HILLCREST SITE

SITE INVESTIGATION REPORT ADDENDUM

WORK ASSIGNMENT D004440-13.5

HILLCREST SITE

FENTON (T)
BROOME COUNTY, NY

Prepared for:

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 Broadway, Albany, New York

Alexander B. Grannis, Commissioner

DIVISION OF ENVIRONMENTAL REMEDIATION

URS Corporation
77 Goodell Street
Buffalo, New York 14203

June 2009

HILLCREST SITE INVESTIGATION REPORT ADDENDUM
HAMLET OF HILLCREST, TOWN OF FENTON, NEW YORK

PREPARED FOR:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DEPARTMENT OF ENVIRONMENTAL REMEDIATION
WORK ASSIGNMENT D004440-13.5

PREPARED BY:

URS CORPORATION
77 GOODELL STREET
BUFFALO, NEW YORK 14203

JUNE 2009

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1.0 INTRODUCTION

1.1 Purpose of Addendum

The Hillcrest neighborhood is located approximately 2,200 feet south and east of the Chenango River and adjacent to Interstate 88, in the Town of Fenton, Broome County, New York (Figure 1). Hillcrest is a mix of primarily residential homes with light commercial and industrial facilities. Soil and groundwater have been contaminated, primarily by trichloroethene (TCE) from past discharges from CAE Electronics, Site No. 704015, and potentially from former operations at Triple Cities Metal Finishing (TCMF). CAE was a manufacturer of flight simulator equipment. Poor housekeeping practices apparently lead to soil contamination immediately adjacent to the building. CAE had State Pollution Discharge Elimination System (SPDES) permits to discharge wastewater directly to groundwater through a system of outfalls on their property. TCMF was a metal finishing business that operated west of CAE and conducted similar waste disposal practices.

URS Corporation (URS) performed a site investigation at the Hillcrest site in 2008. This addendum provides supplemental investigation results to complement the final Site Investigation Report prepared by URS and submitted as final in January 2009 (URS 2009). The following additional data are presented in this addendum:

- Updated presentation of the second round of groundwater sampling results from the July-August 2008 sampling event
- Presentation of January 2009 structure sampling results.

1.2. Site Investigation Summary

The January 2009 Site Investigation Report (URS 2009) reported the results of an investigation conducted during 2008 that included the following activities:

- Completion of soil borings through the entire thickness of sand and gravel deposits to further characterize lithologic conditions, and to identify the depth to the top of the silt layer.

- Collection of soil samples from within the upper 5 feet of the silt, below the silt interface with the sand and gravel, and analysis for volatile organic compounds (VOCs).
- Collection of groundwater samples at discrete depths within the sand and gravel zone and the silt zone to evaluate possible VOC source areas.
- Collection and analysis of groundwater samples from new and existing monitoring wells for VOCs as well as additional remediation parameters.
- Sampling of selected residences for Soil Vapor Intrusion.

The purpose of the 2008 investigation was to complete the delineation of the nature and extent of contamination of the VOC plums in the Hillcrest neighborhood. The investigation succeeded in defining the lateral extent of the VOC plume. For the full context of the nature of the site investigation and the findings of the study, please refer to the full report (URS 2009). This addendum summarizes the second phase (July – August 2008) groundwater sampling results and January 2009 structure sampling results.

2.0 JULY – AUGUST 2008 OF GROUNDWATER SAMPLING

URS collected groundwater samples from the new wells installed as part of the 2008 investigation – and selected existing monitoring wells – in two rounds. First, following completion of the monitoring well installation and development, groundwater sampling was conducted from April 7, 2008 through April 11, 2008. Groundwater samples were collected from all 12 newly installed monitoring wells and 23 of the existing monitoring wells. The second groundwater sampling round was conducted from July 8 through July 11, 2008 and consisted of the same wells sampled in April except for MW-07-01 which was found to be dry. Six wells were resampled on August 28, 2009 after data validation rejected the July 2008 results due to concerns of laboratory misidentification. In this addendum, discussion is provided for the July/August 2008 sample results. The April 2008 results are also discussed herein to provide context.

2.1 Site Investigation Summary

Three distinct hydrostratigraphic units are present in the study area, consisting of (from shallow to deep):

- Outwash sand and gravel
- Lake silt and fine sand
- Kame and kame terrace sand and gravel

Thickness of the units varies but review of boring logs from this and previous investigations indicate the upper outwash sand and gravel unit ranges from 15 to greater than 50 feet thick; the lake silt unit is approximately 140 feet thick; and the kame terrace sand and gravel ranges from 20 to 50 feet thick. Saturated conditions in the soil borings were typically found at about 15 to 25 feet bgs in the sand and gravel unit, which corresponds to about 5 to 10 feet above the top of the silt. Similar groundwater elevations were observed in nearby monitoring wells.

All groundwater samples were collected from wells screened in the outwash sand and gravel except for samples from MW-02A and MW-06 which are screened in the lake silt unit.

2.2 Groundwater Sampling Results

Groundwater analytical results are presented on Table 1 (April 2008 sampling round) and Table 2 (July/August sampling round). The location of the wells, together with TCE results are provided on Figures 2 (April 2008) and 3 (July/August 2008).

Laboratory results for the April 2008 sampling round (Table 1) show that TCE is present in the highest concentrations of all of the analyzed parameters. TCE was detected in only two of the seven wells sampled within the former CAE facility, at concentrations ranging from 39 µg/L in MW-02A to 130 µg/L in MW-06 (both of these wells, unlike the other wells, are screened in the silt layer). Outside the CAE facility, the highest offsite concentration of TCE was found in MW-19 at 68 µg/L, located just north of the former CAE property boundary. The remaining wells outside of the CAE property where TCE was detected had concentrations that ranged from 11 µg/L in MW-15, MW-21, and NW-5, to 51 µg/L in MW-7.

Laboratory results for the July/August 2008 sampling round (Table 2) show that TCE has the highest concentrations of all of the analyzed parameters and were typically slightly higher in concentration compared to the April 2008 sampling round. TCE was detected in all seven of the former CAE facility wells and ranged in concentration from 4 µg/L (estimated concentration) in MW-09 to 140 µg/L in MW-02. TCE was not detected in MW-02 in April 2008. For wells outside of the former CAE facility, concentrations of TCE ranged from not detected in MW-07-11, MW-16, MW-26 and MW-27 to 61 µg/L in MW-17. Only two other compounds were detected in the groundwater monitoring wells during the July/August sampling round; 1,2-Dichloroethene (cis) at 2 µg/L in MW-02, and 1,1,1-Trichloroethane at 4 µg/L in MW-10 and at 2 µg/L in MW-10. All of these concentrations were estimated values.

Figures 2 and 3 provide TCE isoconcentration contours for the study area based on the April 2008 (Figure 2) and July/August 2008 (Figure 3) monitoring well results for wells screened in the sand/gravel zone. Figure 2 and Figure 3 show TCE concentrations to be highest within and/or immediately north and northwest of the former CAE facility. TCE concentrations drop to low (less than 6 µg/L) or non-detect concentrations north of Hotchkiss Avenue.

3.0 2009 VAPOR INTRUSTION STRUCTURE SAMPLING

During January 2009, URS sampled eleven structures: two for the first time, three structures (basement only) following mitigation activities, and six structures that had been sampled before where TCE vapor had been detected but not at levels warranting mitigation. The results of the sampling are presented on Table 3. Each structure is referred to by its alphanumeric designation (e.g. H-301) rather than its address to protect the privacy of the residents of each structure.

None of the structures sampled for the first time require further monitoring or mitigation activities in accordance with the NYSDOH guidance for TCE. With one exception, the houses sampled following mitigation all showed little to no TCE vapors in the basement air, demonstrating the effectiveness of the installed mitigation systems. The one house that still had indoor air TCE above guidelines is at a structure where sealing the basement has proven difficult due to the nature of the building construction and use. Four of the houses resampled based on previous results showed TCE levels falling into the "no further action" category during this sampling event. The remaining two resampled structures continued to show somewhat elevated subslab TCE vapors (in the range of 6 – 30 µg/m3) and little to no indoor air TCE. These structures remain in the "monitor" category in accordance with the NYSDOH guidance for TCE.

An updated depiction of the overall results of the NYSDOH VI action matrix determination (based on highest sample result) and designation of mitigated structures for the entire Hillcrest neighborhood is presented in Figure 4. This figure updates Figure 14 of the Site Investigation Report, adding in the two new structures that were sampled and that required no further action.

4.0 SUMMARY

This Site Investigation Addendum provides discussion of the second round of groundwater sampling results and of the 2009 structure sampling results. These sampling results are consistent with the findings that were reported in the Site Investigation Report (URS 2009) and support the findings and conclusions presented in that report.

5.0 REFERENCES

URS Corporation, January 2009. Hillcrest Site Investigation Report, Hillcrest Site, Town of Fenton, New York.

TABLES

TABLE 1
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-02	MW-02A	MW-03	MW-06	MW-07
Sample ID			MW-02	MW-02A	MW-03	MW-06	FD-041008
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/10/08	04/10/08	04/09/08	04/10/08	04/10/08
Parameter	**Units**	*					Field Duplicate (1-1)
Volatile Organic Compounds							
Trichloroethene	UG/L	5		39		130	12

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 1
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-07	MW-07-01	MW-07-02	MW-07-03	MW-07-04
Sample ID			MW-07	MW-07-01	MW-07-02	MW-07-03	MW-07-04
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/10/08	04/09/08	04/09/08	04/08/08	04/08/08
Parameter	**Units**	*					
Volatile Organic Compounds							
Trichloroethene	UG/L	5	12				15

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

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Only Detected Results Reported.

Advanced Selection: Table 5
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[MATRIX] = 'WG' AND ([SACODE] = 'N' OR [SACODE] = 'FD') AND [LOGDATE] BETWEEN #4/1/2008# AND #4/30/2008

TABLE 1
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-07-05	MW-07-06	MW-07-07	MW-07-08	MW-07-08
Sample ID			MW-07-05	MW-07-06	MW-07-07	FD-040808	MW-07-08
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/08/08	04/08/08	04/08/08	04/08/08	04/08/08
Parameter	**Units**	*				Field Duplicate (1-1)	
Volatile Organic Compounds							
Trichloroethene	UG/L	5		15			

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

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Concentration Exceeds

UG/L - Micrograms per liter.

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Only Detected Results Reported.

TABLE 1
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-07-09	MW-07-10	MW-07-11	MW-09	MW-10
Sample ID			MW-07-09	MW-07-10	MW-07-11	MW-09	MW-10
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/07/08	04/07/08	04/11/08	04/11/08	04/10/08
Parameter	**Units**	*					
Volatile Organic Compounds							
Trichloroethene	UG/L	5					

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

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TABLE 1
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-11	MW-14	MW-15	MW-16	MW-17
Sample ID			MW-11	MW-14	MW-15	MW-16	MW-17
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/10/08	04/09/08	04/09/08	04/10/08	04/09/08
Parameter	**Units**	*					
Volatile Organic Compounds							
Trichloroethene	UG/L	5			11		51

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

(oval) Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

Advanced Selection: Table 5
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TABLE 1
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-18	MW-19	MW-20	MW-21	MW-22
Sample ID			MW-18	MW-19	MW-20	MW-21	MW-22
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/10/08	04/09/08	04/08/08	04/08/08	04/10/08
Parameter	**Units**	*					
Volatile Organic Compounds							
Trichloroethene	UG/L	5		68	11	11	

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 1
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			MW-25	MW-26	MW-27	MW-28R	NW-05
Sample ID			MW-25	MW-26	MW-27	MW-28R	NW-05
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			04/07/08	04/07/08	04/11/08	04/08/08	04/09/08
Parameter	**Units**	*					
Volatile Organic Compounds							
Trichloroethene	UG/L	5	15				11

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

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[MATRIX] = 'WG' AND ([SACODE] = 'N' OR [SACODE] = 'FD') AND [LOGDATE] BETWEEN #4/1/2008# AND #4/30/2008

TABLE 1
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
APRIL 2008

Location ID			NW-06	NW-07
Sample ID			NW-06	NW-07
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			04/08/08	04/10/08
Parameter	**Units**	*		
Volatile Organic Compounds				
Trichloroethene	UG/L	5	14	

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 2
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-02	MW-02A	MW-03	MW-06	MW-07
Sample ID			MW-02	MW-02A	MW-03	MW-06	MW-07
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			08/28/08	08/28/08	07/09/08	07/11/08	08/28/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5					
1,2-Dichloroethene (cis)	UG/L	5	2 J				
Trichloroethene	UG/L	5	140	25	11	100	13

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

Advanced Selection: 2nd round GW
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[MATRIX] = 'WG' AND ([SACODE] = 'N' OR [SACODE] = 'FD') AND [LOGDATE] >= #7/8/2008

TABLE 2
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-07-02	MW-07-03	MW-07-03	MW-07-04	MW-07-04
Sample ID			MW-07-02	20080708-FD-1	MW-07-03	20080710-FD-1	MW-07-04
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/10/08	07/08/08	07/08/08	07/10/08	07/10/08
Parameter	**Units**	*		Field Duplicate (1-1)		Field Duplicate (1-1)	
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5					
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	2 J	2 J		13 J	13 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 2
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-07-05	MW-07-06	MW-07-07	MW-07-08	MW-07-09
Sample ID			MW-07-05	MW-07-06	MW-07-07	MW-07-08	MW-07-09
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/08/08	07/08/08	07/08/08	07/08/08	08/28/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5					
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	3 J	13	2 J	4 J	6 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

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[MATRIX] = 'WG' AND ([SACODE] = 'N' OR [SACODE] = 'FD') AND [LOGDATE] >= #7/8/2008

TABLE 2
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-07-10	MW-07-11	MW-09	MW-10	MW-11
Sample ID			MW-07-10	MW-07-11	MW-09	MW-10	MW-11
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			08/28/08	07/08/08	07/08/08	07/09/08	07/11/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5				4 J	
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	4 J		4 J	15	8

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 2
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-14	MW-15	MW-16	MW-17	MW-18
Sample ID			MW-14	MW-15	MW-16	MW-17	MW-18
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/09/08	07/09/08	07/10/08	07/10/08	07/10/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5					
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	13	12 J		61	10

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 2
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-19	MW-20	MW-21	MW-21	MW-22
Sample ID			MW-19	MW-20	20080709-FD-1	MW-21	MW-22
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/10/08	07/08/08	07/09/08	07/09/08	07/10/08
Parameter	**Units**	*			Field Duplicate (1-1)		
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5				2 J	
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	59	18	11 J	12	4 J

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 2
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			MW-25	MW-26	MW-27	MW-28R	NW-05
Sample ID			MW-25	MW-26	MW-27	MW-28R	NW-05
Matrix			Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
Depth Interval (ft)			-	-	-	-	-
Date Sampled			07/09/08	07/09/08	07/08/08	07/11/08	07/10/08
Parameter	**Units**	*					
Volatile Organic Compounds							
1,1,1-Trichloroethane	UG/L	5					
1,2-Dichloroethene (cis)	UG/L	5					
Trichloroethene	UG/L	5	14 J			5	9

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 2
SUMMARY OF DETECTED ANALYTES - MONITORING WELL GROUNDWATER SAMPLES
HILLCREST SITE INVESTIGATION
JULY-AUGUST 2008

Location ID			NW-06	NW-07
Sample ID			NW-06	NW-07
Matrix			Groundwater	Groundwater
Depth Interval (ft)			-	-
Date Sampled			07/09/08	08/28/08
Parameter	**Units**	*		
Volatile Organic Compounds				
1,1,1-Trichloroethane	UG/L	5		
1,2-Dichloroethene (cis)	UG/L	5		
Trichloroethene	UG/L	5	13 J	9

*- NYSDEC TOGS (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June 1998, Revised April 2000, Class GA.

Flags assigned during chemistry validation are shown.

Concentration Exceeds

UG/L - Micrograms per liter.

Only Detected Results Reported.

TABLE 3
HILLCREST SITE INVESTIGATION
2009 SUBSLAB, INDOOR, AND OUTDOOR AIR SAMPLE ANALYTICAL RESULTS

Location ID		H-299	H-299	H-299	H-300	H-300
Sample ID		704015-OA-1	704015-BA-299	704015-SS-299	704015-BA-300	704015-SS-300
Matrix		Outdoor Air	Indoor Air	Sub-Slab Air	Indoor Air	Sub-Slab Air
Depth Interval (ft)		-	-	-	-	-
Date Sampled		01/26/09	01/26/09	01/26/09	01/26/09	01/26/09
Parameter	**Units**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/M3					0.82
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/M3					2.0
Benzene	UG/M3	1.9	1.8		2.2	
m&p-Xylene	UG/M3	1.2	1.3		2.6	2.0
o-Xylene	UG/M3				0.95	0.86
Tetrachloroethene	UG/M3	0.21	0.29		0.34	4.3
Toluene	UG/M3	2.6	2.3	1.0	4.0	3.2
Trichloroethene	UG/M3					

Flags assigned during chemistry validation are shown.

UG/M3 - Micrograms per cubic meter.
Blank - Not detected
J - The reported concentration is an estimated value.

Only Detected Results Reported.

Advanced Selection: 2009 ai
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[LOGDATE] >= #1/01/2009# AND ([SACODE] = 'N' OR [SACODE] = 'FD') AND ([MATRIX] = 'AA' OR [MATRIX] = 'AI' OR [MATRIX] = 'AQ' OR [MATRIX] = 'AS' OR [MATRIX] = 'G

TABLE 3
HILLCREST SITE INVESTIGATION
2009 SUBSLAB, INDOOR, AND OUTDOOR AIR SAMPLE ANALYTICAL RESULTS

Location ID		H-301	H-301	H-301	H-302	H-303
Sample ID		704015-BA-301	704015-SSA-301	704015-SSB-301	704015-BA-302	704015-BAA-303
Matrix		Indoor Air	Sub-Slab Air	Sub-Slab Air	Indoor Air	Indoor Air
Depth Interval (ft)		-	-	-	-	-
Date Sampled		01/26/09	01/26/09	01/26/09	01/26/09	01/26/09
Parameter	Units			(2-1)		
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/M3			0.75		
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/M3					
Benzene	UG/M3	1.7	4.0		3.8	3.0
m&p-Xylene	UG/M3	1.1	5.4		7.8	4.6
o-Xylene	UG/M3		2.1		2.9	1.8
Tetrachloroethene	UG/M3		0.40	0.32		0.27
Toluene	UG/M3	2.0	12	1.0	18	10
Trichloroethene	UG/M3		0.34			

Flags assigned during chemistry validation are shown.

UG/M3 - Micrograms per cubic meter.
Blank - Not detected
J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 3
HILLCREST SITE INVESTIGATION
2009 SUBSLAB, INDOOR, AND OUTDOOR AIR SAMPLE ANALYTICAL RESULTS

Location ID		H-303	H-303	H-303	H-304	H-305
Sample ID		704015-BAB-303	704015-SS-303	704015-SS-303-DUP	704015-BA-304	704015-OA-2
Matrix		Indoor Air	Sub-Slab Air	Sub-Slab Air	Indoor Air	Outdoor Air
Depth Interval (ft)		-	-	-	-	-
Date Sampled		01/26/09	01/26/09	01/26/09	01/28/09	01/28/09
Parameter	Units	(2-1)		Field Duplicate (1-1)		
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/M3		0.25	0.24		
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/M3					
Benzene	UG/M3	2.9	5.1	4.9	2.5	1.2
m&p-Xylene	UG/M3	3.0	5.3	4.5	2.4	
o-Xylene	UG/M3	1.0	2.2	1.9		
Tetrachloroethene	UG/M3		0.75	0.72	1.4	
Toluene	UG/M3	6.3	8.4	7.8	7.2	
Trichloroethene	UG/M3		4.7	4.6		

Flags assigned during chemistry validation are shown.

UG/M3 - Micrograms per cubic meter.
Blank - Not detected
J - The reported concentration is an estimated value.

Only Detected Results Reported.

Advanced Selection: 2009 ai
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[LOGDATE] >= #1/01/2009# AND ([SACODE] = 'N' OR [SACODE] = 'FD') AND ([MATRIX] = 'AA' OR [MATRIX] = 'AI' OR [MATRIX] = 'AQ' OR [MATRIX] = 'AS' OR [MATRIX] = 'G

TABLE 3
HILLCREST SITE INVESTIGATION
2009 SUBSLAB, INDOOR, AND OUTDOOR AIR SAMPLE ANALYTICAL RESULTS

Location ID		H-305	H-306	H-307	H-307	H-308
Sample ID		704015-BA-305	704015-BA-306	704015-BA-307	704015-SS-307	704015-BAA-308
Matrix		Indoor Air	Indoor Air	Indoor Air	Sub-Slab Air	Indoor Air
Depth Interval (ft)		-	-	-	-	-
Date Sampled		01/28/09	01/28/09	01/28/09	01/28/09	01/28/09
Parameter	**Units**					
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/M3	0.47		2.3	2.7	
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/M3					
Benzene	UG/M3	1.9	1.8	2.4	1.8	2.4
m&p-Xylene	UG/M3	2.6	2.0	7.5	2.7	3.2
o-Xylene	UG/M3	1.1	0.82	2.7	1.4	1.3
Tetrachloroethene	UG/M3			0.47	2.1	0.97
Toluene	UG/M3	4.9	4.3	11	4.4	8.6
Trichloroethene	UG/M3	7.5			30	0.32

Flags assigned during chemistry validation are shown.

UG/M3 - Micrograms per cubic meter.
Blank - Not detected
J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 3
HILLCREST SITE INVESTIGATION
2009 SUBSLAB, INDOOR, AND OUTDOOR AIR SAMPLE ANALYTICAL RESULTS

Location ID		H-308	H-308	H-308	H-309	H-309
Sample ID		704015-BAA-308-DUP	704015-BAB-308	704015-SS-308	704015-OA-3	704015-BA-309
Matrix		Indoor Air	Indoor Air	Sub-Slab Air	Outdoor Air	Indoor Air
Depth Interval (ft)		-	-	-	-	-
Date Sampled		01/28/09	01/28/09	01/28/09	01/29/09	01/29/09
Parameter	Units	Field Duplicate (1-1)	(2-1)			
Volatile Organic Compounds						
1,1,1-Trichloroethane	UG/M3			0.50		
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/M3					
Benzene	UG/M3	2.2	1.8	2.9	1.2	1.6
m&p-Xylene	UG/M3	3.4	1.4	7.6		1.5
o-Xylene	UG/M3	1.1		2.3		
Tetrachloroethene	UG/M3	1.0	0.57	11		
Toluene	UG/M3	8.2	4.0	11	1.4	4.4
Trichloroethene	UG/M3	0.29	0.24	6.3		

Flags assigned during chemistry validation are shown.

UG/M3 - Micrograms per cubic meter.
Blank - Not detected
J - The reported concentration is an estimated value.

Only Detected Results Reported.

TABLE 3
HILLCREST SITE INVESTIGATION
2009 SUBSLAB, INDOOR, AND OUTDOOR AIR SAMPLE ANALYTICAL RESULTS

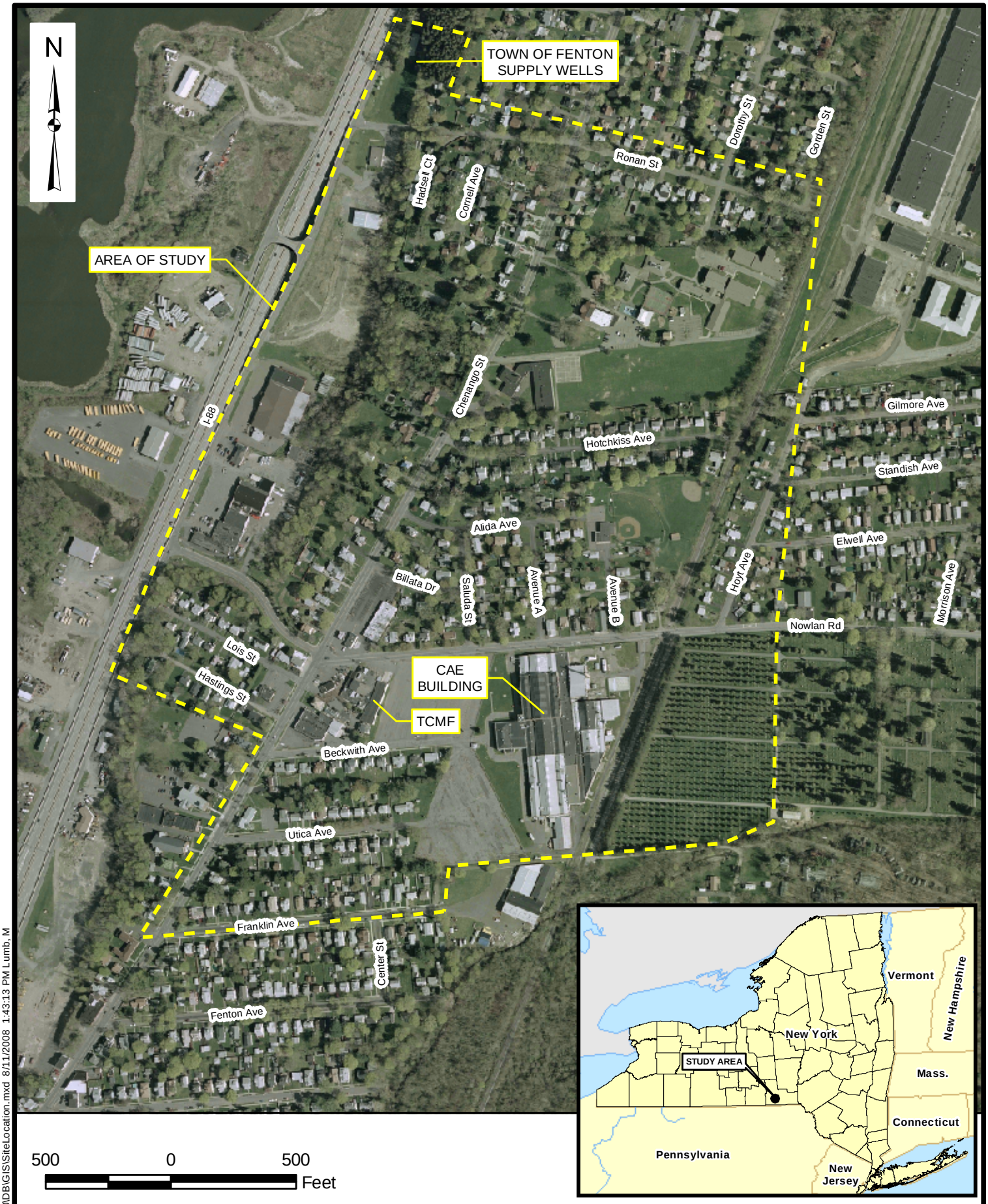
Location ID		H-309
Sample ID		704015-SS-309
Matrix		Sub-Slab Air
Depth Interval (ft)		-
Date Sampled		01/29/09
Parameter	**Units**	
Volatile Organic Compounds		
1,1,1-Trichloroethane	UG/M3	
1,1,2-Trichloro-1,2,2-trifluoroethane	UG/M3	
Benzene	UG/M3	2.3
m&p-Xylene	UG/M3	4.0
o-Xylene	UG/M3	1.3
Tetrachloroethene	UG/M3	1.8
Toluene	UG/M3	6.5
Trichloroethene	UG/M3	

Flags assigned during chemistry validation are shown.

UG/M3 - Micrograms per cubic meter.
Blank - Not detected
J - The reported concentration is an estimated value.

Only Detected Results Reported.

FIGURES



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URS

HILLCREST
SITE LOCATION

FIGURE 1

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N

TOWN OF FENTON SUPPLY WELLS

MW-07-11, ND

MW-07-07, ND

MW-07-10, ND

MW-27, ND

MW-07-03, ND

MW-07-08, ND

MW-07-09, ND

MW-07-02, ND

MW-07-05, ND

MW-25, 15

MW-20, 11

MW-07-06, 15

MW-07-04, 15

MW-07-01, ND

MW-15, 11

MW-28R, ND

MW-17, 51

NW-06, 14

NW-05, 11

MW-14, ND

MW-19, 68

MW-09, ND

MW-21, 11

MW-03, ND

MW-16, ND

MW-07, 12

MW-02, ND

MW-02A, 39

MW-06, 130

MW-18, ND

MW-22, ND

NW-07, ND

MW-11, ND

MW-10, ND

MW-26, ND

ND

10

20

30

40

50

60

Cornell Ave

Ronan St

Chenango St

Hotchkiss Ave

Alida Ave

Saluda St

Avenue A

Avenue B

Nowlan Rd

Lois St

Hastings St

Beckwith Ave

Utica Ave

Franklin Ave

Center St

Fenton Ave

TCMF

CAE BUILDING

Legend

Isoconcentration Contour

TCE Concentrations (ug/L)

- ND
- < 10
- 10 - 50
- 50 - 100
- > 100

MW-17, 51

Location ID — Concentration (ug/L)

NOTE:
MW-02A and MW-06 were not used in contours, because they are screened entirely in the silt unit.

300 0 300 Feet

URS

NYSDEC HILLCREST - BINGHAMTON, NEW YORK
TRICHLOROETHENE ISOCONCENTRATION CONTOURS
MONITORING WELLS - APRIL 2008

FIGURE 2

N:\11173142.00000\DB\GIS\2008-combined-GW_ISO-Jul-Aug.mxd 6/12/2009 8:33:22 AM Lumb, M

N

TOWN OF FENTON SUPPLY WELLS

MW-07-11, ND

MW-07-10, 4

MW-27, ND

MW-07-07, 2

MW-07-03, 2

MW-07-08, 4

MW-07-09, 6

MW-07-02, 2

MW-07-05, 3

MW-25, 14

MW-20, 18

MW-07-06, 13

MW-07-04, 13

MW-15, 12

MW-28R, 5

MW-17, 61

NW-06, 13

NW-05, 9

MW-14, 13

MW-19, 59

MW-09, 4

MW-21, 12

MW-03, 11

MW-07, 13

MW-02A, 25

MW-02, 140

MW-06, 100

MW-18, 10

MW-22, 4

NW-07, 9

MW-11, 8

MW-10, 15

MW-26, ND

TCMF

CAE BUILDING

ND

10

20

30

40

50

60

70

80

90

Cornell Ave

Ronan St

Chenango St

Hotchkiss Ave

Alida Ave

Sawda St

Nowlan Rd

Avenue A

Avenue B

Lois St

Hastings St

Beckwith Ave

Utica Ave

Franklin Ave

Center St

Fenton Ave

Legend

Isoconcentration Contour

TCE Concentrations (ug/L)

- ND
- < 10
- 10 - 50
- 50 - 100
- > 100

MW-17, 51

Location ID — Concentration (ug/L)

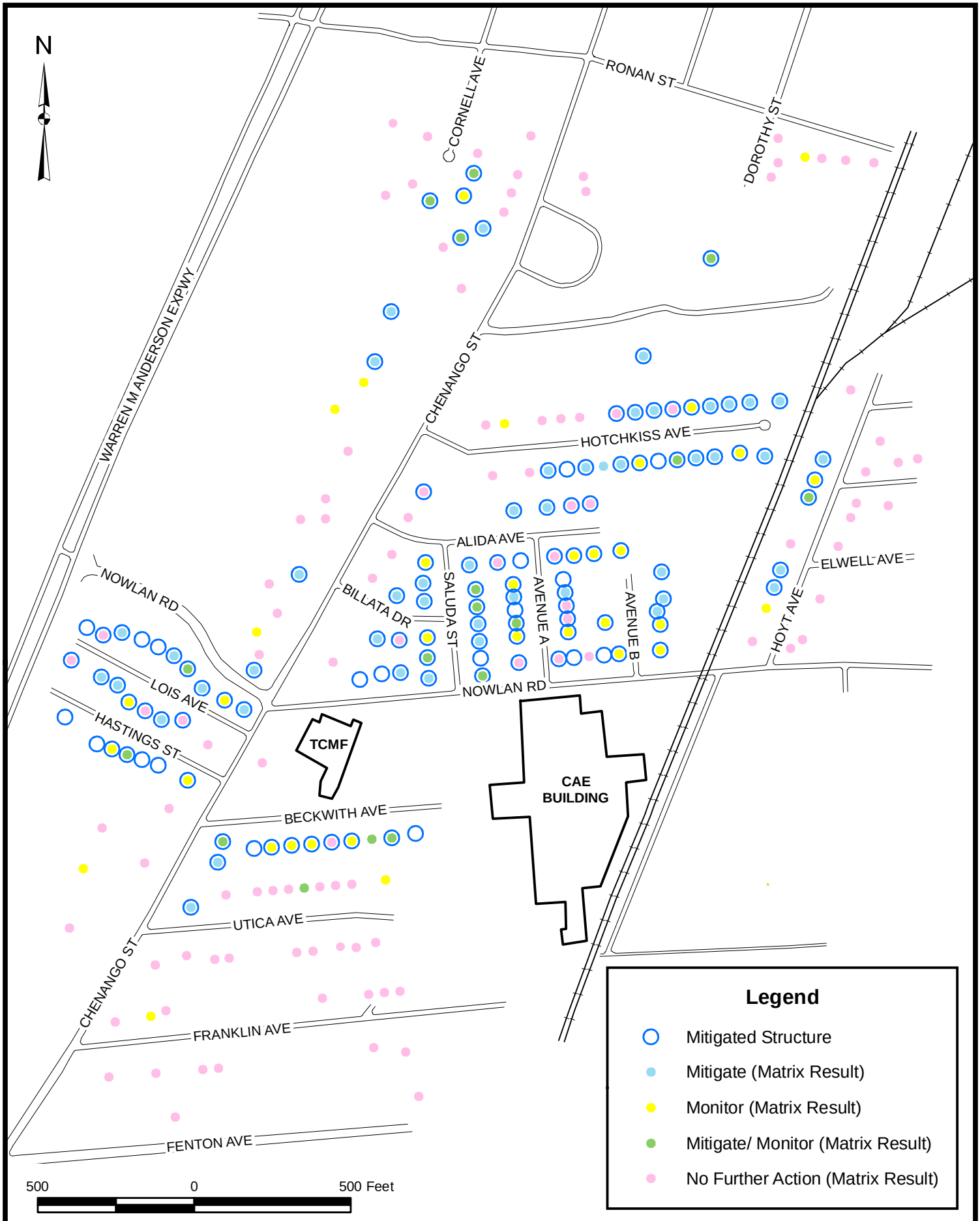
NOTE:
MW-02A and MW-06 were not used in contours, because they are screened entirely in the silt unit.

300 0 300 Feet

URS

NYSDEC HILLCREST - BINGHAMTON, NEW YORK
TRICHLOROETHENE ISOCONCENTRATION CONTOURS
MONITORING WELLS - JULY/AUGUST 2008

FIGURE 3



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URS

NYSDEC HILLCREST - BINGHAMTON, NEW YORK
NYSDOH VI ACTION MATRIX DETERMINATION
(BASED ON HIGHEST SAMPLE RESULT)
AND DESIGNATION OF MITIGATED STRUCTURES

FIGURE 4