

Joslin, Richard R - DNR

From: Brian Kappen <bkappen@enviroforensics.com>
Sent: Friday, November 16, 2018 2:49 PM
To: Joslin, Richard R - DNR
Cc: Rob Hoverman
Subject: 02-60-385641 Former Troy Cleaners (MT Wooden Washtub)
Attachments: 02-60-385641 Data Update 11162018.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Rick,

We have continued investigation activities at the subject site following the September 13, 2017 letter regarding review of the Site Investigation Report and subsequent communications regarding the vapor intrusion assessment approach. Specifically,

- New monitoring well MW-5 was installed;
- Four additional groundwater monitoring events were performed; and
- Vapor intrusion monitoring was conducted at the location of a previous sub-slab vapor exceedance.

Analytical results are summarized and illustrated in the attached file, which consists of 2 tables and 5 figures. The highlights:

- The VOC concentrations in samples collected from MW-5 have been below enforcement standards for 4 consecutive monitoring events.
- VOC concentrations in vapor samples collected from location SSV-2 have been well below screening levels for 3 consecutive events (including winter).
- The most recent basement indoor air sample contained PCE and TCE above action levels (after being below action levels for 4 consecutive events).
 - The concentration of TCE in indoor air (IA-B-2) was greater than in sub-slab vapor (SSV-2), indicating a VI pathway other than sub-slab to indoor air.
 - We have confirmed there are no indoor air VOC sources.

We are evaluating possible sources and options to address the indoor air impacts. Note: the business will be closing at the end 2018 and the building will become vacant.

Regards,

Brian Kappen, P.G.
Senior Geologist/Project Manager

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TABLE 1
SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS
 MT Wooden Wash Tub
 320 Pine Street, Sheboygan Falls, Wisconsin

Consultant	Sample Location Identification	Sample Identification	Sample Date	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	Toluene	p-Isopropyltoluene	Choloform
Enforcement Standard				5	5	70	100	0.2	1,000	NE	6
Preventive Action Limit				0.5	0.5	7	20	0.02	200	NE	0.6
Earth Tech, Inc	B-8	B8	9/23/2002	6.45	<0.36	<0.23	<0.39	<0.2	<0.3	<0.32	<0.27
	B-20	B20	9/23/2002	NR	NR	NR	NR	NR	NR	NR	NR
AES Consultants	GP-1	GP-1	4/1/2003	<0.500	<0.500	<0.500	<0.500	<0.170	<0.500	<0.500	<0.140
	GP-2	GP-2	4/1/2003	<0.500	<0.500	<0.500	<0.500	<0.170	<0.500	<0.500	<0.140
	GP-3	GP-3	4/1/2003	<0.500	<0.500	<0.500	<0.500	<0.170	<0.500	<0.500	<0.140
	GP-4	GP-4	7/2/2003	<0.500	<0.500	<0.500	<0.500	<0.170	<0.500	<0.500	<0.140
	GP-5	GP-5	7/2/2003	18.8	<0.500	<0.500	<0.500	<0.170	<0.500	11.4	<0.140
EnviroForensics	MW-1	6351-MW-1	9/29/2016	2.62	<0.47	<0.45	<0.54	<0.17	<0.44	<1.1	<0.43
		6351-MW-1	12/9/2016	1.41 J	<0.47	<0.45	<0.54	<0.17	<0.44	<1.1	<0.43
		6351-MW-1	12/11/2017	1.09 J	<0.45	<0.41	<0.35	<0.19	<0.67	<0.28	<0.96
		6351-MW-1	3/29/2018	1.24	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26
		6351-MW-1	6/21/2018	1.42	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26
		6351-MW-1	9/25/2018	1.64	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26
	MW-2	6351-MW-2	9/29/2016	1.71	<0.47	<0.45	<0.54	<0.17	<0.44	<1.1	<0.43
		6351-MW-2	12/9/2016	1.63	<0.47	<0.45	<0.54	<0.17	<0.44	<1.1	<0.43
		6351-MW-2	12/11/2017	1.23 J	<0.45	<0.41	<0.35	<0.19	<0.67	<0.28	<0.96
		6351-MW-2	3/29/2018	1.64	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26
		6351-MW-2	6/21/2018	2.1	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26
		6351-MW-2	9/25/2018	2.52	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26
	MW-3	6351-MW-3	9/29/2016	2.5	<0.47	<0.45	<0.54	<0.17	<0.44	<1.1	<0.43
		6351-MW-3	12/9/2016	1.93	<0.47	<0.45	<0.54	<0.17	<0.44	<1.1	<0.43
		6351-MW-3	12/11/2017	1.98	<0.45	<0.41	<0.35	<0.19	<0.67	<0.28	<0.96
		6351-MW-3	3/29/2018	1.9	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26
		6351-MW-3	6/21/2018	2.14	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26
	MW-4	6351-MW-3	9/25/2018	2.29	0.37 J	<0.37	<0.34	<0.2	<0.19	<0.24	1.16
		6351-MW-4	9/29/2016	<0.49	<0.47	<0.45	<0.54	0.72	<0.44	<1.1	<0.43
		6351-MW-4	12/9/2016	<0.49	<0.47	<0.45	<0.54	<0.17	3.3	<1.1	<0.43
6351-MW-4		12/11/2017	<0.48	<0.45	<0.41	<0.35	0.77	<0.67	<0.28	<0.96	
6351-MW-4		3/29/2018	<0.38	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26	
MW-5	6351-MW-4	6/21/2018	<0.38	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26	
	6351-MW-4	9/25/2018	<0.38	<0.3	<0.37	<0.34	0.34 J	<0.19	<0.24	<0.26	
	6351-MW-5	12/11/2017	3.4	<0.45	<0.41	<0.35	<0.19	<0.67	<0.28	<0.96	
	6351-MW-5	3/29/2018	3.05	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26	
MW-5	6351-MW-5	6/21/2018	4.7	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26	
	6351-MW-5	9/25/2018	3.7	<0.3	<0.37	<0.34	<0.2	<0.19	<0.24	<0.26	

Notes:

Samples analyzed for VOCs according to EPA Method 8260

Only detected compounds are listed

All concentrations reported in micrograms per liter (µg/L)

¹ Value applies to total combined trimethylbenzenes

Bolded values are above method detection limits

Bolded and orange shaded values are above Public Health Enforcement Standard

Bolded and blue shaded values are above Public Health Preventive Action Limit

J = Analyte concentration detected between the Method Detection Limit and Reporting Limit

NA = Not Analyzed

TABLE 2
SUMMARY OF VAPOR INTRUSION ASSESSMENT SAMPLE ANALYTICAL RESULTS
 MT Wooden Wash Tub
 320 Pine Street, Sheboygan Falls, Wisconsin

Sample Location	Sample Identification	Sample Date	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Vinyl Chloride	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Benzene	Chloroform	m,p Xylene
INDOOR/OUTDOOR AIR												
Vapor Action Level ¹			180	8.8	NE	NE	28	260	260	16	5.3	440
Outdoor	6351-OA-1	9/29/2016	<3.19	<1.07	<3.96	<3.96	<0.64	NA	NA	NA	NA	NA
		11/28/2017	<3.19	<1.07	<19.8	<39.6	<1.28	<4.92	<4.92	<1.60	<0.83	<43.4
		1/29/2018	<3.19	<1.07	<19.8	<39.6	<1.28	NA	NA	NA	NA	NA
Basement	6351-IA-B-1	9/29/2016	6.85	<1.07	<3.96	<3.96	<0.64	NA	NA	NA	NA	NA
		11/28/2017	<3.19	<1.07	<19.8	<39.6	<1.28	9.34	<4.92	18.2	<0.83	63.8
		1/29/2018	<3.19	<1.07	<19.8	<39.6	<1.28	NA	NA	NA	NA	NA
Basement	6351-IA-B-2	9/29/2016	24.8	<1.07	<3.96	<3.96	<0.64	NA	NA	NA	NA	NA
		11/28/2017	135	7.15	<19.8	<39.6	<1.28	6.44	<4.92	3.45	<0.83	<43.4
		1/29/2018	77.1	3.39	<19.8	<39.6	<1.28	NA	NA	NA	NA	NA
		6/21/2018	9.97	<1.07	<19.8	<39.6	<1.28	NA	NA	NA	NA	NA
		9/25/2018	276	11.7	<19.8	<39.6	<1.28	NA	NA	NA	NA	NA
Basement	6351-IA-B-3	9/29/2016	10.6	<1.07	<3.96	<3.96	<0.64	NA	NA	NA	NA	NA
1st Floor	6351-IA-1	11/28/2017	58.7	<1.07	<19.8	<39.6	<1.28	<4.92	<4.92	<1.60	1.22	<43.4
		1/29/2018	33.2	1.40	<19.8	<39.6	<1.28	NA	NA	NA	NA	NA
SUB-SLAB VAPOR												
Vapor Risk Screening Level ¹			6,000	290	NE	NE	930	8,700	8,700	530	180	15,000
Basement	6351-SSV-1	11/28/2017	11.7	<1.07	<19.8	<39.6	<1.28	<4.92	<4.92	<1.60	<0.83	<43.4
		1/29/2018	5.36	<1.07	<19.8	<39.6	<1.28	NA	NA	NA	NA	NA
Basement	6351-SSV-2	11/28/2017	8,930	3.44	<19.8	<39.6	<1.28	11.9	13.6	<1.60	<0.83	<43.4
		1/29/2018	621	2.96	<19.8	<39.6	<1.28	NA	NA	NA	NA	NA
		6/21/2018	1,340	4.46	<19.8	<39.6	<1.28	NA	NA	NA	NA	NA
		9/25/2018	905	3.71	<19.8	<39.6	<1.28	NA	NA	NA	NA	NA
Basement	6351-SSV-3	11/28/2017	133	9.51	<19.8	<39.6	<1.28	4.96	<4.92	2.24	<0.83	<43.4
		1/29/2018	159	4.73	<19.8	<39.6	<1.28	NA	NA	NA	NA	NA

Notes:

¹ Vapor Action Levels and Vapor Risk Screening Levels are calculated in accordance with the procedures described in WDNR Publication RR-800

All concentrations reported in units in micrograms per cubic meter = µg/m³

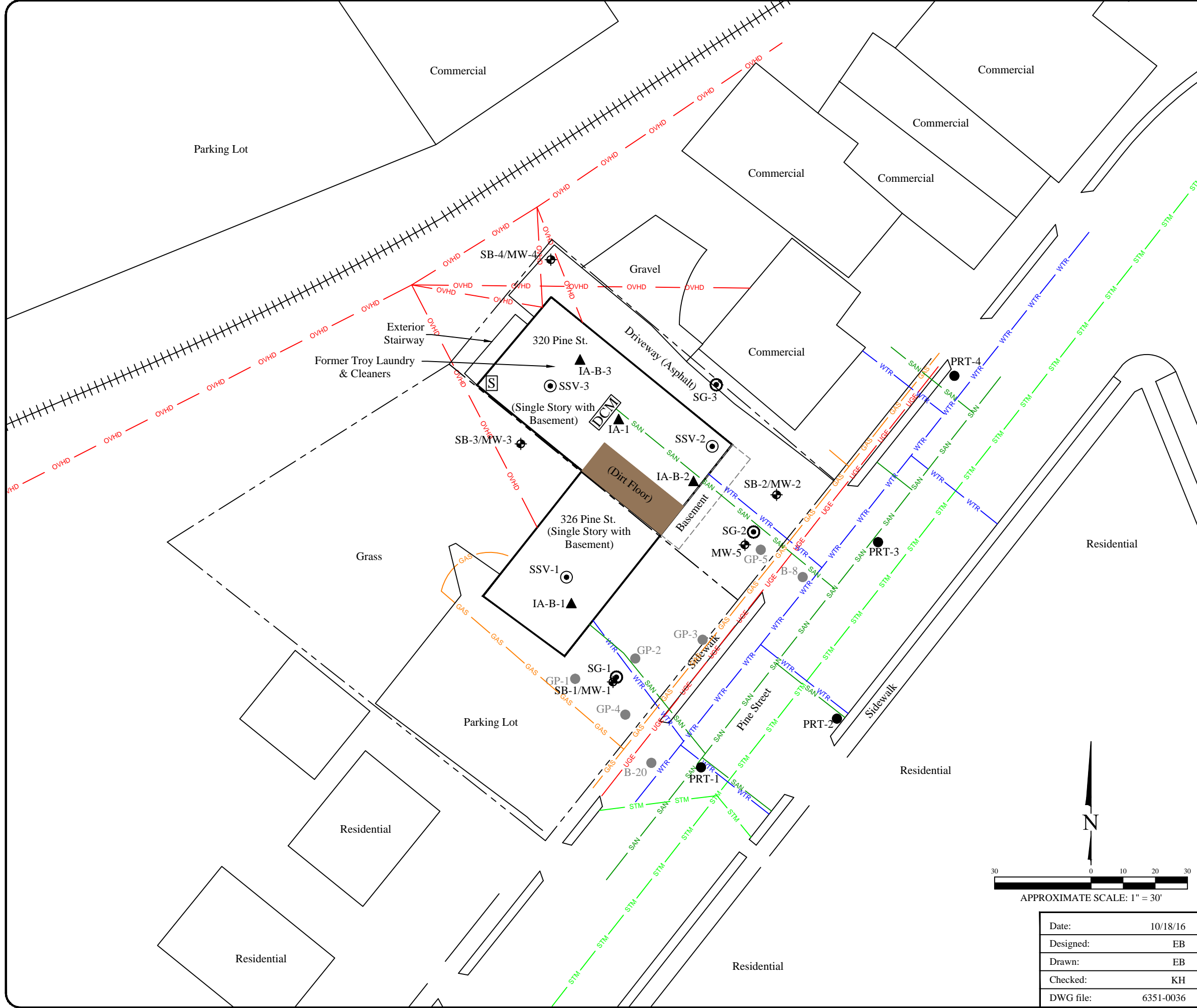
Only detected compounds are listed

Bolded values are above method detection limits

Bolded and orange shaded values exceed the Vapor Action Level or Vapor Risk Screening Level for small commercial buildings

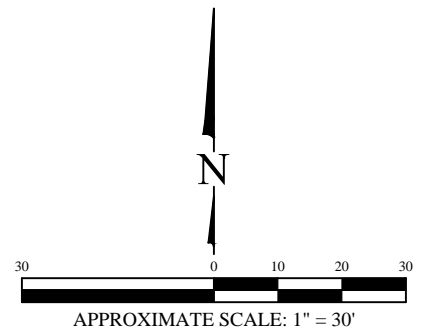
NE = Not Established

NA = Not Analyzed



Legend

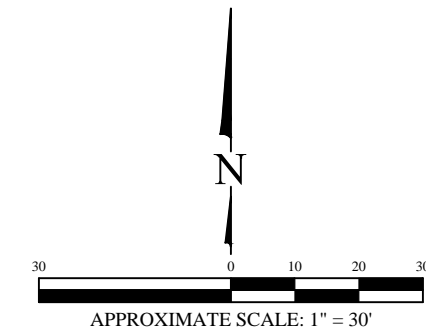
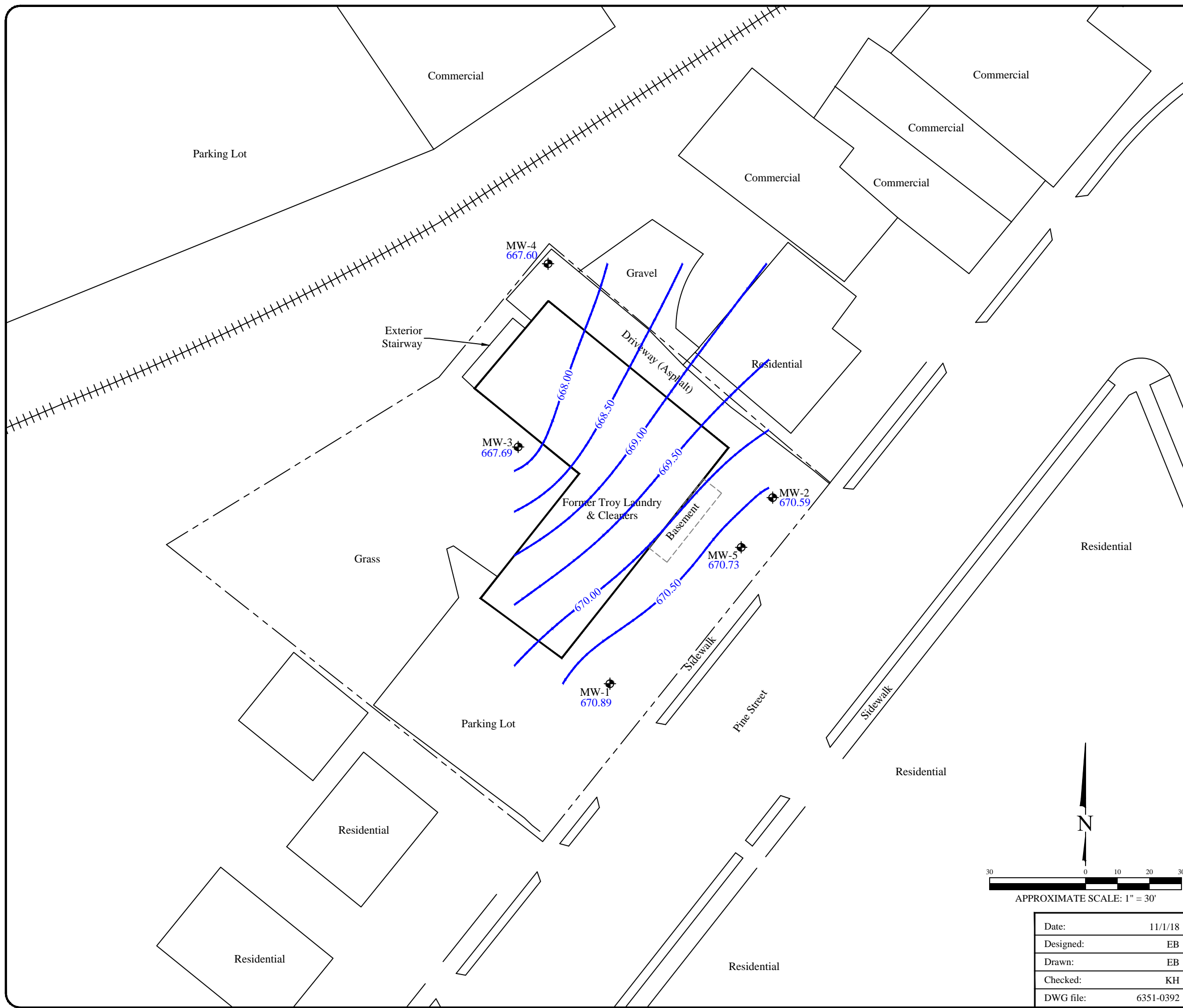
- Property boundary
- ++++ Railroad tracks
- SAN --- Underground sanitary utility line
- STM --- Underground storm utility line
- GAS --- Underground gas utility line
- WTR --- Underground water utility line
- OVHD --- Over head electrical utility line
- UGE --- Underground electrical utility line
- GP-1 ● Soil boring (By Others)
- SB-1/MW-1 ⊕ Soil Boring/Monitoring well
- SG-1 ⊙ Soil Gas sampling point
- PRT-1 ● PRT soil gas sample boring
- OA-1 ■ Outdoor air sample
- IA-B-1 ▲ Indoor air sample
- SSV-1 ⊙ Sub-slab sample
- DCM Former dry cleaning machine location
- S Former PCE storage
- Dirt floor area



SITE LAYOUT											
Former Troy Laundry & Cleaners 320 Pine Street Sheboygan Falls, Wisconsin											
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>Date:</td><td>10/18/16</td></tr> <tr><td>Designed:</td><td>EB</td></tr> <tr><td>Drawn:</td><td>EB</td></tr> <tr><td>Checked:</td><td>KH</td></tr> <tr><td>DWG file:</td><td>6351-0036</td></tr> </table>	Date:	10/18/16	Designed:	EB	Drawn:	EB	Checked:	KH	DWG file:	6351-0036	
Date:	10/18/16										
Designed:	EB										
Drawn:	EB										
Checked:	KH										
DWG file:	6351-0036										
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="text-align: right;">Figure</td><td style="text-align: center;">1</td></tr> <tr><td style="text-align: right;">Project</td><td style="text-align: center;">6351</td></tr> </table>		Figure	1	Project	6351						
Figure	1										
Project	6351										
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Legend

- Property boundary
- ++++ Railroad tracks
- MW-1 Monitoring well
- 668.00 Groundwater elevation contour
- 670.89 Groundwater elevation (feet above mean sea level)



WATER TABLE CONTOUR MAP
 JUNE 21, 2018
 Former Troy Laundry & Cleaners
 320 Pine Street
 Sheboygan Falls, Wisconsin

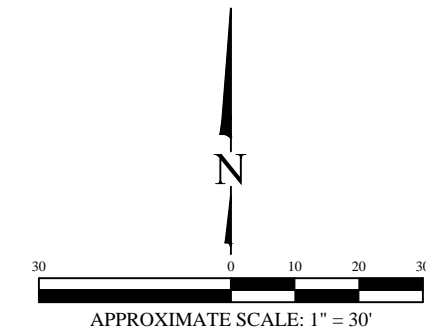
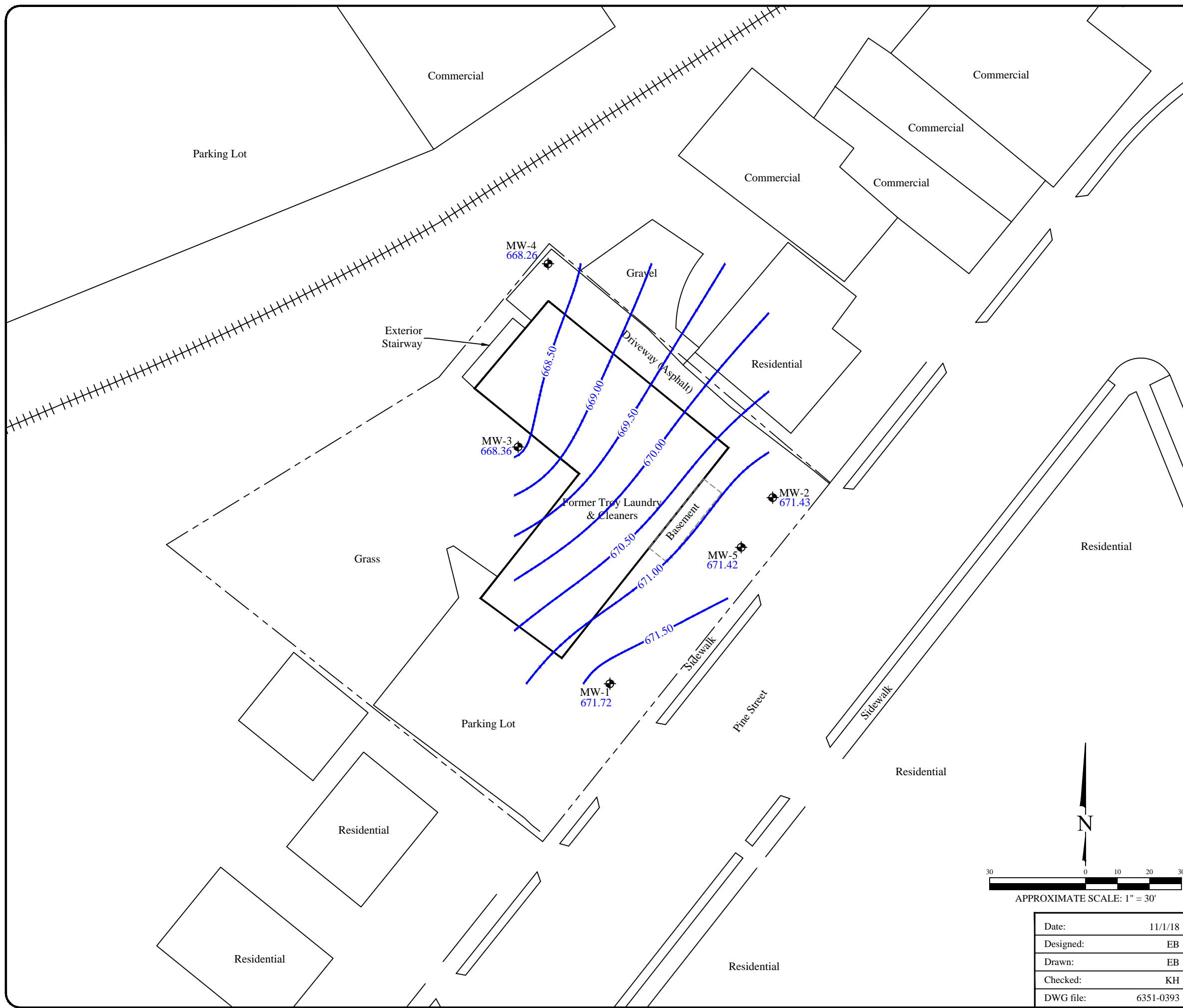
Date:	11/1/18
Designed:	EB
Drawn:	EB
Checked:	KH
DWG file:	6351-0392

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Figure	2
Project	6351

Legend

- Property boundary
- +++++ Railroad tracks
- MW-1 Monitoring well
- 670.00 Groundwater elevation contour
- 671.72 Groundwater elevation (feet above mean sea level)



WATER TABLE CONTOUR MAP
 SEPTEMBER 25, 2018
 Former Troy Laundry & Cleaners
 320 Pine Street
 Sheboygan Falls, Wisconsin

Date:	11/1/18
Designed:	EB
Drawn:	EB
Checked:	KH
DWG file:	6351-0393

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Figure	3
Project	6351

Legend

- Property boundary
- ++++ Railroad tracks
- MW-1 Monitoring well

Analyte	Public Health Preventive Action Limit	Public Health Enforcement Standard
PCE	0.5	5
TCE	0.5	5
Vinyl Chloride	0.02	0.2

- Note:
- Bolded and orange shaded values exceed the Public Health Enforcement Standard (ES)
 - Bolded and blue shaded values exceed the Public Health Preventive Action Limit (PAL)
 - Bolded values are above detection limits
 - Samples analyzed using EPA SW-846 Method 8260
 - All results reported in units of micrograms per liter (ug/L)
 - PCE = Tetrachloroethene
 - J = Analyte concentration between the method detection limit and reporting limit

--- Inferred extent of PCE impact in groundwater above the PAL (based on most recent sample results)

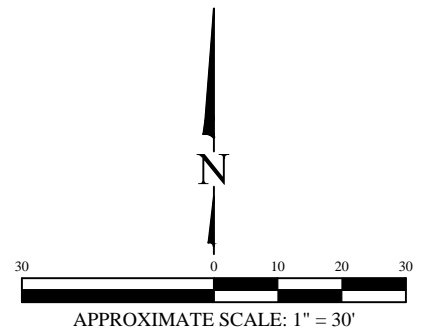
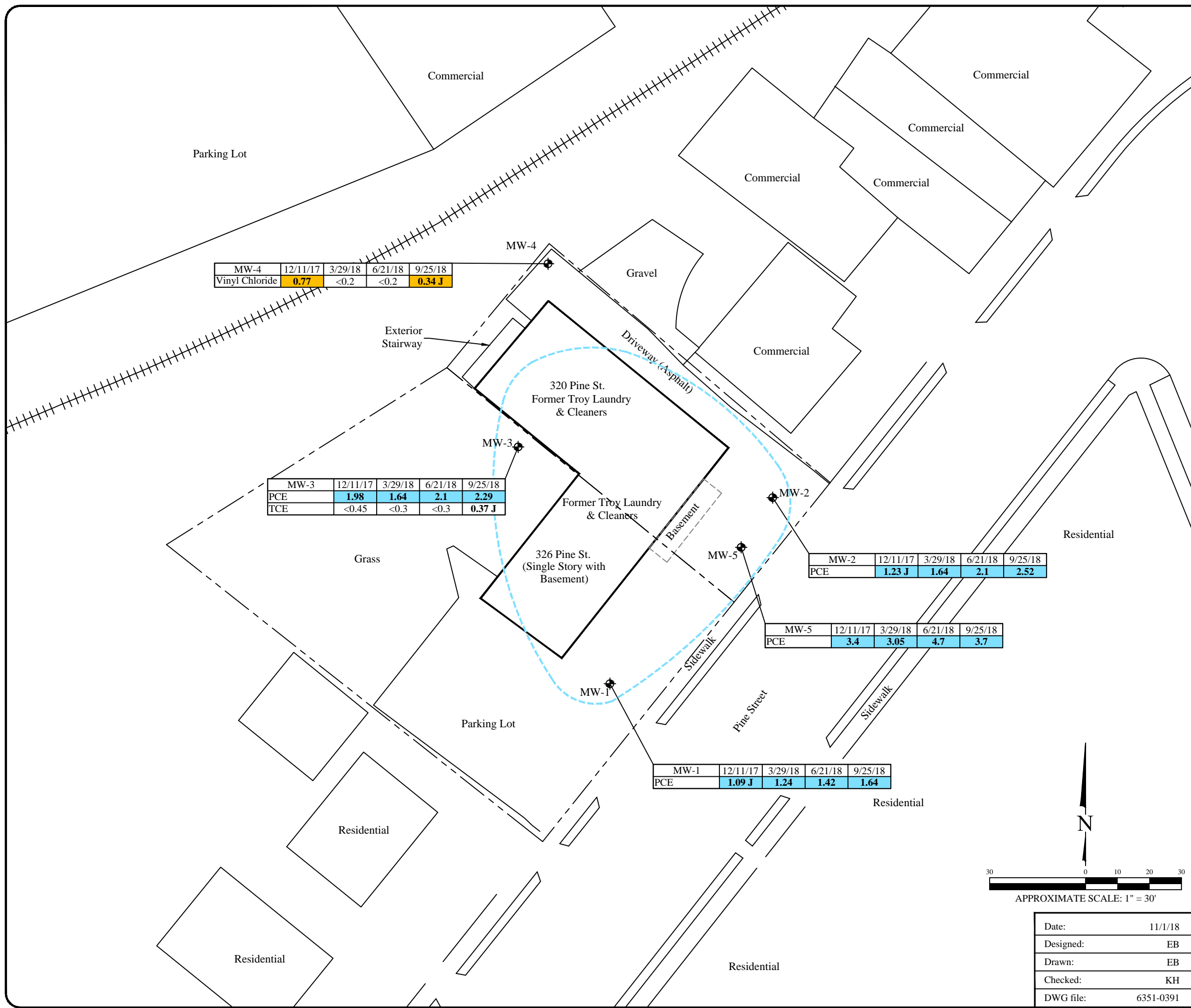
MW-4	12/11/17	3/29/18	6/21/18	9/25/18
Vinyl Chloride	0.77	<0.2	<0.2	0.34 J


MW-3	12/11/17	3/29/18	6/21/18	9/25/18
PCE	1.98	1.64	2.1	2.29
TCE	<0.45	<0.3	<0.3	0.37 J

MW-2	12/11/17	3/29/18	6/21/18	9/25/18
PCE	1.23 J	1.64	2.1	2.52

MW-5	12/11/17	3/29/18	6/21/18	9/25/18
PCE	3.4	3.05	4.7	3.7

MW-1	12/11/17	3/29/18	6/21/18	9/25/18
PCE	1.09 J	1.24	1.42	1.64



MONITORING WELL SAMPLE ANALYTICAL RESULTS Former Troy Laundry & Cleaners 320 Pine Street Sheboygan Falls, Wisconsin		Figure 4 Project 6351
Date: 11/1/18 Designed: EB Drawn: EB Checked: KH DWG file: 6351-0391	 825 North Capitol Avenue • Indianapolis, IN 46204 EnviroForensics.com	

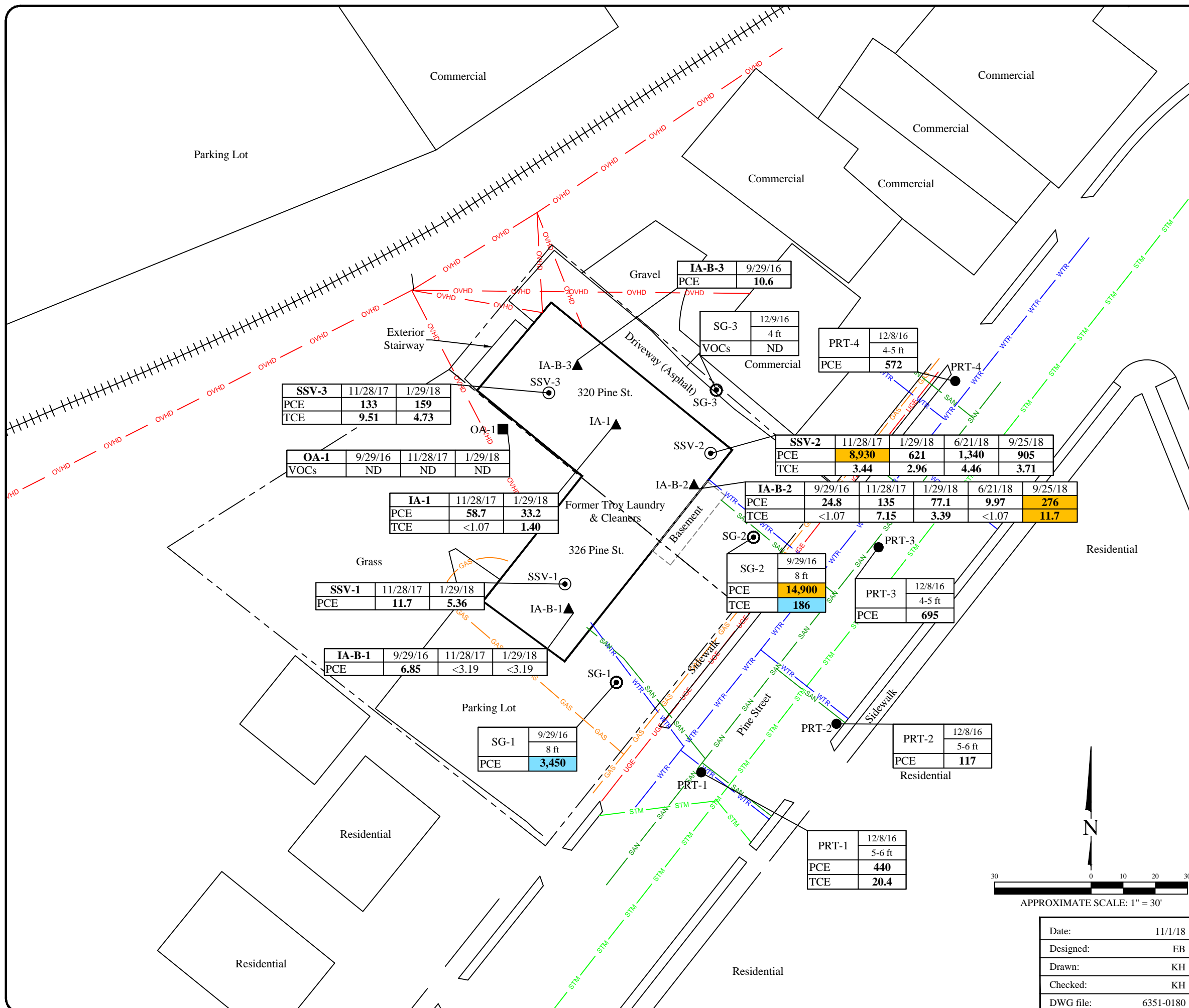
Legend

- Property boundary
- Railroad tracks
- SAN Underground sanitary utility line
- GAS Underground gas utility line
- WTR Underground water utility line
- OVHD Over head electrical utility line
- UGE Underground electrical utility line
- SG-1 Soil Gas sampling point
- PRT-1 PRT soil gas sample boring
- OA-1 Outdoor air sample
- IA-B-1 Indoor air sample
- SSV-1 Sub-slab sample

Analyte	Indoor Air	Sub-Slab Vapor/Soil Gas	
	Small Commercial Vapor Action Level	Small Commercial Screening Level	Residential Screening Level
PCE	180	6,000	1,400
TCE	2.1	290	70

Notes:

1. Bold shaded blue concentrations exceed the applicable residential screening level
2. Bold shaded orange concentrations exceed the applicable small commercial screening level
3. Bold concentrations exceed laboratory reporting limits
4. Results reported in micrograms per cubic meter = ug/m³
5. The vapor risk screening levels are calculated in accordance with the procedures described in WDNR Publication RR-800 and subsequent guidance
6. PCE = Tetrachloroethene
7. TCE = Trichloroethene
8. VOCs = Volatile Organic Compounds
9. ND = Not detected



SSV-3	11/28/17	1/29/18
PCE	133	159
TCE	9.51	4.73

OA-1	9/29/16	11/28/17	1/29/18
VOCs	ND	ND	ND

IA-1	11/28/17	1/29/18
PCE	58.7	33.2
TCE	<1.07	1.40

SSV-1	11/28/17	1/29/18
PCE	11.7	5.36

IA-B-1	9/29/16	11/28/17	1/29/18
PCE	6.85	<3.19	<3.19

SG-1	9/29/16
8 ft	
PCE	3,450

IA-B-3	9/29/16
PCE	10.6

SG-3	12/9/16
4 ft	
VOCs	ND

PRT-4	12/8/16
4-5 ft	
PCE	572

SSV-2	11/28/17	1/29/18	6/21/18	9/25/18
PCE	8,930	621	1,340	905
TCE	3.44	2.96	4.46	3.71

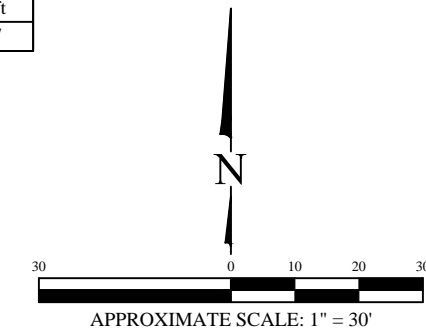
IA-B-2	9/29/16	11/28/17	1/29/18	6/21/18	9/25/18
PCE	24.8	135	77.1	9.97	276
TCE	<1.07	7.15	3.39	<1.07	11.7

SG-2	9/29/16
8 ft	
PCE	14,900
TCE	186

PRT-3	12/8/16
4-5 ft	
PCE	695

PRT-2	12/8/16
5-6 ft	
PCE	117

PRT-1	12/8/16
5-6 ft	
PCE	440
TCE	20.4



SOIL GAS AND VAPOR INTRUSION ASSESSMENT RESULTS SUMMARY

Former Troy Laundry & Cleaners
320 Pine Street
Sheboygan Falls, Wisconsin

Date:	11/1/18
Designed:	EB
Drawn:	KH
Checked:	KH
DWG file:	6351-0180

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Figure	5
Project	6351