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August 30, 2022

Barbara Firebaugh
New York State Department of Environmental Conservation
Division of Environmental Remediation, Remedial Bureau D
625 Broadway, 12th Floor
Albany, New York 12233-7013

Re: Former Oak Materials John Street (NYSDEC No. 442049) - Groundwater Sampling & Analysis Plan

Dear Ms. Firebaugh,

This Groundwater Sampling & Analyses Plan (work plan) was developed for the Oak Materials Fluorglas Division - John Street Site (Site) located in Hoosick Falls, New York (NYSDEC No. 442049). The data collected as part of the work plan will be used to the support the Site's conceptual site model and Feasibility Study.

Scope of Work

The work plan presents a scope of work to monitor groundwater elevations and collect groundwater samples at the Site and in the area surrounding the Site. Sampling locations will include existing monitoring wells at the Site and select wells at the Former Oak-Mitsui – First Street Site (NYSDEC No. 442052) located at 80 First Street. Water samples will be analyzed for volatile organic compounds (VOCs) and other parameters as specified herein. In addition, several wells will be gauged quarterly for non-aqueous liquids (NAPL).

Monitoring Well Locations

The proposed monitoring well locations are shown on Figures 1, 2, and 3 along with the maximum reported concentrations of total volatile organic compounds (VOCs) (Figures 1 and 2) and per- and polyfluoroalkyl substances (PFAS) (Figure 3). The wells to be sampled and the sampling frequency are indicated by colored circles with matching colored well IDs.

Table 1 lists the proposed wells, the analytical parameters, and the sampling/gauging/observation frequency. Most of the wells are proposed to be sampled quarterly and several wells are proposed to be sampled once because they either have been sampled at least four times previously (JS-MW-002B and JS-MW-003B) or are part of a well cluster where another well screened in the same water bearing unit will be sampled. If changes to the wells to be sampled and/or gauged is warranted based on sampling results, NYSDEC will be consulted for approval.

Also noted on **Table 1** are wells that are currently gauged and/or sampled for VOCs and PFAS annually under the monitoring program for the shallow groundwater Interim Remedial Measure (IRM). The next annual sampling event for the IRM will be scheduled to coincide with one of this work plan's proposed sampling events (likely the first or second quarterly event). For the purposes of Table 1, this event is assumed to occur at the second quarterly event.

Analytical Parameters

As part of this work plan, all proposed wells will be sampled and analyzed for VOCs according to EPA Method 8260C. Additionally, nine shallow wells will be sampled and analyzed for twenty-one (21) per- and polyfluoroalkyl substances (PFAS) according to EPA Method 537 modified.

Purging and sampling will be performed using minimum drawdown/low-flow techniques. Prior to collection of water samples, the wells will be gauged, and a calibrated electronic field parameter meter will be utilized to record field geochemical data. The field parameter meter will be calibrated at the start of each day and will have documented calibration checks at the middle and end of each day. A three-point calibration will be used for pH measurements. A single-point calibration will be used for other groundwater quality parameters. Geochemical parameters including temperature, specific conductivity, pH, oxidation-reduction potential, turbidity, and dissolved oxygen will be monitored and recorded.

After the results of the first quarterly sampling event have been received, ten wells will be selected for sampling and analysis for microbial evaluation, dissolved gases (ethene, ethane, methane) and electron acceptors and products (nitrate, nitrite, sulfate, sulfide, iron (total and dissolved), and manganese (total and dissolved).

Laboratory analyses, with the exception of the microbial analyses, will be performed at an Environmental Laboratory Accreditation Program (ELAP) approved environmental laboratory. Laboratory analytical reports will contain ASP Category B or equivalent deliverables to facilitate data usability evaluation by a third party. Electronic data deliverables will also be provided by the project laboratory.

Samples for microbial analyses will be sent to Microbial Insights laboratory for QuantArray®-Chlor analysis, which quantifies several known dechlorinating bacteria (e.g. *Dehalococcoides* and *Dehalobacter*) as well as functional genes (e.g. vinyl chloride reductase) known to be involved in the biodegradation of chlorinated ethenes.

Schedule and Report

The first sampling event is anticipated to occur within 6 weeks of receiving approval from NYSDEC. The results of the groundwater monitoring program will be included in the Feasibility Study Report.

Sincerely,

Sasa Jazic
Senior Remediation Manager
Honeywell

cc: Ian Beilby, NYSDEC
Dan Servetas, Wood
Maureen Leahy, Wood
Tim Johnson, Anchor QEA

Attachments
Figure 1 - Proposed Groundwater Monitoring Wells for VOCs in Shallow Groundwater
Figure 2 - Proposed Groundwater Monitoring Wells for VOCs in Deep Groundwater
Figure 3 - Proposed Groundwater Monitoring Wells for PFAS in Shallow Groundwater
Table 1 - Proposal Groundwater Sampling and Analysis Plan, John Street Site, Hoosick Falls New York

Table 1 - Proposed Groundwater Monitoring Program, John Street Site, Hoosick Falls, New York

Monitoring Well	Depth Interval	Total Depth (ft bgs)	Elevation of Screened Interval		Proposed Sampling Frequency and Analysis				Comment
			Top (ft amsl)	Bottom (ft amsl)	Q1	Q2	Q3	Q4	
JS-MW-001A	A	17.5	415.50	410.50		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
JS-MW-001B	B	53.0	382.40	377.40		VOCs			Sampled >4 times under IRM, but not currently sampled under IRM
JS-MW-001C	C	80.0	353.90	348.90	VOCs	VOCs	VOCs	VOCs	
JS-MW-001D	D	90.0	342.77	337.77	VOCs	VOCs	VOCs	VOCs	
JS-MW-002A	A	9.0	424.90	419.90		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
JS-MW-003A	A	9.5	426.90	421.90		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
JS-MW-003B	B	56.0	380.80	375.80		VOCs			Sampled >4 times under IRM, but not currently sampled under IRM
JS-MW-003C	C	89.0	347.80	342.80	VOCs	VOCs	VOCs	VOCs	
JS-MW-003D	D	138.5	307.60	302.60	VOCs	VOCs	VOCs	VOCs	
JS-TMW-030	clay	27.4	418.20	404.20	N	N	N	N	Check for NAPL; not shown on Figures
JS-TMW-033	clay	20.5	419.10	410.10	IRM-N	IRM-N	IRM-N	IRM-N	NAPL checks being performed under IRM; not shown on Figures
JS-TMW-037	clay	22.5	419.30	409.30	N	N	N	N	Check for NAPL; not shown on Figures
JS-TMW-038	clay	21.5	419.60	409.60	IRM-N	IRM-N	IRM-N	IRM-N	NAPL checks being performed under IRM; not shown on Figures
JS-TMW-039	clay	22.5	419.20	408.20	IRM-N	IRM-N	IRM-N	IRM-N	NAPL checks being performed under IRM; not shown on Figures
JS-TMW-049	clay	20.5	420.40	410.40	N	N	N	N	Check for NAPL; not shown on Figures
JS-TMW-050	clay	20.0	420.60	410.60	N	N	N	N	Check for NAPL; not shown on Figures
JS-TMW-053	clay	17.0	418.30	413.30	N	N	N	N	Check for NAPL; not shown on Figures
IRM-TW-001	A	12.0	421.50	416.50		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
IRM-TW-002	A	12.0	421.40	416.40		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
IRM-TW-003	A	14.0	419.19	414.19		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
IRM-TW-004	A	19.0	413.87	408.87		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
IRM-TW-005	A	12.5	421.50	416.50		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
IRM-TW-006	A	15.5	417.40	412.40		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
OS-MW-025A	A	17.1	416.10	411.10		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
OS-MW-026A	A	20.7	412.20	407.20		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
OS-MW-026B	B	42.0	391.90	386.90	VOCs	VOCs	VOCs	VOCs	
OS-MW-026C	C	80.0	352.90	347.90	VOCs	VOCs	VOCs	VOCs	
OS-MW-031A	A	16.1	416.80	411.80		IRM*			Sampled >4 times under IRM; continued annual sampling under IRM
OS-MW-031B	B	25.2	405.70	402.70	VOCs	VOCs	VOCs	VOCs	
OS-MW-040A	A	15.0	413.23	408.23	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	
OS-MW-041A	A	18.0	414.70	409.70	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	
OS-MW-041B	B	38.0	394.55	389.55	VOCs	VOCs	VOCs	VOCs	
OS-MW-043A	A	8.0	425.86	422.86	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	
OS-MW-043B	B	124.5	311.36	306.36	VOCs	VOCs	VOCs	VOCs	
OS-MW-048A	A	18.0	418.29	408.29	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	
OS-MW-050B	B	70.0	370.34	360.34	VOCs				
OS-MW-050C	C	108.0	332.73	322.73	VOCs	VOCs	VOCs	VOCs	
OS-MW-051B	B	80.0	361.45	351.45	VOCs				
OS-MW-051C	C	140.0	316.80	291.80	VOCs	VOCs	VOCs	VOCs	
OS-MW-052B	B	118.0	321.82	311.82	VOCs	VOCs	VOCs	VOCs	
OS-MW-052C	C	142.0	302.93	287.93	N	N	N	N	Check for NAPL
OS-MW-053C	C	148.0	290.89	280.89	N	N	N	N	Check for NAPL
OS-MW-055C	C	86.0	352.53	342.53	VOCs	VOCs	VOCs	VOCs	After the first quarterly sampling event, one of these two wells will be selected for continued sampling at the next three events
OS-MW-055D	D	120.0	318.61	308.61	VOCs				

Table 1 - Proposed Groundwater Monitoring Program, John Street Site, Hoosick Falls, New York

Monitoring Well	Depth Interval	Total Depth (ft bgs)	Elevation of Screened Interval		Proposed Sampling Frequency and Analysis				Comment
			Top (ft amsl)	Bottom (ft amsl)	Q1	Q2	Q3	Q4	
OS-MW-056B	B	55.5	383.23	373.23	VOCs	VOCs	VOCs	VOCs	After the first quarterly sampling event, one of these two wells will be selected for continued sampling at the next three events
OS-MW-056C	C	103.0	338.42	328.42	VOCs				
OS-MW-057B	B	64.5	373.76	363.76	VOCs	VOCs	VOCs	VOCs	After the first quarterly sampling event, one of these two wells will be selected for continued sampling at the next three events
OS-MW-057C	C	116.0	323.67	313.67	VOCs				
OS-MW-058B	B	60.0	371.81	361.81	VOCs	VOCs	VOCs	VOCs	
OS-MW-058C	C	91.0	347.13	337.13	VOCs	VOCs	VOCs	VOCs	
FS-MW-005A	A	17	415.9	410.9	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	
FS-MW-005B	B	48	384.8	379.8	VOCs				After the first quarterly sampling event, one of these two wells will be selected for continued sampling at the next three events
FS-MW-005C	C	85	347.8	342.8	VOCs	VOCs	VOCs	VOCs	
FS-MW-007A	A	20	416.3	406.3	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	
FS-MW-007B	B	60	376.4	366.4	VOCs				After the first quarterly sampling event, one of these two wells will be selected for continued sampling at the next three events
FS-MW-007C	C	80	351.2	346.2	VOCs	VOCs	VOCs	VOCs	
FS-MW-008B	B	40	392.7	387.7	VOCs	VOCs	VOCs	VOCs	
FS-MW-011A	A	21	408	403	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	
FS-MW-012A	A	15	416.8	411.8	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	
FS-MW-012B	B	50	386.6	376.6	VOCs				After the first quarterly sampling event, one of these two wells will be selected for continued sampling at the next three events
FS-MW-012C	C	65	366.2	361.2	VOCs	VOCs	VOCs	VOCs	
FS-MW-013A	A	18	415.1	410.1	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	VOCs/PFAS	
FS-MW-013B	B	33	400.1	395.1	VOCs	VOCs	VOCs	VOCs	

Total Wells	49	55	41	41
Wells under Proposed New Scope				
Sampling	39	33	31	31
NAPL inspection	7	7	7	7
Wells under Existing IRM Scope				
IRM Sampling	0	0	0	0
NAPL inspection	3	3	3	3

Notes and Abbreviations:

Rows shaded in grey indicate wells that are being sampled/gauged under the shallow groundwater Interim Remedial Measure (IRM)

IRM* - Wells in the annual IRM monitoring program will be sampled concurrently with one of the proposed quarterly sampling events (Q1 or Q2), shown in this table as Q2 event.

A - Shallow groundwater above clay layer, straddling or just below the water table

B - Deep groundwater below the clay unit near the top of the underlying sand and gravel

C - Deep groundwater below clay near the bottom of the overburden deposits

D - Deep groundwater below clay near the bottom of the overburden deposits when thickness of deep aquifer unit greater than 50 feet

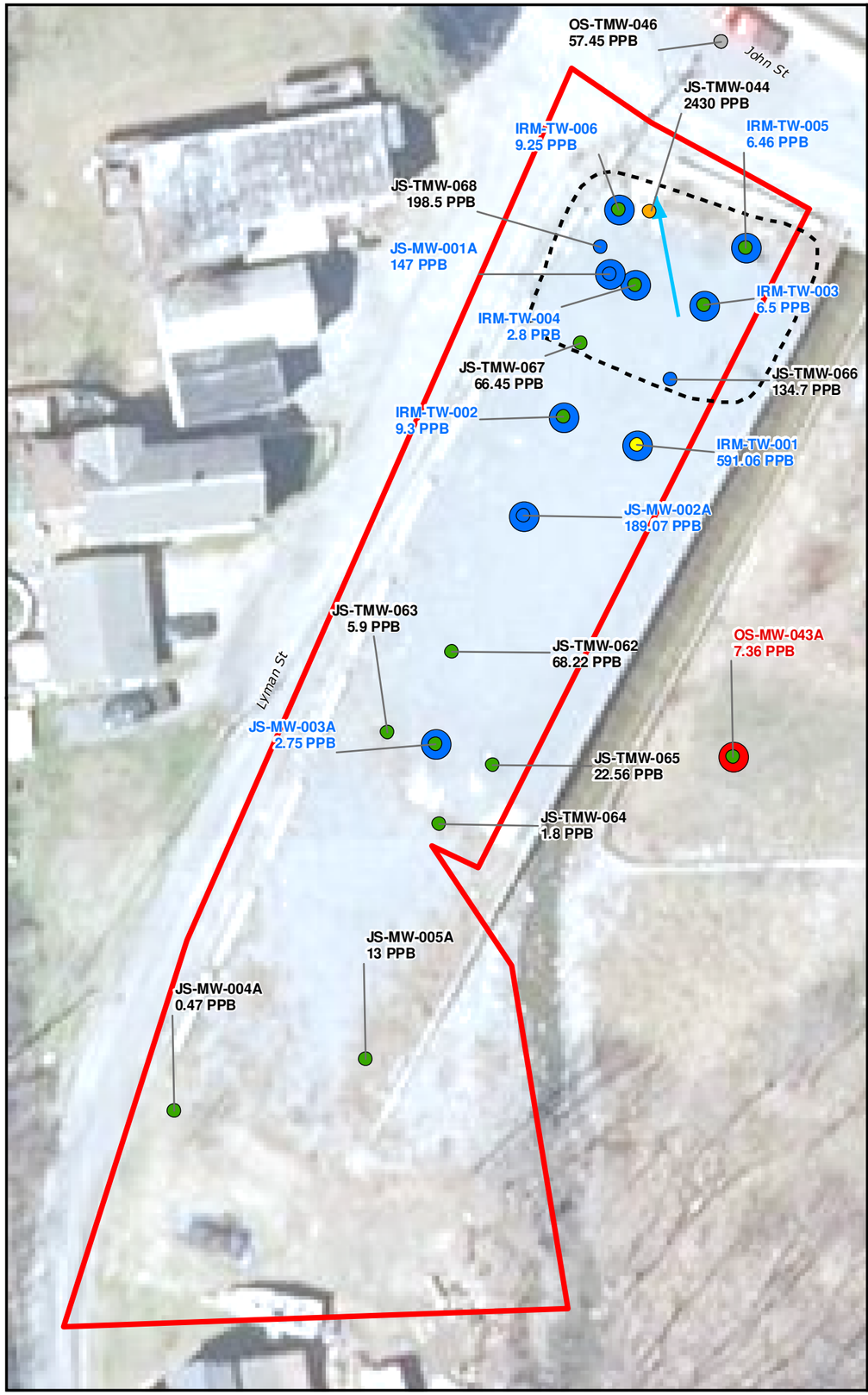
N - inspection for non-aqeous phase liquid

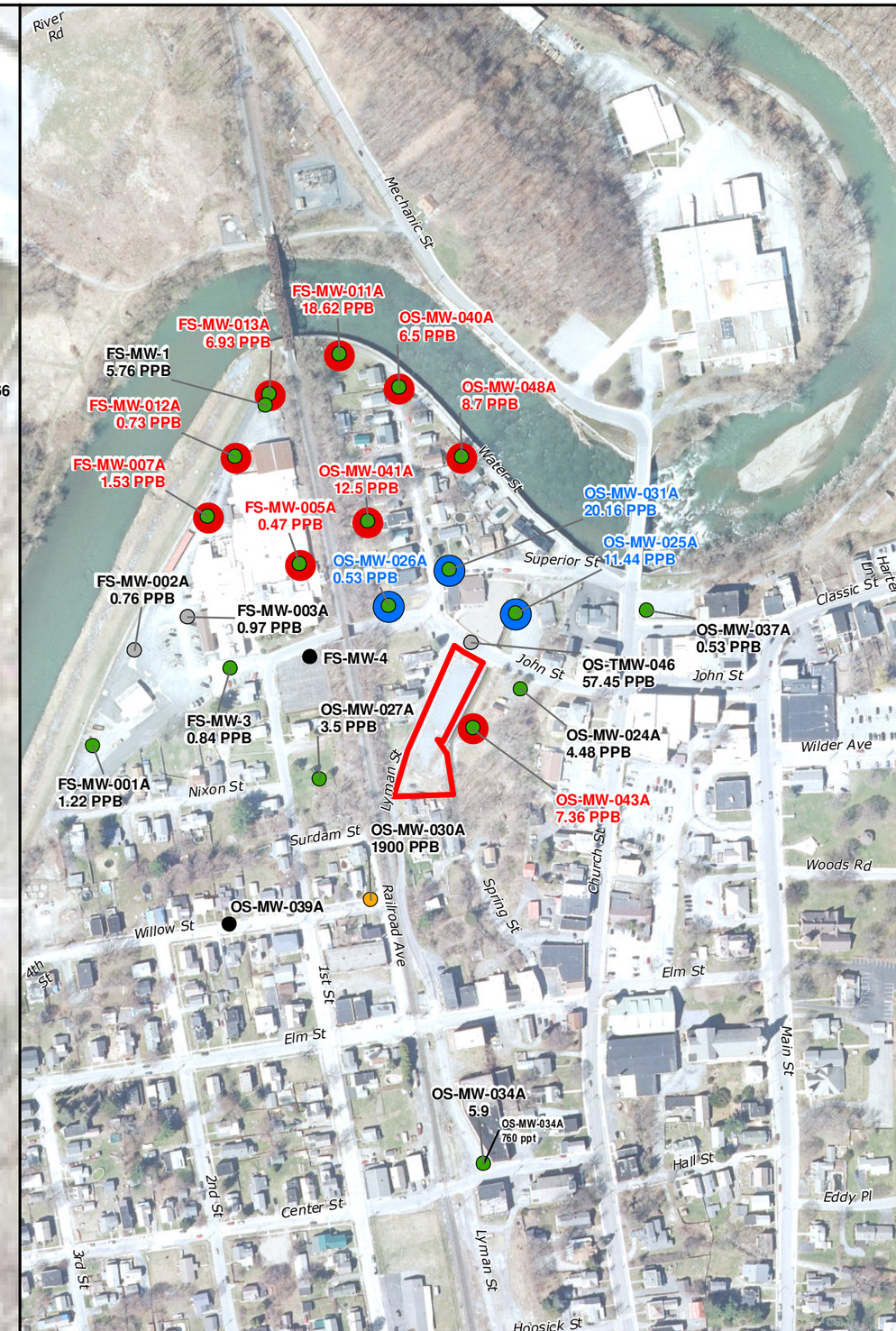
IRM - Wells associated with the shallow groundwater Interim Remedial Measure (IRM) sampled and analyzed for VOCs and PFAS

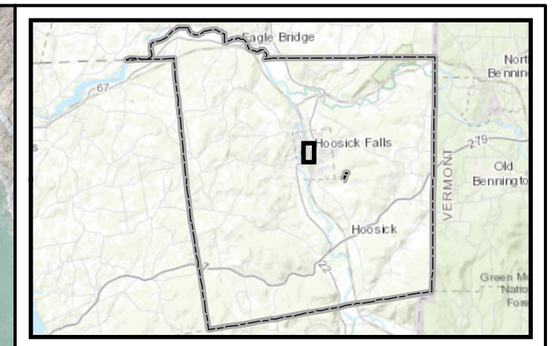
IRM-N - Wells associated with IRM and inspected for NAPL

VOCs - Volatile Organic Compounds

PFAS - Per- and Polyfluoroalkyl Substances







Legend

Total VOC in Groundwater

- <100 ppb
- 100 - <500 ppb
- 500- <1,000 ppb
- >1000 ppb
- Non-Detect
- Removed/abandoned/destroyed
- Wells to be sampled for four quarters
- Wells to be sampled under annual IRM program
- Generalized Groundwater Flow Direction
- Groundwater IRM
- Approximate Property Boundaries

N

0 200 400 600 800
Feet

Former Oak Materials John Street
Village of Hoosick Falls
Town of Hoosick, New York

wood.

Proposed Groundwater Monitoring Wells
for VOCs in Shallow Groundwater

Figure 1

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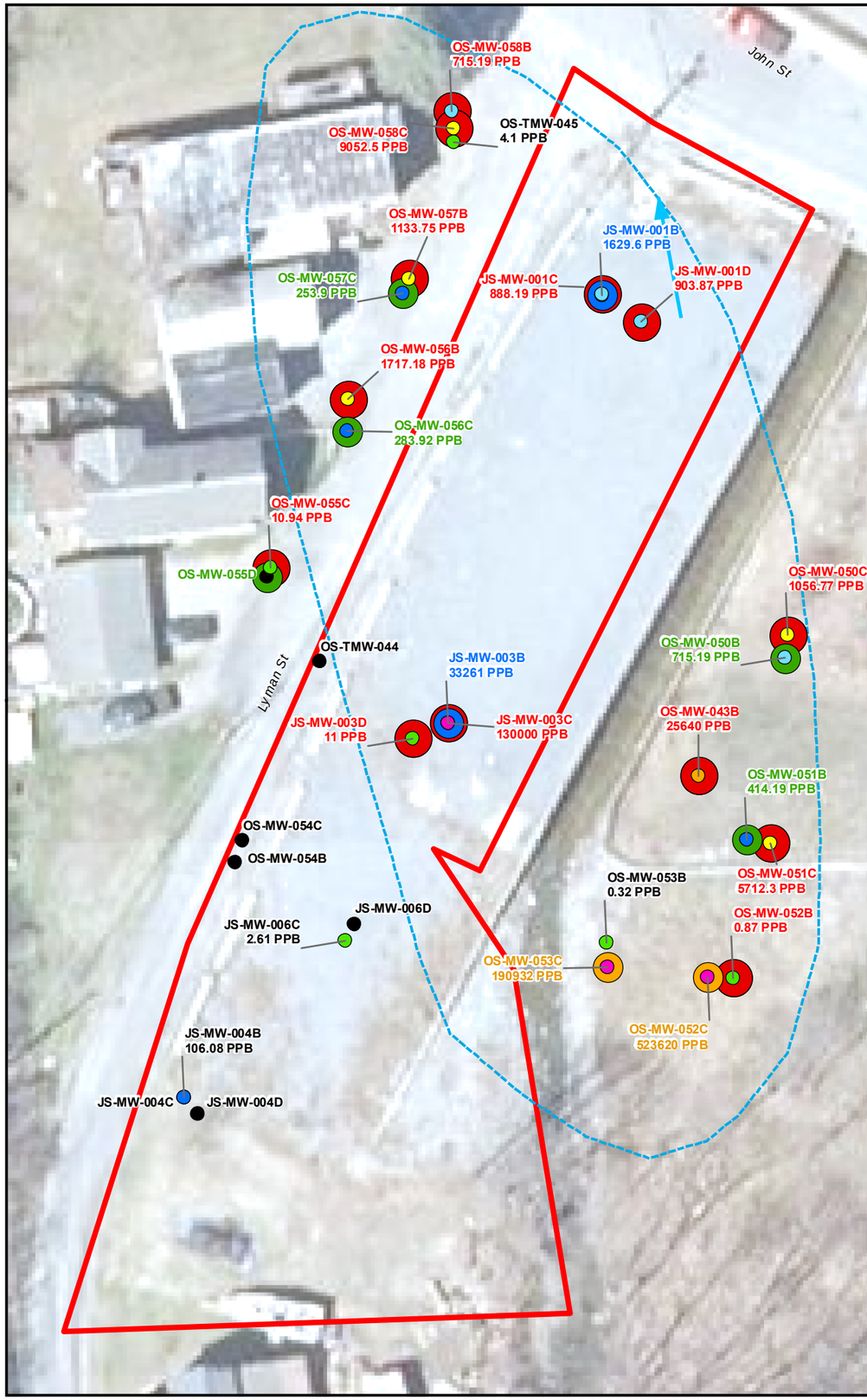

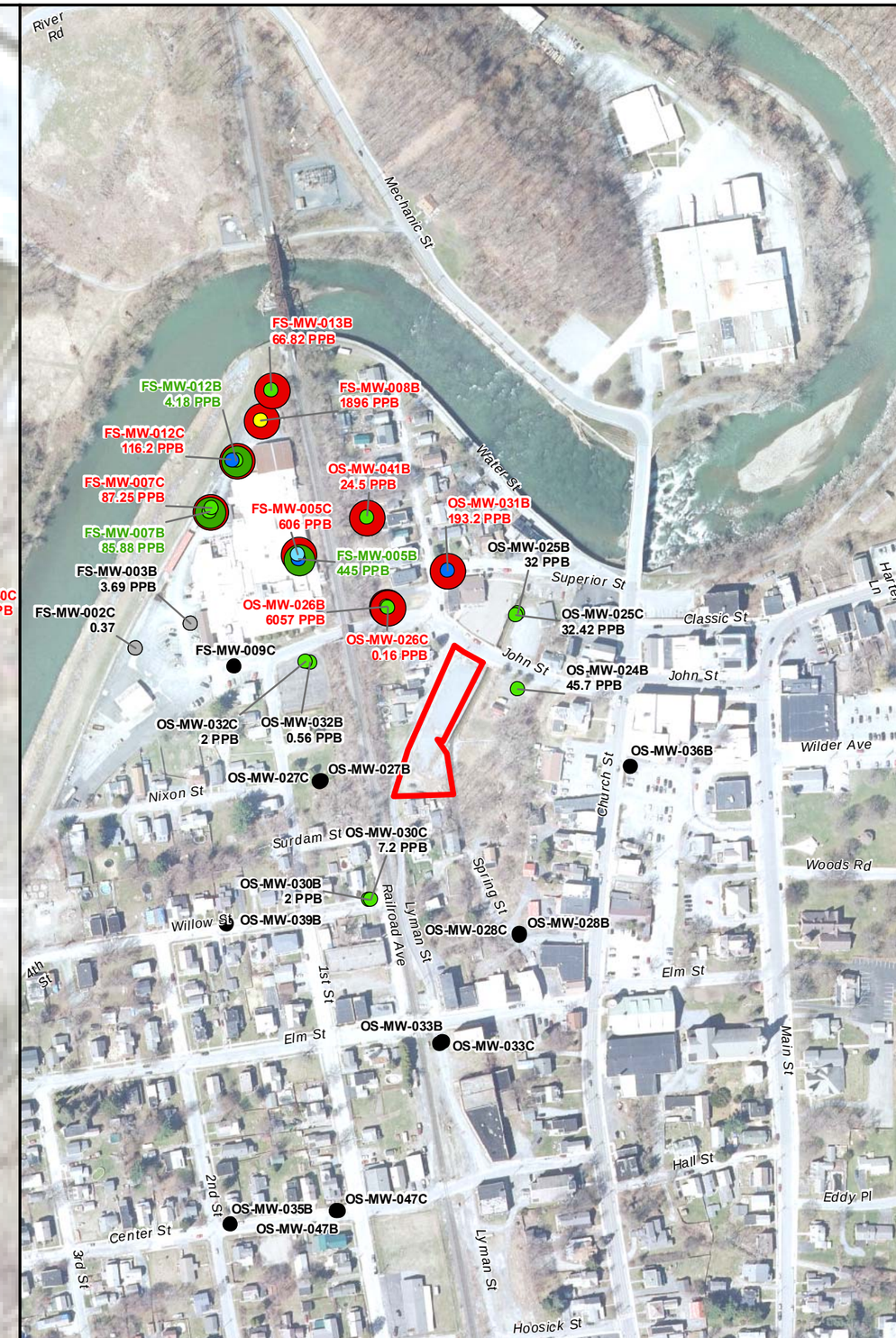

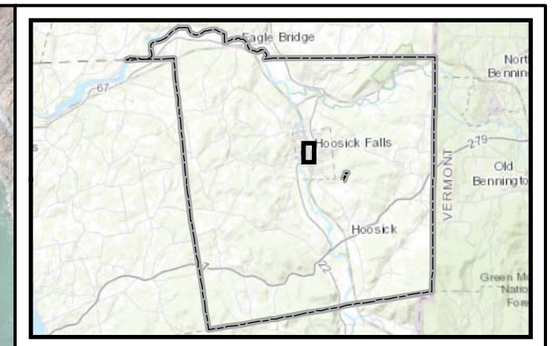

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Total VOC in Groundwater

- <100 ppb
- 100- ≤500 ppb
- 500 - ≤1000 ppb
- 1000 - ≤10,000 ppb
- 10,000 - ≤100,000 ppb
- > 100,000 ppb
- Non-Detect
- Abandoned/removed/destroyed
- NAPL check
- Wells to be sampled once, previously sampled under annual IRM program
- Wells to be sampled once
- Wells to be sampled for four quarters
- Generalized Groundwater Flow Direction
- Total VOC in Deep Overburden
- Approximate Property Boundaries

N

0 200 400 600 800
Feet

Former Oak Materials John Street
Village of Hoosick Falls
Town of Hoosick, New York

wood.

Proposed Groundwater Monitoring Wells for VOCs in Deep Groundwater

Figure 2

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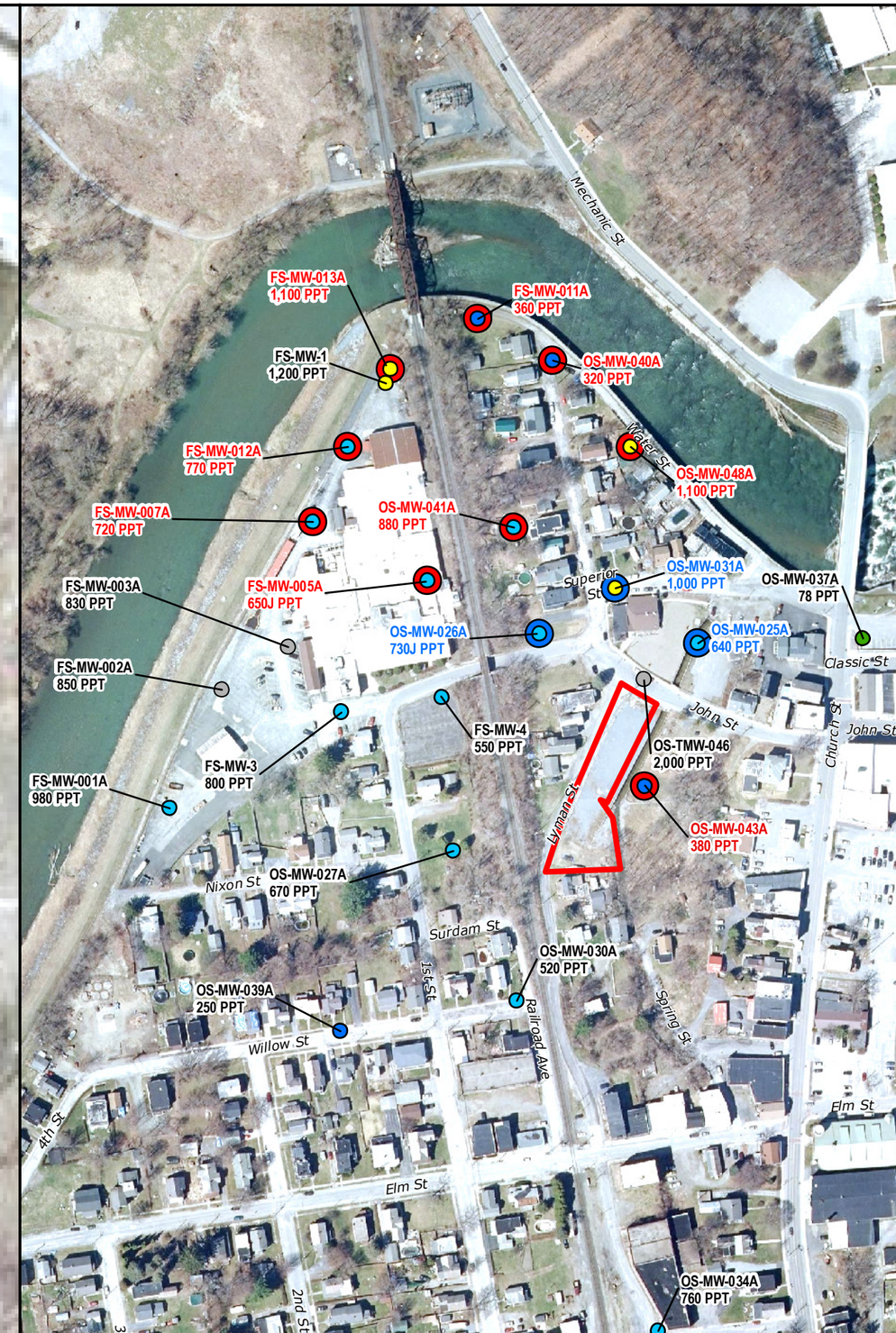

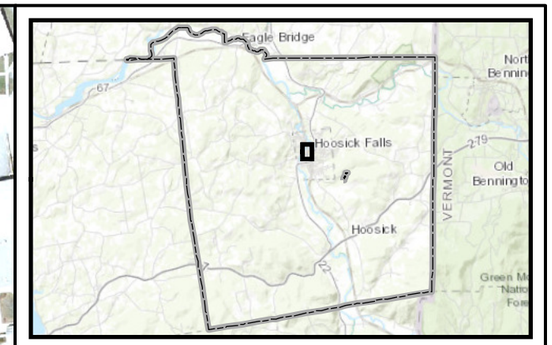

Legend

PFOA Results in Groundwater

- < 100 ppt
- 100 - < 500 ppt
- 500 - < 1,000 ppt
- 1,000 - ≤ 6,400 ppt
- Not Detected
- Abandoned/removed/destroyed
- Wells to be sampled under annual IRM program
- Wells to be sampled for four quarters
- Approximate Property Boundary

N

0 100 200 300 400
Feet

Former Oak Materials John Street
Village of Hoosick Falls
Town of Hoosick, New York

wood.

Proposed Groundwater Monitoring Wells
for PFAS in Shallow Groundwater

Figure 3

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