PROPOSED REMEDIAL ACTION PLAN
Pappas Dry Cleaners
Operable Unit No. 1
Dansville, Livingston County, New York
Site No. 826018

February 2009

Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

PROPOSED REMEDIAL ACTION PLAN

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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 Pappas Dry Cleaners, OU-1, on-site soil and groundwater. The presence of hazardous waste has created significant threats to human health and the environment that are addressed by this proposed remedy. As more fully described in Sections 3 and 5 of this document, improper disposal of dry cleaning solvents have resulted in the disposal of hazardous wastes, including volatile organic compounds (VOCs). These wastes have contaminated the soil, groundwater and soil vapor at the site, and have resulted in:

- a significant threat to human health associated with current and potential exposure to tetrachloroethene (PCE) vapors impacting indoor air quality;

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

To eliminate or mitigate these threats, the Department proposes the demolition of the abandoned on-site building, excavation of PCE contaminated soil at concentrations greater than 1.3 ppm, treating the groundwater during excavation and the transportation and off-site disposal of contaminated soil and building debris.

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 August, 2008 "Remedial Investigation (RI) Report, Operable Unit 1", the August, 2008 "Feasibility Study, Operable Unit 1", and other relevant documents. The public is encouraged to review the project documents, which are available at the following repositories:

Dansville Public Library
200 Main Street
Dansville, New York 14437
(585) 335-6720
Monday - Friday 10:00 am – 8:30 pm
Saturday- 12Noon to 4:00 pm
Sunday - Closed

Matthew Dunham, PE
NYSDEC – Central Office
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7017
1-888-459-8667 (Toll Free)
By Appointment Only

Lisa LoMaestro Silvestri
Citizen Participation Specialist
NYSDEC – Region 8
6274 E Avon-Lima Road
Avon, New York 14414-9519
(585) 226-5326
By Appointment Only

The Department seeks input from the community on all PRAPs. A public comment period has been set from February 27, 2009 through March 27, 2009 to provide an opportunity for public participation in the remedy selection process. A public meeting is scheduled for March 12, 2009 at the Dansville Fire Hall beginning at 6:30 pm.

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. Dunham at the above address through March 27, 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 site is located at 44, 46 Ossian Street in the Village of Dansville, Livingston County, New York (Figure 1). The site is situated on a .44 acre lot in a primarily residential area with some commercial uses along Ossian Street. The property consists of a paved/gravel driveway and an abandoned building that was the location of the former dry cleaner. A commercial property located northwest of the Pappas' property, at 50 Ossian Street, is the location of the New York State Electric and Gas (NYSEG) – Dansville Former Manufactured Gas Plant (MGP) Site, Site No. 8-26-012 (Figure 2). The MGP Site is currently being addressed under a consent order, with the Department, as a separate and downgradient source of soil and groundwater contamination. A Record of Decision was issued in March, 2008 for the adjacent MGP site.

Operable Unit (OU) No. #1, which is the subject of this document, consists of the on-site soil and groundwater at Pappas Dry Cleaners property. An operable unit represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. The remaining operable unit for this site is: OU-2, which is off-site groundwater and soil vapor. Some of the investigation and remedial activities associated with OU-2 have already been initiated, including the sampling of off-site groundwater and the implementation of mitigation actions to address exposures associated with soil vapor intrusion. Additional off-site investigations and the remedy for OU-2 will be addressed in a decision document to be released for the public's review in the future.

The geology beneath the site was evaluated through investigation data collected on-site and data from the MGP site investigation. Site geology consist of a mixture of sandy-silt, gravel, cobbles, rock fragments and other debris to thirteen feet below ground surface. At eleven to thirteen a confining clay unit is encountered beneath the site. This clay unit limits the potential for downward migration of the contamination from the soil and groundwater. Shallow groundwater is present between nine and thirteen feet below the ground surface. Groundwater flow is to the northwest towards the MGP site.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

This site operated as a dry cleaning business which serviced various commercial and residential customers from 1952 until 2002 when operations ceased. It appears that PCE was disposed of at the rear of the original site building.

3.2: Remedial History

In 2006, during their investigation of the former MGP site, under a consent order with the Department, NYSEG collected groundwater samples on the Pappas' Property. Chlorinated VOCs were detected in the groundwater samples at levels above Class GA groundwater standards on the Pappas' property.

In 2006, using data from NYSEG's investigation, 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.

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: Pappas Bros., Inc. The PRPs declined to implement the work at the site when requested by the Department. 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 May 2007 and January 2008. The field activities and findings of the investigation are described in the RI report.

The field program included a detailed evaluation of the area surrounding and within the site buildings, as well as the areas downgradient from the site. It included:

- Sub-slab vapor and indoor air sampling to evaluate the potential for vapor migration.
- Direct-push soil sampling based on data obtained from previous investigations to evaluate potential and known source areas and characterize the vertical distribution of contaminants in soil.
- Installation of an upgradient monitoring well and downgradient monitoring wells to provide additional groundwater analytical data and permanent groundwater monitoring points.
- Groundwater sampling of new wells and existing wells to evaluate groundwater conditions and provide data for OU-2.
- Direct push soil vapor sampling at locations selected based on results of passive soil vapor sampling to evaluate the potential for vapor migration at additional locations.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil, groundwater, and soil vapor contains 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 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. Matrix 2 was referenced for PCE guidelines and Matrix 1 was referenced for trichloroethene (TCE) guidelines.

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

5.1.2: Nature and Extent of Contamination

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

As described in the RI report, many soil, groundwater and soil vapor samples were collected to characterize the nature and extent of contamination. As seen in Figures 3 and 5 and summarized in Table 1, the main categories of contaminants that exceed their SCGs are VOCs and semivolatile organic compounds (SVOCs). 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 ($\mu g/m^3$).

Figure 3 and 5 and Table 1 summarizes the degree of contamination for the contaminants of concern in and compares 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.

Subsurface Soil

A total of 39 soil borings (Figure 3) were advanced within the footprint of the on-site structure and the areas immediately to the north and west of the structure. One soil boring was installed at a location to the southeast of the structure to provide background soil analytical results. A total of 21 soil borings were installed within the structure beneath the sub-slab foundation, 7 soil borings in the area west of the structure, 10 soil borings in the area north of the structure, and 1 to the southeast of the structure.

Soil borings SB-01 through SB-38 were advanced until the confining clay unit was encountered. Shallow subsurface soil samples (1-2 ft) were collected from each of the 39 soil borings except for SB-01-2008 (8-26-018-SB-01-2008). One additional deep sample was collected from the remaining soil column, with the exception of SB-01 where two deep samples were collected.

VOCs were detected above the SCG in subsurface soil samples (below 1 ft bgs) at approximately 74 percent of the soil boring locations and 62.8 percent of the VOC samples submitted for laboratory analysis. The most prevalent compounds detected above the SCGs included PCE, TCE, cis-1,2-DCE, and trans-1,2-DCE. Detection of PCE ranged from 0.022 ppm at SB-23(9-10 ft bgs) to 620 ppm at SB-19(1-2 ft bgs). Detection results for TCE ranged from 0.0071 ppm at SB- 23 (1-2 ft bgs) to 650 ppm at SB-24 (7-9 ft bgs).

Visible staining and sheen impacts were observed at several of the soil borings and DNAPL was observed at the top of the confining clay unit in two soil borings beneath the building floor.

The low level detections of SVOCs above SCGs were located along the eastern and northern perimeter of the site. The eastern and northern portion of the site is bounded by the MGP site and it is likely that these detections are a result of past operations at the MGP site.

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

Groundwater

On-site groundwater samples were collected from two locations around the site building by NYSEG during their investigation of the adjacent MGP site. An additional nine groundwater samples were collected by Pappas Bros., Inc at locations both inside and outside the abandoned on-site building.

Shallow on-site groundwater has been impacted by PCE and its breakdown products related to the former dry cleaner. The highest concentrations of contamination were found on the northwest side of the property between the on-site build and the MGP property. PCE was found in ten of the eleven on-site wells ranging from non-detect to 15,200 ppb. TCE was found in six of the eleven on-side wells ranging from non-detect to 20,800 ppb.

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

Soil Vapor/Sub-Slab Vapor/Air

A sampling program consisting of sub-slab vapor sampling and/or indoor air sampling of numerous structures downgradient of the Pappas' property was performed to evaluate the potential for vapor intrusion into the structures. A total of 58 locations were offered the opportunity to participate and of these 20 volunteered to participate. Analytical sampling results were compared to NYSDOH Guidelines.

Soil vapor and indoor air contamination identified during the RI/FS were addressed during the IRM 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.

The Department installed sub-slab depressurization systems in off-site residences to address human exposures (via inhalation) to site-related contaminants associated with soil vapor intrusion. The Department will maintain and monitor these systems as part of the investigation and remediation activities for OU-2.

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 5 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 surrounding area is served by public water and the majority of the site is paved or covered by the on-site structure. Therefore, exposure to drinking contaminated groundwater or exposures to contaminated sub-surface soil is not likely. The Department and NYSDOH have investigated and evaluated exposures related to soil vapor intrusion in residences off-site, and actions have been taken to minimize future exposures to occur.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands. The site is located in a residential/commercial area of the Village Dansvile. There are no fish or wildlife receptors present. Site contamination has impacted the groundwater resource in the unconsolidated geologic unit beneath the site and downgradient of the site (Figures 4 & 5).

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 VOCs in indoor air;
- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards; and

- the release of contaminants from the subsurface soil and groundwater into indoor air through soil vapor intrusion.

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

- ambient groundwater quality standards and

- implementation of the soil clean up objectives based on 6 NYCRR Subpart 375-6, Remedial Program Soil Cleanup Objectives, Table 375-6.8(b), Protection of Groundwater.

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 Pappas Dry Cleaners 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 soil and groundwater at the site.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. It requires deed restrictions and institutional controls only, allowing the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment. There are no costs associated with this alternative.

Alternative 2: Soil Excavation and Off-Site Disposal

Present Worth: *$2,376,000*

Capital Cost: *$2,226,000*

Present Worth Annual Monitoring:
(Years 1-5): *$150,000*
(Years 5-30): *$0*

This alternative (Figure 6) is an aggressive approach to remediating the site aimed at removing the contaminated soil and treating the groundwater on the site. This alternative includes the demolition of the abandoned Pappas Dry Cleaners building, installation of temporary sheet piling, excavation of approximately 3650 cubic yards of contaminated soils above and below the water table to the subsurface confining layer, dewatering and treating the groundwater during excavation and the removal and disposal of any underground storage tanks encountered during the excavation. A demolition survey would be conducted prior to the demolition of the building to identify possible hazardous materials (i.e., asbestos, lead paint) in the building. Utility lines would be capped prior to the demolition. Confirmation sampling for VOCs and PAHs would be conducted during excavation activities, with analytical results verifying attainment of remediation goals. Following contaminated soil removal, excavated areas would be backfilled with fill from an approved source per the allowable constituent levels for imported fill or soil found in Appendix 5A of NYSDEC DER-10. Excavated soil would be sampled for characterization prior to transportation for off-site treatment and/or disposal.

Alternative 3: Soil Vapor Extraction and In-Situ Chemical Treatment

Present Worth:.....*$2,613,000*

Capital Cost:.....*$923,000*

Present Worth Annual O&M:
Years 1-10:.....*$1,049,000*
Present Worth Annual Monitoring:
(Years 1-30):.....*$641,000*

This alternative (Figure 7) includes installation of a soil-vapor extraction (SVE) system, multiple in-situ chemical injections, long-term environmental monitoring to evaluate the effectiveness of the treatment system and injections, locate and remove any on-site underground storage tanks and the implementation of institutional controls to limit site use and site access. A pre-design investigation would be conducted to develop design parameters that would include a SVE pilot test and bench scale tests to determine the in-situ chemical product and application rate.

Soil vapor extraction (SVE) would be implemented to address soil contamination in the unsaturated zone. Long term system monitoring would be required to establish baseline concentrations of VOC vapors extracted by the SVE system, and to allow for monitoring of system performance over time. The effectiveness and performance of the SVE system would be evaluated over time, including preparation of periodic reports presenting concentration trends and discussion of system performance.

Treatment of the saturated soil and groundwater would be implemented using in-situ chemical treatment, either chemical oxidation or chemical reduction depending on the results of the bench and pilot scale tests. Depending on the contact time chemical oxidants are capable of converting the VOC mass to a non-toxic compound; however multiple treatments will be required.

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-Effectiveness. 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, Soil Excavation and Off-Site Disposal as the remedy for this site. The elements of this remedy are described at the end of this section.

The proposed remedy is based on the results of the RI and the evaluation of alternatives presented in the FS.

Alternative 2 is being proposed because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It would achieve the remediation goals for the site by removing the soils and treating the groundwater that create a significant threat to public health and the environment, it would remove the source of contamination to the on-site groundwater, and it would eliminate the continued migration of on-site contaminates to the off-site area.

Alternative 1 does not include any remedial actions to remove contamination or to prevent the leaching of contamination to the groundwater; therefore Alternative 1 will not be in compliance with New York State Standards, Criteria, and Guidance (SCGs). Because Alternative 1 does not satisfy the threshold criteria it will not be selected as a final remedy for this site.

Alternative 3 does satisfy the threshold criteria; therefore the five balancing criteria are particularly important in selecting a final remedy for the site.

Alternative 2 (Excavation/Off-site Disposal) and Alternative 3 (Soil Vapor Extraction and In-Situ Chemical Treatment) both have short-term impacts which can easily be controlled. The time needed to achieve the remediation goals would be longest for Alternative 3 and would require a deed restriction and long term operation, maintenance and monitoring.

Achieving the best long-term effectiveness and permanence is accomplished by removal of the source material. Alternative 2 would result in the removal of almost all of the source material and treating the groundwater at the site and therefore greatly reducing the mobility and volume of the contaminants at the site. Approximately 3,650 cubic yards of material would be removed with Alternative 2.

Alternative 3 would help to reduce the mobility of contaminants, but this reduction is dependent upon the long-term operation, maintenance and monitoring of the treatment system and multiple chemical injections over a number of years. Only Alternative 3 would reduce the volume of contaminants by chemical/physical treatment.

Alternative 2 is favorable in that it is readily implementable. Additional sampling, testing and monitoring will be required to gauge the implementability of Alternative 3.

The proposed remedy must also take into consideration the proximity of the MGP site. In order for the remedial work to move forward at the MGP site, in a timely manner, the contamination at Pappas site must first be addressed. Alternative 2 is an aggressive, alternative that will take months to complete rather than years. This will allow the work at the MGP site to move forward without concerns of the Pappas Site re-contaminating the MGP site.

The cost of Alternative 2 is less than Alternative 3. The Department is proposing Alternative 2 because it is a more aggressive approach to remediating the contaminated soils and groundwater at the site. Alternative 2 is a permanent remedy that will eliminate most of the continuing source of groundwater contamination at the site. Because this alternative includes removal of the source of contamination and treating of the groundwater on-site, it is expected to result in a shorter time frame to achieve remedial action objectives and provide long-term protection of human health and the environment.

Based on the above the Department is proposing Alternative #2, Soil Excavation and Off-Site Disposal. The estimated present worth cost to implement the remedy is $ 2,376,000. The cost to construct the remedy is estimated to be $2,226,000 and the estimated present worth average annual costs for 5 years is $150,000. All cost associated with off-site groundwater monitoring and remediation are part of OU2.

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 and monitoring of the remedial program.

2. Demolition of the abandoned Pappas Dry Cleaners building, excavation of on-site PCE contaminated soil at concentrations greater than 1.3 ppm, dewatering and treating the groundwater during excavation, backfilling of the excavation and the transportation of debris and contaminated soils to an off-site treatment and/or disposal facility.

3. Imposition of an institutional control in the form of an environmental easement that would require compliance with the approved site management plan.

4. Development of a site management plan which would include institutional and engineering controls for the monitoring of on-site groundwater and, if necessary the restriction of the use of on-site groundwater as a source of potable water.

5. The property owner 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 in writing that this certification is no longer needed. This submittal would allow the Department access to the site.

Table #1
Nature and Extent of Contamination

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic	Tetrachloroethene	0.013 - 1570	1.3	45/78
Compounds (VOCs)	Trichloroethene	0.0062 - 650	0.47	21/78
Semivolatile Organic	Benzo(a)anthracene	0.084 – 1.8	1.0	4/9
Compounds (SVOCs)	Chrysene	0.079 – 1.8	1.0	4/9

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic	Tetrachloroethene	ND – 15,200	5.0	10/11
Compounds (VOCs)	Trichloroethene	ND – 20,800	5.0	6/11
	Vinyl Chloride	ND – 899	2.0	2/11

AIR	Contaminants of Concern	Concentration Range Detected (µg/m^3)[a]	SCG[b] (µg/m^3)[a]	Frequency of Exceeding SCG
Volatile Organic	Tetrachloroethene	ND – 940	NA	NA
Compounds (VOCs)	Trichloroethene	ND – 96	NA	NA
Indoor Air				

[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/m^3 = micrograms per cubic meter

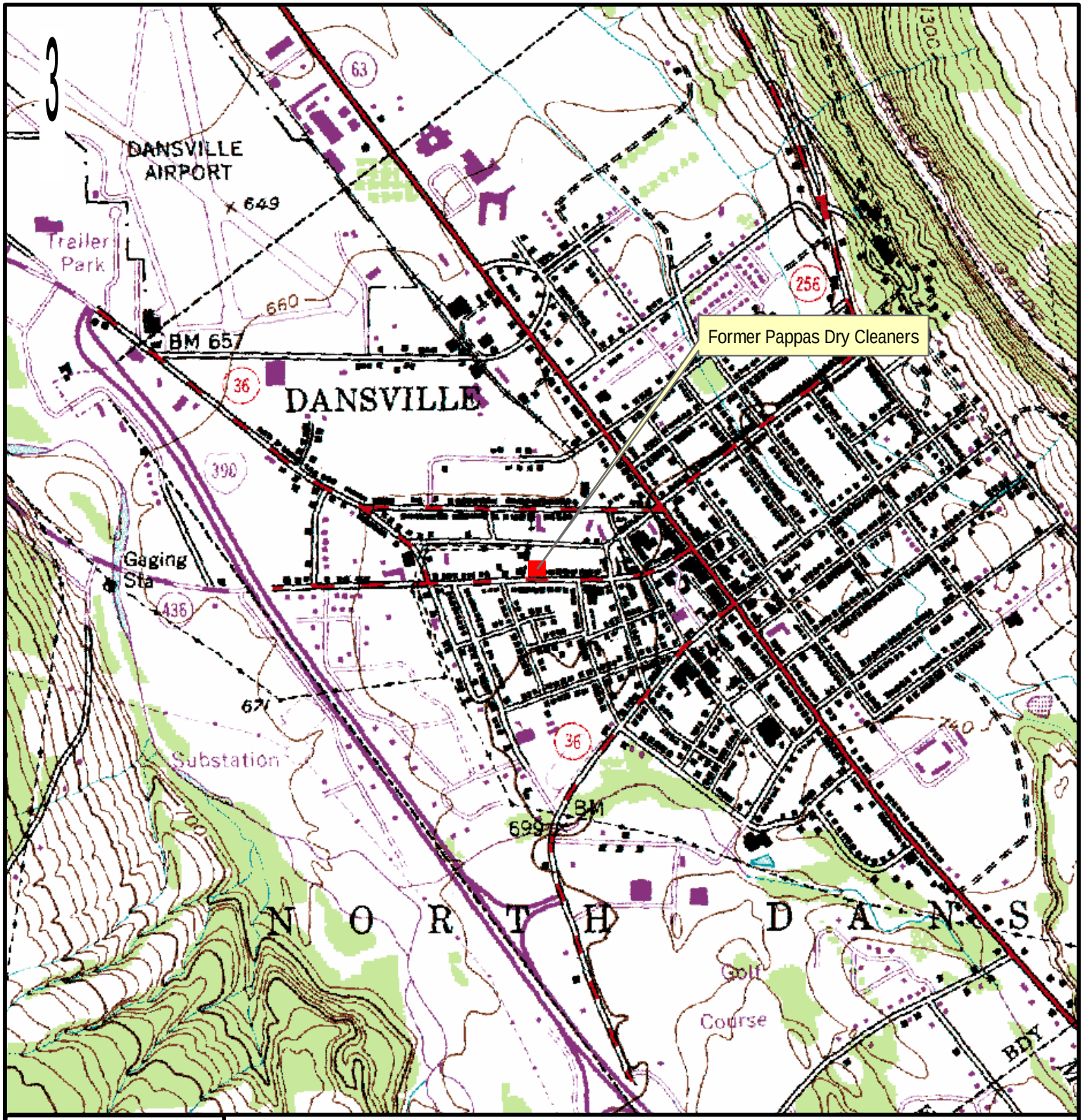
[b] SCG = standards, criteria, and guidance values;
ND = Non Detect

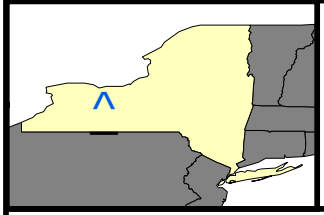
Soil clean up objectives based on 6 NYCRR Subpart 375-6, Remedial Program Soil Cleanup Objectives, Table 375-6.8(b), Protection of Groundwater.

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. Matrix 2 was referenced for PCE guidelines and Matrix 1 was referenced for TCE guidelines.

Table #2
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Present Worth Annual Costs ($)	Total Present Worth ($)
#1 - No Action	$0.00	$0.00	$0.00
#2 - Excavation/Off-Site Disposal	$2,226,000	Annual Monitoring Years 1-5: $150,000	$2,376,000
#3 - SVE/Chemical Treatment	$923,000	Annual O&M Years 1-10: $1,049,000 Annual Monitoring Years 1-30: $641,000	$2,613,000





Legend

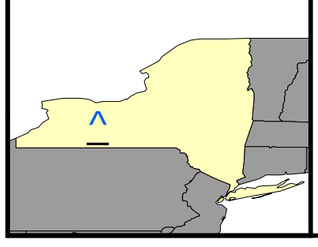
Former Pappas Drycleaners

0 0.05 0.1 0.2 0.3 0.4 Miles

FORMER PAPPAS CLEANERS SITE (8-26-018)
REMEDIAL INVESTIGATION REPORT
DANSVILLE, NEW YORK

FIGURE 1
USGS Topographic Map

PROJECT MGR:	DESIGNED BY:	CREATED BY:	CHECKED BY:	SCALE:	DATE:	PROJECT NO:	FILE NO:
JCH	CJS	DCC	RSC	AS SHOWN	MAY 2008	14368.08	...GIS/PROJECTS/ FIGURE6-1.MXD



Legend

- Approximate Site Boundary
- Approximate Site Boundary - NYSEG
- Major Roadway
- Arterial Roadway

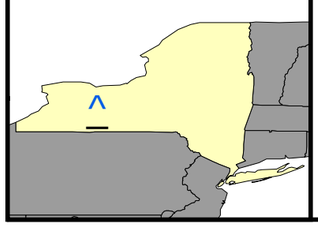
Source: NYS GIS Clearing House

FORMER PAPPAS DRY CLEANERS (8-26-018)
REMEDIAL INVESTIGATION
DANSVILLE, NEW YORK

FIGURE 2
Site Map 2

Feet
0 30 60 120 180 240

PROJECT MGR: JCH	DESIGNED BY: CJS	CREATED BY: RSC	CHECKED BY: RSC	SCALE: AS SHOWN	DATE: JANUARY 2008	PROJECT NO: 14368.08	FILE NO: GIS/PROJECTS/ FIGURE3.MXD



Legend

Total Volatile Organic Compounds

- <5.00 mg/kg
- 5 - 50 mg/kg
- 50 - 150 mg/kg
- 150 - 250 mg/kg
- 250 - 700 mg/kg

Source: NYS GIS Clearing House

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DANSVILLE, NEW YORK

FIGURE 3
Total Volatile Organic Compounds (VOCs) in Subsurface Soil Samples from Soil Borings

Feet
0 5 10 20 30 40

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Source: NYS GIS Clearing House

Legend

- Monitoring Wells
  MW-01 (654.3) - Site ID/(Groundwater Elevation ft. AMSL)
- Groundwater Elevation Contours
- Groundwater Elevation Contours - Inferred
- Flow Direction

Horizontal Datum: NAD 83 (96) NYSPCS WEST ZONE
Vertical Datum: NAVD 88

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FIGURE 4
Interpreted Groundwater Surface Contours September 2007

Feet
0 65 130 260 390 520

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Legend

Monitoring Wells

(6.3 ug/L) Tetrachloroethene Concentration

Site Boundary

100 ug/L

50 ug/L

25 ug/L

10 ug/L

5 ug/L

Source: NYS GIS Clearing House

FORMER PAPPAS DRY CLEANERS (8-26-018)
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FIGURE 5
Estimated PCE Isopleths
based on January 2008
Groundwater Results

Feet
0 70 140 280 420 560

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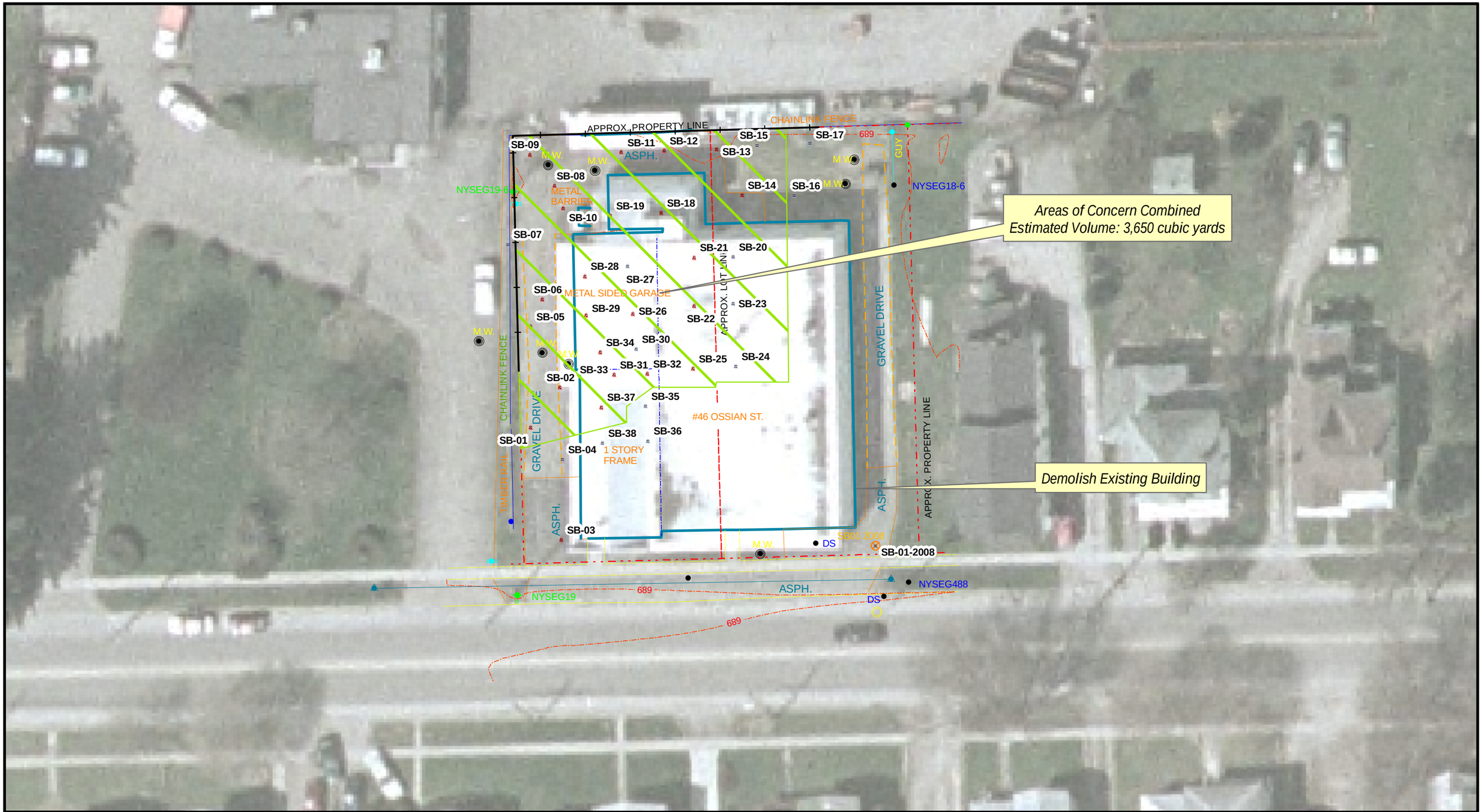

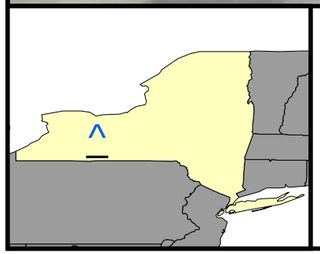

Legend

- Subsurafce Soil Samples below SCG
- Subsurface Soil Samples above SCG
- Limits of Excavation
- Sheet Piling

Source: NYS GIS Clearing House

FORMER PAPPAS DRY CLEANERS (8-26-018)
FEASIBILITY STUDY
DANSVILLE, NEW YORK

FIGURE 6
Alternative 2: Soil Excavation and Off-site Disposal

Feet
0 5 10 20 30 40 50

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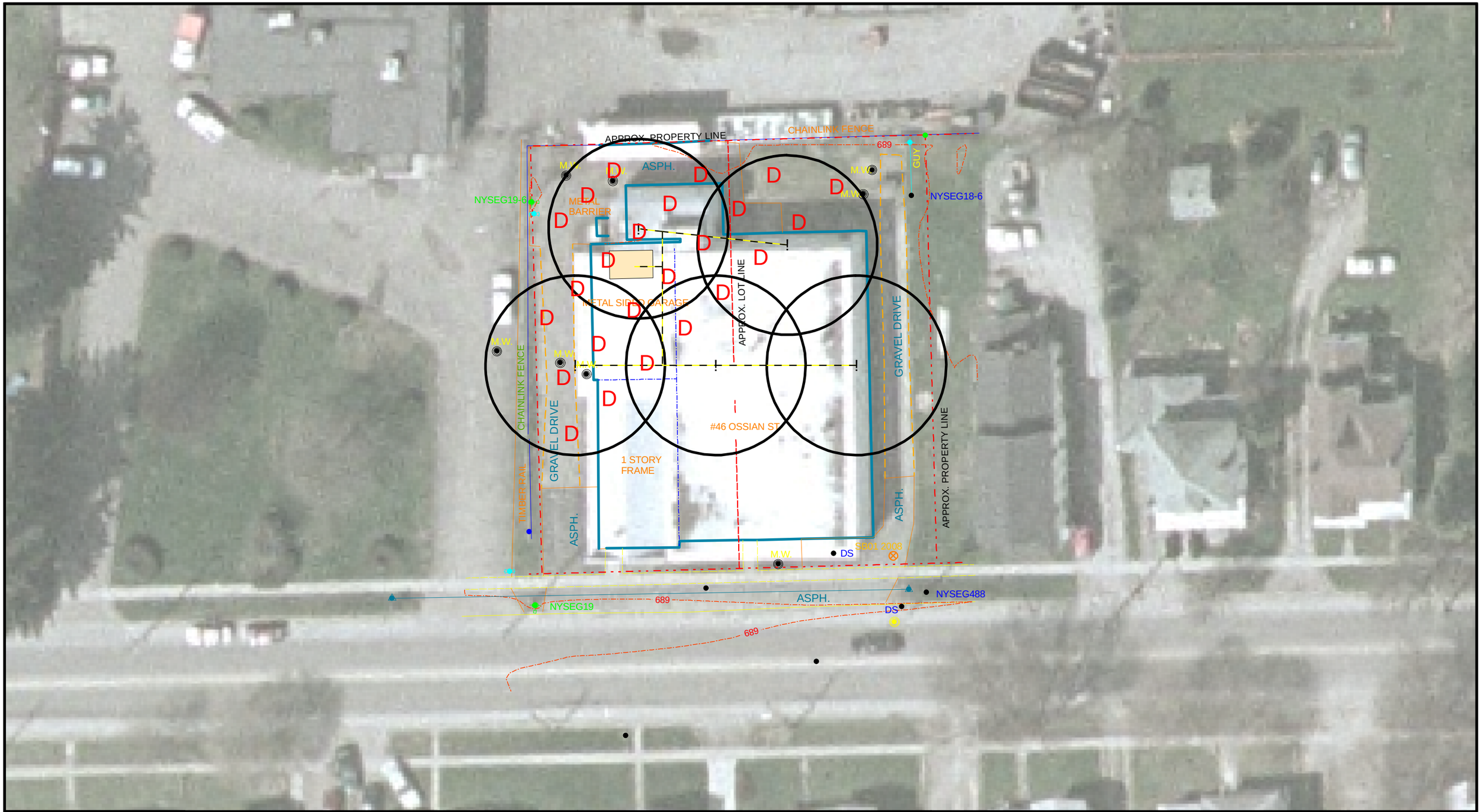

Legend

D Proposed Reductant Injection site

! Proposed SVE Well

Vapor Pipe

SVE Location Radius of Influence 30'

SVE Treatment Facility

Source: NYS GIS Clearing House

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REMEDIAL INVESTIGATION
DANSVILLE, NEW YORK

FIGURE 7
Alternative 3 - Soil Vapor Extraction and In-situ Saturated Soil Treatment

Feet
0 5 10 20 30 40 50

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