PROPOSED REMEDIAL ACTION PLAN

ITT Automotive Fluid Handling System
State Superfund Project
Gates, Monroe County
Site No. 828112
February 2020

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

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SECTION 1: SUMMARY AND PURPOSE OF THE PROPOSED PLAN

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), is proposing a remedy for the above referenced site. The disposal of hazardous wastes at the site has resulted in threats to public health and the environment that would be addressed by the remedy proposed by this Proposed Remedial Action Plan (PRAP). The disposal of hazardous wastes at this site, as more fully described in Section 6 of this document, has contaminated various environmental media. The proposed remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This PRAP identifies the preferred remedy, summarizes the other alternatives considered, and discusses the reasons for the preferred remedy.

The New York State Inactive Hazardous Waste Disposal Site Remedial Program (also known as the State Superfund Program) is an enforcement program, the mission of which is to identify and characterize suspected inactive hazardous waste disposal sites and to investigate and remediate those sites found to pose a significant threat to public health and environment.

The Department has issued this document in accordance with the requirements of 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 the site-related reports and documents in the document repository identified below.

SECTION 2: CITIZEN PARTICIPATION

The Department seeks input from the community on all PRAPs. This is an opportunity for public participation in the remedy selection process. The public is encouraged to review the reports and documents, which are available at the following repository:

Town of Gates Public Library
902 Elmgrove Road
Gates, NY 14624
Phone: 585-247-6446

A public comment period has been set from:

02/13/20 to 03/13/20

A public meeting is scheduled for the following date:

03/04/20 at 6:30 PM

Public meeting location:

Town of Gates Public Library
902 Elmgrove Road
Gates, NY 14624

At the meeting, the findings of the remedial investigation (RI) and the feasibility study (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 through to:

Frank Sowers
NYS Department of Environmental Conservation
Division of Environmental Remediation
6274 East Avon-Lima Road
Avon, NY 14414
frank.sowers@dec.ny.gov

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 the proposed remedy identified herein. 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.

Receive Site Citizen Participation Information By Email

Please note that the Department's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program, Voluntary Cleanup Program, and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The ITT Automotive Fluid Handling System site (ITT; "the site") is located at 30 Pixley Industrial Parkway in a commercial/light industrial section in the Town of Gates, Monroe County, tax map number 119.17-1-1. The site is approximately 0.25 miles west of the corner of Pixley Road and Pixley Industrial Parkway. The site is also referred to as the Former ITT Rochester Form Machine Facility (RFM) site.

Site Features: The main site feature is a 45,000 square foot building slab (the building was demolished in 2015) on an approximately 3-acre property. The building slab is surrounded by an asphalt covered parking area to the west and north, and a grass covered area to the east and south. The entire site is surrounded by a fence.

Current Zoning and Land Use: The site is currently vacant and zoned for industrial use. The surrounding properties are currently used for a combination of commercial, light industrial, and utility right-of-ways. The nearest residential area is approximately 0.25 miles west on Riviera Drive.

Past Use of the Site: The site was known as Rochester Form Machine, Inc. until 1994. The RFM facility was owned and operated by ITT and was used to produce aluminum parts. Uses that appear to have led to site contamination include degreasing with 1,1,1-trichloroethane (TCA). Between 1984 and 1987, four above ground TCA storage tanks were installed at the site and TCA was used for degreasing. The TCA also contained 1,4-dioxane, which was added as a stabilizer. TCA was no longer used at the site by the end of 1994. ITT shut down manufacturing operations at the site in late 2003.

In 1991, ITT performed an environmental investigation at the site. The Department was notified of the 1991 investigation in 1998 when the Department initiated its own site investigation based on sampling results from an adjacent property to the east, which indicated the potential for TCA contamination to be present at the ITT site. TCA and 1,4-dioxane were the primary contaminants detected during the 1991 and 1998 investigations. The highest soil concentrations were detected outside the ITT building in the northeast corner of the site in an area where steam cleaning operations were reportedly performed. A storm water recharge well in the southwest corner of the property was also identified as an area of concern. In 1999, ITT conducted a more in-depth environmental investigation. The ITT investigation (performed without Department review, approval or oversight), indicated the widespread presence of TCA and 1,4-dioxane in the overburden soil at the northeast corner of the property. Based on these results, ITT excavated about 968 tons of soil to the top of bedrock (6 to 11 feet below ground surface) adjacent to the northeast corner of the building in 1999.

The Department sampled the groundwater approximately one year after ITT's soil removal. The results indicated the continued presence of TCA-contaminated groundwater at the northeast corner of the ITT site and at an adjacent off-site property to the east. Based on these results, the Department listed the ITT property as a Class 2 site on the State's Registry of Inactive Hazardous Waste Disposal Sites in 2002. In 2003, ITT and the Department signed a Consent Order to implement a full remedial program for the site.

Site Geology and Hydrogeology: The site is generally flat with a gentle slope to the south. Soil thickness at the site varies from 7 feet to 12 feet. The soil consists of fill materials to depths of up to 2 feet. Under the fill is a stiff, red brown, silty clay layer that varies in thickness from 2.5 feet to 6 feet and transitions to a soft, clayey silt with traces of sand and gravel.

The bedrock encountered under the soil layer is divided into three zones. The uppermost zone (from about 15 feet to 34 feet below ground surface) is designated the shallow bedrock zone and is comprised of a moderately fractured Eramosa Dolomite. The intermediate bedrock zone is defined as the bedrock between the shallow bedrock zone and the base of the Eramosa Dolomite at depths of up to 55 feet. The deep bedrock zone includes additional dolomite and shale formations to a depth of approximately 150 feet.

Groundwater is primarily present in the bedrock typically starting at depths of 10 to 15 feet. The shallow bedrock zone represents the primary zone of groundwater flow.

Groundwater from the site generally flows to the north and northeast, however this is complicated by the presence of storm water recharge wells at the site and an adjacent property. These storm water recharge wells are essentially open holes up to 150 feet deep which collect storm water runoff from parking lots and roof drains. Localized areas of radial groundwater flow are produced around the recharge wells during periods of rain and snowmelt. This mounding significantly alters, and even reverses, the groundwater flow direction; especially on the west side of the recharge well.

Natural gas is encountered at depths of about 150 feet.

A site location map is attached as Figure 1.

SECTION 4: <u>LAND USE AND PHYSICAL SETTING</u>

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, alternatives (or an alternative) that restrict(s) the use of the site to commercial use (which allows for industrial use) as described in Part 375-1.8(g) are/is being evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the investigation to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 5: <u>ENFORCEMENT STATUS</u>

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:

ITT Corporation

The Department and ITT Automotive, Inc. entered into a Consent Order (Index No. B8-0614-02-05) on August 19, 2003. The Consent Order was amended on November 2, 2006 to change the name of the Respondent to ITT Corporation. The Order obligates the responsible parties to implement a full remedial program.

SECTION 6: <u>SITE CONTAMINATION</u>

6.1: <u>Summary of the Remedial Investigation</u>

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- indoor air
- sub-slab vapor

6.1.1: <u>Standards, Criteria, and Guidance (SCGs)</u>

The remedy must conform to 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.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a hazardous waste that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminants of concern identified at this site are:

1,1,1-TCA	1,1-dichloroethane
1,4-dioxane	1,1-dichloroethene
benzo(a)anthracene	chloroethane
benzo(a)pyrene	cis-1,2-dichloroethene
benzo(b)fluoranthene	vinyl chloride
dibenz[a,h]anthracene	trichloroethene (TCE)
indeno(1,2,3-CD)pyrene	tetrachloroethene (PCE)

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor intrusion

6.2: 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 issuance of the Record of Decision.

There were no IRMs performed at this site during the RI.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

Based upon the resources and pathways identified and the toxicity of the contaminants of ecological concern at this site, a Fish and Wildlife Resources Impact Analysis (FWRIA) was deemed not necessary.

Nature and Extent of Contamination:
Soil and groundwater were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) including 1,4-dioxane, and metals. Soils were also analyzed for polychlorinated biphenyls (PCBs) and pesticides. Groundwater was also analyzed for per- and polyfluoroalkyl substances (PFAS). Based on investigations conducted to date, the primary contaminants of concern for the site include 1,1,1-trichloroethane (TCA) and associated degradation products, 1,4-dioxane, and a group of SVOCs called polycyclic aromatic hydrocarbons (PAHs). Tetrachloroethene (PCE), trichloroethene (TCE), and associated degradation products are also found at the site above SCGs.

Surface Soil (0-2 inches): PAHs, especially benzo(a)pyrene (B(a)P), benzo(a)anthracene (B(a)A), and benzo(b)fluoranthene (B(b)F), dibenzo(a,h)anthracene (D(a,h)A), and indeno[1,2,3-cd]pyrene (I(1,2,3-cd)P) appear to be the primary contaminants in the on-site surface soil located south of the former building. B(a)A, and B(b)F exceed their 1 part per million (ppm) soil cleanup objectives (SCOs) for unrestricted use, with maximum concentrations of 1.5 ppm and 2.7 ppm, respectively. B(a)P exceeds the 1 ppm SCO for unrestricted and commercial use with a maximum concentration of 1.7 ppm. D(a,h)A exceeds the 0.33 ppm SCO for unrestricted use with a maximum concentration of 0.35 ppm. I(1,2,3-cd)P exceeds the 0.5 ppm SCO for unrestricted use with a maximum concentration of 1.5 ppm. Compounds in other analyte groups were not detected at concentrations exceeding commercial SCOs.

TCE, PCE, TCA, 1,4-dioxane, 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), chloroethane, cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC) were not detected in surface soil at concentrations exceeding unrestricted use SCOs.

Data does not indicate any off-site impacts in surface soil related to this site.

Sub-Surface Soil: The Remedial Investigation found TCA in soil at depths of 8 to 10 feet below ground underneath the northeast corner of the former on-site building. The maximum concentration of TCA detected on site is 0.71 ppm which slightly exceeds the soil cleanup objective (SCO) for unrestricted use and the protection of groundwater (0.68 ppm). 1,1-DCE is found 9 to 10 feet below ground underneath the southern portion of the building in the vicinity of a degreaser. The maximum concentration of 1,1-DCE detected on-site is 0.43 ppm, which slightly exceeds the SCO for unrestricted use and the protection of groundwater (0.33 ppm). 1,4-dioxane is found sporadically in subsurface soil throughout the site. The maximum concentration of 1,4-dioxane detected on-site is 0.93 ppm, which exceeds the SCO for unrestricted use (0.10 ppm).

PAHs are found on-site directly underneath the asphalt parking lot. B(a)A, and B(b)F exceed the 1 ppm SCO for unrestricted use and the 5.6 ppm SCO for commercial use with maximum concentrations of 12 ppm and 28 ppm, respectively. B(a)P) exceeds the 1 ppm SCO for unrestricted and commercial use with a maximum concentration of 17 ppm. D(a,h)A exceeds the 0.33 ppm SCO for unrestricted use and the 0.56 ppm SCO for commercial with a maximum concentrations of 3.8 ppm. I(1,2,3-cd)P exceeds the 0.5 ppm SCO for unrestricted use and the 5.6 ppm SCO for commercial use with a maximum concentrations of 17 ppm.

TCE, PCE, 1,1-DCA, chloroethane, cis-1,2-DCE, and VC are not detected in sub-surface soil at concentrations exceeding unrestricted use SCOs.

Data does not indicate any off-site impacts in sub-surface soil related to this site.

Groundwater: TCA and its associated degradation products (1,1-DCA, 1,1-DCE, chloroethane, and VC), are found in groundwater at concentrations exceeding the groundwater standards [5 parts per billion (ppb) for 1,1-DCA, 1,1-DCE and chloroethane and 2 ppb for VC] at two on-site areas. One area is located north and east of the former on-site building. While groundwater standards are exceeded to a depth of at least 110 feet, the highest concentrations are found from the groundwater surface (typically about 10 to 15 feet below grounFigd) to a depth of 60 feet below ground. The maximum and most recent (2019) groundwater concentrations found on-site during the Remedial Investigation in the northeast portion on property are 3,500 ppb and 980 ppb of TCA; 144 ppb and 23 ppb of 1,1-DCA; 89.4 ppb and 35 ppb of 1,1-DCE; 8.7 ppb and non-detect for chloroethane; and 2.8 ppb of VC (maximum and most recent). In addition, groundwater data collected over the course of the investigation demonstrates a downward trend in observed contaminant levels over time.

For per- and polyfluoroalkyl substances (PFAS), perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were reported at concentrations of up to 8.3 and 7.5 parts per trillion (ppt), respectively, below the 10 ppt screening levels for groundwater for each. No other individual PFAS exceeded the 100 ppt screening level. The total concentration of PFAS, including PFOA and PFOS, were reported at concentrations of up to 72 ppt, below the 500 ppt screening level for total PFAS in groundwater. 1,4-Dioxane was reported on-site at concentrations of up to 17 parts per billion (ppb), exceeding the screening level of 1 ppb in groundwater.

The second area is a storm water recharge well located near the southwest corner of the site. In addition to TCA and its degradation products, PCE and TCE are also found at concentrations exceeding the 5 ppb groundwater standard. One round of groundwater samples collected from discrete depths within the recharge well indicate that the highest concentrations are present at depths between approximately 120 to 140 feet below ground. Maximum concentrations are 810 ppb of TCA; 1,300 ppb of 1,1-DCA; 28 ppb of 1,1-DCE; 71 ppb of TCE; 26 ppb of PCE; and 3.4 ppb of VC. Chloroethane and 1,4-dioxane were not detected in groundwater at the southwest corner of the site.

Off-site, groundwater impacts are present at two properties. The first is an adjacent property to the east. This property is in the Brownfield Cleanup Program (BCP; Site #C828101) due to past industrial site use, including degreasing, and data indicating releases of TCA and other chlorinated solvents. Contributions from contaminant releases associated with the adjacent BCP site complicate the interpretation of the off-site extent of groundwater impacts related to the ITT site. Data interpretation is further complicated by the presence of a storm water recharge well located in the northwest portion of the BCP site. The recharge well is approximately 150 feet deep. The northwest portion of the BCP site is hydraulically downgradient of the of the ITT site during dry conditions, but recharge events (rain and snowmelt) cause groundwater mounding around the recharge well resulting in the ITT site being hydraulically downgradient of the recharge well. Groundwater impacts on the BCP site are being addressed under the BCP.

The other impacted off-site property is a large commercial property located adjacent to the ITT site to the north. Groundwater impacts on this property extend approximately 400 feet to the northeast.

Bedrock: Bedrock core sample results indicate that TCA has diffused into the bedrock matrix. Based on the results and conclusions of the Remedial Investigation, it is expected that this TCA will act as a long-term source of groundwater contamination as the TCA slowly diffuses back into the groundwater over time.

PAHs and PFAS are not detected in groundwater at concentrations exceeding groundwater standards and screening values.

Soil Vapor, Sub-Slab Vapor and Indoor Air: On-site, TCA, 1,1-DCA, 1,1-DCE, 1,4-dioxane, chloroethane, TCE, PCE, cis-1,2-DCE, and VC were detected in on-site sub-slab vapor. Soil vapor, sub-slab vapor and indoor air samples were not analyzed for PAHs.

TCA was detected on-site at the highest frequency and the highest concentrations with sub-slab soil vapor at concentrations up to 180,000 micrograms per cubic meter (ug/m^3) and in indoor air at concentrations up to 150 ug/m^3. 1,1-DCE was detected in sub-slab soil vapor at concentrations up to 48,000 ug/m^3 and in indoor air at concentrations up to 20 ug/m^3. The other compounds were detected in the on-site sub-slab soil vapor at lower concentrations and were not detected in on-site indoor air. The building was vacant during the time of the soil vapor intrusion sampling and has since been demolished.

Off-site, at the adjacent BCP site to the east soil vapor intrusion concerns are being addressed under the BCP. Soil vapor intrusion sampling conducted on off-site properties to the north and west of the ITT site indicates that no further action is needed to address exposures related to soil vapor intrusion for these properties.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

People are not coming into contact with the contaminated groundwater because the area is served by a public water supply that is not affected by this contamination. Direct contact with contaminants in the soil is unlikely because the site is covered with buildings and pavement. Volatile organic compounds in the groundwater may move into the soil vapor (air between soil particles), which in turn may move into overlying buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. Because the site is vacant, the inhalation of site related contaminants due to soil vapor intrusion does not represent a current concern. An evaluation will be completed should the use of the site change. Sampling indicates that soil vapor intrusion is not a concern offsite except at a building to the east where ongoing measures are preventing exposures to contamination from soil vapor intrusion.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of volatiles, from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at a site.

SECTION 7: SUMMARY OF THE PROPOSED REMEDY

To be selected, the 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. The remedy must also attain the remedial action objectives identified for the site, which are presented in

Section 6.5. Potential remedial alternatives for the Site were identified, screened and evaluated in the FS report.

A summary of the remedial alternatives that were considered for this site is presented in Exhibit B. Cost information is presented in the form of present worth, which 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. A summary of the Remedial Alternatives Costs is included as Exhibit C.

The basis for the Department's proposed remedy is set forth at Exhibit D.

The elements of the proposed remedy are as follows:

The proposed remedy is referred to as the Site Cover, On-Site Recharge Well Decommissioning with Site Management remedy.

The estimated present worth cost to implement the remedy is $810,000. The cost to construct the remedy is estimated to be $100,000 and the estimated average annual cost is $57,000.

The elements of the proposed remedy are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Excavation

All exposed soils (soils not covered by pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.) in the upper foot which exceed the commercial SCOs will be excavated and transported off-site for disposal. Approximately 14 cubic yards of SVOC contaminated soil will be removed from the south lawn area of the site.

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) will be brought in to replace the excavated soil and establish the designed grades at the site.

3. Cover System

A site cover will be required to allow for commercial use of the site in areas where the upper one foot of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs). Where a soil cover is to be used it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

4. Recharge Well Decommissioning:

Stormwater recharge well ITT-W-1 located near the southwest corner of the ITT property will be decommissioned to eliminate the pathway for vertical contaminant migration. The decommissioning method will be specified in the Remedial Design.

5. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for commercial use or industrial use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or County DOH; and
- require compliance with the Department approved Site Management Plan.

6. Site Management Plan

A Site Management Plan is required, which includes the following:

a. an Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:

Institutional Controls: The Environmental Easement discussed in Paragraph 5 above.
Engineering Controls: The cover system discussed in Paragraph 3 above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- a provision should redevelopment occur to ensure no soil exceeding protection of groundwater concentrations will remain below storm water retention basin or infiltration structures.
- descriptions of the provisions of the environmental easement including any land use and/or groundwater water use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 2 above will be placed in any areas where the upper one foot of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
- a provision for evaluation of the potential for soil vapor intrusion for any new buildings developed on the site and in off-site areas of contamination, including provision for implementing actions recommended to address exposures related to soil vapor intrusion;
- provisions for the management and inspection of the identified engineering controls;
- maintaining site access controls and Department notification; and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls.

b. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring (on-site and off-site) of groundwater, soil vapor, sub-slab soil vapor, and indoor air to assess the performance and effectiveness of the remedy;
- a schedule of monitoring and frequency of submittals to the Department; and
- monitoring for vapor intrusion for any buildings as may be required by the Institutional and Engineering Control Plan discussed above.

c. Provisions for a contingency remedy that will be implemented if data indicates that the groundwater contaminant plume is expanding.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation for all environmental media that were evaluated. As described in Section 6.1, samples were collected from various environmental media to characterize the nature and extent of contamination.

For each medium for which contamination was identified, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into four categories; volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides/polychlorinated biphenyls (PCBs), and inorganics (metals and cyanide). For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use. For soil, if applicable, the Restricted Use SCGs identified in Section 4 and Section 6.1.1 are also presented.

Groundwater

Groundwater samples were collected from shallow, intermediate, and deep bedrock monitoring wells. The samples were collected to assess groundwater conditions on and off-site. The results indicate that contamination in shallow bedrock groundwater on and off-site exceeds the SCGs for volatile organic compounds and inorganics. Contaminant levels in intermediate and deep bedrock groundwater on and off-site exceed the guidance values for volatile organic compounds. A semi-volatile organic compound which has no guidance value is found in the shallow, intermediate, and deep bedrock groundwater. The nature and extent of groundwater contamination is shown on Figures 2A to 2D.

Table 1 - Groundwater

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
VOCs			
1,1,1-Trichloroethane	ND to 95,000	5	130 of 222
1,1-Dichloroethane	ND to 8,300	5	110 of 222
1,1-Dichloroethene	ND to 230	5	78 of 222
Trichloroethene	ND to 430	5	47 of 222
Tetracholorethene	ND to 26	5	30 of 222
Benzene	ND to 470	1	36 of 222
Ethylbenzene	ND to 33	5	35 of 222
Toluene	ND to 440	5	16 of 222
Xylene (total)	ND to 210	5	23 of 222
Cis-1,2-Dichloroethene	ND to 65	5	5 of 222
Vinyl Chloride	ND to 3.4	2	6 of 222
Chloroethane	ND to 8.7	5	2 of 222

Detected Constituents	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)	Frequency Exceeding SCG
SVOCs			
1,4-Dioxane	ND to 250	1	83 of 184
Inorganics			
Magnesium	4,600 to 43,000	35,000	2 of 6
Pesticides/PCBs			
Not Analyzed			

a - ppb: parts per billion, which is equivalent to micrograms per liter, ug/L, in water.
b- SCG: Standard Criteria or Guidance - Ambient Water Quality Standards and Guidance Values (TOGs 1.1.1), 6 NYCRR Part 703, Surface water and Groundwater Quality Standards, Part 5 of the New York State Sanitary Code (10 NYCRR Part 5), and screening levels.

The primary groundwater contaminants are 1,1,1-trichloroethane (TCA), 1,1-dichloroethane (1,1-DCA), 1,1-dichloroethene (1,1-DCE), and 1,4-dioxane. As noted on Figure 2A, the primary groundwater contamination is associated with the area outside the northeast portion of the former on-site building with the highest contaminant concentrations detected in the northwest portion of an adjacent off-site property. A secondary area of concern associated with a groundwater recharge well is present in the southwest portion of the site. Groundwater concentrations throughout the study area appear to be trending lower over time.

The off-site property to the east is also in a remedial program due to historical industrial site use, including degreasing and data indicating releases of TCA and other chlorinated solvents. Contributions from contaminant releases associated with this off-site property, as well as additional groundwater recharge wells, complicate the site conceptual model and interpretation of the off-site extent of groundwater impacts related to the ITT site. Cis-1,2-dichloroethene (cis-1,2-DCE) is only detected in one well located directly outside of the building on the off-site property to the east. Vinyl chloride and chloroethane are associated with the natural breakdown of TCA, PCE, and TCE and are found only sporadically on- and off-site.

Elevated levels of benzene, toluene, ethylbenzene, and xylene (BTEX) are primarily detected in the deeper bedrock zones. This is consistent with the professional literature, which indicates that naturally occurring BTEX compounds are present in the Decew Dolomite and Rochester Shale bedrock formations in the region. The Decew Dolomite and Rochester Shale are present at the site at depths of approximately 110 feet and 125 feet, respectively. The BTEX is likely associated with the natural gas that was encountered when drilling into the shale. Therefore, the BTEX compounds found in groundwater are not considered site-related contaminants of concern. Magnesium exceeding the SCG was found in two shallow bedrock wells, one on-site and one off-site, which are also associated with higher levels of VOCs. There are no indications of magnesium releases to the environment from either site, and the magnesium is considered to be naturally occurring. Therefore, the magnesium found in groundwater is not considered a site specific contaminant of concern.

Based on the findings of the RI, the past disposal of hazardous waste has resulted in the contamination of groundwater. The site contaminants that are considered to be the primary contaminants of concern which will drive the remediation of groundwater to be addressed by the remedy selection process are: TCA, 1,1-DCA, 1,1-DCE, and 1,4-dioxane.

Soil

Surface and subsurface soil samples were collected at the site during the RI. Surface soil samples were collected from a depth of 0-2 inches to assess direct human exposure. Subsurface soil samples were collected from a depth of 2 - 20 feet to assess soil contamination impacts to groundwater. The results indicate that soils at the site exceed the unrestricted SCOs for volatile and semi-volatile organics, metals, and pesticides. The nature and extent of soil contamination is shown on Figures 3A to 3B.

Table 2 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG	Restricted Use SCG[c] (ppm)	Frequency Exceeding Restricted SCG
VOCs					
1,1,1-Trichloroethane	ND to 0.71	0.68	1 of 102	0.68[d]	1 of 102
1,1-Dichloroethene	ND to 0.43	0.33	1 of 102	0.33[d]	1 of 102
Acetone	ND to 0.20	0.05	4 of 102	500	0 of 102
SVOCs					
1,4-Dioxane	ND to 0.93	0.1	4 of 100	0.1[d]	4 of 100
Benzo(a)anthracene	ND to 12	1	4 of 34	5.6	2 of 34
Benzo(a)pyrene	ND to 17	1	4 of 34	1	4 of 34
Benzo(b)fluoranthene	ND to 28	1	4 of 34	5.6	2 of 34
Dibenzo(a,h)anthracene	ND to 3.8	0.33	3 of 34	0.56	2 of 34
Indeno[1,2,3-cd]pyrene	ND to 17	0.5	4 of 34	5.6	2 of 34
Inorganics					
Copper	ND to 144	50	1 of 20	270	0 of 20
Nickel	4.1 to 41	30	1 of 20	310	0 of 20
Pesticides/PCBs					
4,4'-DDE	ND to 0.0077	0.0033	1 of 7	62	0 of 7
4,4'-DDT	ND to 0.0040	0.0033	1 of 7	47	0 of 7
PCBs	ND to ND	0.1	0 of 7	1	0 of 7

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives.
c - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Public Health for Commercial Use, unless otherwise noted.
d - SCG: Part 375-6.8(b), Restricted Use Soil Cleanup Objectives for the Protection of Groundwater.

The primary soil contaminants are polycyclic aromatic hydrocarbons (PAHs) directly underneath the asphalt cover and in a limited area of exposed surface soil. As noted on Figure 3B, the primary surface soil contamination is located in the lawn area south of the former building. The PAH contamination appears to be from maintenance (sealing) of the parking lot.

Based on the findings of the Remedial Investigation, the presence of PAHs has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process are benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, and indeno[1,2,3-cd]pyrene.

Soil Vapor

Samples of soil vapor, sub-slab vapor under structures, and indoor air inside structures were collected to determine, along with the other environmental samples collected, whether actions are needed to address exposures related to soil vapor intrusion.

Indoor air and soil vapor samples were collected from structures located on the ITT site and in three adjacent commercial properties. Outdoor air samples were also collected. These samples were collected to assess the potential for soil vapor intrusion. The results indicate TCA, 1,1-DCA, 1,1-DCE, 1,4-dioxane, chloroethane, TCE, PCE, cis-1,2-DCE, and VC were detected in on-site sub-slab vapor. TCA, 1,1-DCA, 1,1-DCE, cis-1,2-DCE, TCE, and PCE were detected in the indoor air of several structures. The results indicated that no further actions were needed to address exposures to soil vapor intrusion into two of the adjacent commercial properties. The results from the on-site building and one off-site building indicate that actions are needed to address exposures. The nature and extent of TCA soil vapor contamination is shown on Figure 4.

The primary soil vapor contaminant of concern is TCA, which is associated with the former degreasing operations at both the ITT site and an adjacent property to the east. As noted on Figure 4, soil vapor contamination is found under the on-site building and the adjacent off-site building to the east. The on-site building has since been demolished so there are currently no exposures and no structures on the site. The one off-site structure to the east is also in a remedial program due to historical releases of TCA and other chlorinated solvents. Contributions from contaminant sources associated with this off-site property complicate the interpretation of the off-site extent of soil vapor intrusion impacts related to the ITT site. As stated above, soil vapor intrusion sampling in the two adjacent commercial properties to the north and west did not find any site related contamination at levels requiring further action. Mitigation is necessary for any future on-site buildings and mitigation has been recommended for the adjacent off-site property to the east.

Based on the findings of the Remedial Investigation, the disposal of hazardous waste has resulted in the contamination of soil vapor. The site contaminant that is considered to be the primary contaminant of concern which will drive the remediation of soil vapor to be addressed by the remedy selection process is TCA.

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Section 6.5) to address the contaminated media identified at the site as described in Exhibit A.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. This alternative leaves the site in its present condition and does not provide any additional protection to public health and the environment.

Alternative 2: Site Cover, On-Site Recharge Well Decommissioning with Site Management

This alternative would include:

- Decommissioning the storm water recharge well located in the southwest portion of the ITT site.
- Excavation and off-site disposal of PAH contamination above the commercial use soil cleanup objectives (SCOs). The excavation would be limited to surface soils (top 1 foot) in the grass covered area south of the former building shown on Figure 5A. Approximately 14 cubic yards of PAH contaminated soil will be removed from the south lawn area of the site.
- A site cover to allow for commercial or industrial use of the site in areas where the upper one foot of exposed surface soil exceed the applicable SCOs. Where a soil cover is to be used, it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.
- Institutional controls, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any contamination in any environmental media at, or that emanated from, the site.
- Installation of soil vapor intrusion mitigation systems for any buildings constructed on-site.

Present Worth: *$806,000*
Capital Cost: *$104,000*
Annual Costs: *$57,000*

Alternative 3: Soil-Vapor Extraction, On-Site Recharge Well Decommissioning, and Site Management

This alternative would include:

- Soil vapor extraction (SVE) to remove VOCs and 1,4-dioxane from subsurface soils that exceed protection of groundwater SCOs in the area shown on Figure 5B. VOCs and 1,4-dioxane will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the

VOCs and 1,4-dioxane from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.
- Decommissioning the storm water recharge well located in the southwest portion of the ITT site.
- Excavation and off-site disposal of PAH contamination above the commercial use SCOs. The excavation would be limited to surface soils (top 1 foot) in the grass covered area south of the former building shown on Figure 5B. Approximately 14 cubic yards of PAH contaminated soil will be removed from the south lawn area of the site.
- A site cover to allow for commercial or industrial use of the site in areas where the upper one foot of exposed surface soil exceed the applicable SCOs. Where a soil cover is to be used, it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.
- Institutional controls, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any contamination in any environmental media at, or that emanated from, the site.
- Soil vapor intrusion mitigation systems for any buildings constructed on-site.

Present Worth: *$3,400,000*
Capital Cost: *$1,200,000*
Annual Costs: *$113,000*

Alternative 4: Soil Excavation, On-Site Recharge Well Decommissioning, and Site Management

This alternative would include:
- Excavation and off-site disposal to remove VOCs and 1,4-dioxane from soils that exceed protection of groundwater SCOs in the area shown on Figure 5C.
- Decommissioning the storm water recharge well located in the southwest portion of the ITT site.
- Excavation and off-site disposal of PAH contamination above the commercial use SCOs. The excavation would be limited to surface soils (top 1 foot) in the grass covered area south of the former building shown on Figure 5C. Approximately 14 cubic yards of PAH contaminated soil will be removed from the south lawn area of the site.
- A site cover to allow for commercial or industrial use of the site in areas where the upper one foot of exposed surface soil exceed the applicable SCOs. Where a soil cover is to be used, it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.
- Institutional controls, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any contamination in any environmental media at, or that emanated from, the site.

- Soil vapor intrusion mitigation systems for any buildings constructed on-site.

Present Worth: *$1,540,000*
Capital Cost: *$943,000*
Annual Costs: *$48,500*

Alternative 5: Restoration to Pre-Disposal or Unrestricted Conditions

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a). This alternative would include:

- In-Situ Thermal Treatment to destroy or volatilize volatile organic compounds (VOCs) in soil and groundwater over the approximately 42,000 square foot area indicated on Figure 5D to a depth of approximately 110 feet below ground. The gases produced by the thermal treatment will be collected by vapor extraction wells and treated in an ex-situ treatment unit. Effluent vapors will be treated by adsorption on granular activated carbon. Electrical resistance heating (ERH) will be utilized to perform the treatment. An electrical current will be produced in the treatment area between electrodes installed underground. Heat will be generated as movement of the current meets resistance from the soil and bedrock. Treatment will continue until groundwater standards are met.
- Decommissioning the storm water recharge well located in the southwest portion of the ITT site.
- Excavation and off-site disposal of PAH contamination above the unrestricted soil cleanup objectives. The excavation would include surface soils in the grass covered area south of the former building and soils under the asphalt parking lot.

Capital Cost: *$15,400,000*

Alternative 6: In-Situ Thermal Treatment, On-Site Recharge Well Decommissioning, and Site Management

This alternative would include:

- In-Situ Thermal Treatment to destroy or volatilize volatile organic compounds (VOCs) in soil and groundwater over the approximately 42,000 square foot area indicated on Figure 5D to a depth of approximately 55 feet below ground. The gases produced by the thermal treatment will be collected by vapor extraction wells and treated in an ex-situ treatment unit. Effluent vapors will be treated by adsorption on granular activated carbon. Electrical resistance heating (ERH) will be utilized to perform the treatment. An electrical current will be produced in the treatment area between electrodes installed underground. Heat will be generated as movement of the current meets resistance from the soil and bedrock. Treatment will continue until groundwater standards are met.
- Decommissioning the storm water recharge well located in the southwest portion of the ITT site.
- A site cover to allow for commercial or industrial use of the site in areas where the upper one foot of exposed surface soil exceed the applicable SCOs. Where a soil cover is to be used, it will be a minimum of one foot of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may

include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

- Institutional controls, in the form of an environmental easement and a site management plan, necessary to protect public health and the environment from any contamination in any environmental media at, or that emanated from, the site.
- Soil vapor intrusion mitigation systems for any buildings constructed on-site.

Present Worth: *$8,730,000*
Capital Cost: *$8,540,000*
Annual Costs: *$40,000*

Exhibit C

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1: No Action	0	0	0
Alternative 2: Site Cover, On-Site Recharge Well Decommissioning with Site Management	$104,000	$57,000	$806,000
Alternative 3: Soil-Vapor Extraction, On-Site Recharge Well Decommissioning, and Site Management	$1,200,000	$113,000	$3,400,000
Alternative 4: Soil Excavation, On-Site Recharge Well Decommissioning, and Site Management	$943,000	$48,500	$1,540,000
Alternative 5: Restoration to Pre-Disposal or Unrestricted Conditions	$15,400,000	$0.00	$15,400,000
Alternative 6: In-Situ Thermal Treatment, On-Site Recharge Well Decommissioning, and Site Management	$8,540,000	$40,000	$8,730,000

Exhibit D

SUMMARY OF THE PROPOSED REMEDY

The Department is proposing Alternative 2, Site Cover, On-Site Recharge Well Decommissioning with Site Management as the remedy for this site. Alternative 2 would achieve the environmental remediation goals for the site by eliminating a vertical contaminant migration pathway by decommissioning the on-site storm water recharge well located in the southwest corner of the site. Exposure to contaminated soil and groundwater will be prevented by a cover system, restricting future use of the property to commercial and industrial activities, restricting groundwater use, and adherence to a Site Management Plan. The Site Management Plan will include groundwater plume management monitoring at on-site and off-site locations to verify the stability and continued diminishment of the groundwater plume. A contingency remedy will be implemented if the groundwater plume should unexpectedly expand. Exposure to contaminated soil vapor will be prevented by installing soil vapor intrusion mitigation systems on off-site buildings, as needed, and any buildings constructed on-site. The elements of this remedy are described in Section 7. The proposed remedy is depicted in Figure 5A.

Basis for Selection

The proposed remedy is based on the results of the RI and the evaluation of alternatives. The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. 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. <u>Protection of Human Health and the Environment.</u> This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

The proposed remedy, Alternative 2, would satisfy this criterion by constructing and maintaining a protective cap to prevent contact with impacted soil; installing soil vapor intrusion mitigation systems on off-site buildings (as needed) and on any new buildings constructed on-site to prevent inhalation of impacted soil vapor; a long-term groundwater use restriction to prevent exposure to impacted groundwater; an environmental easement to restrict future use of the property to commercial and industrial activities; elimination of a vertical contaminant migration pathway to the deep bedrock; and a Site Management Plan that includes long-term groundwater plume management monitoring on and off-site. Groundwater data collected over the course of the investigation demonstrates a downward trend in observed contaminant levels over time. This trend is expected to continue and the Site Management Plan will be designed to verify that the plume continues to diminish.

Alternative 1 (No Further Action) does not provide any protection to public health and the environment and will not be evaluated further. Alternative 3 and 4 would be similar to Alternative 2, but would also meet the protection of groundwater soil cleanup objectives for VOCs and 1,4-dioxane. Alternative 5, by meeting groundwater standards and removing all soil contaminated above the unrestricted soil cleanup objective, meets the threshold criteria. Alternative 6 would be similar to Alternative 5, but with some soil contamination, primarily PAHs, remaining above commercial soil cleanup objectives under a cover system and some groundwater contamination remaining above groundwater standards at depths below 55 feet. Alternative 2 does not attempt to directly reduce source mass, but it does provide a mechanism to monitor groundwater plume stability on-site and off-site, with a contingency for treatment should contaminant levels increase. Alternatives 3 and 4 attempt to directly reduce source mass in the overburden while Alternatives 5 and 6 also attempt to reduce source mass that has diffused into the bedrock matrix.

Alternatives 2, 3, 4 and 6 rely on a restriction of groundwater use at the site to protect human health. Alternative 5 may require a short-term restriction on groundwater use; however, it is expected the restriction will be able to be removed in approximately five years. The potential for soil vapor intrusion will be significantly reduced by Alternatives 3, 4, 5 and 6. The potential for soil vapor intrusion will remain high under Alternative 2. A soil vapor mitigation system is required for any new buildings constructed on-site under Alternative 2. A soil vapor intrusion evaluation is required for any new buildings constructed on-site under Alternatives 3, 4, and 6. For all alternatives, off-site soil vapor mitigation systems will be installed, as needed, based on new information.

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.

Alternative 2 complies with SCGs to the extent practicable. There are no significant source areas of contamination in soil and Alternative 2 complies with the restricted use soil cleanup objectives at the surface through the limited excavation of PAHs and construction of a cover system. By removing the remaining VOCs and 1,4-dioxane from the soil, Alternatives 3 and 4 comply with this criterion to a greater degree. Alternatives 5 and 6 also create conditions to restore groundwater quality, especially on-site. Because Alternatives 2, 3, 4, 5 and 6 satisfy the threshold criteria, the remaining criteria are particularly important in selecting a final remedy for the site. It is expected Alternative 5 will achieve groundwater SCGs on-site in less than 5 years, while groundwater contamination above SCGs will remain on-site under Alternatives 2, 3, 4 and 6 for many years.

The next six "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. 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.

Long-term effectiveness for soil is best accomplished by those alternatives involving excavation of the contaminated overburden soils (primarily Alternatives 4 and 5). Alternative 4 focuses excavations on locations where VOCs and 1,4-dioxane remain at concentrations that exceed the protection of groundwater SCOs. Alternative 5 limits excavations to PAH impacted surface soils in the grass covered area south of the former building and PAH impacted soil under the asphalt parking lot. Alternatives 5 and 6 use in-situ thermal treatment instead of excavation to remove VOCs and 1,4-dioxane from soil and is expected to be similarly effective as Alternative 4 for soil. Soil vapor extraction (Alternative 3) is expected to be less effective at removing the VOCs and 1,4-dioxane due to low soil permeability. Alternatives 2, 3, and 6 limit excavations to PAH impacted surface soils in the grass-covered area south of the former building. Alternatives 2,3,4 and 6 use institutional and engineering controls to provide long-term effectiveness for soils.

In 1999, prior to entering a remedial program, ITT excavated about 968 tons of VOC and 1,4-dioxane contaminated soil from the northeast corner of the property. While VOCs and 1,4-dioxane remain in soil at concentrations above the Protection of Groundwater SCOs, the extent and magnitude of these exceedances are limited and do not represent a significant ongoing source of groundwater contamination. This is supported by groundwater concentrations throughout the study area that appear to be trending lower over time. The primary on-going source of groundwater contamination is from VOCs that migrated into the bedrock, diffused into the bedrock matrix and are now slowly diffusing out of the bedrock and into groundwater. Based on the apparent downward trend in groundwater concentrations, it is expected that this ongoing back diffusion will result in long-term groundwater contamination, but at relatively low levels. Alternative 5 and, to a lesser extent Alternative 6, use in-situ thermal treatment to drive the VOCs out of the bedrock matrix where they can be captured and treated. Alternatives 2, 3, 4 and 6 use institutional and engineering controls and long-term plume management monitoring to provide long-term effectiveness for groundwater.

Only Alternative 5 has the potential to achieve groundwater standards on-site within five years. Long-term groundwater use restrictions are needed for all other alternatives. As currently envisioned, the application of Alternatives 5 and 6 is limited to the site (Figure 5D). The Remedial Investigation indicated that a significant mass of VOCs is also present in the bedrock matrix on an adjacent property to the east. The off-site property to the east is also in a remedial program due to historical releases of TCA and other chlorinated solvents. Contributions from contaminant sources associated with this off-site property complicate the interpretation of the data, but the in-situ thermal treatment used in Alternatives 5 and 6 would need to be expanded to also include the off-site property to the east if this technology is to prevent periodic contaminant migration in the groundwater from the off-site property to the ITT property.

Similarly, Alternatives 5 and 6 provide the greatest effectiveness in reducing the potential for soil vapor intrusion. To a lesser extent, Alternatives 3 and 4, are also expected to reduce the potential for soil vapor intrusion. Alternative 2 relies on engineering controls to prevent soil vapor intrusion.

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

The diffusion of VOCs into the bedrock matrix followed by the back-diffusion of VOCs out of the bedrock and into the groundwater and soil vapor represents the most significant volume and mobility pathway at this site. All alternatives provide a baseline level of mobility reduction in groundwater by removing the groundwater recharge well in the southwest portion of the site. Alternatives 2, 3 and 4 do not reduce toxicity, mobility and volume in bedrock and groundwater beyond the baseline level. Alternative 5 and, to a lesser extent, Alternative 6 reduce the toxicity, mobility and volume of VOC and 1,4-dioxane in bedrock and groundwater by extracting these materials from the subsurface and treating them prior to discharge to the ambient air.

Compared to bedrock groundwater, the remaining contamination in soil is less mobile and has a smaller volume. Alternative 2 controls potential soil exposures with institutional and engineering controls, but will not reduce toxicity, mobility or volume. Alternative 4 (excavation and off-site disposal of VOC and 1,4-dioxane impacted soil), and the excavation portion of Alternative 5 (PAH impacted soil), reduces the toxicity, mobility and volume of on-site soil contaminants by transferring the material to an approved off-site location. However, depending on the disposal facility, the volume of the material would not be reduced. Alternatives 5, 6, and to a lesser extent Alternative 3, reduce the toxicity, mobility and volume of on-site VOC and 1,4-dioxane soil contamination by extracting these materials from the soil and treating them prior to discharge to the ambient air.

5. <u>Short-term Impacts and Effectiveness.</u> 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.

Alternatives 2 through 4 all have short-term impacts which could easily be controlled; however, Alternative 2 would have the smallest impact. Short-term impacts associated with Alternatives 5 and 6, such as managing the large volumes of water generated by these alternatives, would be greater and more difficult to address. Each alternative would be implemented using proper health and safety measures to minimize impacts to the community and workers. Institutional and engineering controls will be required to afford protectiveness of human health for each alternative except Alternative 5.

The time needed to achieve the remediation goals is the shortest for Alternatives 5 and 6 and longer for Alternatives 2, 3 and 4. Alternatives 3 and 4 are anticipated to require between two and three years to achieve protection of groundwater soil cleanup objectives. The institutional and engineering controls relied upon by Alternative 2 are anticipated to take less than one year to complete. Alternatives 2, 3, 4 and 6 use plume management monitoring to address groundwater in the long-term (assumed to be 30 years). If successfully implemented, Alternative 5 and, to a lesser extent, Alternative 6 will treat bedrock and groundwater with the potential to achieve groundwater standards within 5 years assuming recontamination of groundwater from off-site migration is also controlled.

The energy use needed for Alternatives 5 and 6 will be significant and higher than typical thermal treatment applications due to the large volume of fresh cold water that will be continuously entering the treatment zone and will need to be heated. Negligible to moderate fuel/energy use, is anticipated during implementation Alternatives 2, 3, and 4. Of those, Alternative 4 is anticipated to have the greatest consumption of energy while Alternative 2 is anticipated to have the least.

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.

Alternatives 2 and 4 are favorable in that they are readily implementable. Alternative 3 is also implementable, but site-specific heterogeneous subsurface soil and low permeability will limit the implementability and reliability of in-situ SVE for VOC and 1,4-dioxane removal in subsurface soil, as compared to removal by excavation included in Alternative 4.

Site-specific conditions present challenges that result in Alternatives 5 and 6 being technically very difficult to implement. Given the heterogeneous bedrock permeability distribution and the presence of enlarged fractures, large inflows of groundwater in the bedrock heating zone are expected. These large inflows of groundwater to the bedrock heating zone will result in the production of large volumes of water to treat and discharge, significant challenges to achieving target bedrock temperature, and greater than normal electrical heating requirements, thereby possibly preventing successful implementation of these remedial alternatives. Continuous groundwater extraction of 100 to 1,000 gallons per minute in order to implement thermal treatment could be impracticable due to the excessive production rates and volumes of groundwater impacted with VOCs and 1,4-dioxane that would require treatment and disposal.

If groundwater could be extracted and treated successfully for Alternatives 5 and 6, disposal of the extracted groundwater for would be to the sanitary sewer or it would be reinjected to the subsurface. Based on the large volume of water that would be extracted in order to implement Alternatives 5 and 6, it may not be possible to discharge to the sanitary sewer. Reinjection of the extracted groundwater would present other significant challenges, as described above. In order to maintain the target bedrock temperatures throughout the treatment zone, the extracted groundwater would need to be reinjected at or near the same high temperature as the heated bedrock. In addition, the reinjection of groundwater would need to occur outside of the area of impacted groundwater to avoid the uncontrolled migration of contaminants of concern.

Alternatives 5 and 6 assume that thermal treatment will be limited to on-site areas. This technology will be most effective if it is also applied on the adjacent off-site property to the east where there is also significant VOC and 1,4-dioxane contamination in bedrock and groundwater. This off-site property is an active multi-tenant commercial/industrial facility and thermal treatment will impact parking and accessibility to some of the tenant spaces.

The geological and hydrogeological conditions at the site also present implementation and effectiveness challenges for non-thermal in-situ technologies such as in-situ chemical oxidation, in-situ bioremediation, and liquid activated carbon. The active storm water recharge wells on an adjacent property result in tens to hundreds of thousands of gallons of water being introduced into the bedrock per precipitation event. This, in addition to the enlarged bedrock fractures and high groundwater velocities, is expected to require frequent, high volume, re-injections to sustain needed concentrations of injected materials in the targeted treatment zones making these technologies infeasible at this site.

7. <u>Cost-Effectiveness.</u> 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 of the alternatives vary significantly. Alternative 2 has a low cost, but the contaminated soil and groundwater would not be addressed other than by decommissioning the on-site groundwater recharge well, long-term plume management monitoring, excavation of PAH impacted surface soils, and institutional and engineering controls. With its large energy costs and large volume of soil and groundwater to be handled, Alternative 5 (in-situ thermal treatment and restoration to pre-release conditions) would have the highest present worth cost followed by Alternative 6 which is a less extensive version of Alternative 5. Soil excavation (Alternative 4) would be about 50% less expensive than Alternative 3 (soil vapor extraction), yet it will more reliably meet protection of groundwater SCOs for VOCs and 1,4-dioxane. Compared with Alternative 2, Alternatives 3 and 4 provide minimal additional benefit since the magnitude and extent of the remaining VOC and 1,4-dioxane impacted soils is minor and does not represent a significant ongoing source of groundwater contamination, and as a result, these alternatives are less cost effective.

8. <u>Land Use.</u> When cleanup to pre-disposal conditions is determined to be infeasible, the Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

Since the anticipated use of the site is commercial, Alternatives 2, 3, 4 and 6 are less desirable because at least some contaminated soil would remain on the property whereas Alternative 5 removes the contaminated soil permanently. However, the remaining contamination with Alternatives 2, 3, 4, and 6 would be controllable with implementation of institutional and engineering controls along with a Site Management Plan. Restrictions on the site use would not be necessary with Alternative 5, since all of the PAH impacted soil from surface soils in the grass covered area south of the former building and soils under the asphalt parking lot will be excavated and VOCs and 1,4-dioxane from soil, bedrock, and groundwater will be removed using in-situ thermal treatment.

The final criterion, Community Acceptance, 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.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, 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

Alternative 2 is being proposed because, as described above, it satisfies the threshold criteria and provides the best balance of the balancing criterion.

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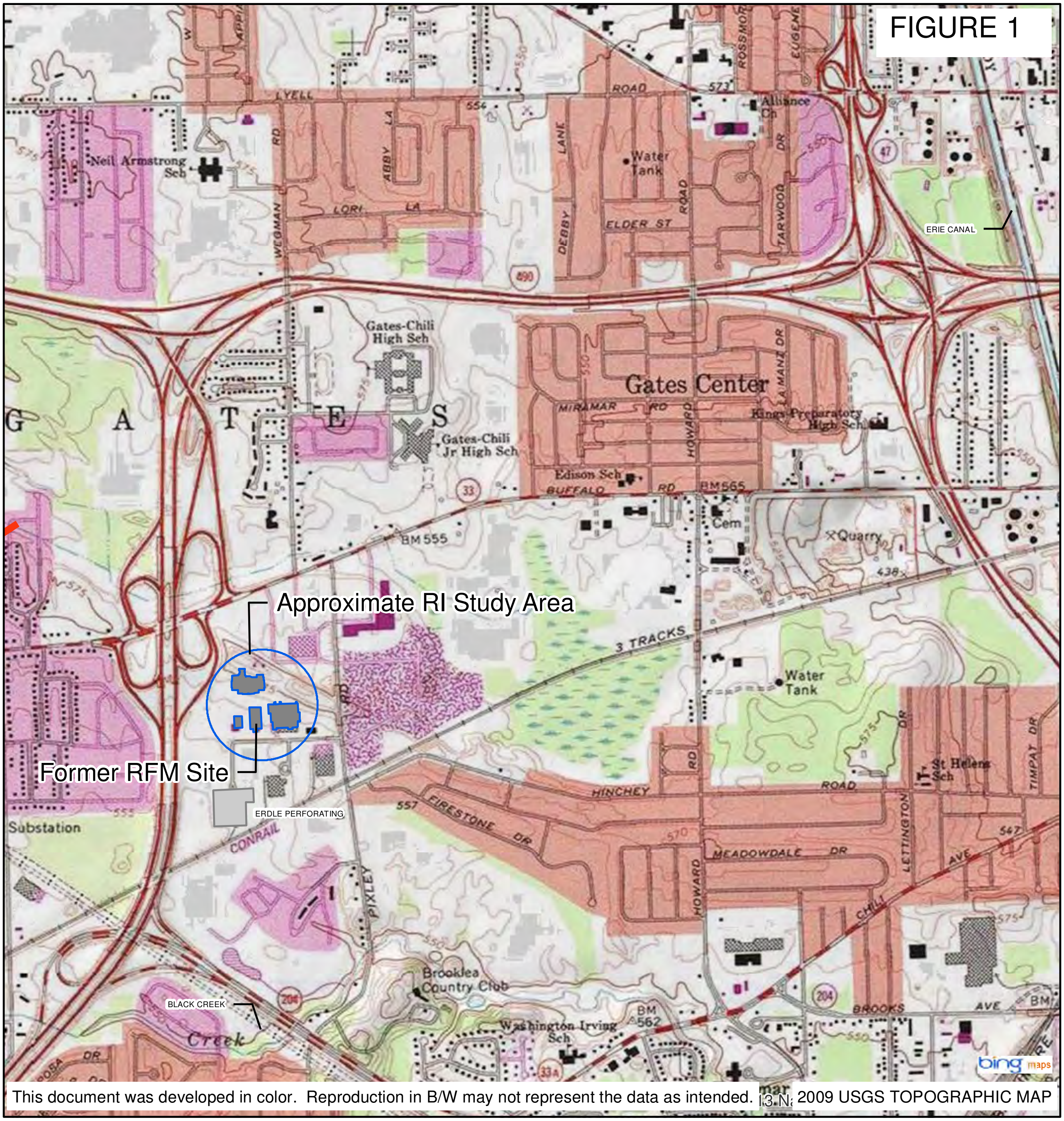

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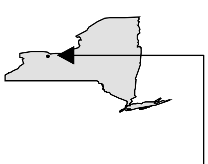
ITT AUTOMOTIVE FLUID HANDLING SYSTEM
TOWN OF GATES, NEW YORK
SITE #8-28-112



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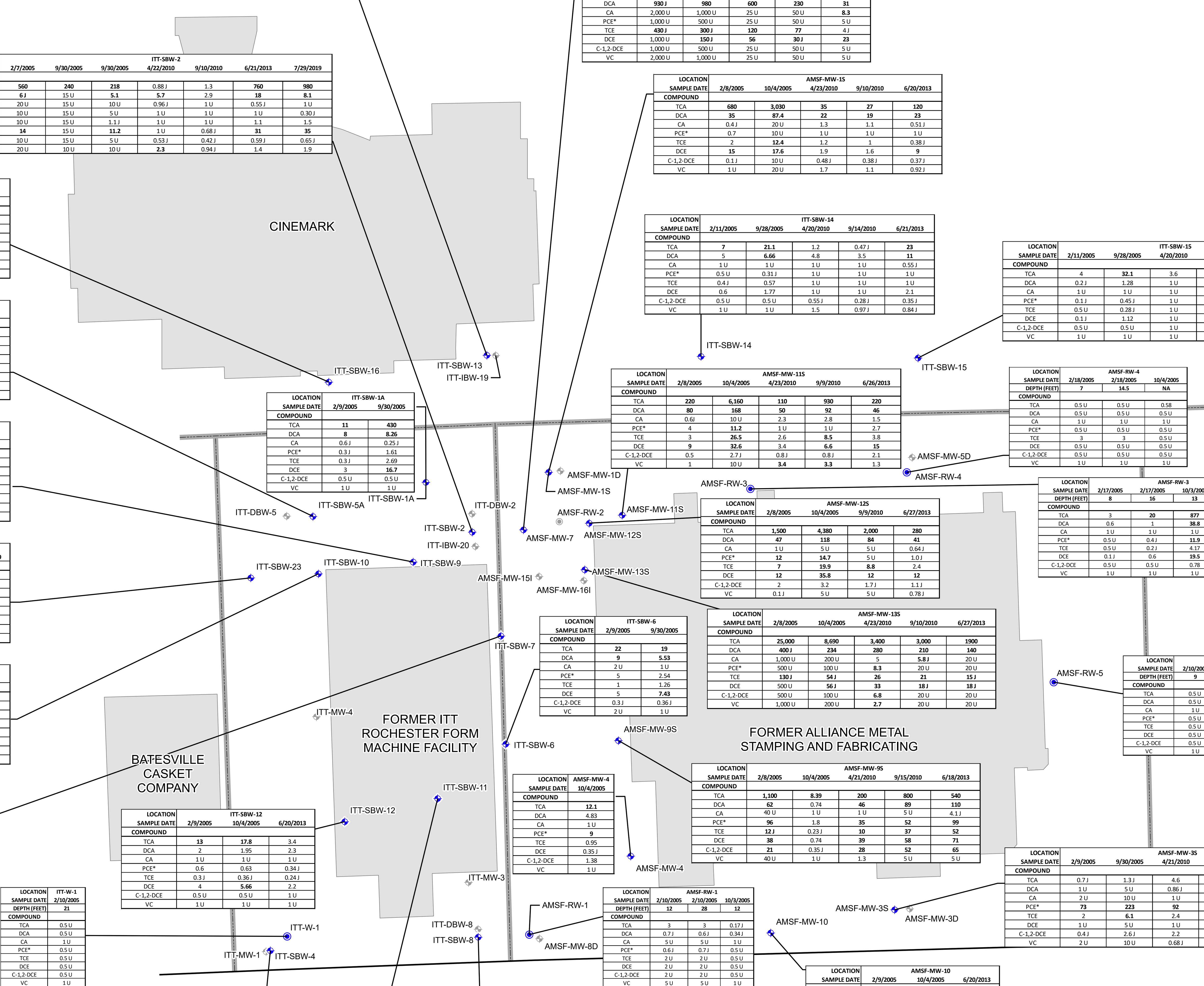
2005-2019 UPPER ERAMOSA GROUNDWATER SAMPLING EVENTS
SELECT CVOCS

FIGURE 2A



LOCATION	ITT-SBW-13				
SAMPLE DATE	2/11/2005	9/28/2005	4/20/2010	9/14/2010	6/24/2013
COMPOUND					
TCA	**12**	**321**	2	1.1	3.1
DCA	**9**	**7.6 J**	3.6	3.9	2.4
CA	1 U	20 U	1 U	1 U	1 U
PCE*	0.3 J	10 U	1 U	1 U	1 U
TCE	0.7	10 U	1 U	1 U	1 U
DCE	2	**13.6**	1 U	0.62 J	1 U
C-1,2-DCE	0.5 U	10 U	1 U	0.34 J	0.34 J
VC	1 U	20 U	1.5	1.3	0.71 J

LOCATION	ITT-SBW-18		
SAMPLE DATE	4/19/2010	9/8/2010	6/18/2013
COMPOUND			
TCA	1 U	1 U	1 U
DCA	1 U	1 U	1 U
CA	1 U	1 U	1 U
PCE*	1 U	1 U	1 U
TCE	1 U	1 U	1 U
DCE	1 U	1 U	1 U
C-1,2-DCE	1 U	1 U	1 U
VC	1 U	1 U	1 U

LOCATION	ITT-SBW-17		
SAMPLE DATE	4/19/2010	9/8/2010	6/18/2013
COMPOUND			
TCA	1 U	1 U	1 U
DCA	1 U	0.29 J	0.20 J
CA	1 U	1 U	1 U
PCE*	1 U	1 U	1 U
TCE	1 U	1 U	1 U
DCE	1 U	1 U	1 U
C-1,2-DCE	1 U	1 U	1 U
VC	1 U	1 U	1 U

LOCATION	AMSF-MW-7				
SAMPLE DATE	2/8/2005	10/4/2005	4/26/2010	9/9/2010	6/28/2013
COMPOUND					
TCA	**95,000**	**65,600**	**30,000**	**8,300**	**830**
DCA	**930 J**	**980**	**600**	**230**	**31**
CA	2,000 U	1,000 U	25 U	50 U	**8.3**
PCE*	1,000 U	500 U	25 U	50 U	5 U
TCE	**430 J**	**300 J**	**120**	**77**	4 J
DCE	1,000 U	**150 J**	**56**	**30 J**	**23**
C-1,2-DCE	1,000 U	500 U	25 U	50 U	5 U
VC	2,000 U	1,000 U	25 U	50 U	5 U

LOCATION	ITT-SBW-2						
SAMPLE DATE	2/7/2005	9/30/2005	9/30/2005	4/22/2010	9/10/2010	6/21/2013	7/29/2019
COMPOUND							
TCA	**560**	**240**	**218**	0.88 J	1.3	**760**	**980**
DCA	**6 J**	15 U	**5.1**	**5.7**	2.9	**18**	**8.1**
CA	20 U	15 U	10 U	0.96 J	1 U	0.55 J	1 U
PCE*	10 U	15 U	5 U	1 U	1 U	1 U	0.30 J
TCE	10 U	15 U	1.1 J	1 U	1 U	1.1	1.5
DCE	**14**	15 U	**11.2**	1 U	0.68 J	**31**	**35**
C-1,2-DCE	10 U	15 U	5 U	0.53 J	0.42 J	0.59 J	0.65 J
VC	20 U	10 U	10 U	**2.3**	0.94 J	1.4	1.9

LOCATION	AMSF-MW-1S				
SAMPLE DATE	2/8/2005	10/4/2005	4/23/2010	9/10/2010	6/20/2013
COMPOUND					
TCA	**680**	**3,030**	**35**	**27**	**120**
DCA	**35**	**87.4**	**22**	**19**	**23**
CA	0.4 J	20 U	1.3	1.1	0.51 J
PCE*	0.7	10 U	1 U	1 U	1 U
TCE	2	**12.4**	1.2	1	0.38 J
DCE	**15**	**17.6**	1.9	1.6	**9**
C-1,2-DCE	0.1 J	10 U	0.48 J	0.38 J	0.37 J
VC	1 U	20 U	1.7	1.1	0.92 J

LOCATION	ITT-SBW-16				
SAMPLE DATE	2/11/2005	9/28/2005	4/20/2010	9/14/2010	6/19/2013
COMPOUND					
TCA	0.2 J	1.74	1 U	1 U	0.92 J
DCA	0.5 U	0.65	1 U	0.59 J	1 U
CA	1 U	1 U	1 U	1 U	1 U
PCE*	0.5 U	0.5 U	1 U	1 U	1 U
TCE	0.5 U	0.5 U	1 U	1 U	1 U
DCE	0.5 U	0.28 J	1 U	1 U	1 U
C-1,2-DCE	0.5 U	0.5 U	1 U	1 U	1 U
VC	1 U	1 U	1 U	1 U	1 U

LOCATION	ITT-SBW-14				
SAMPLE DATE	2/11/2005	9/28/2005	4/20/2010	9/14/2010	6/21/2013
COMPOUND					
TCA	**7**	**21.1**	1.2	0.47 J	**23**
DCA	5	**6.66**	4.8	3.5	**11**
CA	1 U	1 U	1 U	1 U	0.55 J
PCE*	0.5 U	0.31 J	1 U	1 U	1 U
TCE	0.4 J	0.57	1 U	1 U	1 U
DCE	0.6	1.77	1 U	1 U	2.1
C-1,2-DCE	0.5 U	0.5 U	0.55 J	0.28 J	0.35 J
VC	1 U	1 U	1.5	0.97 J	0.84 J

LOCATION	ITT-SBW-15				
SAMPLE DATE	2/11/2005	9/28/2005	4/20/2010	9/8/2010	6/24/2013
COMPOUND					
TCA	4	**32.1**	3.6	**24**	**8.6**
DCA	0.2 J	1.28	1 U	0.78 J	0.25 J
CA	1 U	1 U	1 U	1 U	1 U
PCE*	0.1 J	0.45 J	1 U	1 U	0.33 J
TCE	0.5 U	0.28 J	1 U	1 U	1 U
DCE	0.1 J	1.12	1 U	1	1 U
C-1,2-DCE	0.5 U	0.5 U	1 U	1 U	1 U
VC	1 U	1 U	1 U	1 U	1 U

LOCATION	ITT-SBW-5A				
SAMPLE DATE	2/7/2005	9/27/2005	4/22/2010	9/15/2010	6/25/2013
COMPOUND					
TCA	**6**	4.72	**16**	**34**	**30**
DCA	2	1.49	1.0	2.3	1.9
CA	1 U	1 U	1 U	1 U	1 U
PCE*	0.4 J	0.35 J	0.91 J	1.1	1.2
TCE	0.1 J	0.19 J	1 U	0.33 J	0.48 J
DCE	2	1.24	1.6	2.2	1.8
C-1,2-DCE	0.5 U	0.5 U	1 U	1 U	1 U
VC	1 U	1 U	1 U	1 U	1 U

LOCATION	AMSF-MW-11S				
SAMPLE DATE	2/8/2005	10/4/2005	4/23/2010	9/9/2010	6/26/2013
COMPOUND					
TCA	**220**	**6,160**	**110**	**930**	**220**
DCA	**80**	**168**	**50**	**92**	**46**
CA	0.6J	10 U	2.3	2.8	1.5
PCE*	4	**11.2**	1 U	1 U	2.7
TCE	3	**26.5**	2.6	**8.5**	3.8
DCE	**9**	**32.6**	3.4	**6.6**	**15**
C-1,2-DCE	0.5	2.7 J	0.8 J	0.8 J	2.1
VC	1	10 U	**3.4**	**3.3**	1.3

LOCATION	AMSF-RW-4		
SAMPLE DATE	2/18/2005	2/18/2005	10/4/2005
DEPTH (FEET)	7	14.5	NA
COMPOUND			
TCA	0.5 U	0.5 U	0.58
DCA	0.5 U	0.5 U	0.5 U
CA	1 U	1 U	1 U
PCE*	0.5 U	0.5 U	0.5 U
TCE	3	3	0.5 U
DCE	0.5 U	0.5 U	0.5 U
C-1,2-DCE	0.5 U	0.5 U	0.5 U
VC	1 U	1 U	1 U

LOCATION	ITT-SBW-1A	
SAMPLE DATE	2/9/2005	9/30/2005
COMPOUND		
TCA	**11**	**430**
DCA	**8**	**8.26**
CA	0.6 J	0.25 J
PCE*	0.3 J	1.61
TCE	0.3 J	2.69
DCE	3	**16.7**
C-1,2-DCE	0.5 U	0.5 U
VC	1 U	1 U

LOCATION	ITT-SBW-9					
SAMPLE DATE	2/7/2005	9/30/2005	5/12/2010	9/15/2010	6/21/2013	7/29/2019
COMPOUND						
TCA	**460**	**1,750**	**11**	0.9 J	**250**	1 U
DCA	**13**	**16.6**	2.8	2.9	**19**	3.9
CA	20 U	20 U	1 U	1 U	1 U	1 U
PCE*	10 U	4.6 J	1 U	1 U	**10**	1 U
TCE	10 U	**5.4 J**	1 U	1 U	**5.3**	1 U
DCE	**8 J**	**89.4**	1.1	0.71 J	**50**	1 U
C-1,2-DCE	10 U	10 U	1 U	0.45 J	0.61 J	0.81 J
VC	20 U	20 U	1 U	0.84 J	1 U	**2.8**

LOCATION	AMSF-MW-12S			
SAMPLE DATE	2/8/2005	10/4/2005	9/9/2010	6/27/2013
COMPOUND				
TCA	**1,500**	**4,380**	**2,000**	**280**
DCA	**47**	**118**	**84**	**41**
CA	1 U	5 U	5 U	0.64 J
PCE*	**12**	**14.7**	5 U	1.0 J
TCE	**7**	**19.9**	**8.8**	2.4
DCE	**12**	**35.8**	**12**	**12**
C-1,2-DCE	2	3.2	1.7 J	1.1 J
VC	0.1 J	5 U	5 U	0.78 J

LOCATION	AMSF-RW-3			
SAMPLE DATE	2/17/2005	2/17/2005	10/3/2005	10/3/2005
DEPTH (FEET)	8	16	13	16
COMPOUND				
TCA	3	**20**	**877**	**894**
DCA	0.6	1	**38.8**	**39.8**
CA	1 U	1 U	1 U	0.89 J
PCE*	0.5 U	0.4 J	**11.9**	**13**
TCE	0.5 U	0.2 J	4.17	4.44
DCE	0.1 J	0.6	**19.5**	**20.7**
C-1,2-DCE	0.5 U	0.5 U	0.78	0.81
VC	1 U	1 U	1 U	1 U

LOCATION	ITT-SBW-23			
SAMPLE DATE	4/21/2010	9/14/2010	6/19/2013	7/29/2019
COMPOUND				
TCA	1 U	1 U	1 U	1 U
DCA	4.2	3.3	1.8	2.6
CA	1.1	1 U	0.35 J	1 U
PCE*	1 U	1 U	1 U	1 U
TCE	1 U	1 U	1 U	1 U
DCE	1 U	0.56 J	1 U	1 U
C-1,2-DCE	1 U	0.28 J	1 U	0.52 J
VC	**2.1**	0.89 J	0.66 J	**2.1**

LOCATION	ITT-SBW-6	
SAMPLE DATE	2/9/2005	9/30/2005
COMPOUND		
TCA	**22**	**19**
DCA	**9**	**5.53**
CA	2 U	1 U
PCE*	5	2.54
TCE	1	1.26
DCE	5	**7.43**
C-1,2-DCE	0.3 J	0.36 J
VC	2 U	1 U

LOCATION	AMSF-MW-13S				
SAMPLE DATE	2/8/2005	10/4/2005	4/23/2010	9/10/2010	6/27/2013
COMPOUND					
TCA	**25,000**	**8,690**	**3,400**	**3,000**	**1900**
DCA	**400 J**	**234**	**280**	**210**	**140**
CA	1,000 U	200 U	5	**5.8 J**	20 U
PCE*	500 U	100 U	**8.3**	20 U	20 U
TCE	**130 J**	**54 J**	**26**	**21**	**15 J**
DCE	500 U	**56 J**	**33**	**18 J**	**18 J**
C-1,2-DCE	500 U	100 U	**6.8**	20 U	20 U
VC	1,000 U	200 U	**2.7**	20 U	20 U

LOCATION	AMSF-RW-5		
SAMPLE DATE	2/10/2005	2/10/2005	10/4/2005
DEPTH (FEET)	9	11	11
COMPOUND			
TCA	0.5 U	0.5 U	0.25 J
DCA	0.5 U	0.5 U	0.5 U
CA	1 U	1 U	1 U
PCE*	0.5 U	0.5 U	0.8
TCE	0.5 U	0.5 U	0.5 U
DCE	0.5 U	0.5 U	0.5 U
C-1,2-DCE	0.5 U	0.5 U	0.5 U
VC	1 U	1 U	1 U

LOCATION	ITT-SBW-10					
SAMPLE DATE	2/7/2005	9/27/2005	4/21/2010	9/14/2010	6/27/2013	7/29/2019
COMPOUND						
TCA	**32**	**161**	**110**	**260**	**110**	**78**
DCA	2	4.55	**6.4**	**6.3**	**6.2**	2.9
CA	1 U	1 U	1 U	2 U	1 U	1 U
PCE*	0.9	1.56	**6.4**	4.1	**5.1**	2.6
TCE	0.4 J	1.19	2.3	2.4	2.1	1.5
DCE	2	**6.27**	3.3	3.3	3.2	1.2
C-1,2-DCE	0.5 U	0.5 U	0.51 J	2 U	0.64 J	2.4
VC	1 U	1 U	1 U	2 U	1 U	1 U

LOCATION	AMSF-MW-4
SAMPLE DATE	10/4/2005
COMPOUND	
TCA	**12.1**
DCA	4.83
CA	1 U
PCE*	**9**
TCE	0.95
DCE	0.35 J
C-1,2-DCE	1.38
VC	1 U

LOCATION	AMSF-MW-9S				
SAMPLE DATE	2/8/2005	10/4/2005	4/21/2010	9/15/2010	6/18/2013
COMPOUND					
TCA	**1,100**	**8.39**	**200**	**800**	**540**
DCA	**62**	0.74	**46**	**89**	**110**
CA	40 U	1 U	1 U	5 U	4.1 J
PCE*	**96**	1.8	**35**	**52**	**99**
TCE	**12 J**	0.23 J	**10**	**37**	**52**
DCE	**38**	0.74	**39**	**58**	**71**
C-1,2-DCE	**21**	0.35 J	**28**	**52**	**65**
VC	40 U	1 U	1.3	5 U	5 U

LOCATION	ITT-SBW-7				
SAMPLE DATE	2/9/2005	9/30/2005	4/22/2010	9/16/2010	6/24/2013
COMPOUND					
TCA	**3,500**	**2,960**	**2,000**	**5.1**	1 U
DCA	**58**	**69.4**	**130**	**7.2**	1.4
CA	100 U	20 U	**8.7**	1 U	1 U
PCE*	50 U	10 U	1.0 U	1 U	1 U
TCE	**23 J**	**16.6**	**22**	0.54 J	1 U
DCE	50 U	**6.6 J**	**8.7**	2.3	1.3
C-1,2-DCE	50 U	10 U	1.4	0.22 J	1 U
VC	100 U	20 U	2.1	1 U	1 U

LOCATION	ITT-SBW-12		
SAMPLE DATE	2/9/2005	10/4/2005	6/20/2013
COMPOUND			
TCA	**13**	**17.8**	3.4
DCA	2	1.95	2.3
CA	1 U	1 U	1 U
PCE*	0.6	0.63	0.34 J
TCE	0.3 J	0.36 J	0.24 J
DCE	4	**5.66**	2.2
C-1,2-DCE	0.5 U	0.5 U	1 U
VC	1 U	1 U	1 U

LOCATION	AMSF-MW-3S				
SAMPLE DATE	2/9/2005	9/30/2005	4/21/2010	9/8/2010	6/20/2013
COMPOUND					
TCA	0.7 J	1.3 J	4.6	4.8	3.0
DCA	1 U	5 U	0.86 J	0.66 J	0.61 J
CA	2 U	10 U	1 U	1 U	1 U
PCE*	**73**	**223**	**92**	**97**	**99**
TCE	2	**6.1**	2.4	2.2	1.5
DCE	1 U	5 U	1 U	1 U	1 U
C-1,2-DCE	0.4 J	2.6 J	2.2	1.8	0.65 J
VC	2 U	10 U	0.68 J	0.48 J	1 U

LOCATION	ITT-W-1
SAMPLE DATE	2/10/2005
DEPTH (FEET)	21
COMPOUND	
TCA	0.5 U
DCA	0.5 U
CA	1 U
PCE*	0.5 U
TCE	0.5 U
DCE	0.5 U
C-1,2-DCE	0.5 U
VC	1 U

LOCATION	AMSF-RW-1		
SAMPLE DATE	2/10/2005	2/10/2005	10/3/2005
DEPTH (FEET)	12	28	12
COMPOUND			
TCA	3	3	0.17 J
DCA	0.7 J	0.6 J	0.34 J
CA	5 U	5 U	1 U
PCE*	0.6 J	0.7 J	0.5 U
TCE	2 U	2 U	0.5 U
DCE	2 U	2 U	0.5 U
C-1,2-DCE	2 U	2 U	0.5 U
VC	5 U	5 U	1 U

LOCATION	AMSF-MW-10		
SAMPLE DATE	2/9/2005	10/4/2005	6/20/2013
COMPOUND			
TCA	5 U	10 U	3.3
DCA	5 U	10 U	1.1
CA	10 U	20 U	1 U
PCE*	**270**	**417**	**26**
TCE	3 J	4.8 J	0.53 J
DCE	5 U	10 U	1 U
C-1,2-DCE	2 J	10 U	1 U
VC	10 U	20 U	1 U

LOCATION	ITT-SBW-4				
SAMPLE DATE	2/8/2005	9/30/2005	4/21/2010	9/10/2010	6/18/2013
COMPOUND					
TCA	2	0.12 J	1 U	1 U	1 U
DCA	0.2 J	0.11 J	1 U	1 U	1 U
CA	1 U	1 U	1 U	1 U	1 U
PCE*	0.5 U	0.5 U	1 U	1 U	1 U
TCE	0.1 J	0.5 U	1 U	1 U	1 U
DCE	0.1 J	0.5 U	1 U	1 U	1 U
C-1,2-DCE	0.5 U	0.5 U	1 U	1 U	1 U
VC	1 U	1 U	1 U	1 U	1 U

LOCATION	ITT-SBW-11	
SAMPLE DATE	2/9/2005	10/4/2005
COMPOUND		
TCA	**7**	**13.2**
DCA	0.8 J	1.07
CA	5 U	1 U
PCE*	0.6 J	0.26 J
TCE	2 U	0.66
DCE	3	**15.8**
C-1,2-DCE	2 U	0.5 U
VC	5 U	1 U

LOCATION	ITT-SBW-8				
SAMPLE DATE	2/8/2005	9/30/2005	4/21/2010	9/15/2010	6/19/2013
COMPOUND					
TCA	0.7 J	0.17 J	1 U	1 U	1 U
DCA	2 U	0.39 J	1 U	0.29 J	0.29 J
CA	4 U	1 U	1 U	1 U	1 U
PCE*	2 U	0.5 U	1 U	1 U	1 U
TCE	2 U	0.12 J	1 U	1 U	1 U
DCE	2 U	0.5 U	1 U	1 U	1 U
C-1,2-DCE	2 U	0.5 U	1 U	1 U	1 U
VC	4 U	1 U	1 U	1 U	1 U

GROUNDWATER EVENT	DATE
2005 HIGH	FEBRUARY 2005
2005 LOW	SEPTEMBER/OCTOBER 2005
2010 HIGH	APRIL/MAY 2010
2010 LOW	SEPTEMBER 2010

NOTES:

1 - Units - µg/L - micrograms per liter
2 - Results compared to New York State Department of Environmental Conservation, Technical and Operational Guidance Series (1.1.1), Class GA Standards and Guidance Values, Revised June 1998.
3 - Results in bold type indicate an exceedence of the applicable standard referenced above.
4 - 'J' denotes an Estimated value
5 - 'U' denotes the analyte was Not Detected at the Detection Limit shown
6 - TCA = 1,1,1-Trichloroethane
7 - DCA = 1,1-Dichloroethane
8 - CA = Chloroethane
9 - PCE = Tetrachloroethene
10 - TCE = Trichloroethene
11 - DCE = 1,1-Dichloroethene
12 - C-1,2-DCE = cis-1,2-Dichloroethene
13 - VC = Vinyl Chloride
14 - AMSF-MW-12S not sampled during the Sept 2010 low groundwater sampling event due to well collapse
15 - ITT-DBW-8 inadvertenly missed and not sampled during either low groundwater sampling event.
16 - PCE and associated degradation products have been historically detected but are not considered to be related to activities at the former RFM Site.

Analyte	Action Level (ug/l)
TCA	5
DCA	5
CA	5
PCE*	5
TCE	5
DCE	5
C-1,2-DCE	5
VC	2

Action levels from NYSDEC TOGS 1.1.1 Class GA Standards

NYSDEC Note: Additional information for the Former Alliance Metal Stamping and Fabricating property available under Site #C828101.

MONITORING WELL
RECHARGE WELL

NOTE ON WELLS:
GRAY WELLS DENOTE LOCATIONS THAT ARE EITHER NOT SCREENED IN THE UPPER ERAMOSA, WERE NOT SAMPLED IN THE UPPER ERAMOSA, OR BOTH.

0 35 70 Feet

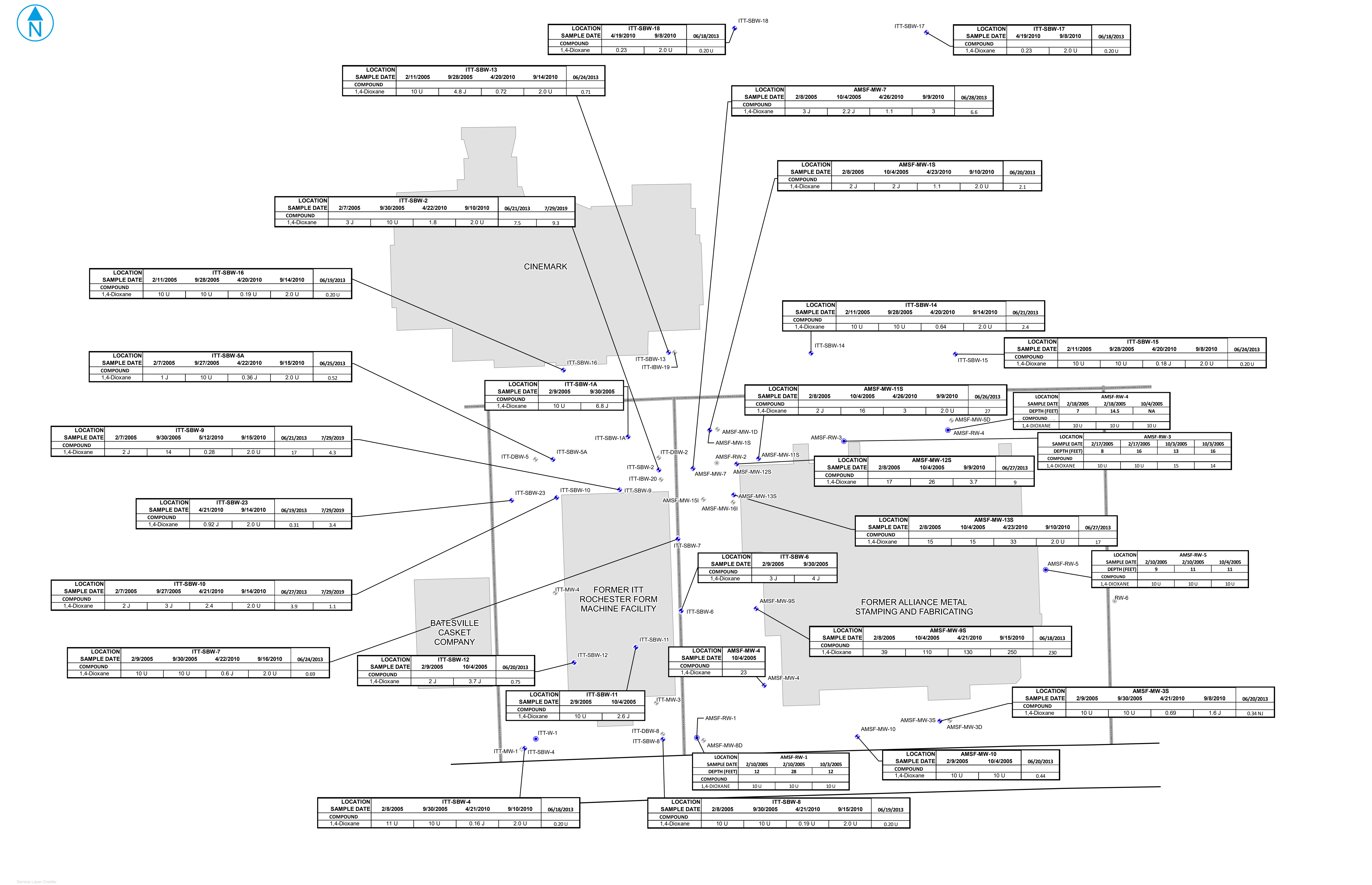
ITT AUTOMOTIVE FLUID HANDLING SYSTEM

TOWN OF GATES, NEW YORK
SITE #8-28-112

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 3356.35273 | DATED: 12/3/2019 | DESIGNER: NEWTONJM



LOCATION	ITT-SBW-18		
SAMPLE DATE	4/19/2010	9/8/2010	06/18/2013
COMPOUND			
1,4-Dioxane	0.23	2.0 U	0.20 U

LOCATION	ITT-SBW-17		
SAMPLE DATE	4/19/2010	9/8/2010	06/18/2013
COMPOUND			
1,4-Dioxane	0.23	2.0 U	0.20 U

LOCATION	ITT-SBW-13				
SAMPLE DATE	2/11/2005	9/28/2005	4/20/2010	9/14/2010	06/24/2013
COMPOUND					
1,4-Dioxane	10 U	4.8 J	0.72	2.0 U	0.71

LOCATION	AMSF-MW-7				
SAMPLE DATE	2/8/2005	10/4/2005	4/26/2010	9/9/2010	06/28/2013
COMPOUND					
1,4-Dioxane	3 J	2.2 J	1.1	3	6.6

LOCATION	AMSF-MW-1S				
SAMPLE DATE	2/8/2005	10/4/2005	4/23/2010	9/10/2010	06/20/2013
COMPOUND					
1,4-Dioxane	2 J	2 J	1.1	2.0 U	2.1

LOCATION	ITT-SBW-2					
SAMPLE DATE	2/7/2005	9/30/2005	4/22/2010	9/10/2010	06/21/2013	7/29/2019
COMPOUND						
1,4-Dioxane	3 J	10 U	1.8	2.0 U	7.5	9.3

LOCATION	ITT-SBW-16				
SAMPLE DATE	2/11/2005	9/28/2005	4/20/2010	9/14/2010	06/19/2013
COMPOUND					
1,4-Dioxane	10 U	10 U	0.19 U	2.0 U	0.20 U

LOCATION	ITT-SBW-14				
SAMPLE DATE	2/11/2005	9/28/2005	4/20/2010	9/14/2010	06/21/2013
COMPOUND					
1,4-Dioxane	10 U	10 U	0.64	2.0 U	2.4

LOCATION	ITT-SBW-15				
SAMPLE DATE	2/11/2005	9/28/2005	4/20/2010	9/8/2010	06/24/2013
COMPOUND					
1,4-Dioxane	10 U	10 U	0.18 J	2.0 U	0.20 U

LOCATION	ITT-SBW-5A				
SAMPLE DATE	2/7/2005	9/27/2005	4/22/2010	9/15/2010	06/25/2013
COMPOUND					
1,4-Dioxane	1 J	10 U	0.36 J	2.0 U	0.52

LOCATION	ITT-SBW-1A	
SAMPLE DATE	2/9/2005	9/30/2005
COMPOUND		
1,4-Dioxane	10 U	6.8 J

LOCATION	AMSF-MW-11S				
SAMPLE DATE	2/8/2005	10/4/2005	4/26/2010	9/9/2010	06/26/2013
COMPOUND					
1,4-Dioxane	2 J	16	3	2.0 U	27

LOCATION	AMSF-RW-4		
SAMPLE DATE	2/18/2005	2/18/2005	10/4/2005
DEPTH (FEET)	7	14.5	NA
COMPOUND			
1,4-DIOXANE	10 U	10 U	10 U

LOCATION	ITT-SBW-9					
SAMPLE DATE	2/7/2005	9/30/2005	5/12/2010	9/15/2010	06/21/2013	7/29/2019
COMPOUND						
1,4-Dioxane	2 J	14	0.28	2.0 U	17	4.3

LOCATION	AMSF-RW-3			
SAMPLE DATE	2/17/2005	2/17/2005	10/3/2005	10/3/2005
DEPTH (FEET)	8	16	13	16
COMPOUND				
1,4-DIOXANE	10 U	10 U	15	14

LOCATION	AMSF-MW-12S			
SAMPLE DATE	2/8/2005	10/4/2005	9/9/2010	06/27/2013
COMPOUND				
1,4-Dioxane	17	26	3.7	9

LOCATION	ITT-SBW-23			
SAMPLE DATE	4/21/2010	9/14/2010	06/19/2013	7/29/2019
COMPOUND				
1,4-Dioxane	0.92 J	2.0 U	0.31	3.4

LOCATION	AMSF-MW-13S				
SAMPLE DATE	2/8/2005	10/4/2005	4/23/2010	9/10/2010	06/27/2013
COMPOUND					
1,4-Dioxane	15	15	33	2.0 U	17

LOCATION	ITT-SBW-6	
SAMPLE DATE	2/9/2005	9/30/2005
COMPOUND		
1,4-Dioxane	3 J	4 J

LOCATION	AMSF-RW-5		
SAMPLE DATE	2/10/2005	2/10/2005	10/4/2005
DEPTH (FEET)	9	11	11
COMPOUND			
1,4-DIOXANE	10 U	10 U	10 U

LOCATION	ITT-SBW-10					
SAMPLE DATE	2/7/2005	9/27/2005	4/21/2010	9/14/2010	06/27/2013	7/29/2019
COMPOUND						
1,4-Dioxane	2 J	3 J	2.4	2.0 U	3.9	1.1

LOCATION	AMSF-MW-9S				
SAMPLE DATE	2/8/2005	10/4/2005	4/21/2010	9/15/2010	06/18/2013
COMPOUND					
1,4-Dioxane	39	110	130	250	230

LOCATION	ITT-SBW-7				
SAMPLE DATE	2/9/2005	9/30/2005	4/22/2010	9/16/2010	06/24/2013
COMPOUND					
1,4-Dioxane	10 U	10 U	0.6 J	2.0 U	0.69

LOCATION	ITT-SBW-12		
SAMPLE DATE	2/9/2005	10/4/2005	06/20/2013
COMPOUND			
1,4-Dioxane	2 J	3.7 J	0.75

LOCATION	AMSF-MW-4
SAMPLE DATE	10/4/2005
COMPOUND	
1,4-Dioxane	23

LOCATION	ITT-SBW-11	
SAMPLE DATE	2/9/2005	10/4/2005
COMPOUND		
1,4-Dioxane	10 U	2.6 J

LOCATION	AMSF-MW-3S				
SAMPLE DATE	2/9/2005	9/30/2005	4/21/2010	9/8/2010	06/20/2013
COMPOUND					
1,4-Dioxane	10 U	10 U	0.69	1.6 J	0.34 NJ

LOCATION	AMSF-RW-1		
SAMPLE DATE	2/10/2005	2/10/2005	10/3/2005
DEPTH (FEET)	12	28	12
COMPOUND			
1,4-DIOXANE	10 U	10 U	10 U

LOCATION	AMSF-MW-10		
SAMPLE DATE	2/9/2005	10/4/2005	06/20/2013
COMPOUND			
1,4-Dioxane	10 U	10 U	0.44

LOCATION	ITT-SBW-4				
SAMPLE DATE	2/8/2005	9/30/2005	4/21/2010	9/10/2010	06/18/2013
COMPOUND					
1,4-Dioxane	11 U	10 U	0.16 J	2.0 U	0.20 U

LOCATION	ITT-SBW-8				
SAMPLE DATE	2/8/2005	9/30/2005	4/21/2010	9/15/2010	06/19/2013
COMPOUND					
1,4-Dioxane	10 U	10 U	0.19 U	2.0 U	0.20 U

GROUNDWATER EVENT	DATE
2005 HIGH	FEBRUARY 2005
2005 LOW	SEPTEMBER/OCTOBER 2005
2010 HIGH	APRIL/MAY 2010
2010 LOW	SEPTEMBER 2010

NOTES:

1 - Units - µg/L - micrograms per liter
2 - The New York State Department of Environmental Conservation, Technical and Operational Guidance Series (1.1.1), Class GA Standards and Guidance Values, Revised June 1998 have not, as of June 1998 provided a standard or issued guidance on 1,4-Dioxane.
3 - 'J' denotes an Estimated value
4 - 'U' denotes the analyte was Not Detected at the indicated reporting limit
5 - AMSF-MW-12S not sampled during the Sept 2010 low groundwater sampling event due to well collapse
6 - ITT-DBW-8 inadvertenly missed and not sampled during either low groundwater sampling event.

NYSDEC Note: Additional information for the Former Alliance Metal Stamping and Fabricating property available under Site #C828101.

MONITORING WELL
RECHARGE WELL

NOTE ON WELLS:
GRAY WELLS DENOTE LOCATIONS THAT ARE
EITHER NOT SCREENED IN THE UPPER ERAMOSA,
WERE NOT SAMPLED IN THE UPPER ERAMOSA, OR BOTH.

PROJECT: 3356.35273 | DATED: 12/3/2019 | DESIGNER: NEWTONJM

2005-2019 UPPER ERAMOSA GROUNDWATER SAMPLING EVENTS
1,4-DIOXANE

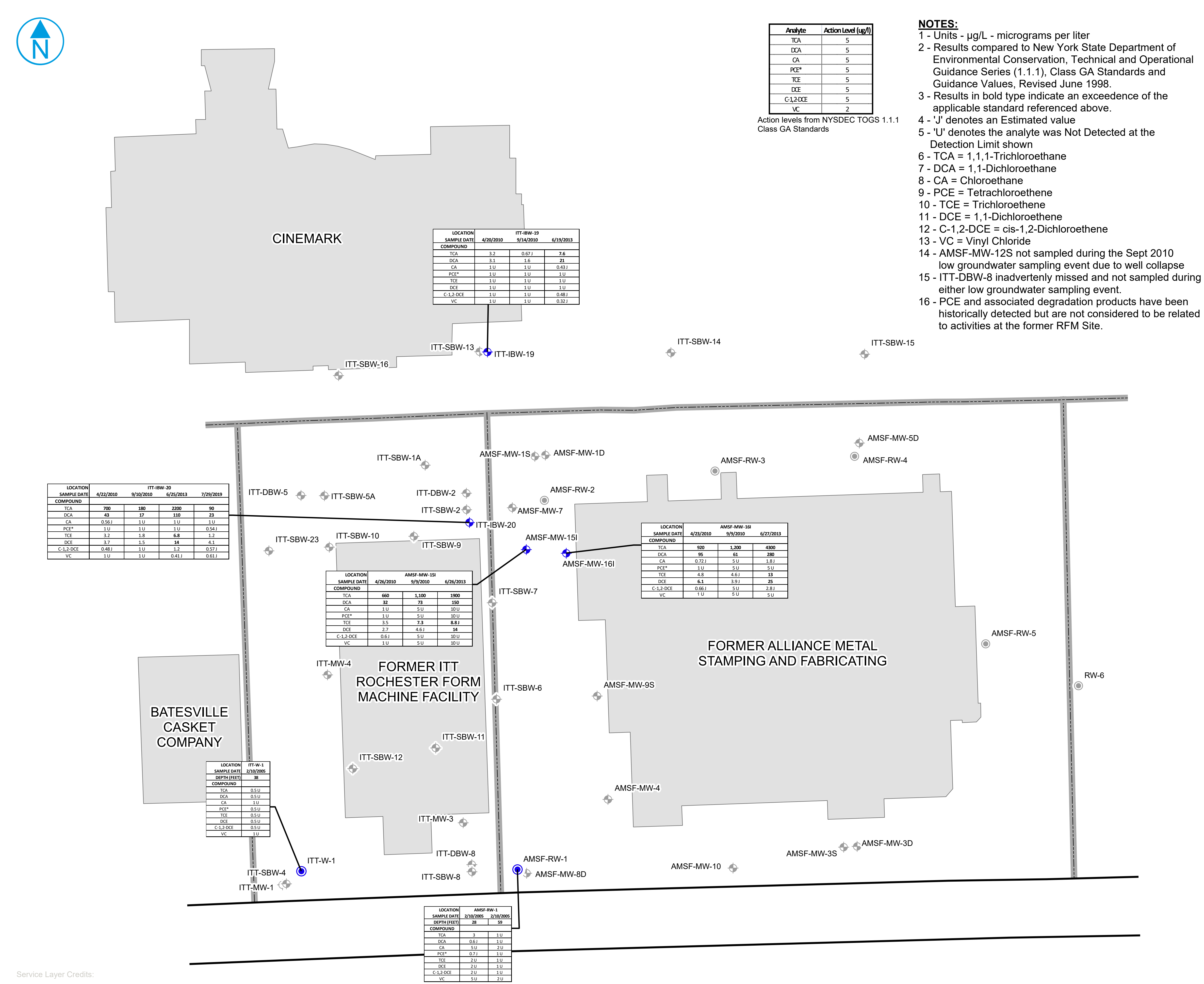
FIGURE 2B

ITT AUTOMOTIVE FLUID HANDLING SYSTEM

TOWN OF GATES, NEW YORK
SITE #8-28-112

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

I:\Itt.3356\73105.Ec-Sampling-R\Docs\DWG\MXD\DataboxFigs\RI_LowerEramosa_GW_CVOC.mxd



Analyte	Action Level (ug/l)
TCA	5
DCA	5
CA	5
PCE*	5
TCE	5
DCE	5
C-1,2-DCE	5
VC	2

Action levels from NYSDEC TOGS 1.1.1 Class GA Standards

NOTES:
1 - Units - µg/L - micrograms per liter
2 - Results compared to New York State Department of Environmental Conservation, Technical and Operational Guidance Series (1.1.1), Class GA Standards and Guidance Values, Revised June 1998.
3 - Results in bold type indicate an exceedence of the applicable standard referenced above.
4 - 'J' denotes an Estimated value
5 - 'U' denotes the analyte was Not Detected at the Detection Limit shown
6 - TCA = 1,1,1-Trichloroethane
7 - DCA = 1,1-Dichloroethane
8 - CA = Chloroethane
9 - PCE = Tetrachloroethene
10 - TCE = Trichloroethene
11 - DCE = 1,1-Dichloroethene
12 - C-1,2-DCE = cis-1,2-Dichloroethene
13 - VC = Vinyl Chloride
14 - AMSF-MW-12S not sampled during the Sept 2010 low groundwater sampling event due to well collapse
15 - ITT-DBW-8 inadvertenly missed and not sampled during either low groundwater sampling event.
16 - PCE and associated degradation products have been historically detected but are not considered to be related to activities at the former RFM Site.

LOCATION	ITT-IBW-19		
SAMPLE DATE	4/20/2010	9/14/2010	6/19/2013
COMPOUND			
TCA	3.2	0.67 J	**7.6**
DCA	3.1	1.6	**21**
CA	1 U	1 U	0.43 J
PCE*	1 U	1 U	1 U
TCE	1 U	1 U	1 U
DCE	1 U	1 U	1 U
C-1,2-DCE	1 U	1 U	0.48 J
VC	1 U	1 U	0.32 J

LOCATION	ITT-IBW-20			
SAMPLE DATE	4/22/2010	9/10/2010	6/25/2013	7/29/2019
COMPOUND				
TCA	**700**	**180**	**2200**	**90**
DCA	**43**	**17**	**110**	**23**
CA	0.56 J	1 U	1 U	1 U
PCE*	1 U	1 U	1 U	0.54 J
TCE	3.2	1.8	**6.8**	1.2
DCE	3.7	1.5	**14**	4.1
C-1,2-DCE	0.48 J	1 U	1.2	0.57 J
VC	1 U	1 U	0.41 J	0.61 J

LOCATION	AMSF-MW-15I		
SAMPLE DATE	4/26/2010	9/9/2010	6/26/2013
COMPOUND			
TCA	**660**	**1,100**	**1900**
DCA	**32**	**73**	**150**
CA	1 U	5 U	10 U
PCE*	1 U	5 U	10 U
TCE	3.5	**7.3**	**8.8 J**
DCE	2.7	4.6 J	**14**
C-1,2-DCE	0.6 J	5 U	10 U
VC	1 U	5 U	10 U

LOCATION	AMSF-MW-16I		
SAMPLE DATE	4/23/2010	9/9/2010	6/27/2013
COMPOUND			
TCA	**920**	**1,200**	**4300**
DCA	**95**	**61**	**280**
CA	0.72 J	5 U	1.8 J
PCE*	1 U	5 U	5 U
TCE	4.8	4.6 J	**13**
DCE	**6.1**	3.9 J	**25**
C-1,2-DCE	0.66 J	5 U	2.8 J
VC	1 U	5 U	5 U

LOCATION	ITT-W-1
SAMPLE DATE	2/10/2005
DEPTH (FEET)	38
COMPOUND	
TCA	0.5 U
DCA	0.5 U
CA	1 U
PCE*	0.5 U
TCE	0.5 U
DCE	0.5 U
C-1,2-DCE	0.5 U
VC	1 U

LOCATION	AMSF-RW-1	
SAMPLE DATE	2/10/2005	2/10/2005
DEPTH (FEET)	28	59
COMPOUND		
TCA	3	1 U
DCA	0.6 J	1 U
CA	5 U	2 U
PCE*	0.7 J	1 U
TCE	2 U	1 U
DCE	2 U	1 U
C-1,2-DCE	2 U	1 U
VC	5 U	2 U

MONITORING WELL
RECHARGE WELL

GROUNDWATER EVENT	DATE
2005 HIGH	FEBRUARY 2005
2005 LOW	SEPTEMBER/OCTOBER 2005
2010 HIGH	APRIL/MAY 2010
2010 LOW	SEPTEMBER 2010

NOTE ON WELLS:
GRAY WELLS DENOTE LOCATIONS THAT ARE EITHER NOT SCREENED IN THE LOWER ERAMOSA, WERE NOT SAMPLED, OR BOTH.

NYSDEC Note: Additional information for the Former Alliance Metal Stamping and Fabricating property available under Site #C828101.

0 50 100 Feet

2005-2019 LOWER ERAMOSA GROUNDWATER SAMPLING EVENTS
SELECT CVOCS

ITT AUTOMOTIVE FLUID HANDLING SYSTEM

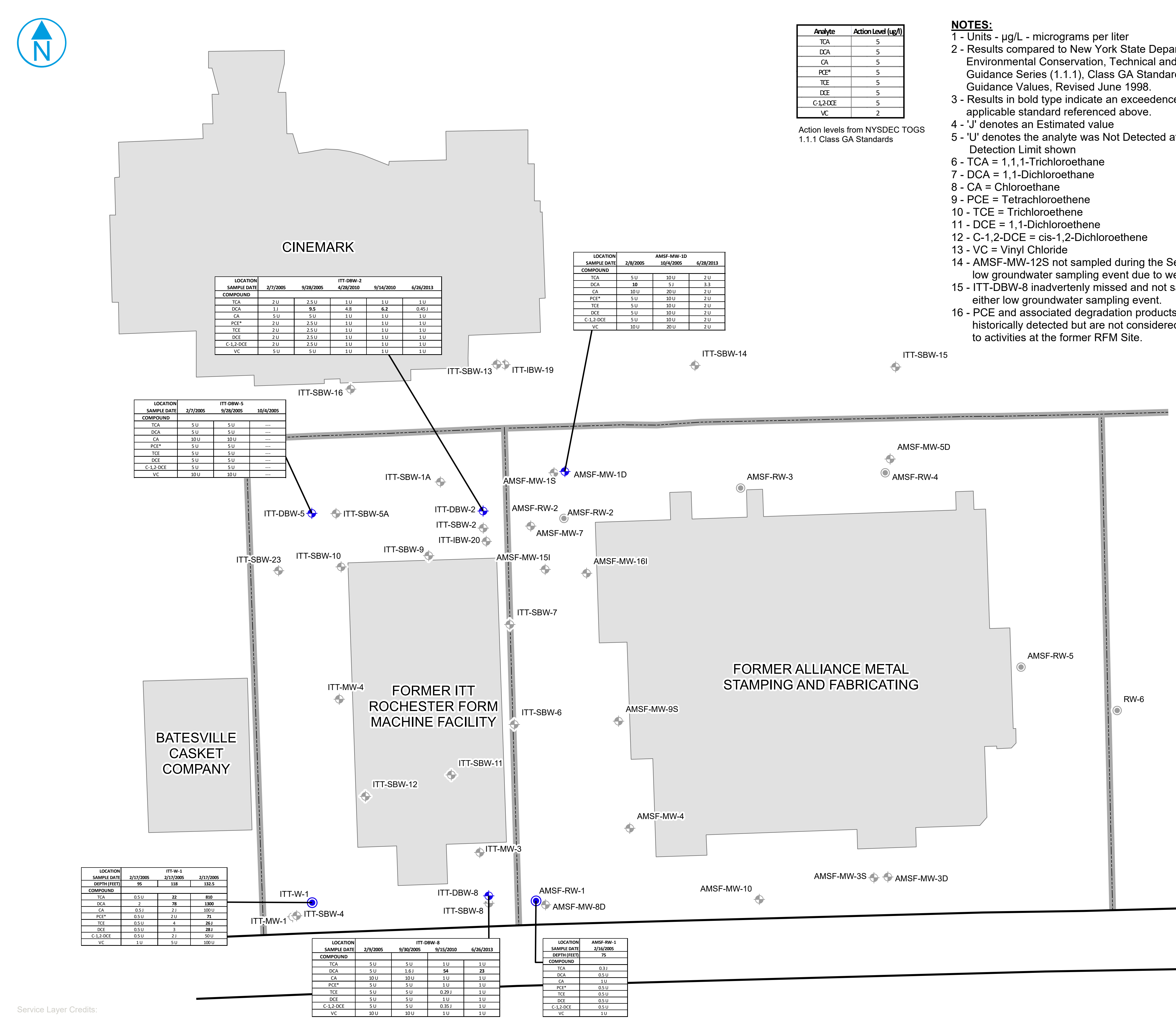
TOWN OF GATES, NEW YORK
SITE #8-28-112

FIGURE 2C

O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

RAMBOLL

PROJECT: 169000XXXX | DATED: 12/3/2019 | DESIGNER: NEWTONJM



LOCATION / SAMPLE DATE	ITT-DBW-2 2/7/2005	9/28/2005	4/28/2010	9/14/2010	6/26/2013
COMPOUND					
TCA	2 U	2.5 U	1 U	1 U	1 U
DCA	1 J	**9.5**	4.8	**6.2**	0.45 J
CA	5 U	5 U	1 U	1 U	1 U
PCE*	2 U	2.5 U	1 U	1 U	1 U
TCE	2 U	2.5 U	1 U	1 U	1 U
DCE	2 U	2.5 U	1 U	1 U	1 U
C-1,2-DCE	2 U	2.5 U	1 U	1 U	1 U
VC	5 U	5 U	1 U	1 U	1 U

LOCATION / SAMPLE DATE	AMSF-MW-1D 2/8/2005	10/4/2005	6/28/2013
COMPOUND			
TCA	5 U	10 U	2 U
DCA	**10**	5 J	3.3
CA	10 U	20 U	2 U
PCE*	5 U	10 U	2 U
TCE	5 U	10 U	2 U
DCE	5 U	10 U	2 U
C-1,2-DCE	5 U	10 U	2 U
VC	10 U	20 U	2 U

LOCATION / SAMPLE DATE	ITT-DBW-5 2/7/2005	9/28/2005	10/4/2005
COMPOUND			
TCA	5 U	5 U	---
DCA	5 U	5 U	---
CA	10 U	10 U	---
PCE*	5 U	5 U	---
TCE	5 U	5 U	---
DCE	5 U	5 U	---
C-1,2-DCE	5 U	5 U	---
VC	10 U	10 U	---

LOCATION / SAMPLE DATE	ITT-W-1 2/17/2005	2/17/2005	2/17/2005
DEPTH (FEET)	95	118	132.5
COMPOUND			
TCA	0.5 U	**22**	**810**
DCA	2	**78**	**1300**
CA	0.5 J	2 J	100 U
PCE*	0.5 U	2 U	**71**
TCE	0.5 U	4	**26 J**
DCE	0.5 U	3	**28 J**
C-1,2-DCE	0.5 U	2 J	50 U
VC	1 U	5 U	100 U

LOCATION / SAMPLE DATE	ITT-DBW-8 2/9/2005	9/30/2005	9/15/2010	6/26/2013
COMPOUND				
TCA	5 U	5 U	1 U	1 U
DCA	5 U	1.6 J	**54**	**23**
CA	10 U	10 U	1 U	1 U
PCE*	5 U	5 U	1 U	1 U
TCE	5 U	5 U	0.29 J	1 U
DCE	5 U	5 U	1 U	1 U
C-1,2-DCE	5 U	5 U	0.35 J	1 U
VC	10 U	10 U	1 U	1 U

LOCATION / SAMPLE DATE	AMSF-RW-1 2/16/2005
DEPTH (FEET)	75
COMPOUND	
TCA	0.3 J
DCA	0.5 U
CA	1 U
PCE*	0.5 U
TCE	0.5 U
DCE	0.5 U
C-1,2-DCE	0.5 U
VC	1 U

Analyte	Action Level (ug/l)
TCA	5
DCA	5
CA	5
PCE*	5
TCE	5
DCE	5
C-1,2-DCE	5
VC	2

Action levels from NYSDEC TOGS 1.1.1 Class GA Standards

NOTES:
1 - Units - µg/L - micrograms per liter
2 - Results compared to New York State Department of Environmental Conservation, Technical and Operational Guidance Series (1.1.1), Class GA Standards and Guidance Values, Revised June 1998.
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6 - TCA = 1,1,1-Trichloroethane
7 - DCA = 1,1-Dichloroethane
8 - CA = Chloroethane
9 - PCE = Tetrachloroethene
10 - TCE = Trichloroethene
11 - DCE = 1,1-Dichloroethene
12 - C-1,2-DCE = cis-1,2-Dichloroethene
13 - VC = Vinyl Chloride
14 - AMSF-MW-12S not sampled during the Sept 2010 low groundwater sampling event due to well collapse
15 - ITT-DBW-8 inadvertenly missed and not sampled during either low groundwater sampling event.
16 - PCE and associated degradation products have been historically detected but are not considered to be related to activities at the former RFM Site.

MONITORING WELL
RECHARGE WELL

GROUNDWATER EVENT	DATE
2005 HIGH	FEBRUARY 2005
2005 LOW	SEPTEMBER/OCTOBER 2005
2010 HIGH	APRIL/MAY 2010
2010 LOW	SEPTEMBER 2010

NOTE ON WELLS:
GRAY WELLS DENOTE LOCATIONS THAT ARE EITHER NOT SCREENED IN THE DEEP BEDROCK, WERE NOT SAMPLED IN THE DEEP BEDROCK, OR BOTH.

NYSDEC Note: Additional information for the Former Alliance Metal Stamping and Fabricating property available under Site #C828101.

0 50 100 Feet

2005-2019 DEEP BEDROCK GROUNDWATER SAMPLING EVENTS
SELECT CVOCS

ITT AUTOMOTIVE FLUID HANDLING SYSTEM

TOWN OF GATES, NEW YORK
SITE #8-28-112

FIGURE 2D

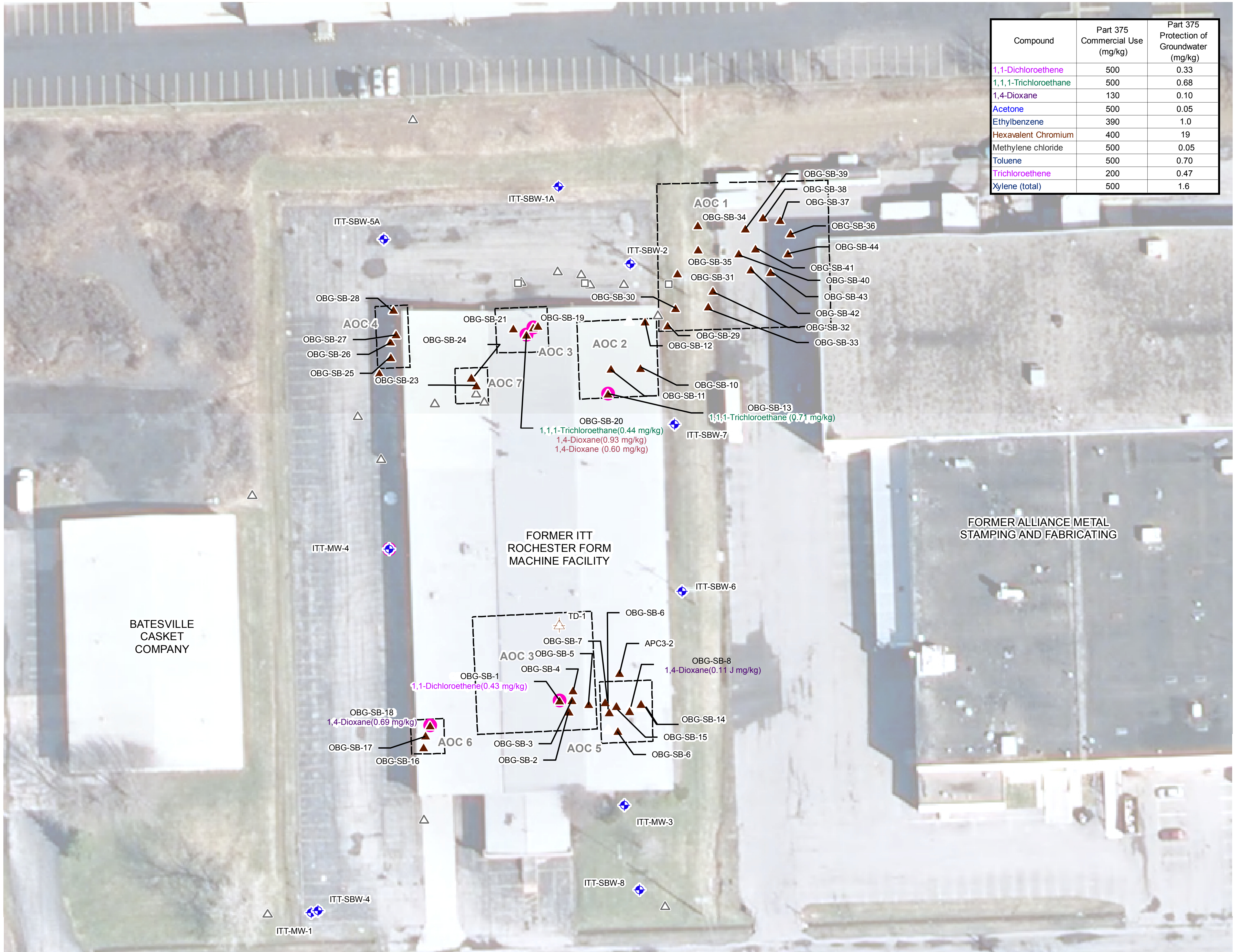
O'BRIEN & GERE ENGINEERS, INC.
A RAMBOLL COMPANY

RAMBOLL

I:\Itt.3356\73105.Ec-Sampling-RI\Docs\DWG\MXD\DataboxFigs\RI_DeepBedrock_GW_CVOC.mxd

PROJECT: 169000XXXX | DATED: 12/3/2019 | DESIGNER: NEWTONJM

FIGURE 3A



Compound	Part 375 Commercial Use (mg/kg)	Part 375 Protection of Groundwater (mg/kg)
1,1-Dichloroethene	500	0.33
1,1,1-Trichloroethane	500	0.68
1,4-Dioxane	130	0.10
Acetone	500	0.05
Ethylbenzene	390	1.0
Hexavalent Chromium	400	19
Methylene chloride	500	0.05
Toluene	500	0.70
Trichloroethene	200	0.47
Xylene (total)	500	1.6

N

LEGEND

AREA OF CONCERN (AOC)

PART 375 PROTECTION OF GROUNDWATER SCO EXCEEDANCE

SAMPLE LOCATION

MONITORING WELL

SOIL BORING

TRENCH DRAIN SAMPLE LE

PRE-RI SAMPLE

NYSDEC Note: Additional information for the Former Alliance Metal Stamping and Fabricating property available under Site #C828101.

NOTE:

- No results exceeded Part 375 Commercial Use SCOs.
- No results exceeded CP-51 Commercial Use SCOs.
- No results exceeded CP-51 Protection of Groundwater SCOs.
- The facility is currently vacant. Historic use of the site has been industrial.

FORMER ITT ROCHESTER FORM MACHINE FACILITY
TOWN OF GATES, NEW YORK
SITE #8-28-112

SUBSURFACE SOIL COMMERCIAL USE OR PROTECTION OF GROUNDWATER SCO EXCEEDANCES (Remedial Investigation Data)

0 30 60 120
Feet

MARCH 2014
3356.35273

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AERIAL IMAGERY PROVIDED BY NYS GIS CLEARINGHOUSE, DATE APRIL 2009

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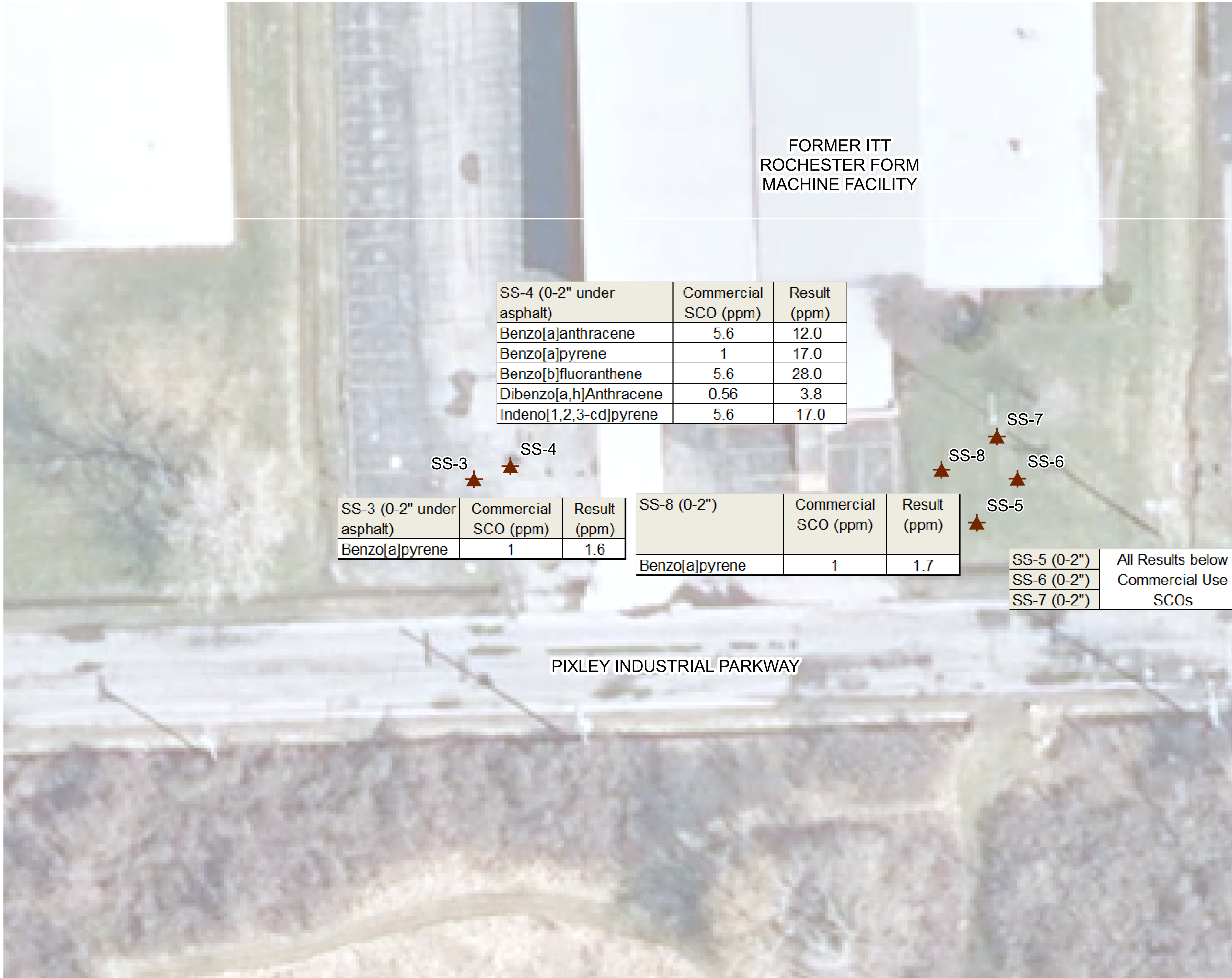

SS-4 (0-2" under asphalt)	Commercial SCO (ppm)	Result (ppm)
Benzo[a]anthracene	5.6	12.0
Benzo[a]pyrene	1	17.0
Benzo[b]fluoranthene	5.6	28.0
Dibenzo[a,h]Anthracene	0.56	3.8
Indeno[1,2,3-cd]pyrene	5.6	17.0

SS-3 (0-2" under asphalt)	Commercial SCO (ppm)	Result (ppm)
Benzo[a]pyrene	1	1.6

SS-8 (0-2")	Commercial SCO (ppm)	Result (ppm)
Benzo[a]pyrene	1	1.7

SS-5 (0-2")	All Results below Commercial Use SCOs
SS-6 (0-2")	
SS-7 (0-2")	

N

LEGEND

Surface Soil Locations

FIGURE 3B

FORMER ITT ROCHESTER FORM MACHINE FACILITY
TOWN OF GATES, NEW YORK
SITE #8-28-112

SURFACE SOIL LOCATIONS

0 15 30 60
Feet

3356.35273
January 2016

O'BRIEN & GERE

PLOTDATE: 05/29/12 1:27:55 PM GardneME

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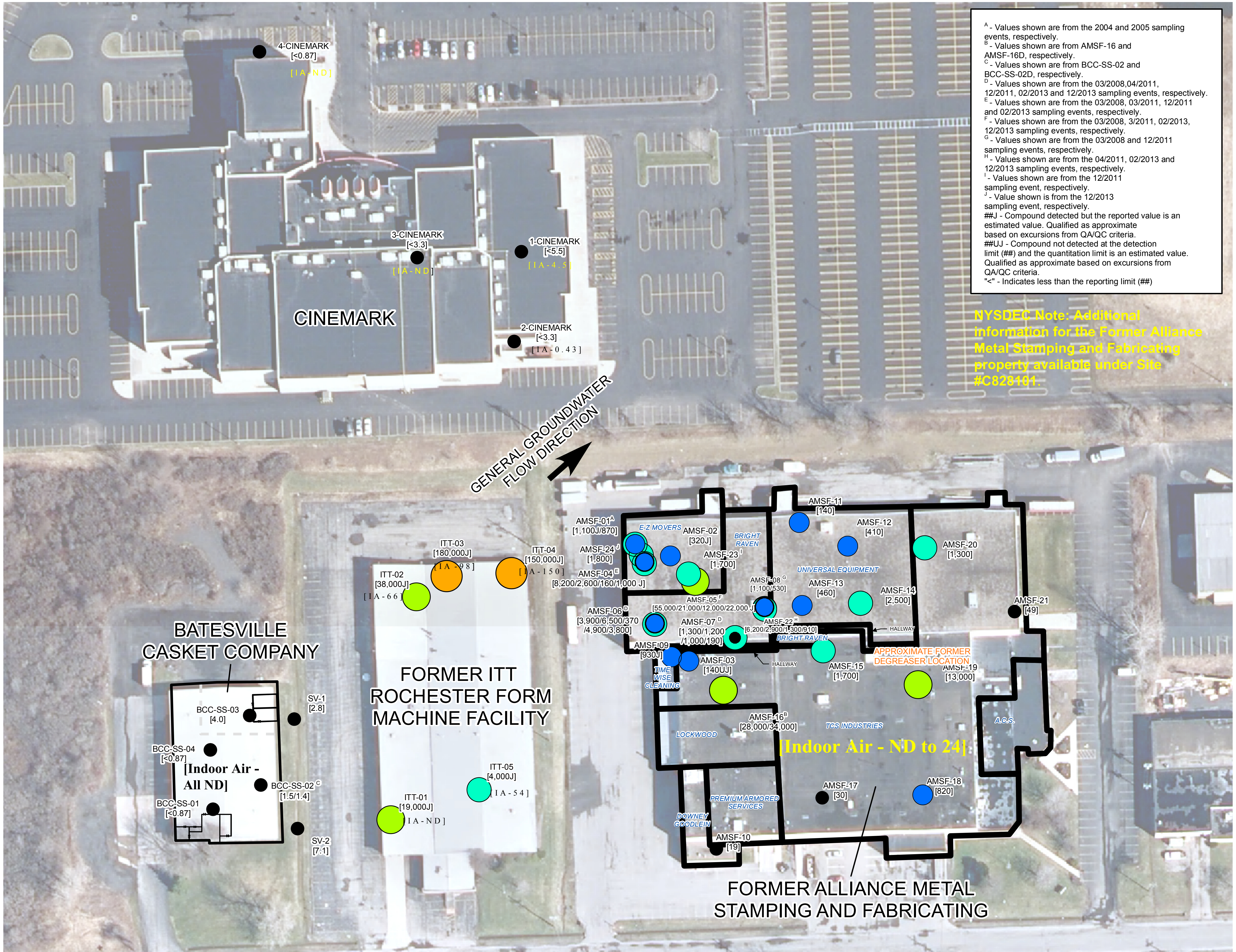

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FIGURE 4A

N

LEGEND

ANALYTICAL RESULTS (µg/m³)

- 0 - 100
- >100 - 1,000
- >1,000 - 10,000
- >10,000 - 100,000
- >100,000 - 1,000,000
- >1,000,000 - 1,400,000

NOTES:
- SAMPLE LOCATIONS AND TENANT BUILDING SPACES ARE APPROXIMATE.
- THE TWO SAMPLE LOCATIONS NOTED AS "SV" ARE THE SOIL VAPOR LOCATIONS.

AMSF-19 - Sample Location
[13,000] - Concentration (µg/m³) soil vapor

[IA - 66] - Concentration (ug/m3) Indoor Air

FORMER ITT ROCHESTER FORM MACHINE FACILITY
TOWN OF GATES, NEW YORK
SITE #8-28-112

SUB-SLAB & SOIL VAPOR SAMPLE RESULTS TCA

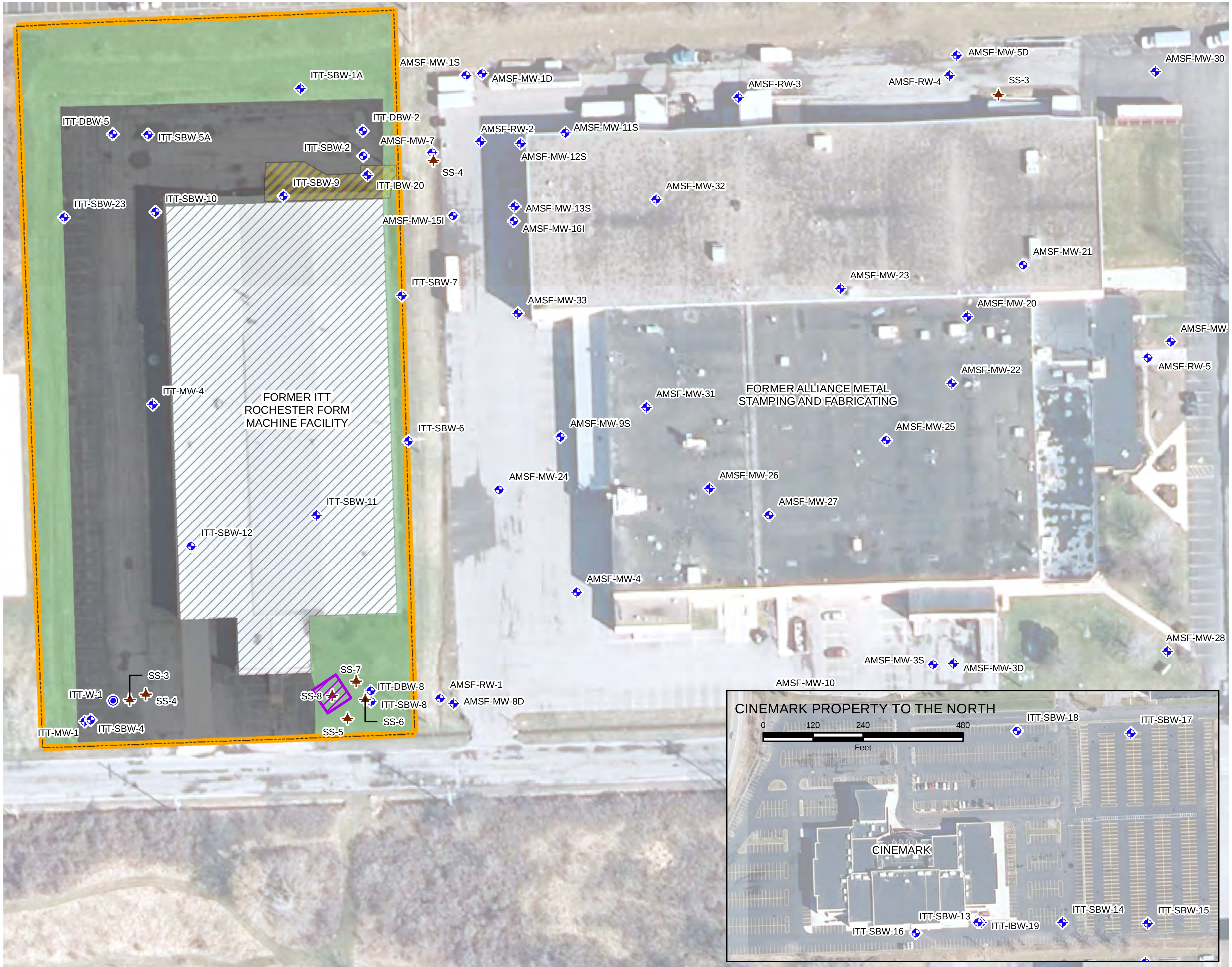
0 100 200
Feet

FEBRUARY 2014
3356.35273

O'BRIEN & GERE

Original modified for PRAP and ROD by Frank Sowers, NYSDEC.

FIGURE 5A



Original modified for PRAP and ROD by Frank Sowers, NYSDEC.

AERIAL IMAGERY PROVIDED BY NYS GIS CLEARINGHOUSE, DATE APRIL 2009

N

LEGEND

- RECHARGE WELL
- MONITORING WELL
- SURFACE SOIL SAMPLE
- PROPERTY LINE
- 1999 FORMER RFM SOIL REMEDIATION AREA
- PROPOSED EXCAVATION AREA

COVER AREAS

- CONCRETE SLAB (46,148 SQFT)
- PAVEMENT (49,217 SQFT)
- VEGETATIVE COVER (37,650 SQFT)

NOTE:
- ITT-W-1 TO BE ABANDONED.
- FORMER ITT RFM BUILDING REMOVED IN 2015, CONCRETE SLAB REMAINS.
- AERIAL IMAGE SHOWN DOES NOT REFLECT BUILDING REMOVED.

ITT AUTOMOTIVE FLUID HANDLING SYSTEM
TOWN OF GATES, NEW YORK
SITE #8-28-112

ALTERNATIVE 2

Site Cover, On-Site Recharge Well Decommissioning with Site Management

0 35 70 140
Feet

3356.63224
APRIL 2016

O'BRIEN & GERE ENGINEERS, INC.

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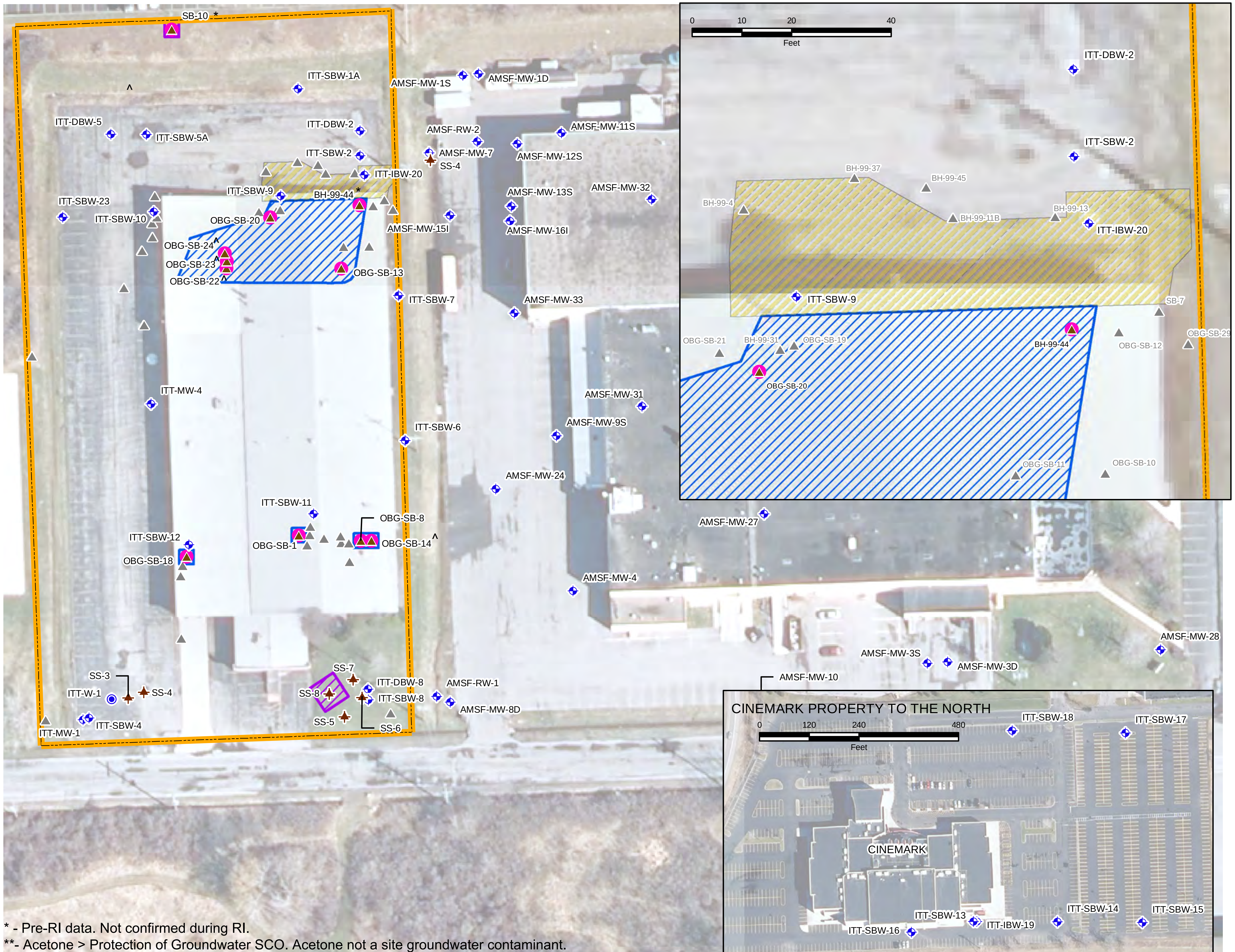

* - Pre-RI data. Not confirmed during RI.

**- Acetone > Protection of Groundwater SCO. Acetone not a site groundwater contaminant.

Original modified for PRAP and ROD by Frank Sowers, NYSDEC.

AERIAL IMAGERY PROVIDED BY NYS GIS CLEARINGHOUSE, DATE APRIL 2009

N

LEGEND

- SURFACE SOIL SAMPLE
- RECHARGE WELL
- MONITORING WELL
- PART 375 PROTECTION OF GROUNDWATER SCO EXCEEDANCE
- SOIL BORING
- PROPERTY LINE
- 1999 FORMER RFM SOIL REMEDIATION AREA
- PROPOSED SOIL VAPOR EXTRACTION AREA
- PROPOSED EXCAVATION AREA

NOTE:
- ITT-W-1 TO BE ABANDONED.
- FORMER ITT RFM BUILDING REMOVED IN 2015, CONCRETE SLAB REMAINS.
- AERIAL IMAGE SHOWN DOES NOT REFLECT BUILDING REMOVED.
- THE AREAS TO BE TREATED HAVE BEEN INTERPRETED TO EXTEND HALFWAY BETWEEN A LOCATION WHERE AN EXCEEDANCE OF AN SCO IS OBSERVED AND THE NEAREST ADJACENT POINT WITHOUT AN EXCEEDANCE. WHERE NO ADJACENT LOCATION EXISTS, A DISTANCE OF 10-FT FROM THE EXCEEDANCE HAS BEEN APPLIED.

ITT AUTOMOTIVE FLUID HANDLING SYSTEM
TOWN OF GATES, NEW YORK
SITE #8-28-112

ALTERNATIVE 3

Soil-Vapor Extraction, On-Site Recharge Well Decommissioning, and Site Management

0 35 70 140
Feet

3356.63224
APRIL 2016

O'BRIEN & GERE ENGINEERS, INC.

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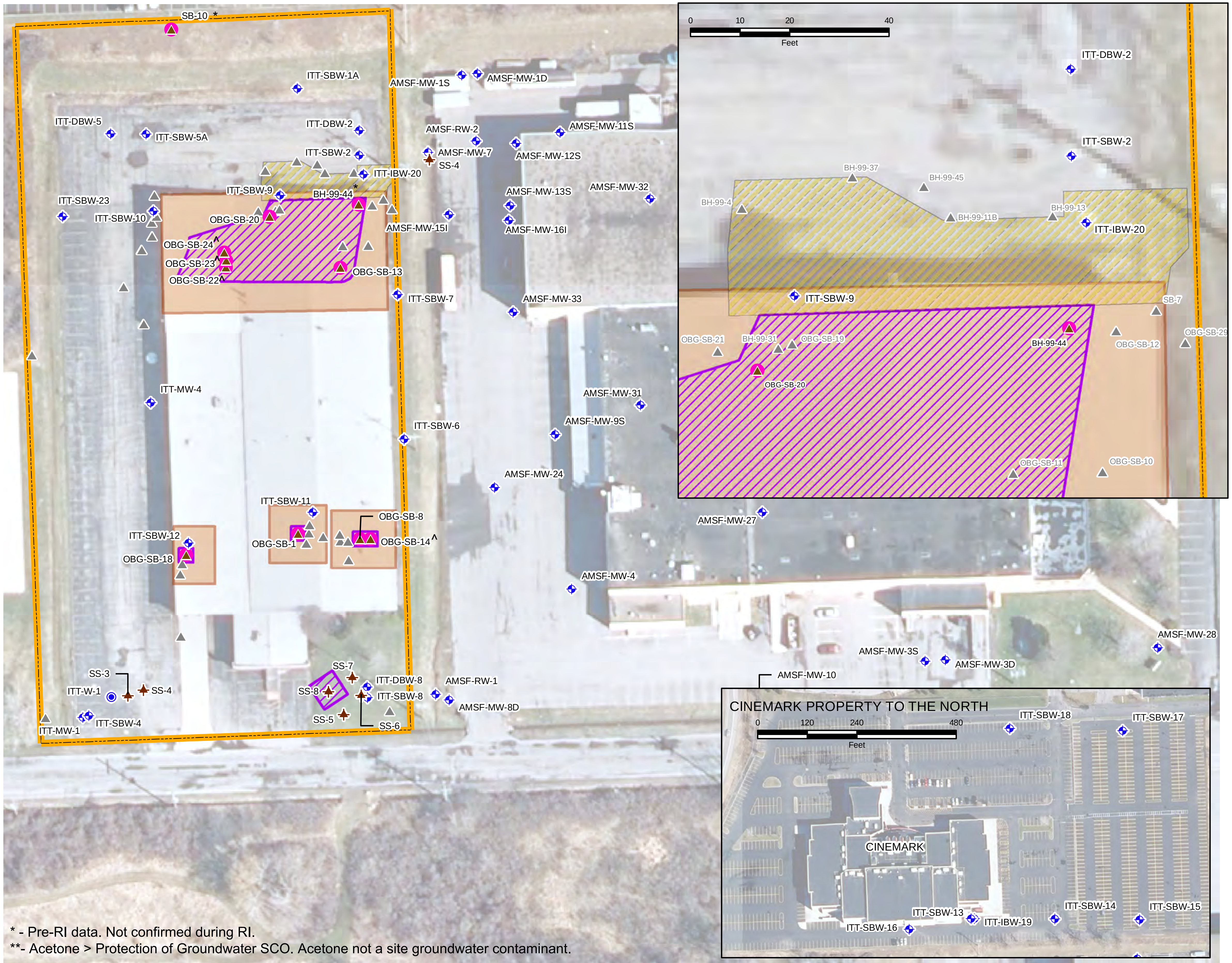

* - Pre-RI data. Not confirmed during RI.

**- Acetone > Protection of Groundwater SCO. Acetone not a site groundwater contaminant.

Original modified for PRAP and ROD by Frank Sowers, NYSDEC.

AERIAL IMAGERY PROVIDED BY NYS GIS CLEARINGHOUSE, DATE APRIL 2009

N

LEGEND

- SURFACE SOIL SAMPLE
- RECHARGE WELL
- MONITORING WELL
- PART 375 PROTECTION OF GROUNDWATER SCO EXCEEDANCE
- SOIL BORING
- PROPERTY LINE
- 1999 FORMER RFM SOIL REMEDIATION AREA
- PROPOSED EXCAVATION AREA
- CONCRETE SLAB REMOVAL

NOTE:
- ITT-W-1 TO BE ABANDONED.
- FORMER ITT RFM BUILDING REMOVED IN 2015, CONCRETE SLAB TO BE REMOVED AS NOTED.
- AERIAL IMAGE SHOWN DOES NOT REFLECT BUILDING REMOVED.
- THE AREAS OF EXCAVATION HAVE BEEN INTERPRETED TO EXTEND HALFWAY BETWEEN A LOCATION WHERE AN EXCEEDANCE OF AN SCO IS OBSERVED AND THE NEAREST ADJACENT POINT WITHOUT AN EXCEEDANCE. WHERE NO ADJACENT LOCATION EXISTS, A DISTANCE OF 10-FT FROM THE EXCEEDANCE HAS BEEN APPLIED.

ITT AUTOMOTIVE FLUID HANDLING SYSTEM
TOWN OF GATES, NEW YORK
SITE #8-28-112

ALTERNATIVE 4

Soil Excavation, On-Site Recharge Well Decommissioning, and Site Management

0 35 70 140
Feet

3356.63224
APRIL 2016

O'BRIEN & GERE ENGINEERS, INC.

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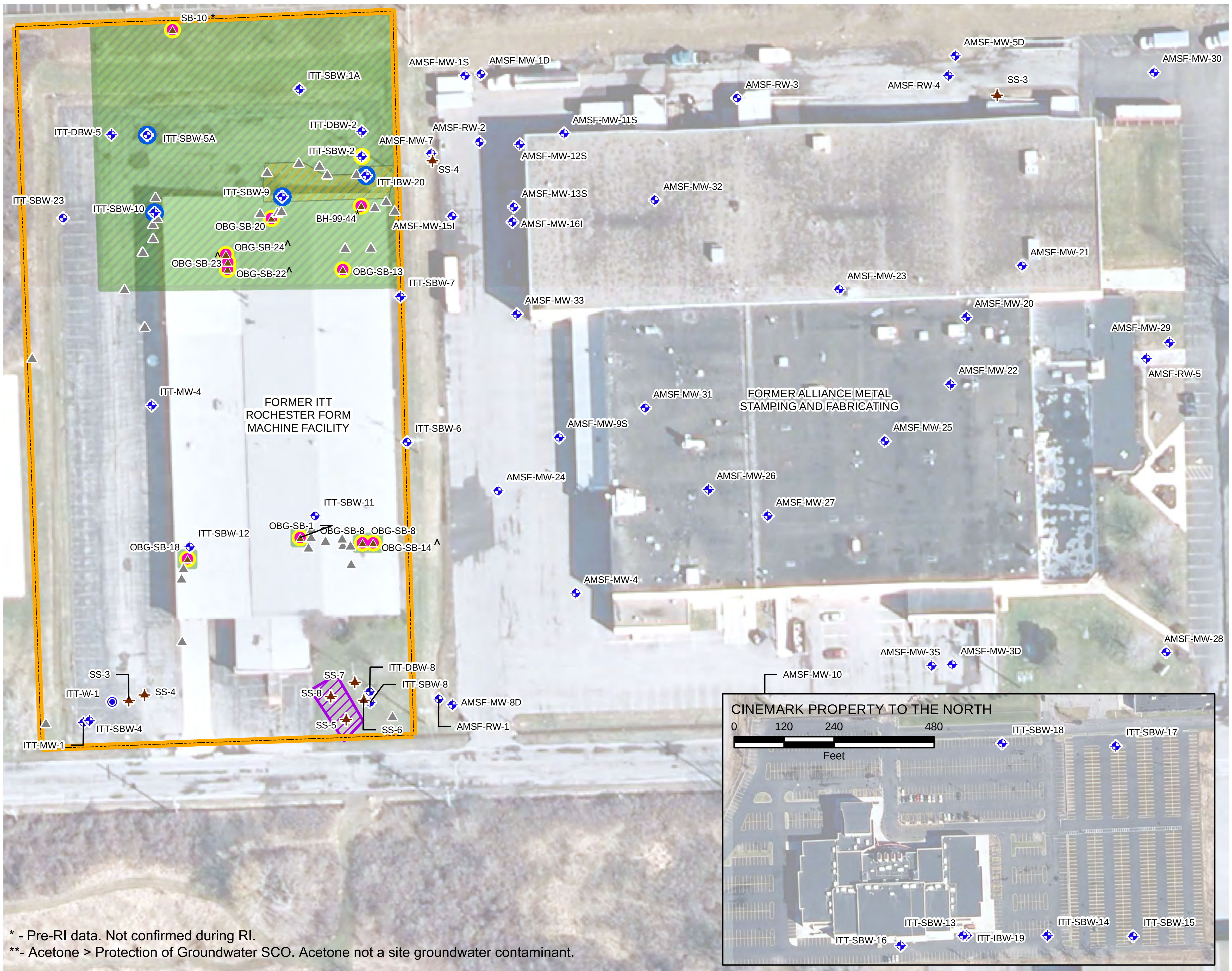
FIGURE 5D



Original modified for PRAP and ROD by Frank Sowers, NYSDEC.

AERIAL IMAGERY PROVIDED BY NYS GIS CLEARINGHOUSE, DATE APRIL 2009

N

LEGEND

- RECHARGE WELL
- MONITORING WELL
- PART 375 PROTECTION OF GROUNDWATER SCO EXCEEDANCE
- ONE OR MORE RESULT EXCEEDS PART 375 UNRESTRICTED USE SCO OR CP-51 RESIDENTIAL USE SCO CRITERIA
- CLASS GA STANDARDS EXCEEDANCE OF TCA
- PROPERTY LINE
- PROPOSED EXCAVATION AREA ALT 6.*
- 1999 FORMER RFM SOIL REMEDIATION AREA
- IN-SITU THERMAL (LIMITS BASED ON 2013/2014 GROUNDWATER RESULTS)

NOTE:
- ITT-W-1 TO BE ABANDONED.
- FORMER ITT RFM BUILDING REMOVED IN 2015, CONCRETE SLAB TO BE REMOVED.
- GROUNDWATER EXCEEDANCES FROM JUNE 2013 AND MAY 2014 GROUNDWATER MITORING EVENTS.

*ALT. 5 EXCAVATES PAHS UNDER ASPHALT

ITT AUTOMOTIVE FLUID HANDLING SYSTEM
TOWN OF GATES, NEW YORK
SITE #8-28-112

ALTERNATIVES 5 and 6

In-Situ Thermal Treatment, On-Site Recharge Well Decommissioning, and Site Management

0 35 70 140
Feet

3356.63224
APRIL 2016

O'BRIEN & GERE ENGINEERS, INC.

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