Department of Environmental Conservation

Division of Environmental Remediation

Record of Decision

Johnny Cake Road Farm Site
Town of Danube, Herkimer Co., New York
Site Number 6-22-016

March 2009

New York State Department of Environmental Conservation
DAVID PATTERSON, *Governor* ALEXANDER B. GRANNIS, *Commissioner*

DECLARATION STATEMENT - RECORD OF DECISION

Johnny Cake Road Farm Inactive Hazardous Waste Disposal Site
Town of Danube, Orange County, New York
Site No. 6-22-016

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Johnny Cake Road Farm site, a Class 2 inactive hazardous waste disposal site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Johnny Cake Road Farm inactive hazardous waste disposal site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened release of hazardous waste constituents from this site have been addressed by implementing the interim remedial measures identified in this ROD. The removal of contaminated soil and waste from the site has significantly reduced the threat to public health and the environment. Therefore, a groundwater monitoring program will be implemented to monitor the effectiveness of previous remedial actions in preventing further contamination of the groundwater.

Description of Selected Remedy

Based on the results of the Site Investigations for the Johnny Cake Road Farm site and the criteria identified for evaluation of alternatives, the Department has selected No Further Action with Site Management including continued groundwater monitoring and institutional controls. The components of the remedy are as follows:

1) Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to residential use, which would also allow commercial or industrial uses. Further, due to the site specific nature of the contamination (i.e. VOCs in deep subsurface soil and groundwater) agricultural use will be permitted.; (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 remedial party or site owner to complete a periodic certification of institutional controls.

The site boundary subject to the environmental easement will be redefined based on the October 2008 groundwater investigation and the February 2009 Site Investigation Report. The redefined site boundary is shown on Figure 7 and will encompass 3.24 acres. This includes land on both the north and south side of Johnny Cake Road in Tax Parcel 127.002-4-1 as well as part of the Johnny Cake Road right-of-way. The site boundary contains the former source areas and the areas of groundwater contamination emanating from these former sources. Portions of Tax Parcel 127.002-4-1 not within the site boundary are not impacted by site contaminants and will not be part of the redefined site subject to institutional controls.

2) Development of a site management plan which will include the following: (a) 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 groundwater; (c) restricting use of the site as set forth in the environmental easement; and (d) providing the Herkimer County Highway Department with all relevant reports and data to identify the location and requirements to handle potentially contaminated groundwater in the county right-of-way during future repairs and/or replacements of the section of Johnny Cake Road which runs through the site.

   Groundwater monitoring wells identified in the site management plan will be sampled and analyzed for VOCs on a periodic basis. The monitoring well network could be reduced as future delineation shows they are no longer needed. This program will allow groundwater to be monitored and will be a component of the long-term management for the site.

3) The remedial party or site owner will provide a periodic certification of the institutional 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 will: (a) contain certification that the institutional 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.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

MAR 30 2009

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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RECORD OF DECISION

Johnny Cake Road Farm Site
Town of Danube, Herkimer County, New York
Site No. 6-22-016
March 2009

SECTION 1: SUMMARY OF THE RECORD OF DECISION

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected this remedy for the Johnny Cake Road Farm Site. As more fully described in Sections 3 and 5 of this document, drug manufacturing operations resulted in the disposal of hazardous wastes, primarily chlorinated volatile organic compounds (VOCs). These wastes contaminated the site soils and groundwater at the site, and resulted in:

- a significant threat to human health associated with the potential exposure to chlorinated solvents found in the soil, groundwater and soil vapor.

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

During the course of the investigation certain actions, known as interim remedial measures (IRMs), were undertaken at the Johnny Cake Road Farm Site in response to the threats identified above. An IRM is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the remedial investigation/feasibility study (RI/FS). The IRMs undertaken at this site included the removal of drummed waste, in addition to soil, water and septage contaminated with chlorinated solvents.

Based on the implementation of the above IRMs, the findings of the investigation of this site indicate that the site no longer poses a significant threat to human health or the environment; therefore No Further Action with Site Management including continued groundwater monitoring and institutional controls was selected as the remedy for this site. The institutional controls will restrict the use of groundwater, require a Site Management Plan (SMP), and require the evaluation of soil vapor intrusion prior to any development.

The selected remedy, discussed in detail in Section 6, 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.

SECTION 2: SITE LOCATION AND DESCRIPTION

The Johnny Cake Road Farm Site is located along the northern and southern sides of Johnny Cake Road in the Town of Danube, Herkimer County, New York. The site location is shown on Figure 1. The site is comprised of 3.24 acres of rural farmland and was formerly the site of a farmhouse, garage, inground pool, stable building and dairy barn. All site structures were demolished and completely removed from the site. Figure 2 shows the site boundary, current features, and former site structures. The site is currently a portion of a larger 38.4 acre Tax Parcel 127.002-4-1 owned by the United States Marshals Service (USMS). The area surrounding the site consists primarily of active and fallow farmland, as well as scattered residences.

The site slopes from south to north. Just south of the site boundary, a small intermittent stream meanders from west to east. According to the U.S. Geological Survey, the area incorporating the Johnny Cake Road Farm Site consists of surficial deposits of lacustrine sand underlain by kame moraine and ablation till. Till extends several dozen feet below grade. Groundwater in the overburden aquifer follows site topography and flows south to north through the site. Depth to groundwater in the overburden aquifer ranged between 3 and 10 feet below grade in October 2008. Historically, during wet periods, perched groundwater has been observed on the southern side of the site. Artesian conditions have been observed in the bedrock aquifer at the site.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Johnny Cake Road Farm Site was a dairy farm that became the site of an illegal drug manufacturing operation in the mid-1980's. The illegal drug manufacturing operation lasted 14 months. In 1987 the USMS took possession of the site as part of a long-term drug investigation which identified the site as involved in the manufacturing and distribution of cocaine. At the time of the seizure, the site consisted of a 377 acre dairy farm, however over the course of the project, non-impacted portions of the 377 acres of farmland have been sold off by the USMS. An October 2008 groundwater investigation concluded that site contamination was limited to the 3.24 acres shown in Figure 2.

As part of the drug manufacturing operations, significant quantities of chlorinated solvents were used to refine the cocaine. The spent solvents were then dumped outside the farmhouse, in an underground septic tank just east of the farmhouse, and in the farmhouse driveway. Effluent from the overtopped septic tank discharged directly into an adjacent drainage swale. The on-site inground swimming pool was also used to rinse filters used in the drug production process. It is also believed that direct discharge repeatedly occurred directly on the dirt floor of the farmhouse.

3.2: Remedial History

Several environmental investigations were conducted at the Johnny Cake Road Farm Site from 1990 to 2008. The purpose of these investigations were to delineate the extent of soil or groundwater contamination from past operations.

In April 1990, an initial phase of surface soil, subsurface soil, and groundwater sampling was conducted for the USMS. Surface soil samples collected from the garage floor showed the presence of VOCs including methylene chloride, trichloroethene (TCE) and tetrachloroethene (PCE). In August 1990, the United States Environmental Protection Agency (USEPA) initiated a removal action to consolidate the contents of 55 gallon drums and pump the contents of the septic tank into secure on-site containers. The contaminated material was disposed of off-site in March 1991.

In 1990, 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.

From September 1990 to November 1991, the USEPA identified three source areas of VOC contamination; near the garage, around the septic tank, and near the stable building. A VOC contaminated groundwater plume was also documented migrating north from the site following the flow of groundwater in the overburden aquifer.

In October 1993, USEPA sampled monitoring wells and homeowner wells. The analytical results of this investigation further defined the location of the source contamination areas at the site. This investigation confirmed that an area around the septic tank, an area adjacent to the garage and the driveway and an area on the west side of the stable building represented areas of concern.

In May 1995, as a precautionary measure, USEPA installed new deep drinking water wells at the adjacent residences. The new wells were sampled and found to be free of all site related contamination. From August 1995 through December 2003 USEPA investigations continued and indicated the groundwater contamination plume had not changed, however the extent of soil contamination had migrated deeper since previous investigations.

Based on this work, a Removal Action Work Plan was developed by USEPA in March 2005 and an IRM to remove all known sources of soil contamination was undertaken (see Section 5.2). Following the IRM, USEPA monitoring concluded the contaminated groundwater plume was stable and naturally attenuating, but could persist for 10 years or longer. The results of the IRM and the investigation following the IRM are documented in the November 2006 “Removal Action Report” prepared by the USEPA.

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 USMS has worked with the USEPA to provide funding for the project. The previous owners and operators were arrested by the USMS and are not considered viable parties.

SECTION 5: SITE CONTAMINATION

A series of site investigations have been conducted to evaluate the alternatives for addressing the significant threats to human health and the environment.

5.1: Summary of the Site Investigations

The purpose of the site investigations was to define the nature and extent of any contamination resulting from previous activities at the site. Site investigations were conducted between April 1990 and October 2008. The field activities and findings of the investigations are described in the November 2006 "Removal Action Report," prepared by the United State Environmental Protection Agency and the February 2009 "Site Investigation Report," prepared by the Department.

Over the course of these investigations twenty-six (26) monitoring wells have been installed and dozens of soil borings have been advanced. In addition, confirmation soil sampling conducted during the IRM removal actions have provided data on the extent of any remaining contamination.

In October 2008 another groundwater investigation was conducted by the Department. Seventeen (17) existing monitoring wells were sampled for VOCs. Three (3) new monitoring wells (MW-21, MW-22, MW-23) were installed and sampled for VOCs. Analytical results were consistent to those obtained in 2005 and 2006. The three (3) new monitoring wells established the northern boundary of groundwater contamination and is the basis for the site boundary. The results of this investigation are documented in the February 2009 "Site Investigation Report" prepared by the Department.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil and groundwater contain contamination at levels of concern, data from the investigation was 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 "Title 6 of the New York Codes, Rules, and Regulations (6 NYCRR) Part 375-6 Remedial Program Soil Cleanup Objectives (SCOs)."

Based on site investigation results, 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 November 2006 "Removal Action Report," prepared by the United State Environmental Protection Agency and the February 2009 "Site Investigation Report," prepared by the Department.

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 November 2006 "Removal Action Report," and the February 2009 "Site Investigation Report" many soil, groundwater and sediment samples were collected to characterize the nature and extent of contamination. As seen in Figure 7 and summarized in Tables 1-3, the main category of contaminants that exceed their SCGs are volatile organic compounds (VOCs). 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 waste, soil, and sediment.

Figure 7 and Tables 1-3 summarize the degree of contamination for the contaminants of concern in soil and groundwater 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.

Waste Materials

Waste materials identified during the investigations were derived from the manufacture of illicit drugs. Waste was identified in 55 gallon drums found at the site, the contents of the septic tank, and spillage onto the ground. The waste materials consisted of the VOCs (chlorinated solvents), methylene chloride, PCE and TCE. Waste identified at the site was addressed during the 1991 IRM and the 2005 soil removal action described in Section 5.2.

Surface Soil

Soil samples from the garage floor showed the presence of methylene chloride, trichloroethene (TCE) and tetrachloroethene (PCE) above SCGs. Surface soil contamination identified during the April 1990 investigation was addressed during the 2005 IRM described in Section 5.2.

Following completion of the 2005 IRM, six (6) surface soil samples were taken and analyzed for VOCs in a road side ditch just south of Johnny Cake Road to evaluate if contamination from the septic tank had migrated into the sediments/surface soils in the ditch. Sample locations are shown on Figure 6 and sampling results are summarized in Table 1. There was only one marginal exceedence of the unrestricted land use SCO for acetone (.065 ppm at RSD-02B), however this level is well below the residential land use SCO for acetone of 100 ppm.

Table 1 - Surface Soil (2005-2008)			
Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG
VOCs			
Acetone	0.0068 J - 0.065	0.05	1 out of 6
cis-1,2-Dichloroethene	0.00084 J - 0.017	0.25	0 out of 6
trans-1,2-Dichloroethene	ND	0.19	0 out of 6
Tetrachloroethene	ND - 0.004	1.3	0 out of 6
Toluene	ND - 0.0024 J	0.7	0 out of 6
Trichloroethene	ND - 0.0098	0.47	0 out of 6
Vinyl Chloride	ND - 0.0035 J	0.02	0 out of 6

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Standards, criteria, and guidance values ; State of New York (6 NYCRR) Part 375-6.8 Unrestricted Soil Cleanup Objective
c - J: indicates an estimated value

No site-related surface soil contamination of concern is present following the 2005 IRM described in Section 5.2. Therefore, no remedial alternatives need to be evaluated for surface soil.

Subsurface Soil

Several subsurface soil investigations were conducted at the site prior to the 2005 IRM. These investigations consisted of several soil borings to determine the vertical and horizontal extent of subsurface soil contamination. The investigation identified three source areas of contamination, near the garage, around and beneath the septic tank, and near the stable building. Contamination consisted of several VOCs, notably PCE and TCE. This subsurface soil contamination was addressed during the 2005 IRM described in Section 5.2.

As part of the IRM in 2005 confirmation subsurface soil samples were collected following excavation of source areas identified during previous investigations and a drainage ditch adjacent to Johnny Cake Road. The locations of these confirmatory samples are shown on Figures 3 through 6 and the analytical results are summarized in Table 2. A total of twenty-one (21) confirmatory samples were collected and analyzed for VOCs. Confirmation sampling exceeded the unrestricted land use SCO for acetone, dicholoroethene (DCE), vinyl chloride, TCE, and toluene. As noted in Table 2 there are minor exceedences of the unrestricted SCOs. The exceedences were located beneath the septic tank at the bottom and down gradient edge of the excavation at a depth of about 16 feet and appear attributed to a small sand lenses.

Three (3) subsurface soil samples were taken in a road side ditch just south of Johnny Cake Road to evaluate if contamination from the septic tank had migrated into the sediments/surface soils in the ditch. Sample locations are shown on Figure 6. There was only one marginal exceedence of the unrestricted land use SCOs for acetone.

Table 2 - Subsurface Soil (2005-2008)			
Detected Constituents	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)	Frequency Exceeding SCG
VOCs			
Acetone	ND - 0.084 J	0.05	10 out of 21
cis-1,2-Dichloroethene	ND - 60	0.25	3 out of 21
trans-1,2-Dichloroethene	ND - 0.48 J	0.19	1 out of 21
Tetrachloroethene	ND - 1.9	1.3	1 out of 21
Toluene	ND - 26	0.7	1 out of 21
Trichloroethene	ND - 2.2 J	0.47	2 out of 21
Vinyl Chloride	ND - 1.9 J	0.02	6 out of 21

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Standards, criteria, and guidance values; State of New York (6 NYCRR) Part 375-6.8 Protection of Groundwater Soil Cleanup Objective
c - J: indicates an estimated value

Following the 2005 IRM, site-related subsurface soil contamination does not exceed the residential SCOs. No remedial active alternatives need to be evaluated for subsurface soil.

Groundwater

Twenty three (23) monitoring wells are currently installed on and in the vicinity of the site boundary (see Figure 2). The wells range in depth from 12 to 40 feet below ground surface except for one well which extends to 101 feet below ground surface. The deeper wells are installed into a till unit which is a relatively impermeable unit with a large clay content.

A series of groundwater monitoring events since 1990 have documented a contaminant plume emanating from the source areas. The plume consists of VOCs, primarily chlorinated solvents PCE and TCE, and their bi-products DCE and vinyl chloride. Historically other VOCs such as acetone, trans-1,2-DCE, 2-butanone, and dichlorodifluoromethane have been detected in site wells. The groundwater plume follows the overburden aquifer north from the source areas and extends beneath Johnny Cake Road.

The 2005 IRM effectively removed the source contamination. Following the completion of the IRM a total of fourteen (14) monitoring wells were sampled on a quarterly basis for VOCs from summer 2005 to spring 2006 to confirm the effectiveness of the IRM. A supplemental sampling of seventeen (17) existing monitoring wells and three (3) new monitoring wells was conducted in October 2008 to confirm the findings of previous sampling and to establish the horizontal extent of the groundwater plume. Monitoring wells MW-21, MW-22, and MW-23 were installed down gradient of the suspected final extent of groundwater contamination. The results of the October 2008 groundwater investigation are shown on Figure 7 and the results of all groundwater samples collected since the 2005 IRM are summarized in Table 3.

As noted on Table 3, the results of the 2005-2006 quarterly groundwater monitoring and the October 2008 groundwater monitoring event indicate that groundwater contamination for VOCs is continuing to decrease since the 2005 IRM. During these investigation five (5) VOCs, all chlorinated solvents, exceed the groundwater SCGs; 1,2-dichloroethane, cis-1,2-DCE, PCE, TCE, and vinyl chloride.

The October 2008 sampling event, depicted on Figure 7, indicated lower levels of groundwater contamination than at any previous point. This confirms the continued effectiveness of the IRMs. In general, PCE and TCE are detected in higher concentrations to the south of Johnny Cake Road near the former source area, while cis-1,2-DCE (a product of the natural degradation of PCE and TCE) was detected both in the source area and down gradient to north of Johnny Cake Road. This is evidence that contaminants are attenuating naturally as they migrate with groundwater.

The October 2008 groundwater investigation also established the vertical and horizontal limits of groundwater contamination. Three new monitoring wells were installed beyond the suspected horizontal limits of groundwater contamination as shown on Figure 7. No VOCs were detected above SCGs in these wells. These results confirm the contaminated groundwater plume follows the overburden groundwater aquifer north from the source areas, and extends approximately 200 feet to the north of Johnny Cake Road. The plume extends no more than 15' into the till layer and further vertical migration of the contamination plume has not been observed.

Table 3 - Groundwater (2005-2008)

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency of Exceeding SCG
VOCs			
1,2-Dichloroethane	ND - 0.79	0.6	1 out of 76
cis-1,2-Dichloroethene	ND - 300	5	27 out of 76
Tetrachloroethene	ND - 38 J	5	7 out of 76
Trichloroethene	ND - 200	5	15 out of 76
Vinyl Chloride	ND - 43	5	15 out of 76

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b- SCG: standards, criteria, and guidance values; "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.
c - J: indicates an estimated value

The source of groundwater contamination identified during previous site investigations was addressed during the 2005 IRM described in Section 5.2. Although groundwater contamination is still present at the site analytical data indicates the plume is stable and is no longer migrating either horizontally or vertically and is not expected to migrate beyond the site boundary. Therefore, no remedial alternatives need to be evaluated for groundwater other than periodic groundwater monitoring and institutional controls.

Soil Vapor/Sub-Slab Vapor/Air

The potential for soil vapor and indoor air contamination has been identified during the course of the investigations. No sampling was conducted during the investigations and/or IRMs as there are presently no structures on the site. The results of the investigations indicate that the adjacent residences are not impacted nor expected to be impacted by the VOCs found on-site. However, the potential for contaminated soil vapor above the groundwater plume will be addressed.

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 investigation of the site. Several IRMs have been conducted at this site since 1990.

- In 1990, the USEPA removed the contents from on-site drums and the septic tank, both of which contained VOCs, primarily consisting of chlorinated solvents. The contents of the septic tank and 55-gallon drums were transferred into secure on-site containers and in March 1991, transported off-site for disposal at a permitted facility.

- In the early 1990s, the USEPA demolished and removed all on-site structures including the farmhouse, garage, pool, stable building, and dairy barn. The pool was filled with clean fill.

- In 2005, the USEPA conducted a removal action to excavate and dispose off-site soil identified as a source contamination to groundwater. Two source areas were excavated, one in the area of the former farmhouse and septic tank (Figure 3) and one in the area of the former garage (Figure 4). These areas were associated with the previous storage and dumping of drums of chlorinated solvents. The septic tank source area excavation measured twenty-three (23) feet by twenty-three (23) feet horizontally, and was to a maximum depth 17.5 feet. The former septic tanks were removed and were found to be degraded metal vessels. The garage source area excavation measured twenty-five (25) feet by thirty-two (32) feet horizontally, and was to a maximum depth of 16.5 feet. A total of 325 cubic yards of soil considered source material because of VOC contamination was excavated, removed, and disposed of off-site in a permitted landfill. Soil sampling was conducted to verify the level of cleanup and confirmed the removal of source soils.

Two other suspected sources areas were investigated as part of this IRM. A source area in the vicinity of the stable building identified previously was investigated by excavation and test pitting, however field screening indicated no contamination above background values. The area of this investigation is shown on Figure 5. The other area of investigation was the Johnny Cake Road drainage ditch just south of Johnny Cake Road (shown on Figure 6). Six (6) surface and three (3) subsurface samples were taken from this area and results indicated removal of soils was not necessary.

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.

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.

There are no current completed human exposure pathways. Future exposure pathways exist for on-site groundwater users or via soil vapor intrusion in new structures. Environmental easements will be placed on the property to prevent the use of untreated groundwater and to ensure that vapor intrusion is evaluated for any new structure.

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:

Previous investigations identified VOCs in surface and subsurface soils above SCGs and the 2005 IRM addressed this soil. Confirmation samples following the 2005 IRM indicate soil containing

levels of VOCs above the human health residential SCOs have been removed from the site. A limited amount of soil contamination above the unrestricted land use SCO remain at the site at a depth of 16 feet. At this depth there is no exposure so they do not pose a threat to the environment.

Site contamination has impacted the groundwater resource in the overburden aquifer. VOCs from previously contaminated soils have migrated over time into groundwater. Groundwater sampling since the 2005 IRM show the groundwater contamination plume is stable and decreasing in area and also indicate source contaminants PCE and TCE are naturally degrading. Concentrations of VOCs will exceed the SCGs for groundwater for an extended period of time within the site boundary and there is the potential for soil vapor impacts, however, the site is not developed and there are no present uses of the groundwater resource.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND SELECTED 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 IRMs described in Section 5.2, the remediation goals for this site were to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to VOCs in soil and groundwater;
- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards; and

The main SCGs applicable to this project are as follows:

- ambient groundwater quality standards; and
- soil cleanup objectives.

The IRMs have accomplished the remediation goals and satisfied the SCGs for the site provided there is continued groundwater monitoring and site management.

Based on the results of the investigations at the site, the IRMs that have been performed, and the evaluation presented here, the Department has selected No Further Action with groundwater use restrictions and site management as the preferred alternative for the site. The Department believes that this alternative will be protective of human health and the environment and will satisfy all SCGs as described above.

The elements of the IRMs already completed are noted in Section 5.2, and institutional controls selected are listed below:

1) Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to residential use, which would also allow commercial or industrial uses. Further, due to the site specific nature of the contamination (i.e. VOCs in deep subsurface soil and groundwater) agricultural use will be permitted.; (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 remedial party or site owner to complete a periodic certification of institutional controls.

   The site boundary subject to the environmental easement will be redefined based on the October 2008 groundwater investigation and the February 2009 Site Investigation Report. The redefined site boundary is shown on Figure 7 and will encompass 3.24 acres. This includes land on both the north and south side of Johnny Cake Road in Tax Parcel 127.002-4-1 as well as part of the Johnny Cake Road right-of-way. The site boundary contains the former source areas and the areas of groundwater contamination emanating from these former sources. Portions of Tax Parcel 127.002-4-1 not within the site boundary are not impacted by site contaminants and will not be part of the redefined site subject to institutional controls.

2) Development of a site management plan which will include the following: (a) 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 groundwater; (c) restricting use of the site as set forth in the environmental easement; and (d) providing the Herkimer County Highway Department with all relevant reports and data to identify the location and requirements to handle potentially contaminated groundwater in the county right-of-way during future repairs and/or replacements of the section of Johnny Cake Road which runs through the site.

   Groundwater monitoring wells identified in the site management plan will be sampled and analyzed for VOCs on a periodic basis. The monitoring well network could be reduced as future delineation shows they are no longer needed. This program will allow groundwater to be monitored and will be a component of the long-term management for the site.

3) The remedial party or site owner will provide a periodic certification of the institutional 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 will: (a) contain certification that the institutional 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.

SECTION 7: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the remedial investigation process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.
- A fact sheet was sent to the public contact list summarizing the PRAP and announcing the public meeting for the PRAP.
- A public meeting was held on March 18, 2009 to present and receive comment on the PRAP.
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

In general, the public comments received were supportive of the selected remedy.

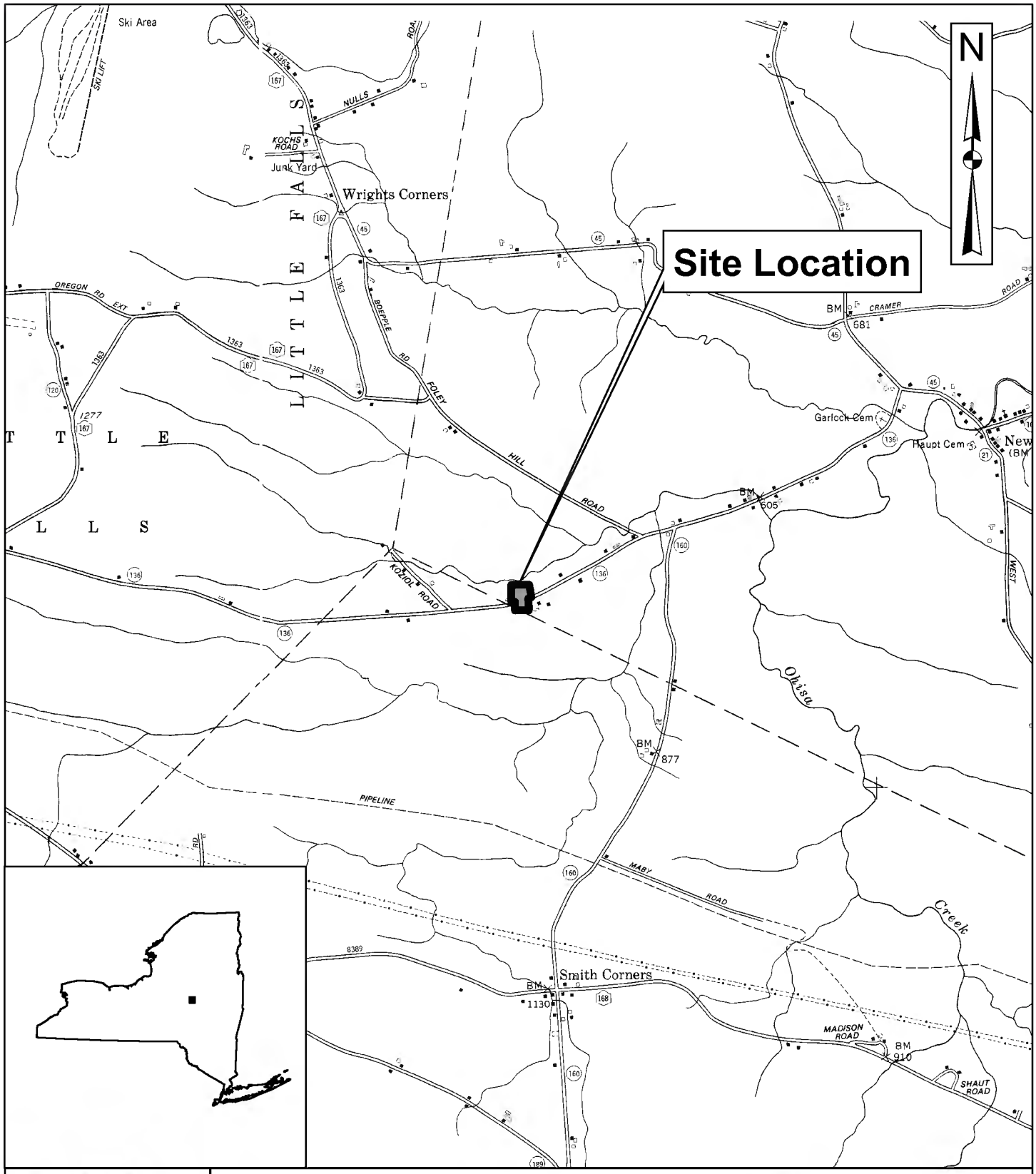


Figure 1 - Site Location Map

Johnny Cake Road Site

Site No. 6-22-016

Town of Danube, Herkimer County, New York

1:30,000

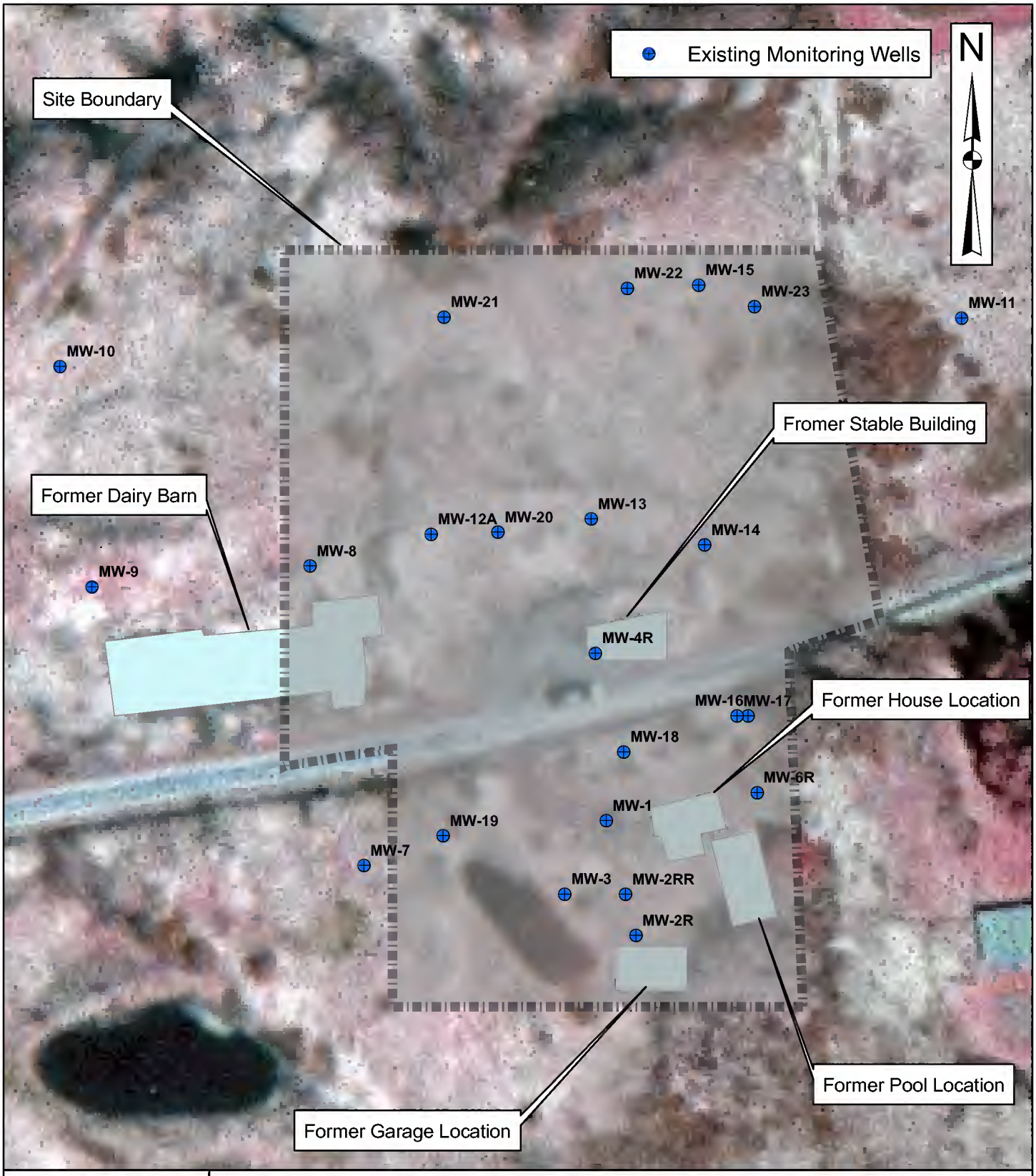
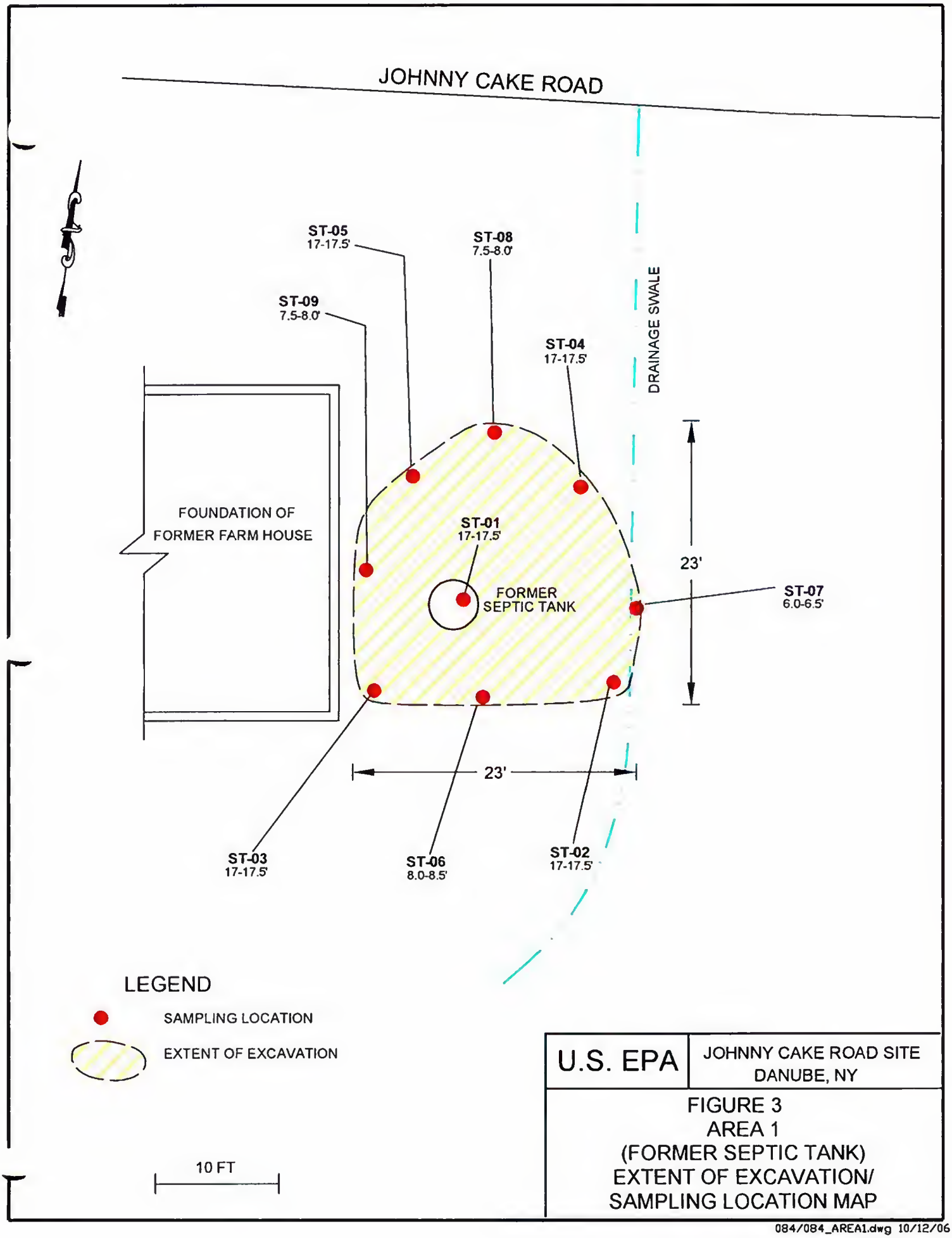


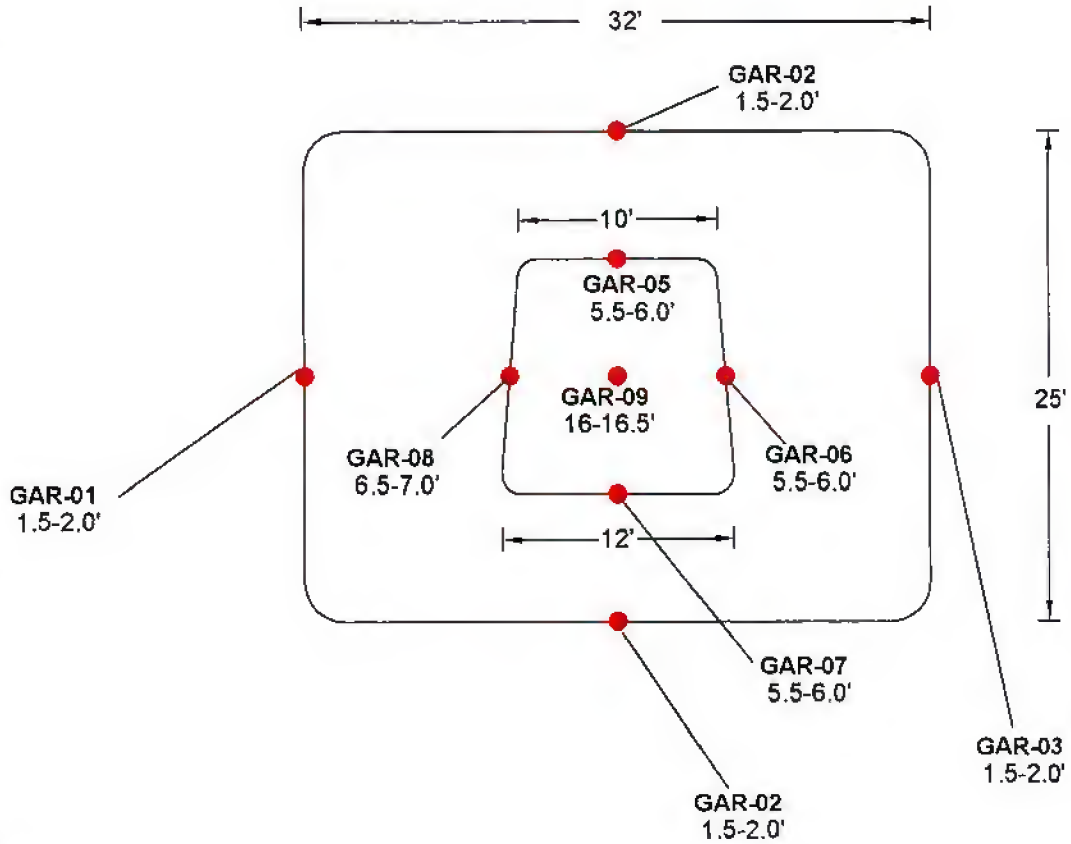
Figure 2 - Site Parcel Map
Johnny Cake Road Site
Site No. 6-22-016
Town of Danube, Herkimer County, New York
1:1,000



U.S. EPA	JOHNNY CAKE ROAD SITE DANUBE, NY

FIGURE 3
AREA 1
(FORMER SEPTIC TANK)
EXTENT OF EXCAVATION/
SAMPLING LOCATION MAP

084/084_AREA1.dwg 10/12/06



LEGEND

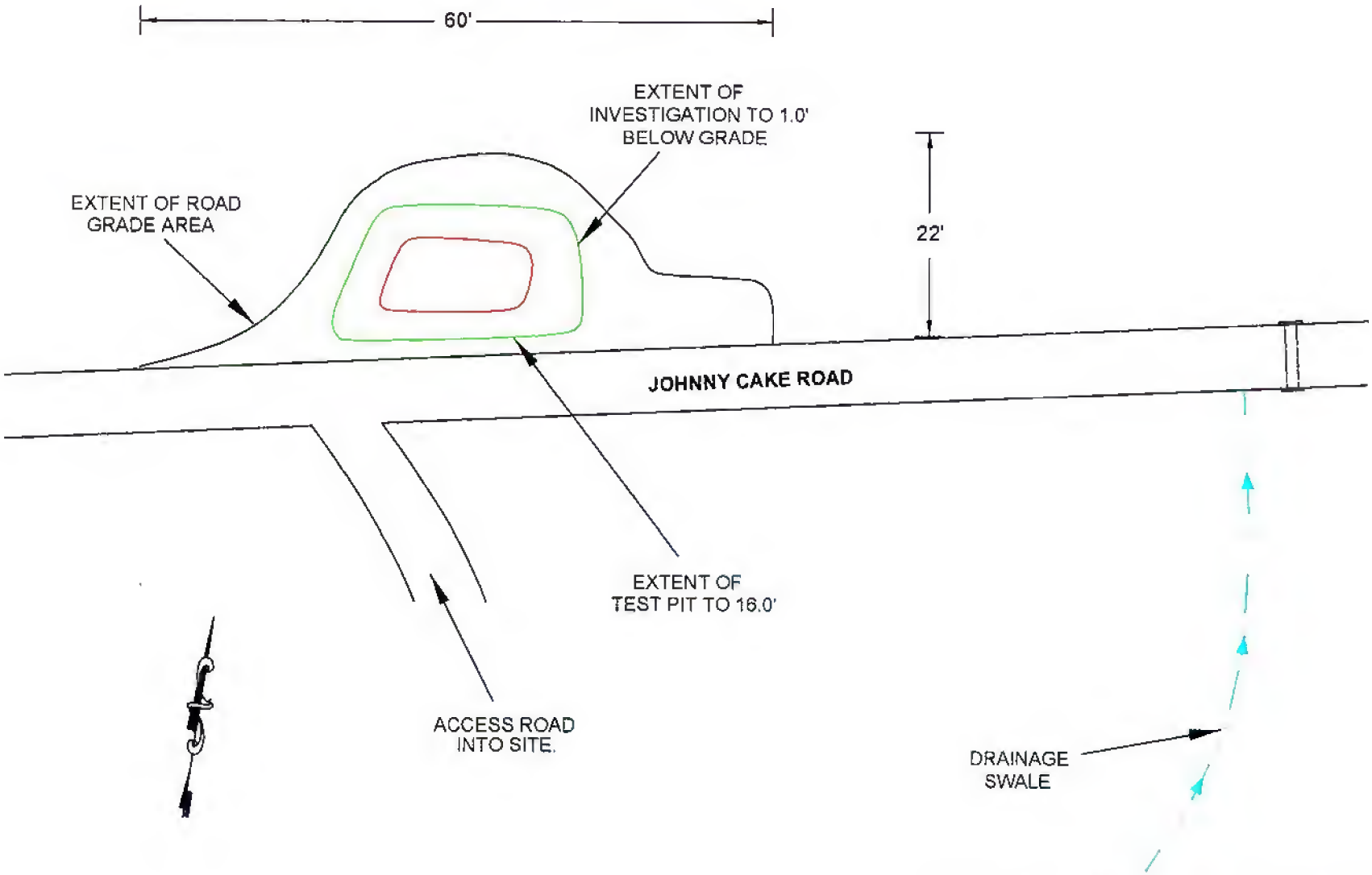
● SAMPLING LOCATION

10 FT

U.S. EPA	JOHNNY CAKE ROAD SITE DANUBE, NY

FIGURE 4
AREA 2
(FORMER GARAGE)
EXTENT OF EXCAVATION/
SAMPLING LOCATION MAP

084/084_AREA2.dwg 10/12/06

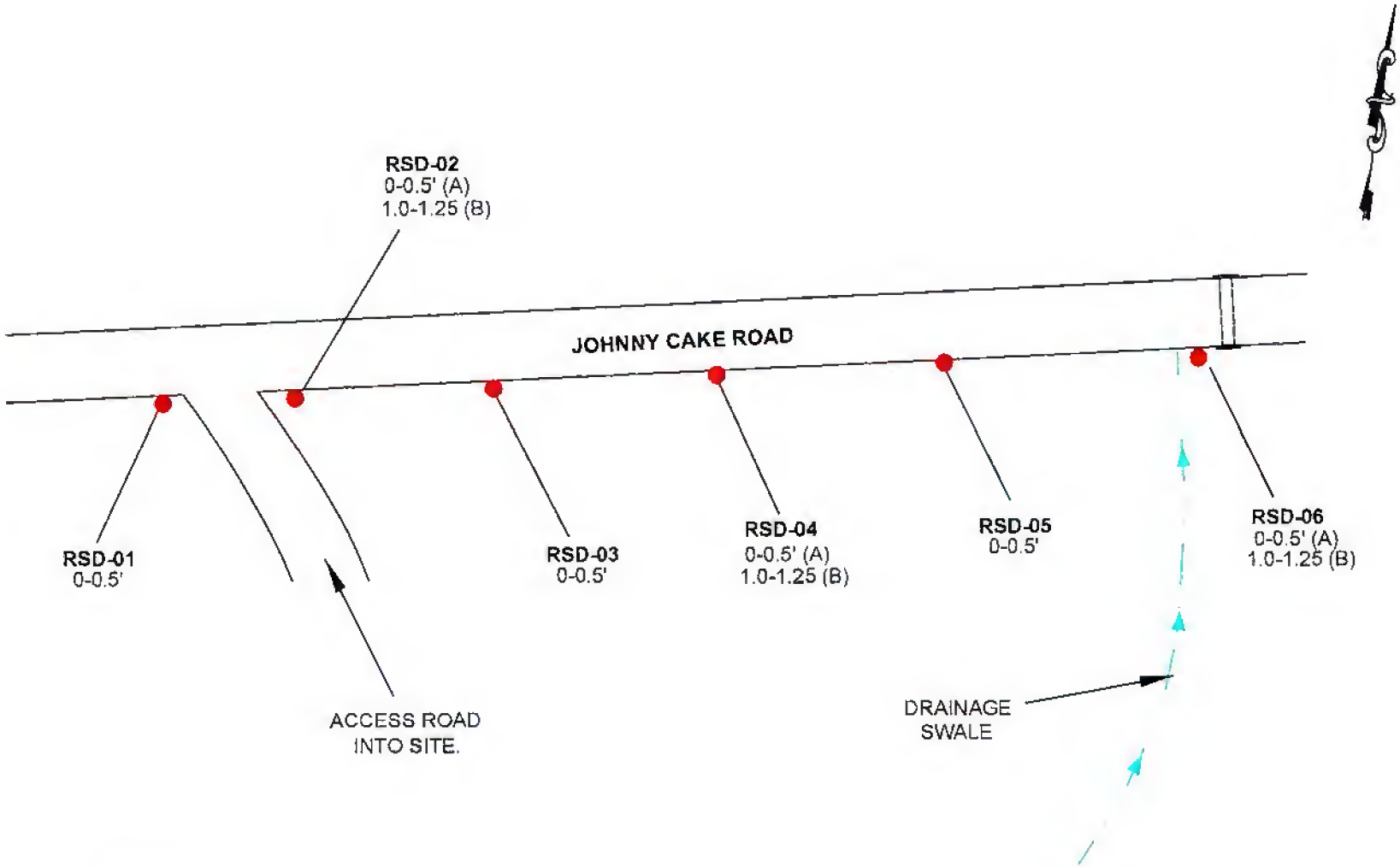


NOT TO SCALE

U.S. EPA	JOHNNY CAKE ROAD SITE DANUBE, NY

FIGURE 5
AREA 3
FORMER LIVESTOCK STABLE/
STALL BARN INVESTIGATION

084/084_AREA3.dwg 10/13/06



LEGEND

● SAMPLE LOCATION

NOT TO SCALE

U.S. EPA	JOHNNY CAKE ROAD SITE DANUBE, NY

FIGURE 6
AREA 4
ROADSIDE DITCH
SAMPLE LOCATION MAP

084/084_AREA4.dwg 10/13/06

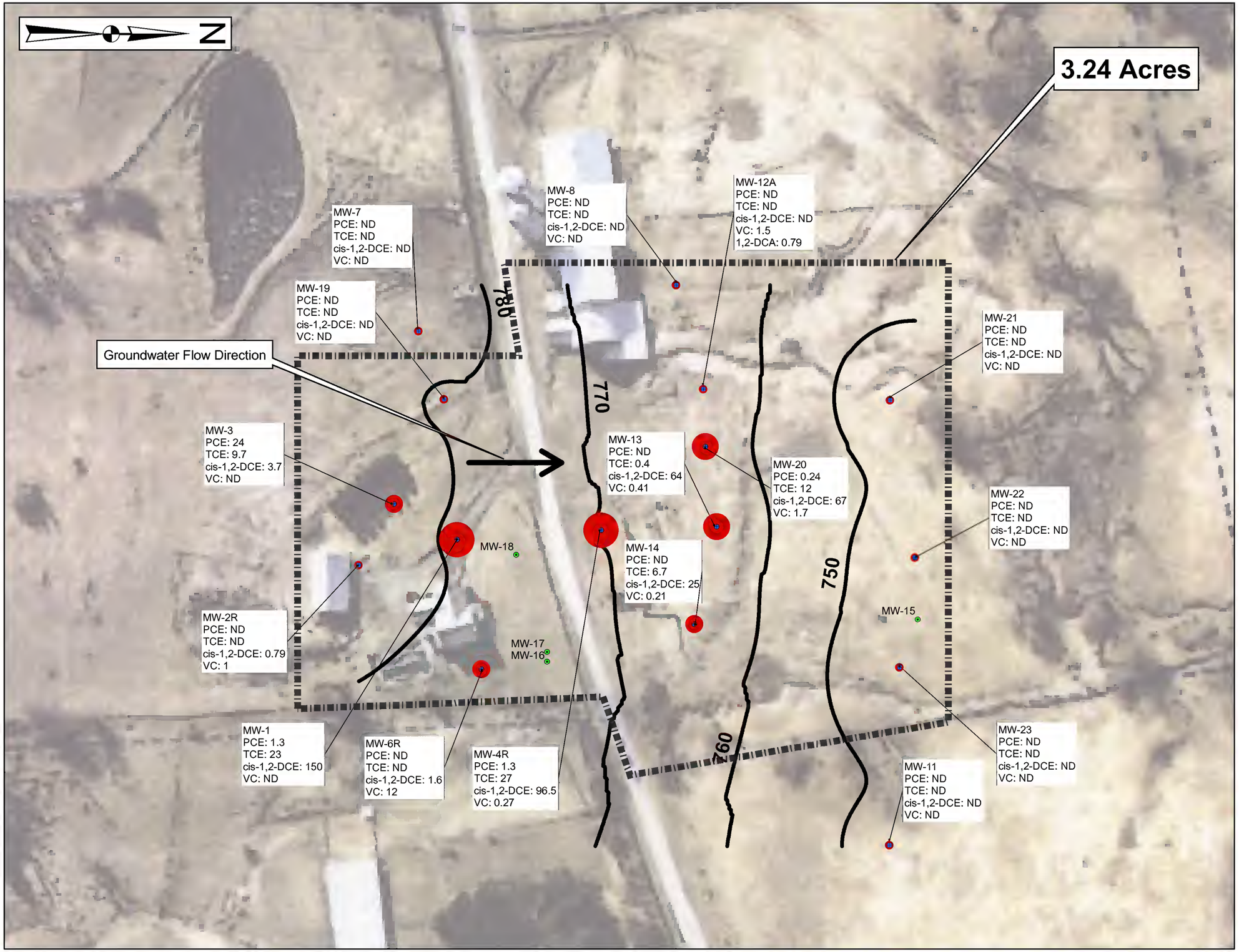


Figure 7
Johnny Cake Road Site
Site No. 6-22-016
October 2008
Groundwater Investigation & Site Boundary

1991 Aerial Photo
1:800

Legend

- Proposed Site Boundary
- Plume Monitoring Wells
- Deeper Monitoring Wells

Total VOCs

- < 5 ppb
- 5 - 50 ppb
- 50 - 100 ppb
- > 100 ppb
- GW Contour Lines

Notes:
1. PCE = Tetrachloroethene
   TCE = Trichloroethene
   cis-1,2-DCE = cis-1,2-Dichloroethene
   VC = Vinyl Chloride
   1,2-DCA = 1,2-Dichloroethane
   ND = Not Detected

2. All concentrations in parts per billion (ppb)

3. No Volatile Organic Compounds (VOCs) were detected in MW-15, MW-16, MW-17, or MW-18. These wells are screened below the level of groundwater contamination and were not used to generate groundwater contours.

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Johnny Cake Road Farm Site
Town of Danube, Herkimer County, New York
Site No. 6-22-016

The Proposed Remedial Action Plan (PRAP) for the Johnny Cake Road Farm site, was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on February 26, 2009. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the Johnny Cake Road Farm site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on March 18, 2009, which included a presentation of the Remedial Investigation (RI) and the Feasibility Study (FS) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 30, 2009.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received at the meeting, with the Department's responses:

COMMENT 1: Was there testing of the storm water swale that runs near the site? Was contamination found in surface waters and is it possible for contamination to move off-site via surface water?

RESPONSE 1: Six surface soil samples and three subsurface soil samples were collected from the roadside drainage ditch on the south side of Johnny Cake Road during the United States Environmental Protection Agency (USEPA) Interim Remedial Measure conducted in 2005 (2005 IRM). No site related contamination was detected in these samples above applicable Standard, Criteria, and Guidance (SCGs). The results of this sampling indicate surface soils within the drainage swale are not impacted by site related contamination.

Surface water samples were not collected during the 2005 IRM. However, surface soil samples in the swale do not show any site related contamination. This indicates that contaminant migration via the swale is not occurring. Further, areas of on-site surface soil contamination were removed by the USEPA during the 2005 IRM so contaminant transport to the swale by sediments is not occurring.

COMMENT 2: There are a lot of natural springs in the area. Is it safe for farm animals to drink from the springs near the site?

RESPONSE 2: The investigations conducted by the USEPA and the Department have defined the extent of the groundwater plume. The plume boundary, illustrated by Figures 1 and 2 of the ROD is defined by monitoring wells with concentrations of contaminants below groundwater standards located in all downgradient directions. The Department has not observed any groundwater seeps or springs in this area. Any springs located outside of the plume boundary are not expected to be impacted by Site related contamination.

COMMENT 3: Was a monitoring well placed near the drainage swale?

RESPONSE 3: Monitoring well MW-6R is located in the vicinity of the drainage swale to the south of Johnny Cake Road. MW-6R shows low levels of site contaminants consistent with degradation of the contaminant plume.

COMMENT 4: What type of monitoring wells did you install at the site? Did you find bedrock?

RESPONSE 4: The site geology consists of approximately10 feet of overburden soil under which is a glacial till. Most of the monitoring wells installed at the site are shallow overburden or till monitoring wells that are no deeper then 25 feet below grade. The wells are made of PVC pipe. The bottom portion of the monitoring wells has a slotted PVC well screen which allows groundwater to enter. The well screens are between 10 and 20 feet in length. Two monitoring wells extend below 25 feet, one 40 feet below ground surface and another 100 feet below ground surface. Bedrock was not encountered during the installation of any of the monitoring wells on-site.

COMMENT 5: How deep was the deepest monitoring well? Was deep groundwater contaminated?

RESPONSE 5: See response to #4 above. During one sampling event in April 2000, one well had a concentration of tetrachloroethene at 6 ppb. However, sampling of this well before April 2000, and subsequent sampling after this date has not found any site related contamination in the deeper groundwater.

COMMENT 6: Were private wells impacted by site contamination? What actions did EPA take to address private wells?

RESPONSE 6: Sampling of private wells was conducted by the USEPA in the 1990's and no site related contamination was found. However, as a precautionary measure in May 1995, the USEPA installed 4 new deep drinking water wells for residences adjacent to the site. Sampling of the new wells indicate they are free of site related contamination.

COMMENT 7: Was clean soil brought back on the site during the USEPA soil excavation?

RESPONSE 7: Yes. Soil from non-impacted portions of the site and crushed stone from a certified off-site source were used for backfill during the 2005 IRM. Backfill was screened for VOC contamination in the field by the EPA prior to placement in the excavated area.

COMMENT 8: Why is there still contamination at the site following the EPA removal actions? Will the groundwater plume degrade with time and if so, how long will it take?

RESPONSE 8: Almost all site related contaminated soil exceeding the SCGs was removed from the site during the 2005 IRM. However, a localized area of residual soil contamination that exceeds the SCGs is found beneath the septic tank area in small sand lenses at a depth of about 16 feet below the ground surface.

Groundwater monitoring over the past twenty years indicates groundwater contamination levels are decreasing. The degradation of the groundwater contamination (also called attenuation) is a result of removal of the source soils during the 2005 IRM. While it is difficult to estimate the actual time it will take for the entire groundwater plume to attenuate to a level below the groundwater standard it is anticipated that the decreasing trends in the groundwater analytical data will continue. The Site Management Plan will include groundwater monitoring.

COMMENT 9: Can a single family home be built on the site?

RESPONSE 9: The Environmental Easement which will be placed on the site will limit the future use of the site to residential use, which would allow a single family residence.

The easement will also restrict the use of site groundwater as a source of potable or process water, without necessary water quality treatment as determined by New York State Department of Health.

COMMENT 10: Can farm animals graze on the site?

RESPONSE 10: As noted in response # 2, the remaining contaminants identified at the site are volatile organic compounds (VOCs) noted in isolated sand seams 16 feet below grade, with the contaminated groundwater present 7 feet below grade. The VOC contaminants are well below the root zone of plants. Therefore, due to the site specific nature and location of the contamination agricultural use will be permitted.

COMMENT 11: I live on Koziol Road? Is my property ok?

RESPONSE 11: Site related groundwater contamination is limited to the 3.24 acre boundary shown on Figures 1 and 2 of the Record of Decision. Koziol Road is located about 1/4 mile to the west of the site and is side gradient of the groundwater plume. There is a clean groundwater monitoring well between the site and Koziol Road. There is no indication of site related contamination impacting properties located on Koziol Road.

COMMENT 12: The remedial work started with EPA initial actions in the late 1980s. Why did it take so long to get to this point?

RESPONSE 12: As noted, the USEPA initiated remedial work on the site in the early 1990's which was critical to the protection of human health and the environment. The remedial work

proceeded in a series of projects, detailed in the ROD which included the demolition of all site structures, the removal of hazardous waste liquids and drums, the installation of deeper supply wells for adjacent residences, and culminating with the removal of the contaminant source by the 2005 IRM. Since 2005, groundwater monitoring has confirmed that the removal actions taken by the USEPA were appropriate and effective and the remaining groundwater contamination is attenuating. This action by the Department will put in place the last elements of the remedial program to assure the site is properly managed and that use restrictions are in place.

APPENDIX B

Administrative Record

Administrative Record

Johnny Cake Road Farm Site
Site No. 6-22-016

1. Proposed Remedial Action Plan for the Johnny Cake Road Farm site, dated March 2009, prepared by the Department.

2. "Removal Action Report", November 2006, prepared by the United States Environmental Protection Agency.

3. "Site Investigation Report", February 2009, prepared by Earth Tach Northeast, Inc.

4. Fact Sheet for the Proposed Remedial Action Plan and Public Meeting, February 2009, prepared by the Department.