-named tributary to Irondequoit Creek. The CVOC groundwater contamination discussed above discharges at the Modock Road Springs (Figure 5). To assess the discharge of the CVOC groundwater plume to the springs, surface water samples were collected from five (5) locations at the actual Modock Road Springs and from three locations along the un-named surface water stream that the springs drain into. In addition, one (1) surface water sample was collected from a small pond located in the central portion of the Syracusa Sand & Gravel, Inc. property.

At the Modock Road Springs, the highest TCE, 1,1,1-TCA, and 1,1-DCE concentrations were detected in surface water samples collected at the SC-1 sampling location. The SC-1 sampling location is on private property and immediately downstream from the eastern springs collection system formerly used for the water supply. Specifically, TCE, 1,1,1-TCA, and 1,1-DCE were detected at maximum concentrations of 110 ppb, 42 ppb, and 10 ppb respectively. As summarized in Table 1, TCE was the only CVOC detected at a concentration in surface water above the SCGs (40 ppb for TCE). During the RI, a total of six (6) surface water samples were collected from the SC-1 location and TCE was detected at concentrations ranging from 77 ppb to 110 ppb.

At a distance of approximately 500 feet downstream of the Modock Road Springs and at a location where the un-named surface water stream flows beneath Modock Road, the TCE concentrations decrease to below the NYSDEC Class C Surface Water Standard of 40 ppb. During three RI sampling events of the un-named stream, TCE surface water concentrations ranged from 25 ppb to 32 ppb at the sampling location 500 feet from the Modock Road Springs. Further downstream from the Modock Road Springs, the TCE concentrations decrease to a maximum concentration of 13 ppb at a distance of 1,100 feet and 1.8 ppb at distance of 2,500 feet.

A surface water sample was also collected from a small man-made pond located in the central portion of the Syracusa Sand & Gravel, Inc. property. Based on the depth to groundwater and the depth of the pond, the surface water in the pond is thought to represent an outcrop of the water table. A surface water sample collected from the man-made pond contained TCE at a lab estimated value of 2.1 ppb. 1,1,1-TCA and 1,1-DCE were not detected in this surface water sample. The presence of low concentrations of TCE in this surface water (exposed groundwater) is consistent with the presence of TCE in groundwater collected from surrounding monitoring wells.

No site-related surface water contamination of concern was identified during the RI/FS. Therefore, no remedial alternatives need to be evaluated for surface water.

Soil Vapor/Subslab Vapor/Air

During the RI, vapor intrusion (VI) sampling was completed at 73 structures in the vicinity of the dissolved phase groundwater plume (Figure 6). The VI sampling included the collection of subslab soil vapor, indoor air, and outdoor air samples to evaluate the potential for exposures via soil vapor intrusion (SVI). Soil vapor intrusion refers to the process by which volatile chemicals move from a subsurface source into the indoor air of overlying buildings. Based on the VI sampling, TCE was the only VOC detected in indoor air samples at concentrations above the SCG of 5 $\mu g/m^3$. Specifically, TCE was detected in six (6) of the 169 indoor air samples at concentrations above the SCG of 5 $\mu g/m^3$. The VI sampling locations are shown on Figure 6 and a summary of the VOCs detected in subslab vapor and indoor air samples is provided in Table 1.

The following summarizes the evaluation of the vapor intrusion samples relative to Soil Vapor/Indoor Air Matrix 1 and 2 included in the Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006:

- Mitigation was necessary at six (6) residential properties due to the presence of TCE and 1,1,1-TCA at elevated concentrations in subslab and indoor air samples. Following the vapor intrusion sampling, subslab depressurization systems were installed by the Department at the six (6) locations.
- Monitoring was necessary at eight (8) residential properties to evaluate whether concentrations change over time and if mitigation is necessary at these locations.
- No Further Action was considered appropriate at 59 of the 73 properties. At these locations, detected CVOC concentrations are considered to be associated with indoor and/or outdoor sources rather than vapor intrusion given the concentration detected in the subslab samples.

Other VOCs detected in the vapor intrusion samples mainly included petroleum and refrigerant compounds, many of which were detected in each of the subslab, basement air, and first floor air samples. The presence and concentrations of these compounds is consistent with typical background levels of VOCs in indoor and outdoor air.

Soil vapor and indoor air contamination identified during the RI/FS was addressed during the IRM where six (6) subslab depressurization systems were installed by the Department between June and August 2007 and as described in Section 5.2.

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the RI/FS.

Mitigation measures, including the installation of subslab depressurization systems (SSDs), were taken at six (6) locations between June and August 2007 to address current and potential human exposures (via inhalation) to volatile organic compounds associated with soil vapor intrusion.

Following the identification of CVOC contamination above the drinking water standards in domestic water supply wells during earlier investigation activities at the site, three residences were connected to the Town of Victor municipal water supply system as part of IRMs between 1995 and 2000.

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. A more detailed discussion of the human exposure pathways can be found in Section 6-1 of the RI report. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

The primary routes of exposure to site-related contaminants are through drinking contaminated surface water or private well water and breathing contaminated air due to soil vapor intrusion. As discussed in Section 3.2, surface water is no longer being used as a source of drinking water. Houses with private drinking water containing site-related contaminants above applicable standards used for public drinking water supplies have
been connected to the public water supply. Where necessary, exposures related to soil vapor intrusion are being addressed through the installation and operation of sub-slab depressurization systems within homes or through the implementation of an air-monitoring program.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

The Fish and Wildlife Impact Analysis, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

The following environmental exposure pathways and ecological risks have been identified:

The investigation results indicate that the groundwater CVOC plume discharges at the eastern Modock Road Springs to a small surface water stream (Figure 2). The RI report Fish and Wildlife Impact Analysis along with the NYSDEC Division of Fish and Wildlife Hazardous Waste Site Evaluation Unit concluded that the site contaminants do not represent a significant threat to fish and wildlife.

Site contamination has impacted the groundwater resources in the shallow overburden unit comprised of a mixture of sand and gravel. As described in Section 2, the groundwater contamination originates on the Syracusa Sand & Gravel, Inc. property and extends approximately one (1) mile off-site to the north where groundwater discharges at the Modock Road Springs.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous waste disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to CVOCs in soil and groundwater;
- the release of contaminants from groundwater beneath basements into indoor air through soil vapor intrusion; and
- the release of CVOCs from the area of residual contamination into groundwater that may result in CVOC groundwater concentrations no longer declining;

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

- ambient groundwater quality standards and
- the air guidelines provided in the Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. Potential remedial alternatives for the Modock Road Springs/DLS Sand and Gravel, Inc. Site were identified, screened and evaluated in the FS report which is available at the document repositories established for this site.

A summary of the remedial alternatives that were considered for this site is discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated groundwater, soil vapor, and air at the site. Throughout the RI/FS process, which began in January 2007 for this site, the Victor Community, including residents, elected officials, and a citizens advisory committee (CAC), has actively participated in the remedial process.

With the exception of Alternative 1 (No Further Action), the following common remedial actions would be included as elements of Alternatives 2 through 7:

- Long-term groundwater quality and soil vapor monitoring program (plume management monitoring);
- Installation of approximately 2,200 feet of water line for the purpose of connecting eleven (11) homes currently relying on domestic water supply wells to the Town of Victor municipal water supply. The water connections would eliminate the need for continued routine sampling of domestic water supply wells near the site;
- An environmental easement to restrict the use of groundwater at the site;
- Responsibility for maintenance of subslab depressurization systems at six (6) Department-installed locations and six (6) locations where monitoring was the VI sampling outcome;
- Annual notification at four (4) pre-existing subslab depressurization system locations in the area overlying the groundwater plume. Should the pre-existing systems require service, Department staff would assess the need for VI sampling to determine what, if any, actions are appropriate. The Department could, in lieu of sampling, opt to repair or replace the pre-existing system;
- Implementation of a monitoring program for two (2) locations where monitoring was the VI sampling outcome; and
- Periodic reviews (nominally five years) to evaluate the proposed remedy.

Alternative 1: No Further Action

The no further action alternative recognizes remediation of the site conducted under previously completed IRMs. The no further action alternative would include no further work, no long-term monitoring, and no institutional controls. Since Alternative 1 includes no further actions, there would be no costs associated with this alternative.

This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative 2: Plume Management Monitoring

Alternative 2 would rely on the long-term plume management monitoring program to ensure plume stability and the natural reduction of the CVOC contamination over time. The plume management monitoring alternative would include each of the common remedial actions described above. The long-term plume management monitoring alternative would include the collection and laboratory analysis of groundwater, surface water, and soil vapor samples for VOC analysis. The groundwater samples would be collected throughout the plume from the existing monitoring well network and surface water samples would be collected from established sampling points near the Modock Road Springs. The plume management monitoring alternative would also include the installation of soil vapor monitoring points within the study area to allow for the periodic collection of soil vapor samples.

The components of Alternative 2 are readily implementable. Costs are based on the routine, long-term groundwater, surface water, and soil vapor quality monitoring, operation and maintenance of the six (6) Department installed mitigation systems, and the connection of eleven (11) homes to public water.

Present Worth: *$360,000*
Capital Cost: *$130,000*
Annual Costs:
(Years 0-30): *$11,000*

Alternative 3: Zero Valent Iron Treatment Injection in the Area of Highest Groundwater CVOC Concentrations combined with Plume Management Monitoring

Alternative 3 would rely on the injection of zero valent iron (ZVI) to reduce the contaminant mass in the more concentrated plume area. As shown on Figure 7, the ZVI injection would occur in an approximate 400 foot width area where the CVOC groundwater concentrations are the highest. This alternative would inject zero valent iron as a colloidal suspension, or an equivalent material, that would persist in the saturated portion of the subsurface for approximately five (5) years. During this five (5) year period, the majority of changes in groundwater quality would be observed in the area of treatment. The ZVI would gradually break down over this five (5) year period and would not adversely affect the quality of groundwater. The ZVI, or equivalent material, would be introduced into the subsurface at depths ranging from approximately 50 to 80 feet below ground surface using a pneumatic injection technique. The introduction of ZVI or equivalent is not expected to reduce the overall permeability of the groundwater system and hence alter the groundwater flow patterns since the quantity of ZVI injected would equate to approximately 0.3% to 0.5% of the treatment zone soil mass.

The zero valent iron, or equivalent material, would create reducing groundwater conditions that would facilitate degradation of the CVOC contamination in the treatment area. It is expected that the ZVI would reduce the time required to create the necessary subsurface conditions needed to dechlorinate the CVOCs. Although Alternative 3 includes an initial ZVI injection, the collection of groundwater quality data as part of a long-term plume management monitoring program would also allow for the consideration of subsequent ZVI injection for added treatment, if necessary. It is expected that it would take approximately 1 year to design and implement the remedy. Since Alternative 3 focuses on treatment within the area of highest groundwater CVOC concentrations and because of the persistent nature of the contaminants and the length of the groundwater plume, it is not expected that Alternative 3 would achieve the groundwater SCGs within the near future.

The components of Alternative 3 are readily implementable technologies. The success of ZVI injection would be highly dependent on the ability to effectively distribute the ZVI into the treatment area. Costs are based on design of the ZVI injection program, the pneumatic injection method, ZVI material, long-term groundwater quality monitoring, and the connection of eleven (11) homes to public water.

Present Worth: *$1,400,000*
Capital Cost: *$1,100,000*
Annual Costs:
(Years 0-30): *$11,000*

Alternative 4: Groundwater Extraction in the Area of Highest Groundwater CVOC Concentrations Combined with Plume Management Monitoring

Alternative 4 would consist of a series of recovery wells piped to an ex-situ treatment system. Under Alternative 4, the extraction wells would be installed within the area of highest CVOC groundwater concentrations, over an approximately 400 foot width of the plume in the vicinity of monitoring wells MW-13, MW-14 and MW-17S. The extracted water would be pumped to the south approximately 600 feet to the north-face of the Syracusa Sand and Gravel, Inc. property where the water would be released to the atmosphere through a series of misting nozzles. This is a form of spray aeration and involves the mass transfer of CVOCs from water to air. During this process, CVOCs are partitioned from extracted groundwater by increasing the surface area of the water containing CVOCs exposed to air. It is expected that operation of the groundwater extraction system would have to be suspended for a short duration during the winter months because of issues relating to potential freezing during the aeration process. Under Alternative 4, the groundwater extraction and treatment system would be operated for five (5) years.

It is expected that it would take approximately one (1) year to design and one (1) year to fully implement the groundwater extraction remedy. Since Alternative 4 focuses on treatment within the area of highest groundwater CVOC concentrations and because of the persistent nature of the contaminants and the length of the groundwater plume it is not expected that Alternative 4 would achieve the groundwater SCGs within the near future.

As with Alternative 3, the remedial technologies outlined in Alternative 4 are reliable and implementable. Costs are based on installation and operation of the groundwater extraction and treatment system for a five (5) year period, long-term groundwater quality monitoring and the connection of eleven (11) homes to public water.

Present Worth: *$1,300,000*
Capital Cost: *$810,000*
Annual Costs:
(Years 0-5): *$85,000*
(Years 5-30): *$11,000*

Alternative 5: Permeable Reactive Barrier combined with Plume Management Monitoring

As part of Alternative 5, a zero-valent iron permeable reactive barrier (PRB) would be installed by direct-injection in the center of the dissolved-phase CVOC plume. The direct-injection PRB would be constructed using a series of injection wells or boreholes oriented generally perpendicular to groundwater flow and downgradient of monitoring wells MW-14 and MW-17S. The PRB would extend vertically from approximately 60 feet bgs (average depth of the water table) to an approximate average depth of 100 feet bgs (average depth to the underlying silty clay confining unit). It is expected that the PRB would be approximately 400 feet in length and would contain approximately 350 to 600 tons of iron, depending on the barrier thickness. Groundwater monitoring both upgradient and downgradient of the PRB would be required to evaluate the effectiveness of the PRB at reducing contaminant concentrations and protecting downgradient areas from further dissolved-phase CVOC plume migration.

The PRB would treat the dissolved-phase CVOC plume as the groundwater containing the highest CVOC concentrations flows through the treatment area. The placement of the PRB in this area of the groundwater plume would limit migration of the dissolved-phase CVOC plume from the residual contamination area. Areas of the dissolved-phase CVOC plume downgradient and along the eastern and western margins of the PRB would continue to migrate to the north toward the Modock Road Springs.

It is expected that it would take approximately one (1) year to design and one (1) year to fully implement the permeable reactive barrier remedy. Since Alternative 5 focuses on treatment within the residual contamination area and because of the persistent nature of the contaminants and the length of the groundwater plume it is not expected that Alternative 5 would achieve the groundwater SCGs within the near future.

The components of Alternative 5 are readily implementable and reliable technologies. Costs are based on design and installation of the PRB, long-term groundwater quality monitoring, and the connection of eleven (11) homes to public water.

Present Worth: *$3,400,000*
Capital Cost: *$3,200,000*
Annual Costs:
(Years 0-30): *$11,000*

Alternative 6: Air Sparging with Soil Vapor Extraction combined with Plume Management Monitoring

Air sparging with soil vapor extraction (SVE) would be the primary component of Alternative 6 to reduce the dissolved phase CVOC groundwater concentrations. Specifically, air sparging wells would be installed with an orientation that is generally perpendicular to groundwater flow and downgradient of monitoring wells MW-14 and MW-17S. Soil vapor extraction wells would be installed in the unsaturated zone in the vicinity of the air sparging wells. Air would be injected from approximately 60 feet bgs (average depth of the water table) to an approximate average depth of 100 feet bgs (average depth to the underlying silty clay confining unit), although the majority of air would be injected in the lower 20 feet of this interval. Soil vapor extraction wells would be installed to within 10 feet above the water table. To prevent fugitive emissions, it is expected that the volume of extracted soil vapor would be two (2) to three (3) times more than the volume of air injected into the aquifer.

To support the air sparging and SVE system, electrical lines would be run to an above-ground treatment shed, which would contain a series of blowers and a control system. The air sparging and soil vapor extraction PVC piping would be buried to an appropriate depth to prevent freezing during the winter months. Periodic on-site monitoring of the system would be conducted to evaluate the system effectiveness and perform system maintenance. Groundwater monitoring both upgradient and downgradient of the air sparging injection area would be required to evaluate the effectiveness of the air sparging and SVE system at reducing CVOC concentrations and from protecting further dissolved-phase CVOC groundwater plume migration.

It is expected that it would take approximately one (1) year to design and one (1) year to fully implement the air sparging with SVE remedy. Similar to Alternatives 3 through 5, since Alternative 6 focuses on treatment within the residual groundwater contamination area and because of the persistent nature of the contaminants and the length of the groundwater plume it is not expected that Alternative 6 would achieve the groundwater SCGs within the near future.

The remedial technologies outlined in Alternative 6 are reliable and implementable. Costs are based on installation and operation of the air sparging with SVE system for a 30 year period, long-term groundwater quality monitoring and the connection of eleven (11) homes to public water.

Present Worth: *$2,900,000*
Capital Cost: *$1,500,000*
Annual Costs:
(Years 0-30): *$90,000*

Alternative 7: Permeable Reactive Barriers for Restoration to Achieve Pre-Disposal Conditions

Similar to Alternative 5, Alternative 7 relies on zero-valent iron permeable reactive barrier (PRB) technology to reduce the CVOC concentrations in groundwater. Under Alternative 7 however, a total of four (4) PRBs would be installed perpendicular to the groundwater flow direction and over the length of the entire groundwater plume. It is expected that PRBs would be installed in the area of MW-14 and MW-17S, along the south-side of Dryer Road, and two PRBs in the residential area between Dryer Road to the south and the Modock Road Springs to the north. Each of the PRBs would be installed by direct-injection across the entire width of the dissolved-phase CVOC plume for a total of 4,000 linear feet of PRB. Since the depth to groundwater and the underlying silty clay confining unit varies considerably with location along the length of the groundwater plume, the PRBs would extend vertically from approximately 20 feet bgs (shortest depth of the water table closest to the Modock Road Springs) to an approximate depth of 100 feet bgs (greatest depth to the underlying silty clay confining unit in the area of MW-14 and MW-17S). It is expected that each of the PRBs would be approximately 1,000 feet in length so that very little if any contaminated groundwater would flow around the margins of the PRBs.

The installation of four (4) PRBs would treat the majority of the dissolved-phase CVOC plume as the groundwater flows through each of the treatment areas over an approximate 5,000 foot length of the plume. Groundwater monitoring both upgradient and downgradient of the PRB would be required to evaluate the effectiveness of the PRBs at reducing contaminant concentrations and protecting downgradient areas from further dissolved-phase CVOC plume migration.

It is expected that it would take approximately one (1) year to design and two (2) years to fully implement the multiple permeable reactive barrier remedy. With the installation of four PRBs to treat the entire CVOC groundwater plume, it is expected that this alternative would achieve the groundwater SCGs within the near future.

The components of Alternative 7 are readily implementable and reliable technologies; although the installation of two (2) of the four (4) PRBs in the residential areas would be relatively difficult to implement. Costs are based on design and installation of the PRBs, long-term groundwater quality monitoring, and the connection of eleven (11) homes to public water.

Present Worth: *$26,000,000*
Capital Cost: *$25,000,000*
Annual Costs:
(Years 0-30): *$11,000*

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of inactive hazardous waste disposal sites in New York A detailed discussion of the evaluation criteria and comparative analysis is included in the FS report.

The first two evaluation criteria are termed “threshold criteria” and must be satisfied in order for an alternative to be considered for selection.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative’s ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

The next five “primary balancing criteria” are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain on-site after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

7. Cost-Effectivness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost-effectiveness is the last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.

This final criterion is considered a “modifying criterion” and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

8. Community Acceptance - Concerns of the community regarding the RI/FS reports and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address the concerns raised. If the selected remedy differs

significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

SECTION 8: SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 2, plume management monitoring, with a contingency for implementing Alternative 3 (Zero Valent Iron Treatment Injection) in the area of highest groundwater CVOC concentrations as the remedy for this site. The elements of this remedy are described at the end of this section. As described in Section 7.1, Alternative 2 would include the long-term collection and laboratory analysis of groundwater, surface water, and soil vapor samples for VOC analysis to assess plume stability and the natural reduction of the CVOC contamination over time. The Alternative 3 (Zero Valent Iron Treatment Injection) contingency would be implemented should the results of plume management monitoring demonstrate that the CVOC groundwater concentrations do not continue to decline.

The proposed remedy is based on the results of the RI and the evaluation of alternatives presented in the FS. The proposed remedy would include a long-term plume management monitoring program to assess trends in the CVOC groundwater and soil vapor concentrations over the entire length of the groundwater plume and surface water at the Modock Road Springs. The injection of zero valent iron as outlined in Alternative 3, to reduce the mass of residual CVOC contamination in the central portion of the groundwater plume (Figure 7) would occur if the plume management monitoring shows that CVOC groundwater concentrations do not continue to decline. Should plume management monitoring indicate that enhanced contaminant reduction is necessary, the proposed alternative would inject a micro zero valent iron as a colloidal suspension that would persist for approximately five (5) years in the subsurface. During this five (5) year period, the majority of changes in groundwater quality would be observed in the area of treatment. The ZVI would gradually break down over this five (5) year period and would not adversely affect the quality of groundwater. The zero valent iron, or equivalent material, would create reducing groundwater conditions that would degrade the CVOC contamination in the treatment area. The proposed remedy would also include the remaining common remedial actions outlined in Section 7.1 (Description of Remedial Alternatives). Specifically, this includes continued maintenance of 12 subslab depressurization systems (6 Department-installed systems and 6 systems installed where monitoring was the VI sampling outcome), annual notification at the four (4) pre-existing system locations with possible VI sampling to determine whether continued operation is necessary to address site-related contaminants, implementation of a monitoring program for two (2) locations where monitoring was the VI sampling outcome, and the connection of eleven (11) homes within the plume area to the municipal water supply system. If the ZVI injection is necessary, the long-term plume management monitoring program would be continued afterwards to evaluate the effectiveness of the remedy and to monitor variations in the CVOC groundwater and soil vapor concentrations over the entire length of the groundwater plume and surface water at the Modock Road Springs.

Alternative 2, with the contingency for Alternative 3, is being proposed because, as described below, it satisfies the threshold criteria and provides an optimum balance of the five (5) primary balancing criteria described in Section 7.2. With the exception of Alternative 1 (No Further Action), each of the alternatives outlined in Section 7.0 provide protection to human health and the environment through the common remedial actions outlined in Section 7.1 (Description of Remedial Alternatives). Specifically, through the connection of eleven (11) homes to public water, continued maintenance of 12 subslab depressurization systems (6 Department-installed systems and 6 systems installed where monitoring was the VI sampling outcome), annual notification at the four (4) pre-existing system locations with possible VI sampling to determine whether continued operation is necessary to address site-related contaminants, implementation of a monitoring program for two (2) locations where monitoring was the VI sampling outcome, and the use of an environmental easement. Alternative 1 (No Further Action) would not be protective of human health since it would not include the common remedial actions. Alternative 2 (Plume Management Monitoring) would provide more protection than Alternative 1 because this alternative does include the common remedial actions (connection of eleven (11) homes to public water, continued maintenance of 12 subslab depressurization systems (6 Department-installed systems and 6 systems installed where monitoring was the VI sampling outcome), annual notification at the four (4) pre-existing system locations with possible VI sampling to determine whether continued operation is necessary to address site-related contaminants, implementation of a monitoring program for two (2) locations where monitoring was the VI sampling outcome, and the use of an environmental easement).

Alternatives 3 through 7 would provide more protection than Alternatives 1 and 2, because they include components for specific remedial actions to reduce CVOC groundwater concentrations. Since Alternatives 5 (Single PRB), 6 (Air Sparging and SVE), and 7 (Multiple PRBs) would actively treat the groundwater plume for 30 years, these alternatives would be slightly more protective of human health and the environment than Alternatives 3 (Zero Valent Iron Treatment Injection) and 4 (Groundwater Extraction). However, with the availability of public water, connection of the eleven (11) homes to municipal water, the continued maintenance of 12 subslab depressurization systems (6 Department-installed systems and 6 systems installed where monitoring was the VI sampling outcome), annual notification at the four (4) pre-existing system locations with possible VI sampling to determine whether continued operation is necessary to address site-related contaminants, implementation of a monitoring program for two (2) locations where monitoring was the VI sampling outcome, there is only a slight increase in the overall protectiveness to human health and the environment provided by Alternatives 5, 6, and 7.

Alternatives 1 and 2 would rely on the existing natural processes for CVOC contaminant reduction and to achieve groundwater SCGs with no option for an active remedy to reduce CVOC contamination. It is expected that Alternatives 1 and 2 would not achieve the NYS Class GA Groundwater Standards in the foreseeable future. Alternatives 3 through 7 would rely on active remedial approaches combined with long-term plume monitoring to achieve groundwater SCGs. Since Alternatives 5 (Single PRB), 6 (Air Sparging and SVE), and 7 (Multiple PRBs) would treat the groundwater plume for 30 years, these alternatives are expected to achieve the SCGs more quickly than Alternatives 1 through 4. It should be noted however, that based on the persistent nature of the contaminants and the length of the groundwater plume, it is not expected that Alternatives 1 through 6 would necessarily achieve the groundwater SCGs within the near future (approximately 20 years). Alternative 7, including the installation of multiple PRBs over the length of the groundwater plume, would be the only alternative that would be expected to achieve the SCGs in the near future (approximately 20 years). The indoor air SCGs would be achieved for off-site properties influenced by vapor intrusion through the continued maintenance of the 12 subslab depressurization systems (6 Department-installed systems and 6 systems installed where monitoring was the VI sampling outcome), annual notification at the four (4) pre-existing system locations with possible VI sampling to determine whether continued operation is necessary to address site-related contaminants, along with the implementation of a monitoring program for two (2) locations where monitoring was the VI sampling outcome.

Because Alternatives 2 through 7 satisfy the threshold criteria, the five (5) balancing criteria are particularly important in selecting a final remedy for the Modock Road Springs/DLS Sand and Gravel, Inc. site. With the exception of Alternative 1, long-term plume management monitoring, continued maintenance of 12 subslab depressurization systems (6 Department-installed systems and 6 systems installed where monitoring was the VI sampling outcome), annual notification at the four (4) pre-existing system locations with possible VI sampling to determine whether continued operation is necessary to address site-related contaminants, implementation of a monitoring program for two (2) locations where monitoring was the VI sampling outcome, connection of eleven (11) homes within the plume area to the municipal water supply system, and the environmental easement, are common elements of each alternative. The difference between these six (6) alternatives is the method used to address residual CVOCs in site groundwater. Since each of the alternatives include established technologies that have been applied during cleanup programs, possible short-term impacts on the community, workers, and the environment can easily be controlled using standard work practices and engineering controls during implementation. Since Alternative 7 would involve the installation of four

(4) PRBs perpendicular to the groundwater plume, two (2) of which would be located in the residential area, this alternative would have the greatest short-term impact on the local community. Alternatives 3 through 5 however, would be implemented on a currently undeveloped parcel and would not have significant short-term community impacts. Alternative 1, and possibly Alternative 2, if the long-term plume monitoring demonstrates that CVOC groundwater concentrations continue to decline and the contingency for ZVI injection is not necessary, would not involve an active remedial approach and would therefore not have any short-term impacts on the community.

Alternatives 3 (Zero Valent Iron Treatment Injection), 4 (Groundwater Extraction), 5 (Single PRB), and 6 (Air Sparging and SVE) would be effective in the short-term at reducing groundwater CVOC concentrations within the treatment area but would have minimal short-term effects on groundwater CVOC concentrations outside of the treatment area. With four separate treatment areas, Alternative 7 (Multiple PRBs) would be the most effective alternative in reducing the CVOC concentrations within the entire groundwater plume during the short-term. Alternatives 1 and 2 would be the least effective alternative in the short-term.

The single and multiple PRB alternatives (Alternative 5 and 7 respectively) and air sparging with SVE alternative (Alternative 6) are considered to be more effective in the long-term because groundwater treatment would occur during a 30-year period. The ZVI injection (Alternative 3) and groundwater extraction (Alternative 4) would not be as effective in the long-term because they would not include continued injection of ZVI or long-term operation of a groundwater extraction system during the entire 30-year period.

To be effective for the full 30 year period, the air sparge and SVE system (Alternative 6) would need to be maintained and operated continuously. With an unsaturated zone that is nearly 60 feet thick, there is the potential for incomplete capture and/or treatment of contaminants if heterogeneities or stratified soils are present or if the area of influence of the air sparging wells do not overlap. The potential for incomplete contaminant degradation would need to be evaluated using available data, including those from pilot studies.

The PRB alternatives (Alternative 5 and 7) are more effective and permanent than the air sparging alternative because the integrity of the PRB can be confirmed and a PRB will remain effective longer than other alternatives with no need for additional injections or maintenance of remedial equipment. Bench scale studies indicate that a PRB can remain effective for approximately 30 years. It is however extremely difficult to make adjustments to the orientation of a PRB once installed.

Alternatives 3 through 6 rely on remedial approaches focusing on reducing the toxicity, mobility, and volume of contaminants from the area of highest groundwater CVOC concentrations (Figure 7). The overall toxicity, mobility, and volume of the dissolved-phase CVOC groundwater plume outside of the treatment area for alternatives 3 through 6 would be gradually reduced as a result of natural processes and a decreased flux from the residual contamination area. Only Alternative 7 (multiple PRBs) would significantly reduce the toxicity, mobility, and volume within the entire CVOC groundwater plume. Alternatives 1 and 2 would be the least effective in reducing the toxicity, mobility, and volume of the site contaminants.

As previously mentioned, each of the technologies under consideration is technically feasible. With the exception of Alternative 1 and 2, each alternative would include pre-design studies and/or pilot tests prior to remedy implementation to fully evaluate the feasibility of the selected remedial alternative and to finalize remedy design. Alternatives 3 through 7 are readily implemented using standard construction means and methods. It is expected that Alternative 7 (Multiple PRBs) would be the most difficult alternative to implement because it would involve installation of two (2) of the four (4) PRBs to depths approaching 80 to 100 feet beneath the ground surface and in a residential area. In contrast, Alternatives 3 through 6 would be easier to implement because they would occur on undeveloped property.

The single PRB (Alternative 5) and ZVI injection (Alternative 3) alternatives are less difficult to implement because they are outside of the residential area and capable of reducing groundwater CVOC concentrations while eliminating the need for ex-situ treatment facilities and minimizing disposal issues. The PRB and ZVI injection alternatives do not generate significant waste, so treatment and disposal considerations are negligible. There would be minimal disruptions to site activities during implementation of the PRB and ZVI injection alternatives because no surface structures, other than possibly injection wells, are needed.

In contrast to the PRB and ZVI injection alternatives, the air sparging with SVE and groundwater extraction alternatives would require above-ground structures, ongoing operations, maintenance and monitoring (OM&M), and ex-situ treatment (of extracted groundwater or vapor). As a result of the substantial OM&M efforts required, the groundwater extraction (Alternative 4) and air sparging with SVE (Alternative 6) alternatives would be more difficult than the single PRB or ZVI injection to implement. The air sparging and groundwater extraction alternatives would also require a permanent power supply for the remedial equipment where the PRB and ZVI injection alternatives would not require a sustainable power supply. The groundwater extraction alternative is not preferred because it requires extensive capital costs and infrastructure, may not fully operate during winter months, and is relatively difficult to implement considering the extraction system would only be operated for up to five years.

The multiple PRB alternative (Alternative 7) has the highest capital cost ($25,000,000) but a significantly larger percentage of the dissolved-phase CVOC plume would be remediated if this alternative is implemented relative to the other alternatives. The plume management monitoring (Alternative 2) with contingency for ZVI injection (Alternative 3) is favorable because it has only a slightly higher estimated cost than the groundwater extraction alternative (Alternative 4), but includes a contingency for ZVI injection that would continue to treat the dissolved phase CVOC groundwater plume for approximately five (5) years and that does not require an extensive OM&M program. Other than Alternative 1 which includes no further actions and no costs, Alternative 2 would be the least expensive alternative to implement because it would not include an option for an active remedy to reduce CVOC concentrations. The OM&M costs for air sparging with soil vapor extraction (Alternative 6) are significant, but this alternative has a lower estimated cost than the single or multiple PRB alternatives (Alternatives 5 and 7 respectively). Although the PRB alternatives would have the highest capital costs, there are no OM&M costs other than long-term plume management monitoring. Over a 30 year time period, the single PRB alternative (Alternative 5) is only slightly more expensive than the air sparging with SVE alternative (Alternative 6) but is significantly less expensive than the multiple PRB alternative (Alternative 7) designed to achieve pre-disposal groundwater conditions.

Alternative 2 with a contingency for ZVI injection (Alternative 3) is preferred because it would be implemented quickly and should plume management monitoring indicate that an active remedy is necessary, the ZVI injection would be an effective approach in treating the CVOC groundwater plume for five (5) years. Even with the implementation of an immediate active remedy, as outlined in Alternatives 3 through 6, the CVOC groundwater contamination would persist for an extended period of time because the CVOC groundwater plume currently extends over a length of nearly 7,500 feet. Because of the length of the groundwater plume and since groundwater quality data demonstrate that the CVOC concentrations have been declining under current conditions, the plume management monitoring alternative (Alternative 2) with contingency for zero valent iron injection (Alternative 3) is the preferred alternative.

Protection to human health and the environment is provided under Alternative 2 through the connection of eleven (11) homes to public water, the continued maintenance of 12 subslab depressurization systems (6 Department-installed systems and 6 systems installed where monitoring was the VI sampling outcome), annual notification at the four (4) pre-existing system locations with possible VI sampling to determine whether continued operation is necessary to address site-related contaminants, implementation of a monitoring program for two (2) locations where monitoring was the VI sampling outcome, and the use of an environmental easement. Alternative 2 has a lower cost to implement and with the exception of long-term groundwater monitoring, this alternative does not have OM&M elements common to the groundwater extraction and air sparge and SVE alternatives. Lastly, should plume management monitoring demonstrate that CVOC concentrations are not continuing to decline, the ZVI injection would not require above-ground structures and would not be intrusive to the surrounding rural residential setting of the community. The estimated present worth cost to implement the remedy is $360,000. The capital cost for the first year to implement Alternative 2 is estimated to be $130,000. The estimated average annual costs for 30 years is $11,000.

The elements of the proposed remedy are as follows:

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

2. To evaluate CVOC groundwater concentrations over time and determine the necessity for ZVI injection, a long-term plume management monitoring program would be instituted. The ZVI injection would be contingent on the plume management monitoring showing that groundwater CVOC concentrations are not continuing to decline. The long-term plume management monitoring would include the collection of groundwater samples from within the groundwater plume (both on the Syracusa Sand and Gravel, Inc property and off-site to the north), surface water samples from the Modock Road Springs, and soil vapor samples from areas over the groundwater plume for volatile organic compound analysis. The long-term monitoring would also include continued maintenance of 12 subslab depressurization systems (6 Department-installed systems and 6 systems installed where monitoring was the VI sampling outcome), annual notification at the four (4) pre-existing system locations with possible VI sampling to determine whether continued operation is necessary to address site-related contaminants, along with implementation of a monitoring program for two (2) locations where monitoring was the VI sampling outcome.

3. If the long-term plume management monitoring indicates that enhanced contaminant reduction is necessary, then the ZVI injection contingency would be implemented. If the ZVI injection is necessary, then the northern portion of the Syracusa Sand and Gravel, Inc. property, in the area of highest CVOC concentrations in underlying groundwater, would be cleared and grubbed to provide access for ZVI injection equipment. Over an approximately 400-foot width of the CVOC plume and using multiple direct-push borings, ZVI would be injected into the saturated zone above the low permeability clay unit. Since this remedy requires no permanent above ground structures, the treatment area and surrounding area would be restored in cooperation with the property owner.

4. Eleven (11) homes within the investigation area are currently relying on domestic water supply wells. These homes would be connected to the Town of Victor municipal water supply system. Connection of the eleven (11) homes to municipal water would eliminate the need for continued routine sampling of domestic water supply wells within the investigation study area.

5. Imposition of an institutional control in the form of an environmental easement at the Syracusa Sand and Gravel, Inc. property that would require (a) compliance with the approved site management plan; (b) restricting the use of groundwater as a source of potable water, without necessary water quality treatment as determined by NYSDOH; and (c) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

6. Development of a site management plan, including periodic reviews, for the Syracusa Sand and Gravel, Inc. property which would include the following institutional and engineering controls: (a) continued evaluation of the potential for vapor intrusion for any buildings developed on the

site, including provision for mitigation of any impacts identified; (b) monitoring of site groundwater, surface water, and soil vapor; (c) identification of any use restrictions on the site; and (d) provisions for the continued proper operation and maintenance of the components of the remedy.

7. The property owner for the site would provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner for the site in writing that this certification is no longer needed. This submittal would: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that would impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

8. The operation of the components of the remedy would continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

9. Since the remedy results in untreated hazardous waste remaining at the site, the long-term plume management monitoring program would be continued. This program would be implemented to determine the need for an initial ZVI injection, to evaluate the effectiveness of the ZVI injection, to allow for the consideration of subsequent ZVI injections, and would be a component of the long-term management for the site. The long-term plume management monitoring would include the collection of groundwater samples from within the groundwater plume, surface water samples from the Modock Road Springs, and soil vapor samples from areas over the groundwater plume for volatile organic compound analysis. The long-term monitoring would also include the continued maintenance of 12 subslab depressurization systems (6 Department-installed systems and 6 systems installed where monitoring was the VI sampling outcome), annual notification at the four (4) pre-existing system locations with possible VI sampling to determine whether continued operation is necessary to address site-related contaminants, and implementation of a monitoring program for two (2) locations where monitoring was the VI sampling outcome.

TABLE 1
Nature and Extent of Contamination
February 2007 - February 2009

SHALLOW SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Trichloroethene	nd	0.47	0 of 15
	1,1,1-Trichloroethane	nd	0.68	0 of 15
	1,1-Dichloroethene	nd	0.33	0 of 15

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Trichloroethene	nd - 0.990	0.470	2 of 89
	1,1,1-Trichloroethane	nd - 0.100	0.680	0 of 89
	1,1-Dichloroethene	nd - 0.018	0.330	0 of 89

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Trichloroethene	nd - 2,300	5	36 of 91
	1,1,1-Trichloroethane	nd - 330	5	30 of 91
	1,1-Dichloroethene	nd - 55	5	15 of 91
	1,1-Dichloroethane	nd - 11j	5	1 of 91
	1,1,2-Trichloroethane	nd - 8j	1	1 of 91
	Tetrachloroethene	nd - 7j	5	2 of 91
Inorganic Compounds	Iron	76.2 - 200	300	1 of 4
	Magnesium	4,700 - 35,400	20,000	1 of 4
	Sodium	2,200 - 94,600	20,000	1 of 4

SURFACE WATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Trichloroethene	nd - 110	40	6 of 19
	1,1,1-Trichloroethane	nd - 42	NS	NA
	1,1-Dichloroethene	nd - 10	NS	NA

TABLE 1 (Continued)
Nature and Extent of Contamination
February 2007 - February 2009

SOIL VAPOR	Contaminants of Concern	Concentration Range Detected (µg/m³)[a]	SCG[b] (µg/m³)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Trichloroethene	nd - 1,700	NS	NA
	1,1,1-Trichloroethane	nd - 5,900	NS	NA
	1,1-Dichloroethene	nd - 1,100	NS	NA

AIR	Contaminants of Concern	Concentration Range Detected (µg/m³)[a]	SCG[b] (µg/m³)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Trichloroethene	nd - 12	5	6 of 169
	1,1,1-Trichloroethane	nd - 74	NS	NA
	1,1-Dichloroethene	nd - 14	NS	NA

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
ug/m³ = micrograms per cubic meter

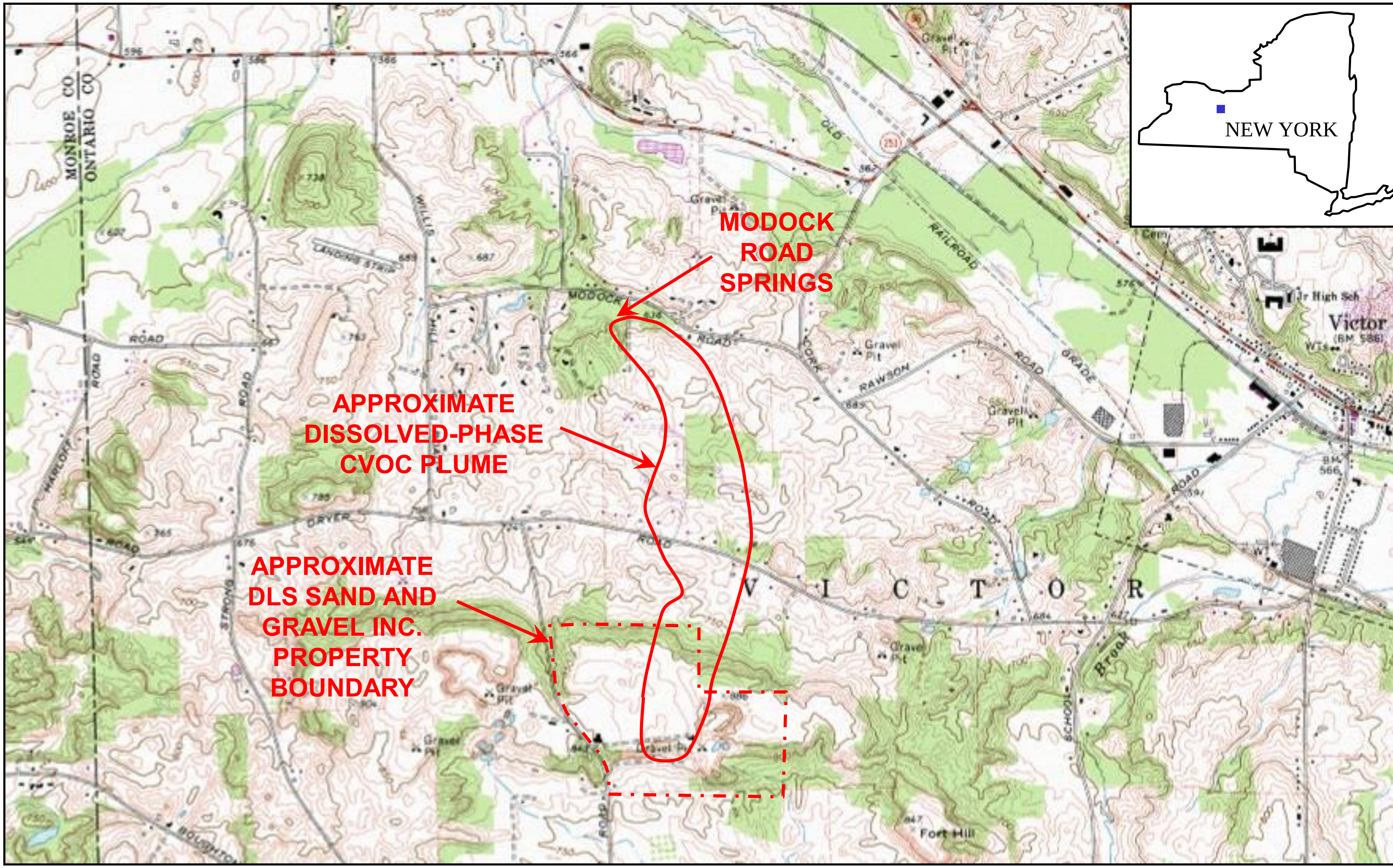
[b] SCG = standards, criteria, and guidance values;

1. Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.
2. Soil SCGs are based on the Department's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels.") and 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives.
3. Concentrations of VOCs in air were evaluated using the air guidelines provided in the NYSDOH guidance document titled "Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. Specifically, the subslab soil vapor and indoor air data were compared to Soil Vapor/Indoor Air Matrix 1 for TCE, carbon tetrachloride, and vinyl chloride and Soil Vapor/Indoor Air Matrix 2 for PCE, 1,1-dichloroethene, cis-1,2-DCE, and 1,1,1-trichloroethane.

ND = Compound Not Detected
NS = SCG Not Specified for this compound
NA = Not Applicable
SB = Site Background

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1 - No Further Action	$0	$0	$0
Alternative 2 - Plume Management Monitoring	$130,000	$11,000	$360,000
Alternative 3 - Zero Valent Iron Treatment Injection in the Area of Highest Groundwater CVOC Concentrations combined with Plume Management Monitoring	$1,100,000	$11,000	$1,400,000
Alternative 4 - Groundwater Extraction in the Area of Highest Groundwater CVOC Concentrations Combined with Plume Management Monitoring	$810,000	$85,000 (years 0 - 5)	$1,300,000
Alternative 5 - Permeable Reactive Barrier combined with Plume Management Monitoring	$3,200,000	$11,000	$3,400,000
Alternative 6 - Air Sparging with Soil Vapor Extraction combined with Plume Management Monitoring	$1,500,000	$90,000	$2,900,000
Alternative 7 - Permeable Reactive Barriers for Restoration to Achieve Pre-Disposal Conditions	$25,000,000	$11,000	$26,000,000



MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC SERIES, VICTOR QUADRANGLE (PHOTOREVISED 1978)

APPROXIMATE SCALE IN FEET

0 1200 2400 4800

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION

PROPOSED REMEDIAL ACTION PLAN

WORK ASSIGNMENT # D-004439 - 9

MODOCK ROAD SPRINGS/DLS SAND AND GRAVEL, INC. SITE (HW 8-35-013)
VICTOR, NEW YORK

FIGURE 1
SITE MAP

MALCOLM PIRNIE

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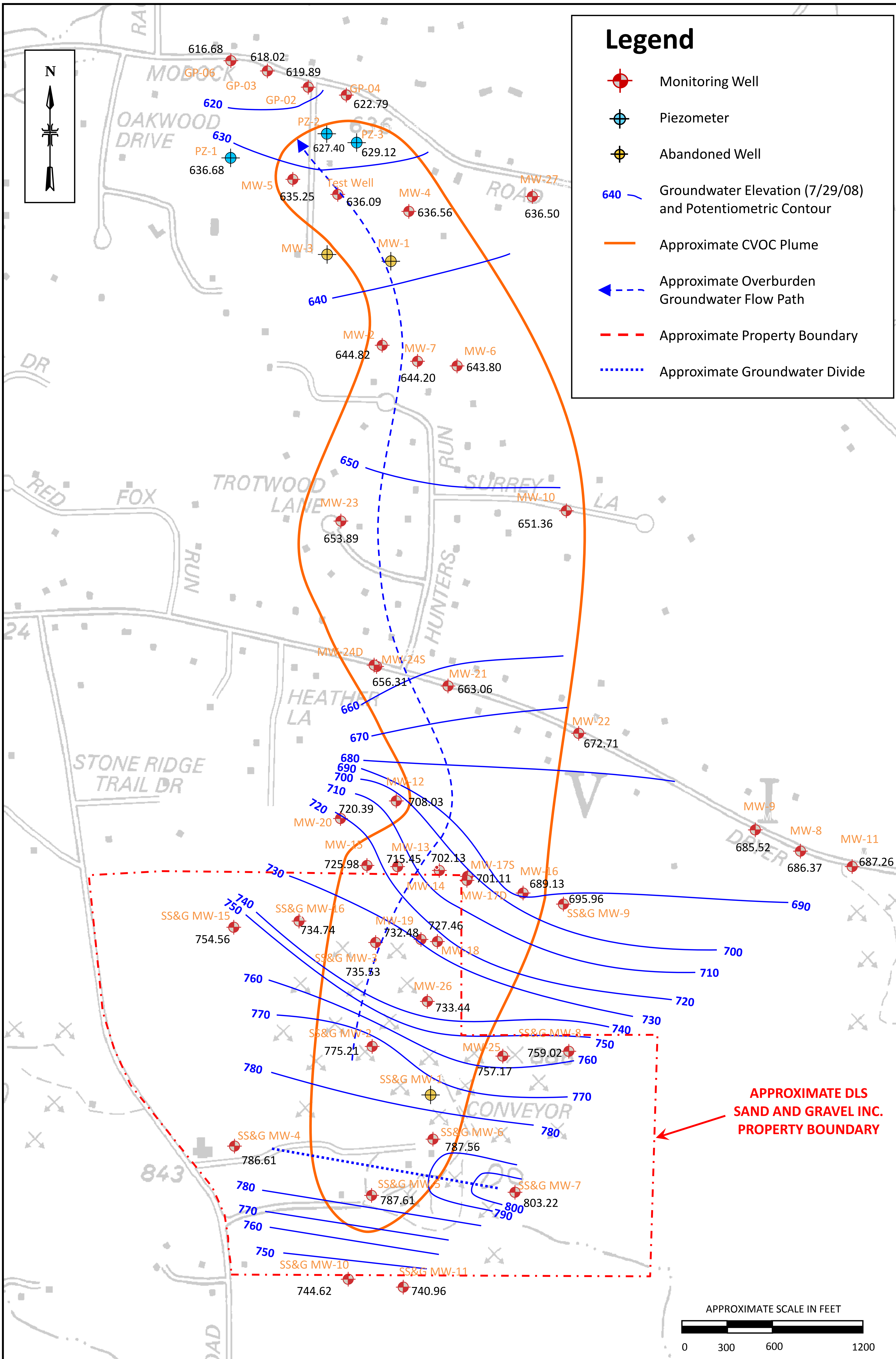
M:\GISMOD\0266353\MRS Monitoring Wells.mxd

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
WORK ASSIGNMENT # D-004439-9

MODOCK ROAD SPRINGS/DLS SAND AND GRAVEL, INC. SITE (HW 8-35-013)
TOWN OF VICTOR, ONTARIO COUNTY, NEW YORK
FIGURE 2
SITE AND MONITORING WELL LOCATIONS

MALCOLM PIRNIE



Basemap source: NYSDOT Quadrangle

F:\PROJECT\0266361\FILE\Groundwater\Potentiometric Maps.pptx

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION DIVISION OF ENVIRONMENTAL REMEDIATION

PROPOSED REMEDIAL ACTION PLAN

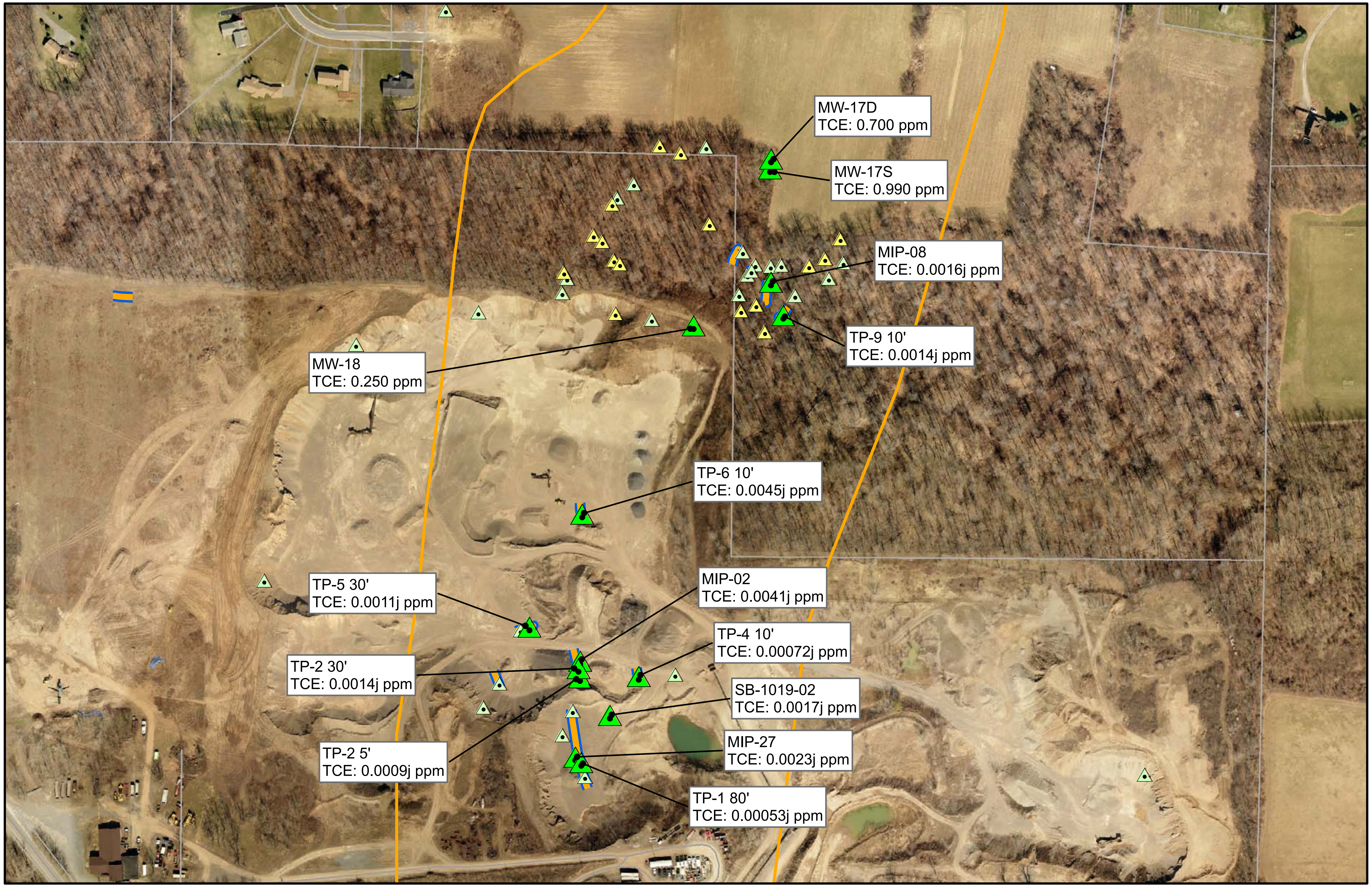
WORK ASSIGNMENT # D-004439 - 9

MODOCK ROAD SPRINGS/DLS SAND AND GRAVEL, INC. SITE (HW 8-35-013)
TOWN OF VICTOR, ONTARIO COUNTY, NEW YORK

FIGURE 3

JULY 2008 POTENTIOMETRIC CONTOUR MAP

MALCOLM PIRNIE



New York State
Department of Environmental Conservation

Division of Environmental Remediation

Map Details

Created in ArcGIS 9.0

Created by J. Pelton

Date of Last Revision: 5/14/2009

April 2003 Aerial Photography

UNAUTHORIZED DUPLICATION
IS A VIOLATION OF APPLICABLE LAWS

Legend

- Subsurface Soil with TCE Detections
- Subsurface Soil with no TCE Detections
- Membrane Interface Probe Locations
- Test Pit/Trench Locations
- Approximate Plume Boundaries
- Town of Victor Parcels
- Local Streets

N
W E
S

North American Datum 1983
UTM Zone 18N

FIGURE 4
Subsurface Soil Sampling Locations & TCE Detections

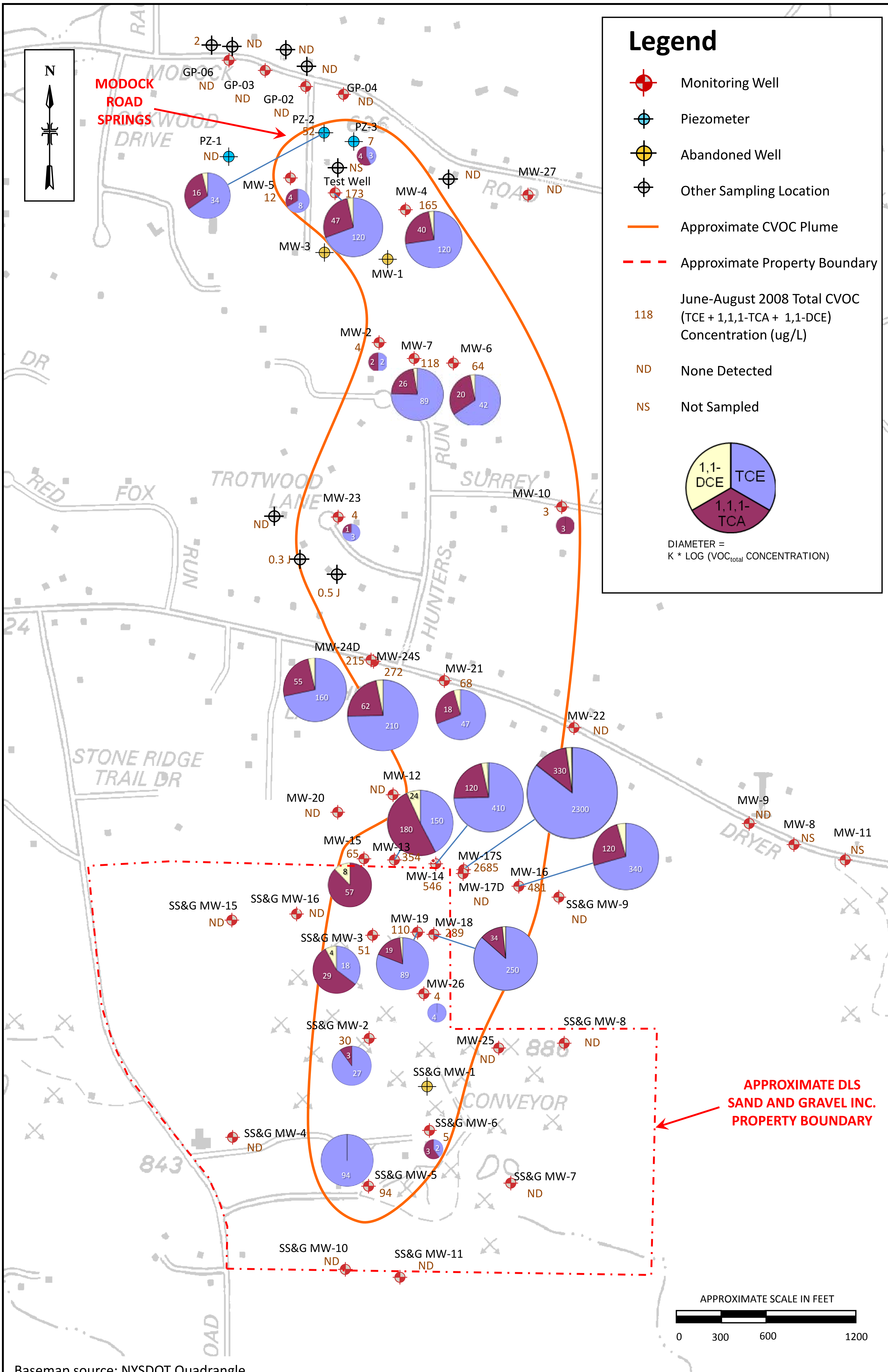
300 150 0 300 600
Feet

Modock Road Springs/DLS
Sand & Gravel, Inc. Site
Project ID #: 8-35-013

Ontario County
Town of Victor

Proposed Remedial Action Plan

Figure illustrating source characterization sampling locations and TCE detection locations.



NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
PROPOSED REMEDIAL ACTION PLAN
WORK ASSIGNMENT # D-004439 - 9

MODOCK ROAD SPRINGS/DLS SAND AND GRAVEL, INC. SITE (HW 8-35-013)
TOWN OF VICTOR, ONTARIO COUNTY, NEW YORK

FIGURE 5

JUNE-AUGUST 2008 GROUNDWATER TOTAL VOC CONCENTRATIONS

MALCOLM PIRNIE

H:\PROJECT\0266361\FILE\Groundwater\Bubble Plot.pptx

Basemap source: NYSDOT Quadrangle

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF ENVIRONMENTAL REMEDIATION
PROPOSED REMEDIAL ACTION PLAN
WORK ASSIGNMENT # D-004439 - 9

MODOCK ROAD SPRINGS/DLS SAND AND GRAVEL, INC. SITE (HW 8-35-013)
TOWN OF VICTOR, ONTARIO COUNTY, NEW YORK

FIGURE 6

VAPOR INTRUSION SAMPLING LOCATIONS

MALCOLM PIRNIE

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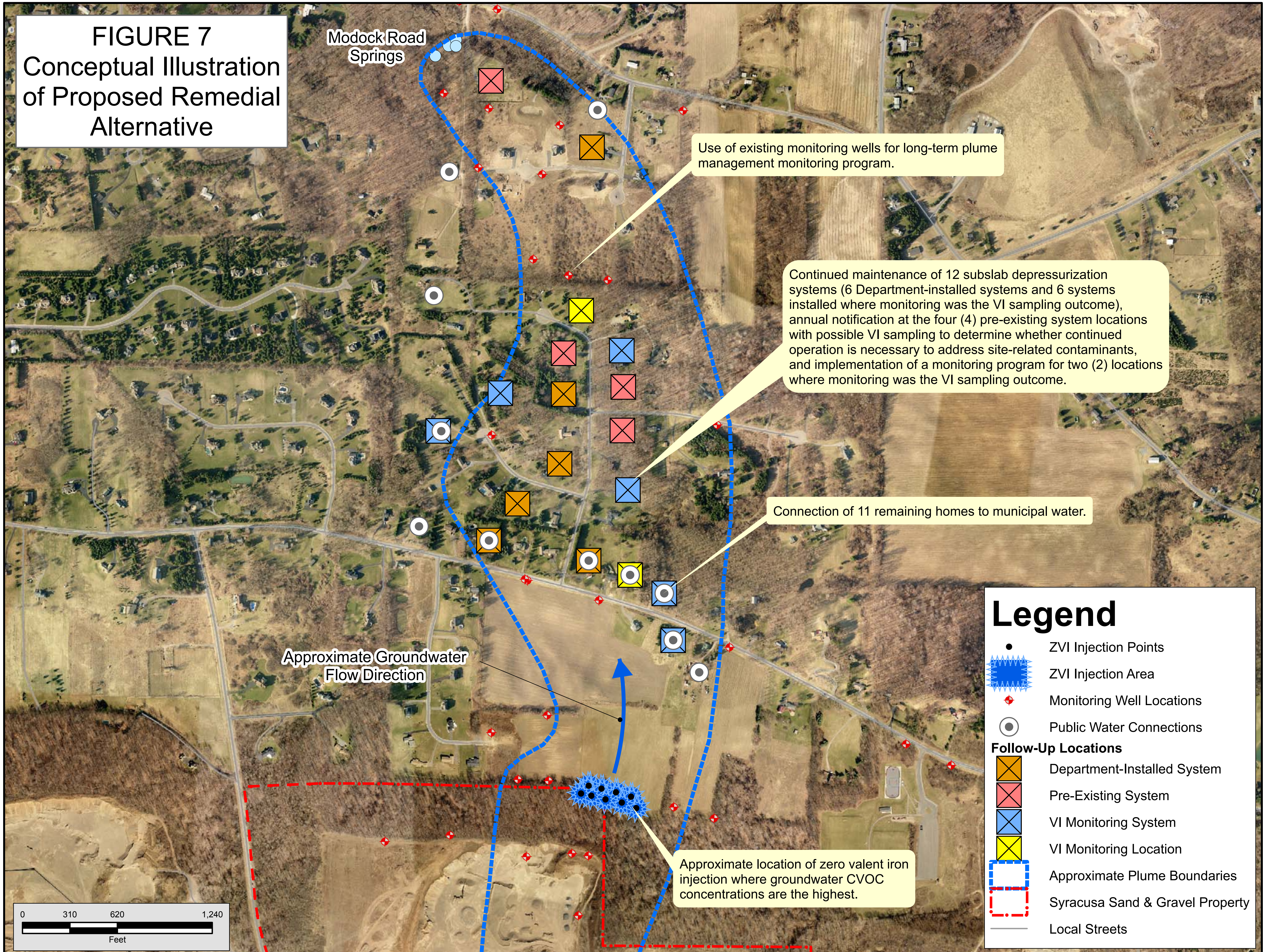

FIGURE 7
Conceptual Illustration of Proposed Remedial Alternative

New York State
Department of Environmental Conservation

Division of Environmental Remediation

Map Details

Created in ArcGIS 9.1

Created by J. Pelton

Date of Last Revision: 9/18/2009

Modock Road Springs/
DLS Sand & Gravel, Inc.
Site
Site # 8-35-013

Ontario County
Town of Victor

DEC Contact:
J. Pelton

DOH Contact:
K. Anders

Spring 2003
Aerial Photography

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North American Datum 1983
UTM Zone 18N