PROPOSED REMEDIAL ACTION PLAN

PASS AND SEYMOUR

Glen Cove (C), Town of Oyster Bay
Nassau County, New York
Site No. 130053A

February 2008

Prepared by:

Division of Environmental Remediation
New York State Department of Environmental Conservation

the tank and entered the soil beneath the building through floor drains because it appears the contaminant source area is largely confined to the footprint of Building 7.

3.2: Remedial History

In May 1996, 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 decision to list the site in the Registry was made, in part, on the basis of the March 1994 Preliminary Site Assessment which reported VOCs in groundwater above standards at the Pass and Seymour site.

Prior to the RI, a Source Area Investigation for the Sea Cliff Avenue Industrial Area was performed in 1992 and a Preliminary Site Investigation (PSI) was conducted on-site during August of 1996. The field activities and findings of these investigations are described in the Source Area Investigation report, dated September 1992, and the Results of the Preliminary Site Investigation report, dated November 1996. These reports identified the area of the above ground PCE storage tank in Building 7 as the primary area of concern at the site.

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 Department and the Photocircuits Corporation entered into a Consent Order Index No. W1-0713-94-12 on March 31, 1997. The Order obligates the responsible parties to implement a RI/FS remedial program. After the remedy is selected, the Department will approach the PRPs to implement the selected remedy under an Order on Consent.

SECTION 5: SITE CONTAMINATION

A remedial investigation/feasibility study (RI) 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 April and September of 1998. The field activities and findings of the investigation are described in the RI report.

The Remedial Investigation included the following tasks:

- Soil and groundwater sampling using Geoprobe® to delineate impacts detected during the PSI in the vicinity of the former solvent aboveground storage tank located in Building 7
- Installation of a groundwater monitoring well downgradient of Building 7
- Sampling of on-site groundwater monitoring wells
- Slug testing of on-site monitoring wells

Additional groundwater sampling was carried out in conjunction with the AS/SVE IRM. The information acquired is contained in the Quarterly Progress Reports for the Pass and Seymour site for the time period between the year 2000 and the year 2004.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the on-site soils and groundwater 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 upon the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based upon the Department's Cleanup Objectives including "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.

Based upon the results of the Source Area Investigation, the PSI and the RI, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site required remediation. These are summarized in Section 5.1.2. More complete information can be found in the Source Area Investigation report, the PSI report, the RI report and in the Quarterly Progress Reports.

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 and groundwater samples were collected to characterize the nature and extent of contamination. As seen in Figure 3 and summarized in Table 1, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs), predominantly PCE. For comparison purposes, where applicable, SCGs are provided for each medium.

Chemical concentrations are reported in parts per billion (ppb) for water, and in parts per million (ppm) for soil.

Figure 3 and Table 1 summarize the degree of contamination for the contaminants of concern 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.

Subsurface Soil

Soil borings (labeled 45A-SB-boring no.) were advanced at three locations within Building 7 on the Pass and Seymour site (see Figure 3). The RI concentrated on the Building 7 area based upon the results of the 1996 PSI, which found soil contamination only in the vicinity of the PCE storage tank located on the west wall of Building 7. Two soil samples were collected from soil boring 45A-SB-31 and 45A-SB-32, and three soil samples were collected from boring 45A-SB-33. All samples were taken between 12 and 24 ft bgs. See Table 1 for analytical results. The soil sample taken from 45A-SB-33 at 12-16 ft bgs contained 2.5 ppm of PCE, as compared to the NYSDEC cleanup objective of 1.3 ppm. Photoionization detector (PID) readings from the screening of soil samples collected from borings 45A-SB-31, 45A-SB-32, and 45A-SB-33 ranged from 100 ppm to 2,166 ppm. While the PID screening is only semi-quantitative, it suggests that there was substantially higher PCE concentration present in the unsaturated zone beneath Building 7 than was detected in the soil samples.

Subsurface soil contamination identified during the RI would be addressed by the AS/SVE IRM described in Section 5.2.

Groundwater

Groundwater samples were collected from four monitoring wells and seven groundwater grab sample locations. The monitoring well locations (labeled MW-well no.) and the grab sampling locations and results (labeled 45A-GW-location no.), are shown on Figure 3. The water table in the vicinity of Building 7 is about 10 ft bgs. All groundwater wells labeled S (e.g., MW 4S) are shallow, and are screened to between 15 and 20 ft bgs. For the three wells located in the southern portion of the site (MW-1S, 2S and 4S), VOC concentrations varied from 1.8 ppb to 340 ppb, with the predominant VOC being tetrachloroethene (PCE).

Well 3S, located at the northern property boundary, had a total VOC concentration of 110 ppb, with tetrachloroethene (PCE) being the predominant VOC. The groundwater grab samples were taken between 12 and 28 ft bgs. The highest concentrations were detected in samples collected from within the building footprint; 45A-GW-2 and 45A-GW-3 had total VOC concentrations of 32,000 and 17,000 ppb respectively, with PCE being the predominant VOC. VOC concentrations in the samples collected around and downgradient of the building ranged from less than 10 ppb in 45A-GW-4, 5 and 6 to 130 ppb in 45A-GW-7. See Table 1 for a summary of the analytical results for monitoring well and grab samples. Coupled with the groundwater results from the PSI, these results indicate that there is a localized area of elevated concentrations of VOCs (predominantly PCE) in the groundwater underlying Building 7. The concentration gradient from under Building 7 to the area immediately downgradient indicates that the contaminant mass is largely confined to the footprint of the building.

Groundwater contamination identified during the RI would be addressed by the AS/SVE 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 a RI/FS. An Air Sparging/Soil Vapor Extraction (AS/SVE) system was installed as an IRM in and around Building 7 during the Fall of 2000. The system consisted of seven air sparging and seven soil vapor extraction well pairs, four of which were installed beneath the building slab. Two 1,200-pound activated carbon adsorbers were attached in series to the blower outlet to treat recovered vapors. Air sparging wells were installed to a depth of about 40 ft bgs, and soil vapor extraction wells were screened from just beneath the building's slab foundation (about 3 ft bgs) for a 20-ft interval. See Figure 4 for the air sparging and soil vapor extraction well locations.

The SVE system was started on November 1, 2000. Because the initial contaminant concentrations were relatively high, the AS portion of the system was not started until March 28, 2001. Subsequently, in January 2002, groundwater samples were taken from monitoring well 4S to determine the efficacy of the IRM. PCE was detected at 1,240 ppb. Based upon the sampling results, the AS/SVE system was expanded to the east side of Building 7 in February 2002. See Figure 4 for the new AS/SVE well locations.

The SVE portion of the system was started on the east side of Building 7 on May 8, 2002, and a sample of the total system effluent, prior to treatment was collected. PCE was detected at a concentration of 5.3 parts per million by volume (ppmv). Another effluent sample was collected, on June 26, 2002, and PCE was detected at 142 ppmv and TCE was detected at 2 ppmv. The AS portion of the system on the east side of Building 7 was started on December 11, 2002.

On May 1, 2003, the system was modified to also extract vapor from monitoring well MW-4S; the well was fitted with a cap and connected to the SVE portion of the system. The system was shut down, from June 23 to September 28, 2004, for the purpose of pulsing. During the pulsing shut down, four soil vapor samples using summa canisters (two samples from beneath the slab in Building 7 and one sample from under the pavement on the east and west sides of Building 7) were collected. The sampling results indicated that there was significant contaminant mass present in the vadose zone (predominantly PCE) beneath the building footprint in the area of the PCE storage tank. The system was re-started with the blower connected to SVE wells 5 and 7 (Figure 4). After restarting, system effluent contained 2.0 ppmv of PCE. Subsequently, on July 21, 2005, a sample of blower influent contained 1.2 ppmv.

To evaluate the effectiveness of the IRM, monitoring well 4S, located on the downgradient side of the building, was sampled 14 times between January 2002, and November 2006. PCE concentrations reached a high of 3,600 ppb in January 2003, by November of 2006, concentrations of PCE in monitoring well 4S were 35 ppb, and by April 2007, concentrations of PCE in well 4S had fallen to 30 ppb. In April 2007, a sample from monitoring well 3S, located on the north (downgradient) side of the property had no PCE, although 230 ppb of TCE was found. Based upon the sampling results for AS/SVE system effluent and downgradient groundwater, the IRM is effectively remediating the source area.

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 5.0 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 following human exposure pathways and risks have been identified:

- Ingestion of contaminated groundwater

Since the Carney Street well field located downgradient from the site is not in use, no known completed exposure pathways exist for groundwater at this time.

The contaminated groundwater at and downgradient of the site presents a potential route of exposure to humans. The area is served by public water, however, the underlying aquifer is the source of the water for the Glen Cove Water District customers. Water supply wells in the Glen Cove Water District are routinely sampled for VOCs and other contaminants. As of this date, no site specific contaminants exceeding groundwater or drinking water standards have been detected in water distributed to the public. Ingestion of groundwater from the public supply wellfield is not considered to be a completed exposure pathway. However, as the groundwater is in use for water supply, it is still considered to be a potential exposure pathway for the future.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site prior to the IRM. 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 following environmental exposure pathways and ecological risks have been identified:

- The Glen Cove Creek runs along the eastern edge of the Pass and Seymour property. The creek is located approximately 200 ft cross-gradient from the contaminated area of the site. Samples from the creek on the downgradient end of the site did not contain elevated levels of contaminants. Further, sampling results from shallow groundwater monitoring wells located adjacent to the stream on the adjacent Photocircuits Corporation site, Site No. 130009, indicate total VOC levels of 38 ppb or less, indicating it is unlikely that recharge of the creek from groundwater would result in significant VOC contamination in the stream. Consequently, a viable exposure pathway to fish and wildlife receptors is not present.

- Site contamination has impacted the groundwater resource in the Upper Glacial Aquifer. This is a sole source aquifer which provides groundwater for private, public and industrial use in the area.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND PROPOSED REMEDY

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 wastes disposed at the site through the proper application of scientific and engineering principles.

Prior to the completion of the IRM described in Section 5.2, the remediation goals for this site were to eliminate or reduce to the extent practicable:

- the release of contaminants from soil into groundwater that may exceed groundwater quality standards;
- soil vapor intrusion into residential and/or commercial facilities both on-site and off-site;
- ingestion of groundwater impacted by the site that does not attain New York State drinking water standards as outlined in 10 NYCRR Part 5, Subpart 5-1; and
- off-site migration of groundwater that does not attain Department Class GA Ambient Water Quality Standards

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

- ambient groundwater quality standards

The main SCGs applicable to this project are as follows:

- ambient groundwater quality standards

  Air Sparging and Soil Vapor Extraction performed during the IRM at contaminated on-site areas would prevent further contamination of groundwater beneath the site.

- Soil SCGs based upon the Department's Soil Cleanup Objectives

  Air Sparging and Soil Vapor Extraction performed during the IRM would remove contamination in soils and would address any soil vapor contamination.

The Department believes that the IRM would accomplish the remediation goals and satisfy the SCGs for the site provided that it continues to be operated and maintained in a manner consistent with the design.

Based upon the results of the investigations at the site, the IRM that has been performed, and the evaluation presented here, the Department is proposing No Further Action with continued operation of the AS/SVE system and institutional controls restricting the usage of groundwater at the site as the preferred alternative for the site. The Department believes that this alternative would be protective of human health and the environment and would satisfy all SCGs as described above. Overall protectiveness is achieved through meeting the remediation goals listed above.

Therefore, the Department concludes that No Further Action is needed other than operation, maintenance, monitoring, and institutional and engineering controls. The elements of the IRM already completed and the institutional and engineering controls which would be required are listed below:

- Installation of eleven air sparging and nine soil vapor extraction wells with ancillary equipment.
- Imposition of an institutional control in the form of an environmental easement that would require (a) limiting the use and development of the property to industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the

property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

- Development of a site management plan 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 on-site and downgradient groundwater and any associated 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.

- 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: (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.

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

TABLE 1
Nature and Extent of Contamination
April 1998 - April 2007

SUBSURFACE SOIL April 1998	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Tetrachloroethene	0.01 - 2.5	1.3	1 of 7
	Toluene	0 - 0.022	0.7	0 of 7
	Trichloroethene	0 - 0.021	0.47	0 of 7

GROUNDWATER Well Samples May 1998	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Tetrachloroethene	1 - 330	5	4 of 5
	Trichloroethene	1-100	5	3 of 5

GROUNDWATER (Well 4S)	Contaminant of Concern	Concentration Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
January 2002	Tetrachloroethene	1240	5	1 of 1
April 2002	Tetrachloroethene	1910	5	1 of 1
June 2002	Tetrachloroethene	2200	5	1 of 1
October 2002	Tetrachloroethene	2510	5	1 of 1
January 2003	Tetrachloroethene	3600	5	1 of 1
April 2003	Tetrachloroethene	1420	5	1 of 1
August 2003	Tetrachloroethene	118	5	1 of 1
December 2003	Tetrachloroethene	180	5	1 of 1
March 2004	Tetrachloroethene	83	5	1 of 1
June 2004	Tetrachloroethene	29	5	1 of 1
September 2004	Tetrachloroethene	10	5	1 of 1
December 2004	Tetrachloroethene	110	5	1 of 1
July 2005	Tetrachloroethene	47	5	1 of 1
November 2006	Tetrachloroethene	35	5	1 of 1
April 2007	Tetrachloroethene	30	5	1 of 1

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

Figure 1
Site Location

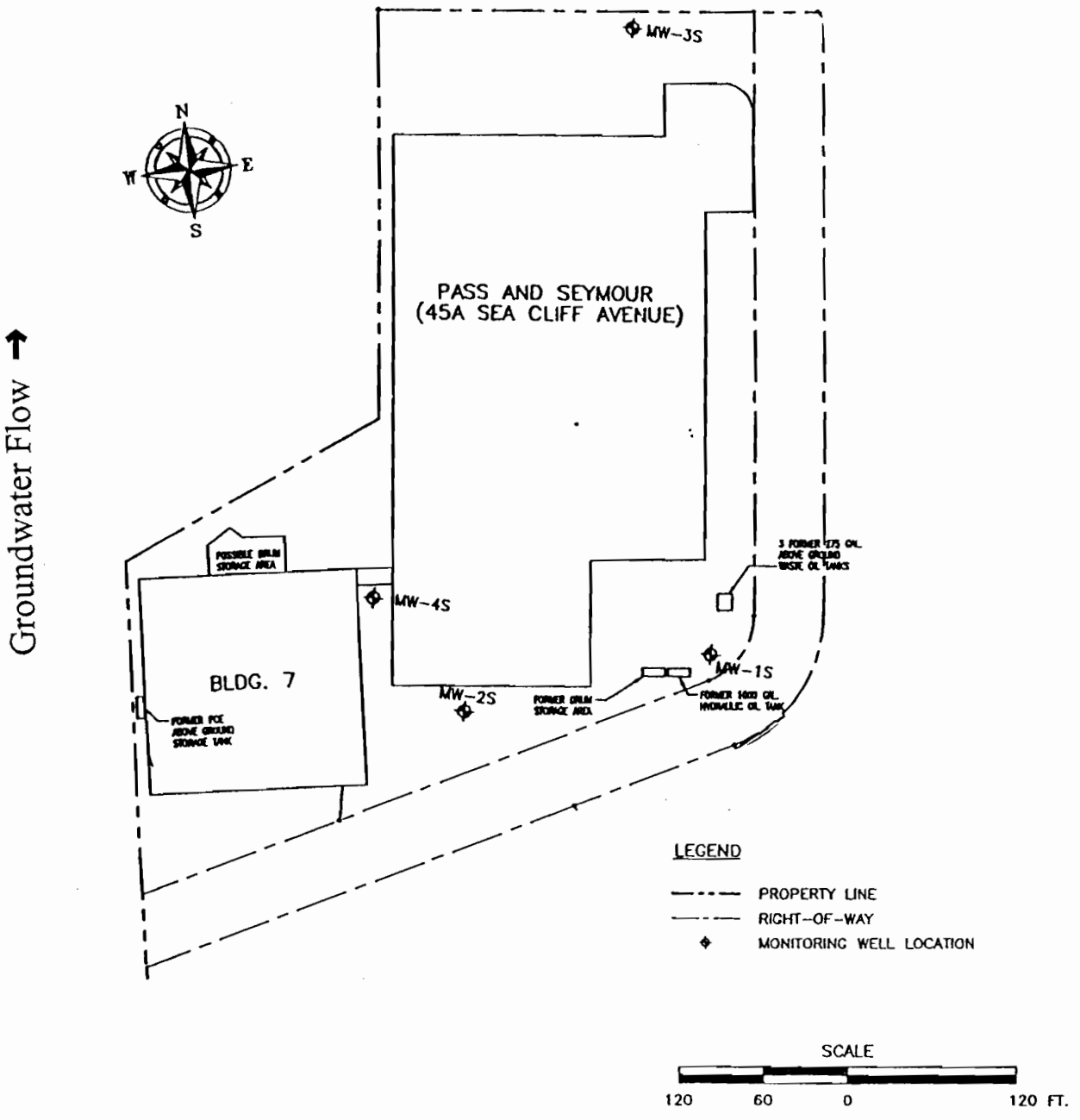

Figure 2
Pass and Seymour Site Map And Groundwater Monitoring Well Locations

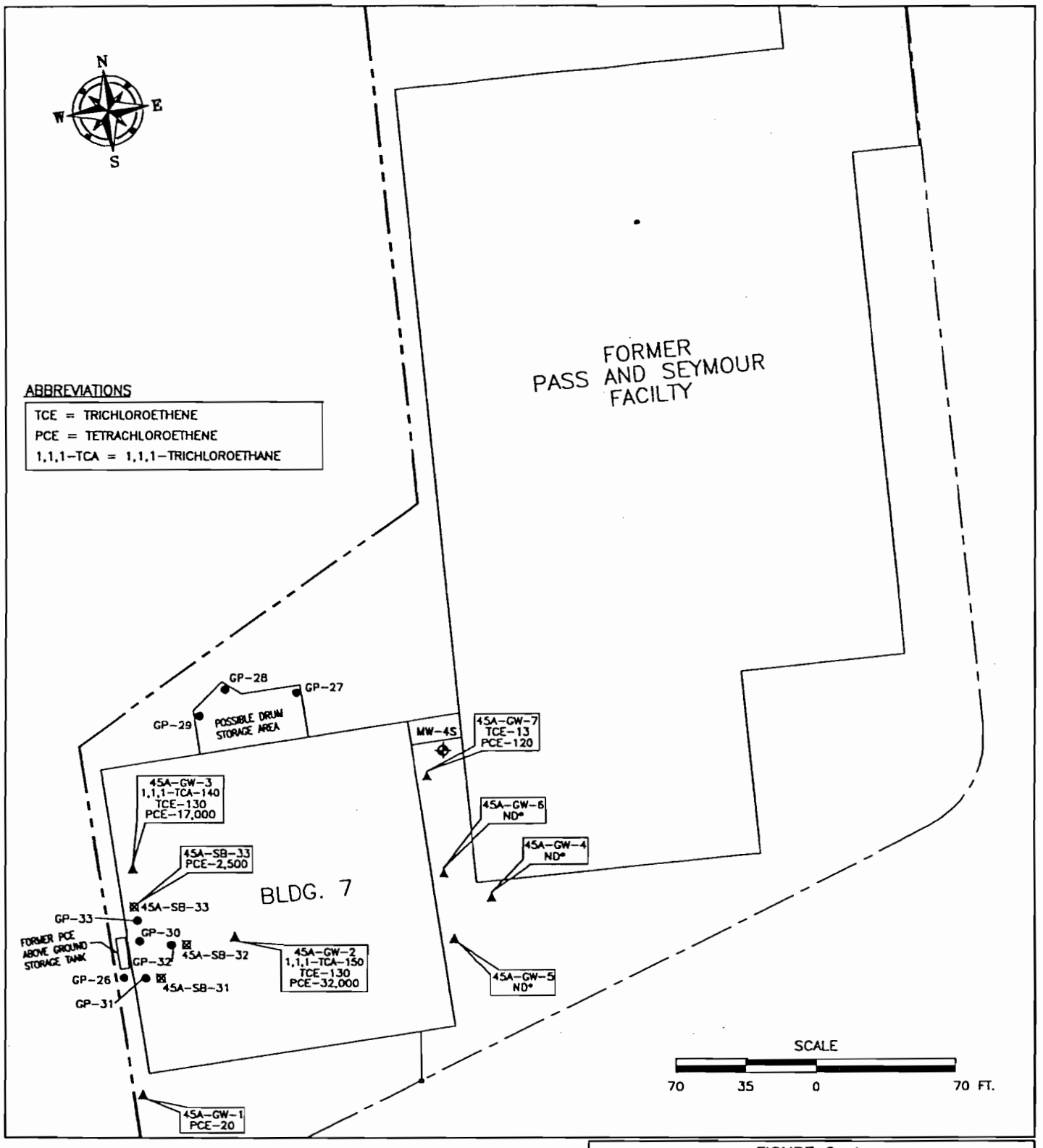

FIGURE 2-4

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- SAMPLING LOCATION (1996)
- GROUNDWATER GRAB SAMPLE LOCATION (1998)
- MONITORING WELL LOCATION
- SOIL SAMPLE LOCATION (1998)

ND* NO ANALYTES DETECTED IN EXCESS OF NYSDEC CRITERIA

NOTE: ALL RESULTS REPORTED IN PARTS PER BILLION (ppb)

DWG: 87800119 07/28/98

Figure 3
Groundwater Sampling Locations And Results

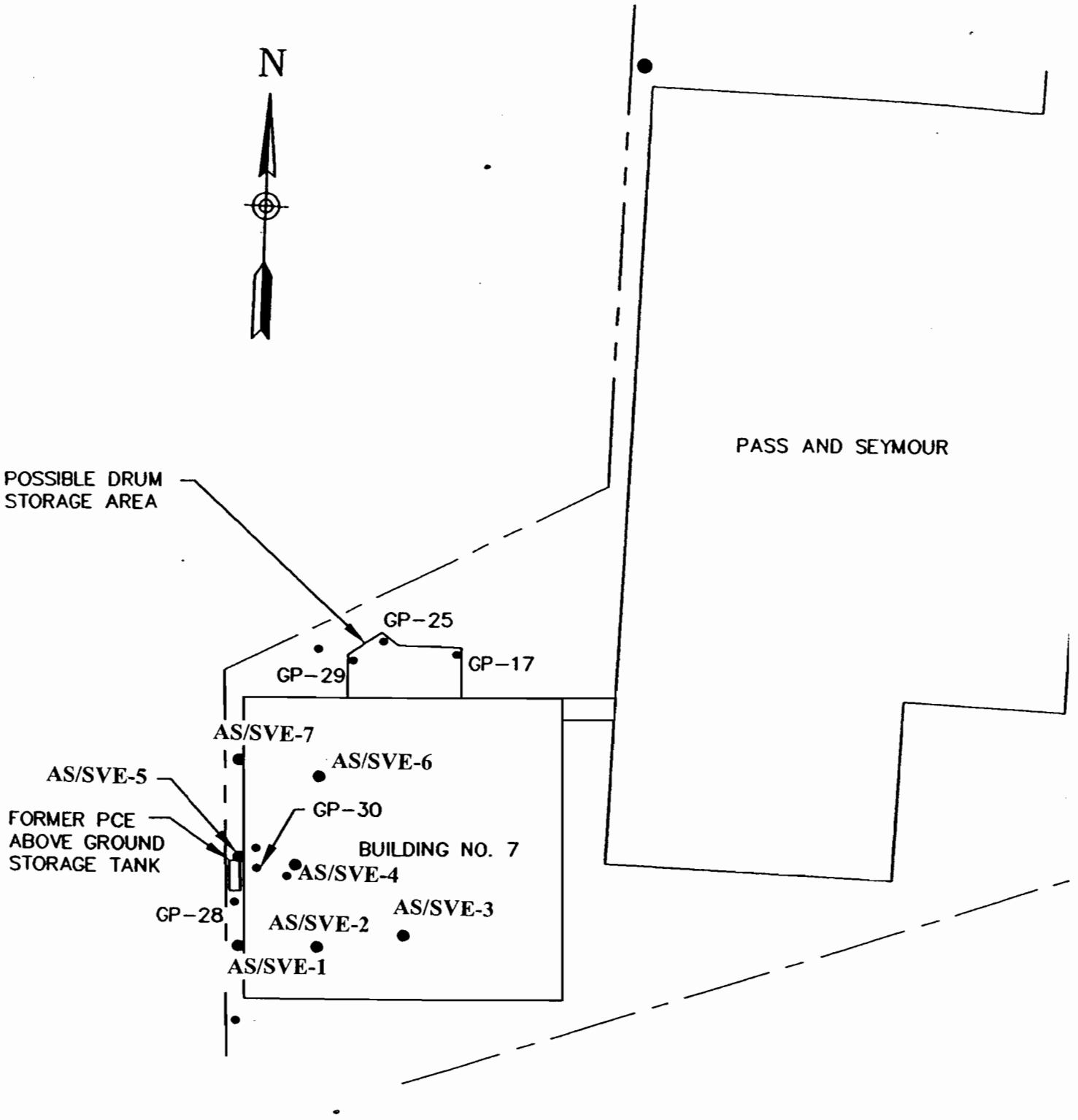

Figure 4
AS/SVE Well Locations

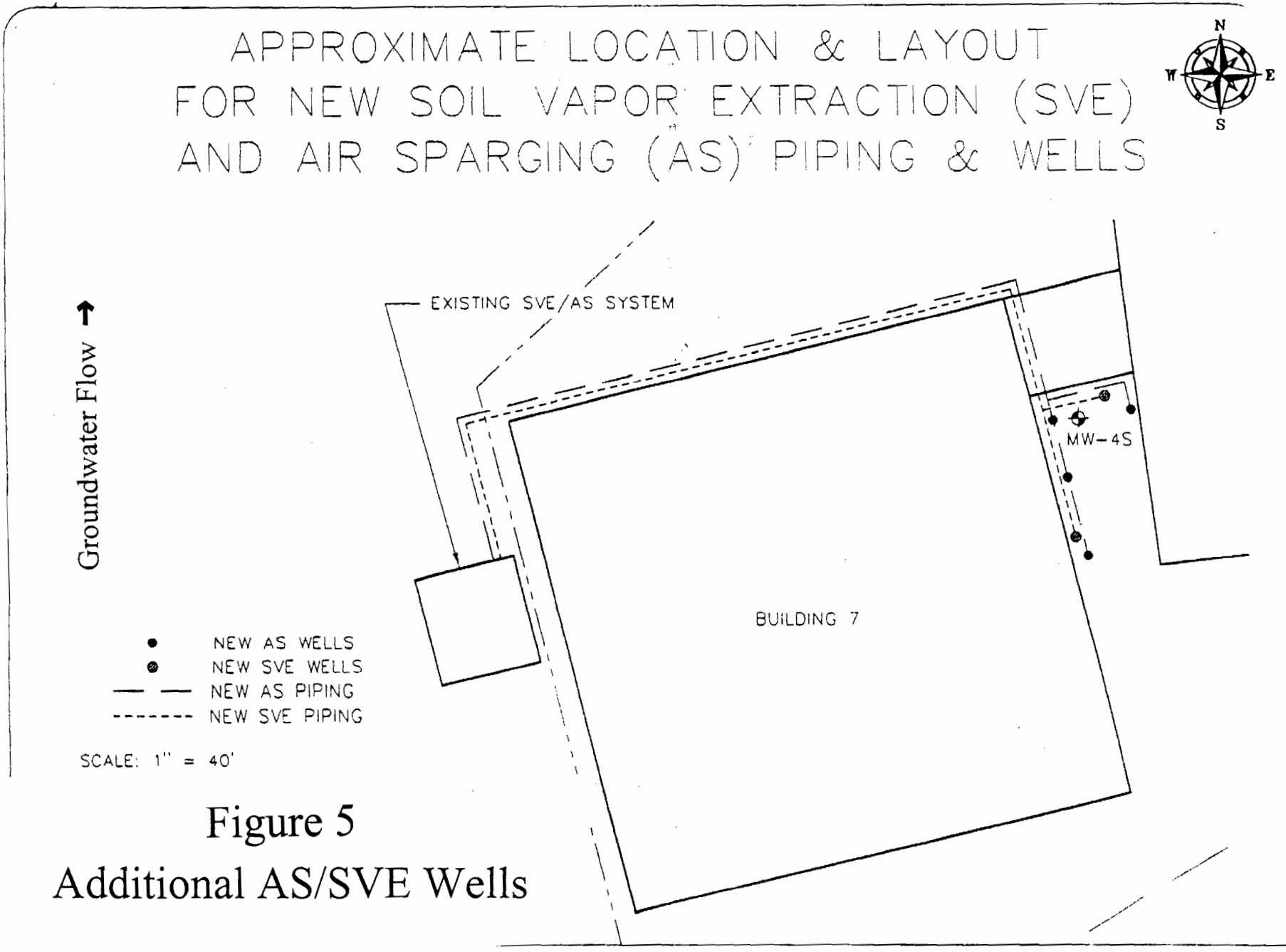

Figure 5
Additional AS/SVE Wells