

September 16, 2020  
File No. 25211374.51

Ms. Cindy Koepke, PG, Hydrogeologist  
Remediation & Redevelopment Program  
Wisconsin Department of Natural Resources - South Central Region  
3911 Fish Hatchery Road  
Fitchburg, WI 53711

Subject: Groundwater Investigation Addendum/Update Report  
Laundry Land Cleaners (former), Northgate Shopping Center  
1131 N. Sherman Avenue, Madison, Wisconsin  
WDNR BRRTS #02-13-552183

Dear Ms. Koepke:

On behalf of Northgate Partnership, SCS Engineers (SCS) is providing the following report for the Dry Cleaner Environmental Response Fund (DERF) project at the Laundry Land Cleaners site. This report provides information about groundwater flow patterns and groundwater contaminant distribution and is supplemental to the Soil and Groundwater Investigation Report dated July 7, 2020.

Groundwater elevations are summarized in **Table 1**. Groundwater analytical data are summarized in **Table 2**.

## GROUNDWATER FLOW

The groundwater monitoring network at the site includes water table wells that monitor the water table at a depth of about 12 - 14 feet below ground surface (bgs), and piezometers that extend to about 35 - 40 feet bgs. Both the water table wells and the piezometers are screened in sand and gravel that underlies a near surface layer of finer grained soil that is about 5 feet thick. Geologic cross-sections are included in **Attachment A**. Vertical gradients of groundwater flow are approximately zero and horizontal gradients are low (generally about 0.001 or lower). Following is a summary of observations regarding the patterns of groundwater flow at the site.

### Water Table

**November 2008** – The groundwater flow map for the site based on the earliest data collected shows flow to the southeast (**Attachment A**).

**July 2019** – There are components of groundwater flow to the northwest with a groundwater divide at the southeast corner of the parking lot and flow to the southeast (**Figure 1**). A similar flow pattern is indicated by the groundwater levels measured in water table wells in April 2016 and December 2017. (Water table contour maps for April 2016 and December 2017 are included in the SCS Groundwater Monitoring Report dated April 9, 2018.)

(Note that in July 2019 the water level measured at MW2 was anomalously low, and the water level at PZ2 was anomalously high.)



**January 2020** – Flow is to the south/southeast (**Figure 2**). This flow pattern is also indicated by the groundwater levels measured in water table wells in November 2010. (See the SCS Groundwater Monitoring Report dated April 9, 2018.)

**February 2020** – Groundwater flow at the water table to the southeast is also indicated by the water table contour map prepared by Enviroforensics for the Klinke dry cleaners site at 1295 N. Sherman Ave. (**Attachment B**). Based on this information the Klinke's site is located upgradient of the Laundry Land groundwater monitoring network.

## Piezometric Surface

**July 2019** – Groundwater flow is predominantly to the southeast (**Figure 3**). However, the water level measured at PZ5 is slightly higher than those measured at piezometers located to the north indicating a possible component of flow to the north. Also as noted above, the water level at PZ2 was anomalously high.

**January 2020** – Groundwater flow is to the southeast (**Figure 4**), similar to the groundwater flow pattern at the water table in January 2020.

## Conclusion

Groundwater flow at the water table is generally to the southeast with some periodic variations of flow to the northwest; the flow direction at the piezometer level is less variable with flow predominantly to the south/southeast.

## **WHEY INJECTION EFFECT ON GROUNDWATER QUALITY**

Groundwater analytical data indicate consistent decreases in tetrachloroethylene (PCE) concentrations within the groundwater plume along with degradation of PCE into cis-1,2-dichloroethene (cis-1,2-DCE), trichloroethylene (TCE), and vinyl chloride daughter products. Overall chlorinated volatile organic compound (CVOC) concentrations have decreased, influenced by the whey injections which began in December 2009. The second and last full round of whey injections was completed in April 2015. Generally since 2015 concentrations have been fairly stable or decreasing.

Contour maps of total CVOCs (PCE, TCE, cis-1,2-DCE, trans-1,2-DCE, and vinyl chloride) were prepared using groundwater data from the earliest sampling event at a given well (October 2008 or October/November 2009). The groundwater sampling events were conducted prior to groundwater treatment by whey injection. Contour maps were also prepared for groundwater data from the most recent sampling event (January 2020) and an interim date (December 2017). Contour maps were prepared for the total CVOC concentrations detected in the groundwater samples from the water table wells (**Figures 5, 6, and 7**), and the total CVOC concentrations detected in the groundwater samples from the piezometers (**Figures 8, 9, and 10**) for the three sampling events.

## GROUNDWATER CONTAMINANT DISTRIBUTION

### Total CVOC Distribution – Water Table

**2008/2009** – A contour map of total CVOCs detected in groundwater samples collected from water table wells in the earliest sampling event (October 2008 or October/November 2009) is presented on **Figure 5**. The sampling occurred prior to groundwater treatment by whey injection which began with pilot testing in December 2009.

The contaminant distribution appears to be inconsistent with a predominant groundwater flow direction to the south/southeast with the highest concentrations of total CVOCs found at MW4 located at the north end of the former Laundry Land dry cleaners. However, it appears the sanitary sewer piping leads north out of the former dry cleaners, and leakage from the sewer piping is a plausible explanation for the apparent contaminant distribution depicted on **Figure 5**.

A similar distribution of PCE in groundwater is shown in an isoconcentration map prepared using October 2008 data (**Figure 7** in **Attachment A**). PCE concentrations in soil at 0-4 feet also have a similar distribution (**Figure 3** in **Attachment A**).

Sewer layout maps have been requested from the property owner, The Alexander Company.

The Klinke Cleaners site is located upgradient of the Laundry Land plume and is likely a source of contamination detected at MW9. (MW9 was only sampled once [October 31, 2008] before it was abandoned.) Klinke well MW3, located about 140 feet northwest of MW9, was first sampled in May 2013, and had a PCE concentration of 750 micrograms per liter ( $\mu\text{g}/\text{L}$ ). Klinke well MW4, located about 70 feet west of MW9, has been sampled starting in May 2013, and has had PCE concentrations ranging up to 183  $\mu\text{g}/\text{L}$  (**Attachment A**).

**2017** – A contour map of total CVOCs detected in samples collected from water table wells in December 2017 is presented on **Figure 6**. This event occurred approximately 2.5 years after the last whey injection, which was in April 2015.

The overall extent of the contaminant plume is approximately the same as in 2008/2009; however, CVOC concentrations are greatly decreased from the highest concentration of 7,100  $\mu\text{g}/\text{L}$  at MW4 in 2008 to the highest concentration of 648  $\mu\text{g}/\text{L}$  at MW3 in 2017. The concentration at MW4 in 2017 was 103  $\mu\text{g}/\text{L}$  total CVOCs indicating the effectiveness of the groundwater treatment in the plume source area.

**2020** – A contour map of total CVOCs detected in samples collected from water table wells in January 2020 is presented on **Figure 7**. This event occurred approximately 4.8 years after the last whey injection, which was in April 2015.

The overall extent of the contaminant plume is approximately the same as in 2017; however, CVOC concentrations continued to decrease from 2008 concentrations. The extent of the plume with concentrations greater than 600  $\mu\text{g}/\text{L}$  is reduced greatly with only MW3 having a total CVOC concentration of greater than 600  $\mu\text{g}/\text{L}$ . However, the concentration at MW4 had rebounded from the lowest concentration observed in 2017.

## Total CVOC Distribution – Piezometric Level

**2008/2009** – A contour map of total CVOCs detected in samples collected from piezometers in the earliest sampling event (October 2008 or October/November 2009) is presented on **Figure 8**. This event occurred prior to groundwater treatment by whey injection, which began with pilot testing in December 2009.

The contaminant distribution is somewhat consistent with the distribution at the water table; however, the highest concentration is not at PZ4 located at the north end of the former Laundry Land dry cleaners. A higher concentration was detected at PZ3, and the overall highest concentration was at PZ9 located directly downgradient of the Klinke site. The Klinke piezometers were not sampled until 2013, but have had concentrations ranging up to 282 µg/L total CVOCs. Groundwater analytical data from the Klinke site are included in **Attachment B**.

**2017** – A contour map of total CVOCs detected in samples collected from the piezometers in December 2017 is presented on **Figure 9**. This event occurred approximately 2.5 years after the last whey injection, which was in April 2015. Groundwater flow direction at the piezometric surface level in December 2017 was to the southeast (SCS, April 8, 2018 letter report).

The contaminant distribution is similar to the distribution in 2008/2009, except the highest concentration was at PZ3, and the concentration at PZ9 located directly downgradient of the Klinke site was lower than in 2008/2009, and was lower than the 2015 concentration at the Klinke well PZ4 located about 25 feet west of PZ9.

**2020** – A contour map of total CVOCs detected in samples collected from the piezometers in January 2020 is presented on **Figure 10**. This event occurred approximately 4.8 years after the last whey injection, which was in April 2015.

The contaminant distribution is similar to the distribution in 2017, with the highest total CVOC concentration at PZ3. The concentration at PZ9 located directly downgradient of the Klinke site was lower than in 2017, and was about the same as the February 2020 concentration at the Klinke piezometer PZ4 located about 25 feet west of PZ9 (**Attachment B**).

## SUMMARY AND CONCLUSIONS

- Groundwater analytical data indicate decreases in PCE concentrations in the groundwater plume, along with degradation of PCE into daughter products. Overall CVOC concentrations have decreased following whey injections conducted December 2009 - April 2015.
- Although the extent of the plume at the water table is similar through time, concentrations have decreased by an order of magnitude at the water table. The plume at the piezometric level appears to be somewhat variable, but in general the total CVOC concentration is stable with the highest total CVOC concentration being around 300 µg/L since 2017.

- Groundwater flow direction has some variation but is generally to the south/southeast both at the water table and the piezometric level. The south/southeast flow direction is consistent with the flow direction observed on site in 2008, and at the Klinke dry cleaners site in 2020, indicating that the Klinke site is upgradient of the Laundry Land plume.
- An evaluation of the contaminant distribution and groundwater flow through time indicates contaminants from the Klinke site likely have migrated onto the Northgate property; however, recent data indicate contaminant concentrations from off-site have been declining.

## RECOMMENDATIONS

We make the following recommendations for additional groundwater investigation:

- Replace MW12 to provide better definition of the plume at the downgradient extent.
- Install a water table well approximately 30 feet south of the former location of MW-8, which was abandoned to provide better definition of the plume at the upgradient extent.
- Resurvey the top of casing elevations for all Laundry Land monitoring wells and piezometers, and link the survey to the wells at the Klinke site. Several wells have been repaired and PVC casing modified such that some groundwater elevations may not be accurate.
- Coordinate measurement of water levels at all Laundry Land and Klinke wells on the same day.
- Collect a round of groundwater samples for VOC analysis from all Laundry Land and Klinke wells on approximately the same days.

Please contact Betty at 608.212.6664 or [bsocha@scsengineers.com](mailto:bsocha@scsengineers.com) if you have comments or questions regarding this report.

Sincerely,



Betty J. Socha, PhD, PG  
Senior Project Manager  
SCS Engineers



Robert E. Langdon  
Senior Project Manager  
SCS Engineers

BJS/Imh/REL

cc: Paul Roth, Northgate Partnership  
Nic Alexander, The Alexander Company (via e-mail)  
Alex Sterling, The Alexander Company (via e-mail)  
Rebecca Schultz, The Alexander Company (via e-mail)

Attachments:

- Table 1 – Water Level Summary
- Table 2 – Groundwater Analytical Results Summary – Chlorinated VOCs
- Figure 1 – Water Table Contour Map – July 17, 2019
- Figure 2 – Water Table Contour Map – January 7, 2020
- Figure 3 – Piezometric Surface Contour Map – July 17, 2019
- Figure 4 – Piezometric Surface Contour Map – January 7, 2020
- Figure 5 – CVOC Concentrations at the Water Table – 2008/2009
- Figure 6 – CVOC Concentrations at the Water Table – December 19, 2017
- Figure 7 – CVOC Concentrations at the Water Table – January 7, 2020
- Figure 8 – CVOC Concentrations at the Piezometric Level – 2008/2009
- Figure 9 – CVOC Concentrations at the Piezometric Level – December 19, 2017
- Figure 10 – CVOC Concentrations at the Piezometric Surface – January 7, 2020
- Attachment A – Figures from 2008 Phase 2
- Attachment B – Klinke Report Dated 2020/2/28

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## Tables

- 1 Water Level Summary
- 2 Groundwater Analytical Results Summary – Chlorinated VOCs

Table 1. Water Level Summary  
Northgate Shopping Center aka Laundry Land DERF / SCS Engineers Project #25211374.51  
Madison, Wisconsin

Monitoring Well Identification	Depth to Water in feet below top of well casing																								
	MW1	MW2	MW3	MW4	MW5	MW6	MW6R	MW7	MW8	MW8R	MW10	MW11	MW12	MW13	MW14	MW15	PZ1	PZ2	PZ3	PZ4	PZ5	PZ7	PZ9	PZ9A	PZ11
Measurement Date																									
11/02/09	12.82	13.04	12.55	13.16	11.04	6.82	NI	12.9	12.79	NI	12.05	14.20	13.79	NI	NI	NI	13.02	13.37	12.64	13.21	11.35	12.90	14.58	NI	14.31
11/02/10	12.84	13.02	12.46	13.07	11.07	6.85	NI	12.80	12.71	NI	12.02	14.11	13.73	NI	NI	NI	13.02	13.34	12.81	13.18	11.39	12.83	14.51	NI	14.24
03/01/11	NR	NR	NR	NR	NR	NR	NI	NR	NR	NI	NR	NR	NR	NI	NI	NR									
12/27/11	13.95	13.97	13.40	14.02	11.97	NR	NI	13.71	13.73	NI	12.93	15.15	14.63	NI	NI	NI	13.73	14.30	13.55	13.98	12.28	13.79	15.53	NI	15.25
09/10/13	NR	13.31	12.69	13.29	NR	NR	NI	NR	NR	NR	NR	NR	NR	NI	NI	NR	13.62	12.93	13.51	NR	NR	NR	NR	NR	NR
04/28/15	12.61	12.87	12.46	12.74	10.94	NR	NI	12.66	NR	13.81	12.02	14.04	13.53	12.46	10.59	12.49	12.89	13.17	12.49	13.01	11.29	12.66	14.40	13.01	14.12
04/25/16	11.85	12.08	11.60	12.20	10.16	NR	NI	11.94	NR	12.94	11.05	13.13	12.81	12.27	9.51	11.75	12.05	12.44	11.85	12.38	10.58	11.97	14.02	14.28	13.20
12/19/17	13.55	13.83	13.20	13.76	NR	NR	NI	13.55	NR	14.67	12.89	14.90	NR	14.08	11.29	13.35	13.75	14.10	13.42	13.95	12.09	13.61	15.25	17.20	14.99
7/17/19	11.58	12.83	11.18	11.83	9.76	NR	NI	11.49	NR	12.67	NR	12.80	NR	12.07	8.94	11.07	11.82	11.10	11.41	11.97	10.04	11.56	13.00	15.19	12.83
01/07/20	11.73	11.97	11.37	12.00	9.89	6.00	6.03	11.79	NR	12.81	NR	12.83	NR	12.32	9.46	11.62	11.95	12.25	11.37	12.12	10.18	11.82	13.30	15.11	12.85
Monitoring Well Identification	Ground Water Elevation in feet above mean sea level (amsl)																								
	MW1	MW2	MW3	MW4	MW5	MW6	MW6R	MW7	MW8	MW8R	MW10	MW11	MW12	MW13	MW14	MW15	PZ1	PZ2	PZ3	PZ4	PZ5	PZ7	PZ9	PZ9A	PZ11
Top of Casing Elevation (feet amsl)	860.57				860.77	856.53	856.56	862.53	862.47	863.48	861.69	863.71					862.11		860.88						863.83
	862.56	862.75	862.20	862.78	860.77							863.91	863.38	862.72	860.58	862.16	862.75	863.08	862.33	862.89	861.08	862.57	864.28	864.47	864.03
Measurement Date																									
11/02/09	849.74	849.71	849.65	849.62	849.73	849.71	NI	849.63	849.68	NI	849.64	849.71	849.59	NI	NI	NI	849.73	849.71	849.69	849.68	849.73	849.67	849.7	NI	849.72
11/02/10	849.72	849.73	849.74	849.71	849.7	849.68	NI	849.73	849.76	NI	849.67	849.8	849.65	NI	NI	NI	849.73	849.74	849.52	849.71	849.69	849.74	849.77	NI	849.79
03/01/11	NR	NR	NR	NR	NR	NR	NI	NR	NR	NI	NR	NR	NR	NI	NI	NR									
12/27/11	848.61	848.78	848.80	848.76	848.80	NR	NI	848.82	848.74	NI	848.76	848.76	848.75	NI	NI	NI	849.02	848.78	848.78	848.91	848.8	848.78	848.75	NI	848.78
09/10/13	NR	849.44	849.51	849.49	NR	NR	NI	NR	NR	NI	NR	NR	NR	NI	NI	NR	849.46	849.40	849.38	NR	NR	NR	NR	NR	NR
04/28/15	849.95	849.88	849.74	850.04	849.83	NR	NI	849.87	NR	849.67	849.67	849.87	849.85	850.26	849.99	849.67	849.86	849.91	849.84	849.88	849.79	849.91	849.88	851.46	849.91
04/25/16	850.71	850.67	850.60	850.58	850.61	NR	NI	850.59	NR	850.54	850.64	850.78	850.57	850.45	851.07	850.41	850.70	850.64	850.48	850.51	850.5	850.6	850.26	850.19	850.83
12/19/17	849.01	848.92	849.00	849.02	NR	NR	NI	848.98	NR	848.81	848.80	849.01	NR	848.64	849.29	848.81	849.00	848.98	848.91	848.94	848.99	848.96	849.03	847.27	849.04
7/17/19	850.98	849.92	851.02	850.95	851.01	NR	NI	851.04	NR	850.81	NR	851.11	NR	850.65	851.64	851.09	850.93	851.98	850.92	850.92	851.04	851.01	851.28	849.28	851.20
01/07/20	850.83	850.78	850.83	850.78	850.68	850.53	850.53	850.74	NR	850.67	NR	850.88	NR	850.40	851.12	850.54	850.80	850.83	850.74	850.77	850.70	850.75	850.98	849.36	850.98

Abbreviations:

NI = Not Installed

NR = Depth to water not measured.

Notes:

1. Monitoring wells were surveyed to mean sea level elevations using the previous Ayres Associates elevations.
2. MW5, PZ5, MW11, and PZ11 PVC casings were cut off 0.20 feet prior to groundwater level measurements on January 8, 2020; PZ3 PVC casing was cut off 0.22 feet prior to groundwater level measurement on January 7, 2020. Revised elevations are shown in bold.
3. MW6R was installed on August 7, 2019; Missing well MW6 was found on January 7, 2020.

Revised By: BJS 1/08/2020

Checked By: BJS 1/08/2020

**Table 2. Groundwater Analytical Results Summary - Chlorinated VOCs**  
**Laundry Land Cleaners / SCS Engineers Project #25211374.51**  
(Results are in µg/L)

Sample	Date	Lab Notes	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	PCE	TCE	Vinyl Chloride	Other Chlorinated VOCs
MW-1	8/21/2008	--	1.5	<0.50	<u>33</u>	<u>1.1</u>	<0.15	--
	10/1/2008	--	1.2	<0.50	<u>28</u>	<u>0.96</u>	<0.15	ND
	11/2/2009	--	3.62	<0.50	<u>24.2</u>	<u>0.99</u> J	<0.20	ND
	11/3/2010	(4)	3.37	<0.50	<u>27.4</u>	<u>2.61</u>	<0.20	ND
	12/27/2011	--	1.95	<0.50	<u>30</u>	<u>1.75</u>	<0.20	ND
	4/29/2015	(8)	2.9	<0.26	<u>9.4</u>	<u>0.58</u> J1	<0.18	Chloromethane 1.2
	4/25/2016	(9)	<u>8.7</u>	0.37 J1	<u>9.0</u>	<u>0.70</u> J1	<0.18	ND
	7/18/2019	(13)	<u>0.75</u> J1	<1.1	<u>6.7</u>	<0.26	<0.17	ND
	1/7/2020	--	<u>0.45</u> J1	<1.1	<u>8.0</u>	<0.26	<0.17	ND
PZ-1	8/21/2008	--	2.5	<0.50	<u>2.0</u>	0.32	<u>1.0</u>	--
	10/1/2008	--	2.7	<0.50	<u>1.3</u>	0.40	<u>1.2</u>	ND
	11/2/2009	--	2.36	<0.50	0.37 J	<0.40	<u>0.57</u> J	ND
	11/3/2010	(4)	4.96	<0.50	<u>0.94</u> J	<u>0.62</u> J	<u>1.07</u>	ND
	12/28/2011	--	2.87	<0.50	<u>10</u>	<u>0.99</u> J	<0.20	ND
	4/29/2015	--	5.1	<0.26	<u>5.4</u>	<u>0.84</u> J1	<u>0.44</u> J1	ND
	4/25/2016	(10)	1.3	<0.26	<u>3.4</u>	0.41 J1	<0.18	ND
	12/20/2017	--	4.0	0.33 J1	<u>3.5</u>	0.48 J1	<u>1.3</u>	ND
	7/18/2019	(14)	4.0	<1.1	<u>1.1</u> J1	<0.26	<u>0.56</u> J1	ND
	1/7/2020	--	5.5	<1.1	<u>1.2</u>	0.31 J1	<u>0.55</u> J1	ND
MW-2	8/21/2008	--	<u>190</u>	3.3	<u>940</u>	<u>66</u>	<0.15	Methylene Chloride <u>73</u>
	10/1/2008	--	<u>160</u>	<25	<u>920</u>	<u>56</u>	<7.5	--
	11/2/2009	--	<u>35.7</u> J	<25	<u>630</u>	<20	<10	ND
	11/3/2010	(4)	<u>39.5</u> J	<25	<u>542</u>	<20	<10	ND
	12/27/2011	--	<u>38.3</u> J	<25	<u>319</u>	<20	<10	ND
	9/10/2013	(7)	<u>92</u>	2.7	<u>500</u>	<u>41</u>	<u>0.25</u> *	ND
	4/29/2015	(8)	<u>34.1</u>	<2.6	<u>414</u>	<u>14.3</u>	<u>3.7</u> J1	ND
	4/25/2016	(10)	<u>69.0</u>	<1.0	<u>298</u>	<u>16.8</u>	<u>17.1</u>	ND
	12/19/2017	--	<u>29.2</u>	<1.0	<u>477</u>	<u>20.8</u>	<u>8.0</u>	ND
	7/18/2019	(13)	<u>26.0</u>	<4.4	<u>375</u>	<u>15.1</u>	<u>7.7</u>	ND
	1/7/2020	--	<u>33.4</u>	<1.1	<u>412</u>	<u>25</u>	<u>13.6</u>	1,1-Dichloroethene 0.31 J1

**Table 2. Groundwater Analytical Results Summary - Chlorinated VOCs**  
**Laundry Land Cleaners / SCS Engineers Project #25211374.51**  
(Results are in µg/L)

Sample	Date	Lab Notes	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	PCE	TCE	Vinyl Chloride	Other Chlorinated VOCs
PZ-2	8/21/2008	--	2.5	<0.50	<u>5.9</u>	<u>0.58</u>	<0.15	--
	10/1/2008	--	4.0	<0.50	<u>22</u>	<u>1.0</u>	<0.15	ND
	11/2/2009	--	1.5	<0.50	<u>0.79</u> J	<0.40	<0.20	Chloromethane 0.90 J
	11/3/2010	(4)	2.05	<0.50	<u>24.4</u>	<u>1.80</u>	<0.20	ND
	12/27/2011	--	<u>23.2</u>	<2.50	<u>296</u>	<u>11.2</u>	<1.00	ND
	9/10/2013	(7)	<u>49</u>	0.92 *	<u>61</u>	<u>8.3</u>	<u>5.9</u>	ND
	4/29/2015	--	<u>74.2</u>	1.5	<u>41.8</u>	<u>11.4</u>	<u>63.0</u>	ND
	4/25/2016	(10)	<u>61.6</u>	0.87 J1	<u>1.3</u>	<u>11.2</u>	<u>39.8</u>	ND
	12/19/2017	--	<u>97.5</u>	2.4	<u>70.8</u>	<u>19.1</u>	<u>55.4</u>	1,1-Dichloroethene 1.3
	7/18/2019	(13)	<u>67.1</u>	2.0 J1	<u>79.3</u>	<u>48.1</u>	<u>52.2</u>	Chloroethane 3.5 J1 1,1-Dichloroethene 2.0
MW-3	7/18/2019 (DUP)	--	<u>67.7</u>	1.8 J1	<u>84.2</u>	<u>49.7</u>	<u>56.1</u>	Chloroethane 3.5 J1 1,1-Dichloroethene 2.4
	1/7/2020	--	<u>65.4</u>	1.7 J1	<u>101</u>	<u>66.9</u>	<u>51.7</u>	Chloroethane 3.6 J1 1,1-Dichloroethene 2.1
	8/21/2008	--	<u>41</u>	2.0	<u>1,800</u>	<u>37</u>	<0.15	--
	10/1/2008	--	<u>89</u>	<25	<u>1,700</u>	<u>39</u>	<7.5	Methylene Chloride <u>72</u>
	11/2/2009	--	<u>88.3</u> J	<50	<u>1,360</u>	<u>57.6</u> J	<20	ND
	11/4/2010	(4)	<40	<50	<u>1,420</u>	<u>44.5</u> J	<20	ND
	12/27/2011	--	<40	<50	<u>895</u>	<40	<20	ND
	9/10/2013	(7)	4.6	0.44 *	<u>1,400</u>	<u>13</u>	<0.18	ND
	4/30/2015	(8)	<u>20.0</u>	<1.3	<u>515</u>	<u>12.7</u>	<0.88	ND
	4/26/2016	--	<u>52.0</u>	<1.3	<u>535</u>	<u>12.5</u>	<0.88	ND
PZ-3	12/19/2017	--	<u>57.2</u>	<1.3	<u>555</u>	<u>30.3</u>	<u>5.3</u>	ND
	7/19/2019	--	<u>27.2</u>	<5.5	<u>422</u>	<u>19.0</u>	<0.87	ND
	1/7/2020	--	<u>49.5</u>	<1.1	<u>532</u>	<u>37.1</u>	<u>1.3</u>	1,1-Dichloroethene 0.48 J1
	8/21/2008	--	<u>9.2</u>	<0.5	<u>300</u>	<u>4.2</u>	<0.15	--
	10/1/2008	--	<u>9.1</u>	<5.0	<u>230</u>	<u>4.7</u>	<1.5	Methylene Chloride <u>15</u>
	11/2/2009	--	<u>23.4</u> J	<25	<u>344</u>	<20	<10	ND
	11/4/2010	(4)	<20	<25	<u>152</u>	<20	<10	ND
	12/27/2011	--	<u>11.2</u> J	<10	<u>178</u>	<8.00	<4.00	ND
	9/10/2013	(7)	<u>17</u>	<0.30	<u>48</u>	<u>3.4</u>	<u>2.6</u>	ND
	4/30/2015	(8)	<u>60.3</u>	0.95 J1	<u>123</u>	<u>7.5</u>	<u>45.7</u>	ND
	4/26/2016	--	<u>51.4</u>	1.1	<u>93.9</u>	<u>10.5</u>	<u>39.4</u>	1,1-Dichloroethene 0.58 J1 Chloroethane 0.91 J1
	12/19/2017	--	<u>52.3</u>	1.3	<u>256</u>	<u>35.9</u>	<u>37.3</u>	Chloroethane 2.4 1,1-Dichloroethene 3.1
	7/19/2019	--	<u>37.2</u>	<2.2	<u>204</u>	<u>27.6</u>	<u>25.9</u>	1,1-Dichloroethene 2.2
	1/7/2020	--	<u>37.7</u>	<1.1	<u>239</u>	<u>31.9</u>	<u>22.5</u>	1,1-Dichloroethene 2

**Table 2. Groundwater Analytical Results Summary - Chlorinated VOCs**  
**Laundry Land Cleaners / SCS Engineers Project #25211374.51**  
(Results are in µg/L)

Sample	Date	Lab Notes	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	PCE	TCE	Vinyl Chloride	Other Chlorinated VOCs
MW-4	8/21/2008	--	<u>2,300</u>	35	<u>4,900</u>	<u>200</u>	<7.5	--
	10/1/2008	--	<u>2,300</u>	<100	<u>4,600</u>	<u>200</u>	<30	Methylene Chloride <u>270</u>
	11/2/2009	(1)	<u>1,520</u>	<50	<u>3,170</u>	<u>144</u>	<20	ND
	11/2/2010	(4)	<u>4,200</u>	<u>52.4</u> J	<u>399</u>	<u>168</u>	<20	ND
	12/28/2011	--	<u>250</u>	<50	<30	<40	<u>1,330</u>	ND
	9/10/2013	(7)	<u>380</u>	14	<u>860</u>	<u>560</u>	<u>610</u>	1,1,2-Trichloroethane <u>0.60</u> * 1,1-Dichloroethene <u>46</u> 1,2-Dichlorobenzene <u>5.4</u> 1,4-Dichlorobenzene <u>1.1</u> Tetrahydrofuran <u>10</u> *
	4/29/2015	(8)	<u>37.2</u>	11.4	<u>15.3</u>	<u>2.7</u>	<u>135</u>	1,2-Dichlorobenzene <u>1.0</u> J1 Chloroethane <u>3.1</u>
	4/26/2016	--	5.7	5.1	<1.2	<0.83	<u>340</u>	1,2-Dichlorobenzene <u>1.8</u> J1 Chloroethane <u>4.6</u>
	12/20/2017	--	<u>11.5</u>	4.1	<u>1.0</u>	<u>1.1</u>	<u>85</u>	Chloroethane <u>3.1</u> 1,2-Dichlorobenzene <u>2.7</u> 1,4-Dichlorobenzene <u>0.60</u> J1
	7/17/2019	--	<u>128</u>	7.4	<u>13.3</u>	<u>64.9</u>	<u>126</u>	Chloroethane <u>7.6</u> 1,2-Dichlorobenzene <u>2.5</u> 1,1-Dichloroethene <u>4.9</u>
	1/7/2020	--	<u>139</u>	6.1	<u>120</u>	<u>123</u>	<u>137</u>	Chloroethane <u>5.0</u> 1,2-Dichlorobenzene <u>2.9</u> 1,1-Dichloroethene <u>6.9</u>
	1/7/2020 (Dup)	--	<u>146</u>	7.8	<u>64.1</u>	<u>83.3</u>	<u>180</u>	Chloroethane <u>5.2</u> 1,2-Dichlorobenzene <u>2.8</u> 1,1-Dichloroethene <u>6.9</u>
PZ-4	8/21/2008	--	6.0	<0.5	<u>12</u>	<u>1.1</u>	<0.15	--
	10/1/2008	--	5.3	0.99	<u>13</u>	<u>1.5</u>	<0.15	ND
	11/2/2009	--	<u>2.46</u>	<0.50	<u>4.11</u>	<u>0.94</u> J	<0.20	Chloromethane <u>0.72</u> J
	11/2/2010	(4)	<u>11.4</u>	<0.50	<u>3.78</u>	<u>1.01</u> J	<0.20	Chloromethane <u>0.81</u> J
	12/28/2011	--	<u>6.27</u>	<0.50	<u>4.22</u>	<u>0.69</u> J	<0.20	ND
	9/10/2013	(7)	<u>8.6</u>	0.30 * <sup>J1</sup>	<u>110</u>	<u>6.0</u>	<u>2.4</u>	1,1-Dichloroethene <u>0.26</u> *
	4/29/2015	--	<u>7.7</u>	0.47 J1	<u>1.2</u>	<u>1.1</u>	<u>3.8</u>	ND
	4/26/2016	(12)	2.1	<0.26	<0.50	<u>0.57</u> J1	<u>0.27</u> J1	ND
	4/26/2016 (DUP)	--	2.0	<0.26	<0.50	0.38 J1	<0.18 J1	ND
	12/20/2017	--	<u>40.1</u>	0.98 J1	<u>5.5</u>	<u>7.30</u>	<u>15.9</u>	ND
	7/17/2019	(13)	<u>24.4</u>	<1.1	<u>3.1</u>	<u>5.7</u>	<u>18.5</u>	1,1-Dichloroethene <u>0.87</u> J1
	1/7/2020	--	<u>27.2</u>	<1.1	<u>3.9</u>	<u>12.2</u>	<u>16.5</u>	1,1-Dichloroethene <u>1.2</u>

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**Laundry Land Cleaners / SCS Engineers Project #25211374.51**  
(Results are in µg/L)

Sample	Date	Lab Notes	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	PCE	TCE	Vinyl Chloride	Other Chlorinated VOCs
MW-5	8/21/2008	--	<u>13</u>	<5.0	<b>190</b>	<b>11</b>	<1.5	--
	10/1/2008	--	<u>5.9</u>	<1.0	<b>110</b>	<b>7.1</b>	<0.3	Methylene Chloride <u>2.4</u>
	10/30/2009	--	<u>22.1</u>	<5.0	<b>186</b>	<b>18.7</b>	<2.0	ND
	11/2/2010	(4)	<u>7.26</u> J	<5.00	<b>175</b>	<b>11.1</b> J	<2.00	ND
	12/27/2011	--	<u>7.17</u> J	<5.00	<b>149</b>	<b>9.82</b> J	<2.00	ND
	4/30/2015	(8)	3.9	<0.26	<b>64.6</b>	<b>3.6</b>	<0.18	ND
	4/25/2016	(10)	2.6	<0.26	<b>84.4</b>	<b>4.5</b>	<0.18	ND
	4/25/2016 (DUP)	(10)	2.0	<0.26	<b>87.5</b>	<b>4.4</b>	<0.18	ND
	7/18/2019	--	<u>1.4</u>	<1.1	<b>79.8</b>	<b>3.3</b>	<0.17	ND
	1/8/2020	--	<u>0.68</u> J1	<1.1	<b>77.6</b>	<b>2.5</b>	<0.17	ND
PZ-5	8/21/2008	--	1.1	<0.5	<u>2.4</u>	0.27	<0.15	--
	10/1/2008	--	2.1	<0.5	<u>1.6</u>	<u>0.72</u>	<0.15	ND
	10/30/2009	--	1.6	<0.50	<u>0.98</u> J	<u>0.53</u>	<0.20	ND
	11/3/2010	(4)	1.37	<0.50	0.31 J	<0.40	<0.20	Chloromethane <u>0.41</u> J
	12/27/2011	--	2.60	<0.50	<0.30	0.41 J	<u>0.27</u> J	Dichlorodifluoromethane <u>0.41</u> J
	4/30/2015	--	2.1	<0.26	<u>1.3</u>	<u>0.98</u> J1	<u>0.28</u> J1	Dichlorodifluoromethane <u>0.27</u> J1
	4/26/2016	(10)	3.8	<0.26	<u>1.9</u>	<u>0.74</u> J1	<u>0.91</u> J1	ND
	12/20/2017	--	<u>7.7</u>	0.32 J1	<u>2.5</u>	<u>0.83</u> J1	<u>0.63</u> J1	ND
	7/18/2019	--	5.8	<1.1	<u>2.1</u>	<u>0.72</u> J1	<u>0.53</u> J1	ND
	1/8/2020	--	5.1	<1.1	<u>3.0</u>	<u>1.1</u>	<u>0.43</u> J1	ND
MW-6**	10/1/2008	--	<0.40	<0.50	<u>1.8</u>	<0.15	<0.15	ND
	10/31/2008	--	<0.40	<0.50	<u>1.4</u>	<0.15	<0.15	ND
	10/30/2009	--	<0.40	<0.50	<u>2.53</u>	<0.40	<0.20	ND
	11/3/2010	(4)	<0.40 J	<0.50	<u>3.88</u>	<0.40	<0.20	Chloromethane <u>0.62</u> J
	1/8/2020	--	4.3	<1.1	<b>38.5</b>	<b>7.5</b>	<0.17	ND
MW-6R	1/8/2020	--	3.9	<1.1	<u>3.2</u>	<u>2.0</u>	<b>4.4</b>	ND
MW-7	10/1/2008	--	1.1	<0.50	<b>570</b>	<b>9.8</b>	<0.15	Chloromethane <u>0.54</u>
	10/31/2008	--	<8.0	<10	<b>570</b>	<b>9.5</b>	<0.3	Methylene Chloride <u>17</u>
	11/2/2009	--	<20	<25	<b>688</b>	<20	<10	ND
	11/3/2010	(4)	<20	<25	<b>641</b>	<20	<10	ND
	12/27/2011	--	<20	<25	<b>537</b>	<20	<10	ND
	4/30/2015	(8)	<2.6	<2.6	<b>481</b>	<b>9.2</b> J1	<1.8	ND
	4/26/2016	(10)	<1.3	<1.3	<b>400</b>	<b>6.8</b>	<0.88	ND
	12/20/2017	--	<u>1.3</u> J1	<1.3	<b>606</b>	<b>18.4</b>	<0.88	ND
	7/19/2019	--	<u>1.5</u> J1	<5.5	<b>249</b>	<b>8.7</b>	<0.87	ND
	1/8/2020	--	<u>0.5</u> J1	<1.1	<b>270</b>	<b>9.7</b>	<0.17	ND

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(Results are in µg/L)

Sample	Date	Lab Notes	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	PCE	TCE	Vinyl Chloride	Other Chlorinated VOCs
PZ-7	10/1/2008	--	1.3	<0.50	<u>100</u>	<u>2.6</u>	<0.15	ND
	10/31/2008	--	2.1	<0.50	<u>85</u>	<u>2.7</u>	<0.15	Chloromethane 0.40 1,2-Dichloroethane <u>0.51</u> 1,1,2,2-Tetrachloroethane <u>85</u> 1,1,2-Trichloroethane <u>1.2</u>
	11/2/2009	--	<4.0	<5.0	<u>164</u>	<4.0	<2.0	ND
	11/3/2010	(6)	<u>4.34</u> J	<5.00	<u>185</u>	<u>5.40</u> J	<2.00	ND
	12/27/2011	--	<4.00	<5.00	<u>160</u>	<4.00	<2.00	ND
	4/30/2015	--	<u>15.4</u>	<0.26	<u>105</u>	<u>5.5</u>	<0.18	1,2-Dichloroethane 0.27 J1
	4/26/2016	--	<u>6.2</u>	<0.26	<u>86.3</u>	<u>4.1</u>	<0.18	ND
	12/20/2017	--	<u>11.3</u>	0.48 J1	<u>84.2</u>	<u>15.8</u>	<u>2.3</u>	ND
	7/19/2019	--	<u>4.5</u>	<1.1	<u>69.3</u>	<u>13.9</u>	<u>0.39</u> J1	ND
	1/8/2020	--	<u>4.2</u>	<1.1	<u>76.9</u>	<u>18.8</u>	<u>0.44</u> J1	ND
MW-8 [Abandoned]	10/1/2008	--	<u>97</u>	1.2	<u>1,000</u>	<u>49</u>	<u>1.5</u>	ND
	10/31/2008	--	<u>110</u>	<25	<u>890</u>	<u>59</u>	<7.5	Methylene Chloride <u>34</u>
	11/2/2009	--	<u>74.7</u> J	<50	<u>854</u>	<u>57.8</u> J	<20	ND
	11/4/2010	(4)	<u>71</u> J	<50	<u>765</u>	<u>55.8</u> J	<20	ND
	12/27/2011	(5)	<u>53.1</u> J	<50 DUP	<u>674</u>	<40 S2L	<20	sec-Butylbenzene 33.6 J
MW-8R	5/1/2015	(8)	<u>0.26</u> J1	<0.26	<u>29.3</u>	<u>0.67</u> J1	<0.18	ND
	4/25/2016	(10)	<u>9.3</u>	0.82 J1	<u>27.7</u>	<u>2.7</u>	<u>4.8</u>	ND
	12/19/2017	--	<u>0.34</u> J1	<0.26	<u>26.0</u>	<u>0.57</u> J1	<0.18	ND
	7/17/2019	(13)	<u>0.37</u> J1	<1.1	<u>17.9</u>	<u>1.2</u>	<0.17	ND
	1/7/2020	--	<u>0.31</u> J1	<1.1	<u>53.1</u>	<u>2.1</u>	<0.17	ND
MW-9 [Abandoned]	10/31/2008	--	<u>1.8</u>	<0.5	<u>140</u>	<u>3.9</u>	<0.15	ND
PZ-9	11/2/2009	--	<40	<50	<u>374</u>	<40	<20	ND
	11/4/2010	(4)	<40	<50	<u>256</u>	<40	<20	ND
	12/27/2011	(6)	<4.00	<5.00	<u>327</u>	<u>13.6</u>	<2.00	ND
	4/29/2015	(8)	<0.64	<0.64	<u>156</u>	<u>10.7</u>	<0.44	ND
	4/25/2016	(10)	<0.26	<0.26	<u>116</u>	<u>1.0</u>	<0.18	Trichlorofluoromethane 0.19 J1
	12/20/2017	--	<u>0.31</u> J1	<0.26	<u>142</u>	<u>8.2</u>	<0.18	ND
	7/19/2019	--	<0.27	<1.1	<u>83.9</u>	<u>3.6</u>	<0.17	ND
	1/7/2020	--	<u>0.46</u> J1	<1.1	<u>85.5</u>	<u>5.8</u>	<0.17	ND
PZ-9A	1/8/2013	--	<0.12	<0.25	<u>180</u>	<u>2.0</u>	<0.10	ND
	4/29/2015	--	<0.26	<0.26	<u>125</u>	<u>1.8</u>	<0.18	Trichlorofluoromethane 0.28 J1
	4/25/2016	(10)	<0.26	<0.26	<u>81.9</u>	<u>0.63</u> J1	<0.18	Trichlorofluoromethane 0.46 J1
	12/20/2017	--	<0.26	<0.26	<u>22.7</u>	0.35 J1	<0.18	1,2-Dichloroethane <u>0.51</u> J1 Trichlorofluoromethane <u>0.44</u> J1
	7/19/2019	--	<0.27	<1.1	<u>111</u>	<u>1.30</u>	<0.17	ND
	1/7/2020	--	<0.27	<1.1	<u>135</u>	<u>1.20</u>	<0.17	Trichlorofluoromethane 0.23 J1

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(Results are in µg/L)

Sample	Date	Lab Notes	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	PCE	TCE	Vinyl Chloride	Other Chlorinated VOCs
MW-10 Lost	10/31/2008	--	<2.0	<0.50	<u>0.59</u>	<0.15	<0.15	Chloroethane 0.77 Chloromethane 2.0
	10/30/2009	--	<0.40	<0.50	<0.30	<0.40	<0.20	ND
	11/2/2010	(3)(4)	<0.40	<0.50	<0.30	<0.40	<0.20	ND
	12/27/2011	--	<0.40	<0.50	<0.30	<0.40	<0.20	ND
	4/30/2015	--	<0.26	<0.26	<0.50	<0.33	<0.18	ND
	4/25/2016	(10)	<0.26	<0.26	<0.50	<0.33	<0.18	ND
MW-11	10/30/2009	--	<4.0	<5.0	<u>78.4</u>	<u>32.3</u>	<2.0	ND
	11/3/2010	(4)	<4.00	<5.00	<u>61</u>	<u>16.5</u>	<2.00	ND
	12/27/2011	(6)	<2.00	<2.50	<u>84.4</u>	<u>29.4</u>	<1.00	ND
	4/30/2015	--	0.63 J1	<0.26	<u>61.2</u>	<u>14.1</u>	<0.18	ND
	4/25/2016	(10)	0.32 J1	<0.26	<u>49.0</u>	<u>11.7</u>	<0.18	ND
	12/20/2017	--	<0.26	<0.26	<u>46.3</u>	<u>8.6</u>	<0.18	ND
	12/20/2017 (DUP)	--	<0.26	<0.26	<u>42.9</u>	<u>7.9</u>	<0.18	ND
	7/18/2019	--	<0.27	<1.1	<u>32.5</u>	<u>4.3</u>	<0.17	ND
	1/7/2020	--	<0.27	<1.1	<u>28.0</u>	<u>3.1</u>	<0.17	ND
PZ-11	10/30/2009	--	<u>11.8</u> J	<5.0	<u>82.8</u>	<u>55.2</u>	<2.0	ND
	11/3/2010	(4)	<4.00	<5.00	<u>44.3</u>	<u>26.8</u>	<2.00	ND
	12/27/2011	(6)	5.47 J	<2.50	<u>60.5</u>	<u>36.1</u>	<1.00	ND
	4/30/2015	--	0.82 J1	<0.26	<u>42.6</u>	<u>12.5</u>	<0.18	ND
	4/25/2016	(10)	0.58 J1	<0.26	<u>30.5</u>	<u>9.4</u>	<0.18	ND
	12/20/2017	--	0.28 J1	<0.26	<u>24.0</u>	<u>4.5</u>	<0.18	ND
	7/18/2019	--	<0.27	<1.1	<u>19.4</u>	<u>2.9</u>	<0.17	ND
	1/7/2020	--	3.2	<1.1	<u>27.6</u>	<u>3.9</u>	<u>2.2</u>	ND
MW-12 Abandoned	10/30/2009	--	<0.40	<0.50	<u>4.1</u>	<0.40	<0.20	ND
	11/2/2010	(4)	<0.40	<0.50	<u>2.93</u>	<0.40	<0.20	Chloromethane 0.43 J
	12/27/2011	--	<0.40	<0.50	<u>3.56</u>	<0.40	<0.20	ND
	5/1/2015	--	<0.26	<0.26	<u>6.1</u>	<0.33	<0.18	ND
	4/25/2016	(10)	<0.26	<0.26	<u>5.7</u>	<0.33	<0.18	ND
MW-13	5/1/2015	(8)	<0.26	<0.26	<u>7.7</u>	<u>0.44</u> J1	<0.18	ND
	4/25/2016	(11)	<0.26	<0.26	<u>12.3</u>	<u>0.97</u> J1	<0.18	ND
	12/20/2017	(8)	<0.26	<0.26	<u>13.1</u>	<u>2.0</u>	<0.18	ND
	7/17/2019	--	<0.27	<1.1	<u>17.9</u>	<u>4.3</u>	<0.17	ND
	1/8/2020	--	<0.27	<1.1	<u>21.5</u>	<u>4.8</u>	<0.17	
MW-14	5/1/2015	--	<0.26	<0.26	<0.50	<0.33	<0.18	ND
	4/25/2016	(10)	<0.26	<0.26	<0.50	<0.33	<0.18	ND
	12/19/2017	--	<0.26	<0.26	<u>2.0</u>	<0.33	<0.18	ND

**Table 2. Groundwater Analytical Results Summary - Chlorinated VOCs**  
**Laundry Land Cleaners / SCS Engineers Project #25211374.51**  
(Results are in µg/L)

Sample	Date	Lab Notes	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	PCE	TCE	Vinyl Chloride	Other Chlorinated VOCs
MW-15	5/1/2015	(8)	<0.26	<0.26	<0.50	<0.33	<0.18	ND
	4/26/2016	(10)	<0.26	<0.26	<0.50	<0.33	<0.18	ND
	12/19/2017	(8)	<0.26	<0.26	<0.50	<0.33	<0.18	ND
Field Blank	4/29/2015	--	<0.26	<0.26	<0.50	<0.33	<0.18	ND
Trip Blank	10/1/2008	--	<0.40	<0.50	<0.40	<0.15	<0.15	Methylene Chloride <u>0.56</u>
	10/30/2008	--	<0.40	<0.50	<0.40	<0.15	<0.15	ND
	10/30/2009	--	<0.40	<0.50	<0.30	<0.40	<0.20	ND
	11/2/2009	--	<0.40	<0.50	<0.30	<0.40	<0.20	ND
	11/2/2010	(4)	<0.40	<0.50	<0.30	<0.40	<0.20	ND
	12/28/2011	--	<0.40	<0.50	<0.30	<0.40	<0.20	ND
	9/10/2013	(7)	<0.30	<0.30	<0.29	<0.50	<0.18	ND
	4/30/2015	--	<0.26	<0.26	<0.50	<0.33	<0.18	ND
	4/26/2016	(10)	<0.26	<0.26	<0.50	<0.33	<0.18	ND
	12/20/2017	--	<0.26	<0.26	<0.50	<0.33	<0.18	ND
	7/19/2019	--	<0.27	<1.1	<0.33	<0.26	<0.17	ND
	1/8/2020	--	<0.27	<1.1	<0.33	<0.26	<0.17	ND
Trip Blank 2	12/28/2011	--	<0.40	<0.50	<0.30	<0.40	<0.20	ND
Trip Blank 3	12/28/2011	--	<0.40	<0.50	<0.30	<0.40	<0.20	ND
Trip Blank 4	12/28/2011	--	<0.40	<0.50	<0.30	<0.40	<0.20	ND
Trip Blank 5	12/28/2011	--	<0.40	<0.50	<0.30	<0.40	<0.20	ND
Trip Blank 6	12/28/2011	--	<0.40	<0.50	<0.30	<0.40	<0.20	ND
NR 140 Enforcement Standards (ES)			70	100	5	5	2	Chloroethane 400 Chloromethane 30 Dichlorodifluoromethane 1000 1,2-Dichlorobenzene 600 1,4-Dichlorobenzene 75 1,1-Dichloroethene 7 1,2-Dichloroethane 5 Fluorotrichloromethane (Trichlorofluoromethane) 3490 Methylene Chloride 5 1,1,2,2-Tetrachloroethane 0.2 1,1,2-Trichloroethane 5 Tetrahydrofuran 50

**Table 2. Groundwater Analytical Results Summary - Chlorinated VOCs**  
**Laundry Land Cleaners / SCS Engineers Project #25211374.51**  
(Results are in µg/L)

Sample	Date	Lab Notes	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	PCE	TCE	Vinyl Chloride	Other Chlorinated VOCs
NR 140 Preventive Action Limits (PAL)			7	20	0.5	0.5	0.02	Chloroethane 80 Chloromethane 3 Dichlorodifluoromethane 200 1,2-Dichlorobenzene 60 1,4-Dichlorobenzene 15 1,1-Dichloroethene 0.7 1,2-Dichloroethane 0.5 Fluorotrichloromethane (Trichlorofluoromethane) 698 Methylene Chloride 0.5 1,1,2,2-Tetrachloroethane 0.02 1,1,2-Trichloroethane 0.5 Tetrahydrofuran 10

Abbreviations:

NE = No Standard Established      MTBE = Methyl-tert-butyl ether  
ND = Not Detected      TCE = trichloroethene  
-- = Not Applicable      PCE = tetrachloroethene

VOCs = Volatile Organic Compounds  
TMBs = 1,2,4- and 1,3,5-trimethylbenzenes  
µg/L = micrograms per liter or parts per billion (ppb)

Notes:

NR 140 ES - Wisconsin Administrative Code (WAC), Chapter NR 140.10 Table 1 - Public Health Groundwater Quality Standards.  
NR 140 PAL - WAC, Chapter NR 140.10 Table 1 - Public Health Groundwater Quality Standards.

**Bold+underlined** values meet or exceed NR 140 enforcement standards.

*Italic+underlined* values meet or exceed NR 140 preventive action limits.

\*\* = Well MW-6 was reported as abandoned in 2010, but the well was buried. Well was found in 2020 and data was collected.

Laboratory Notes:

\* = Indicates value in between the limit of detection and the limit of the quantitation.

DUP = Result of duplicate analysis in this quality assurance batch exceeds the limits for precision.

J = Estimated concentration below laboratory quantitation level.

J1 = Estimated concentration at or above the Limit of Detection (LOD) and below the Limit of Quantitation (LOQ).

Q = Laboratory control sample outside acceptance limits.

S1H = First sample matrix spike recovery was high.

S2H = Second sample matrix spike recovery was high.

S2L = Second sample matrix spike recovery was low.

(1) Chloromethane - Check standard for this analyte exhibited a low bias. Sample results may also be biased low.

(2) 1,2,4-Trichlorobenzene - Check standard for this analyte exhibited a low bias. Sample results may also be biased low. Chloromethane - Check standard for this analyte exhibited a high bias. Sample results may also be biased high.

(3) Naphthalene - Result of duplicate analysis in this quality assurance batch exceeds the limits for precision.

(4) 1,1,1-Trichloroethane, Dichlorodifluoromethane - Check standard for this analyte exhibited a high bias. Sample results may also be biased high.

(5) 1,1-Dichloroethylene, 2,2-Dichloropropane, Methylene Chloride - Result of duplicate analysis in this quality assurance batch exceeds the limits for precision. 4-Isopropyltoluene - First sample matrix spike recovery was high.

(6) Methylene Chloride - Check standard for this analyte exhibited a high bias. Sample results may also be biased high.

(7) 1,2-Dibromo-3-chloropropane, Bromoform - Specified calibration criteria was not met.

(8) Surrogate = Post-analysis pH measurement indicates insufficient VOA sample preservation.

(9) Methyl-tert-butyl ether, Methylene Chloride, Vinyl Chloride, trans-1,2-Dichloroethene, 1,1-Dichloroethene, and Chloroethane = Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery. 1,1-Dichloroethane = Analyte recovery in the laboratory control sample exceeded QC limits. Analyte presence below reporting limits in associated sample. Results unaffected by high bias. Matrix Spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

(10) 1,1-Dichloroethane = Analyte recovery in the laboratory control sample exceeded QC limits. Analyte presence below reporting limits in associated sample. Results unaffected by high bias.

(11) 1,1-Dichloroethane = Analyte recovery in the laboratory control sample exceeded QC limits. Analyte presence below reporting limits in associated sample. Results unaffected by high bias.

Surrogates - 4-Bromofluorobenzene (S) = Post-analysis pH measurements indicates insufficient VOA sample preservation

(12) Styrene = Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

(13) 4-Bromofluorobenzene (S) = Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).

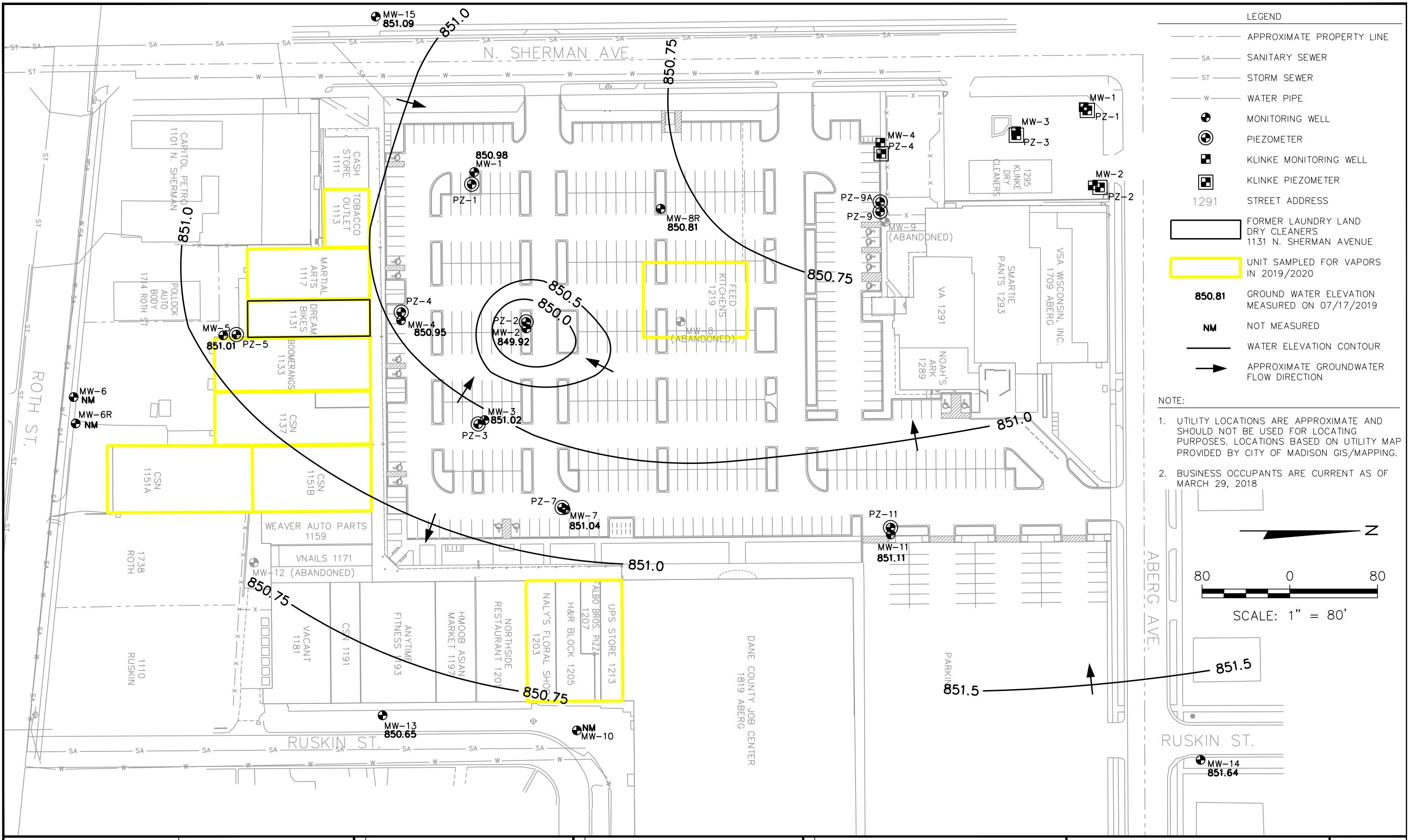
(14) Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

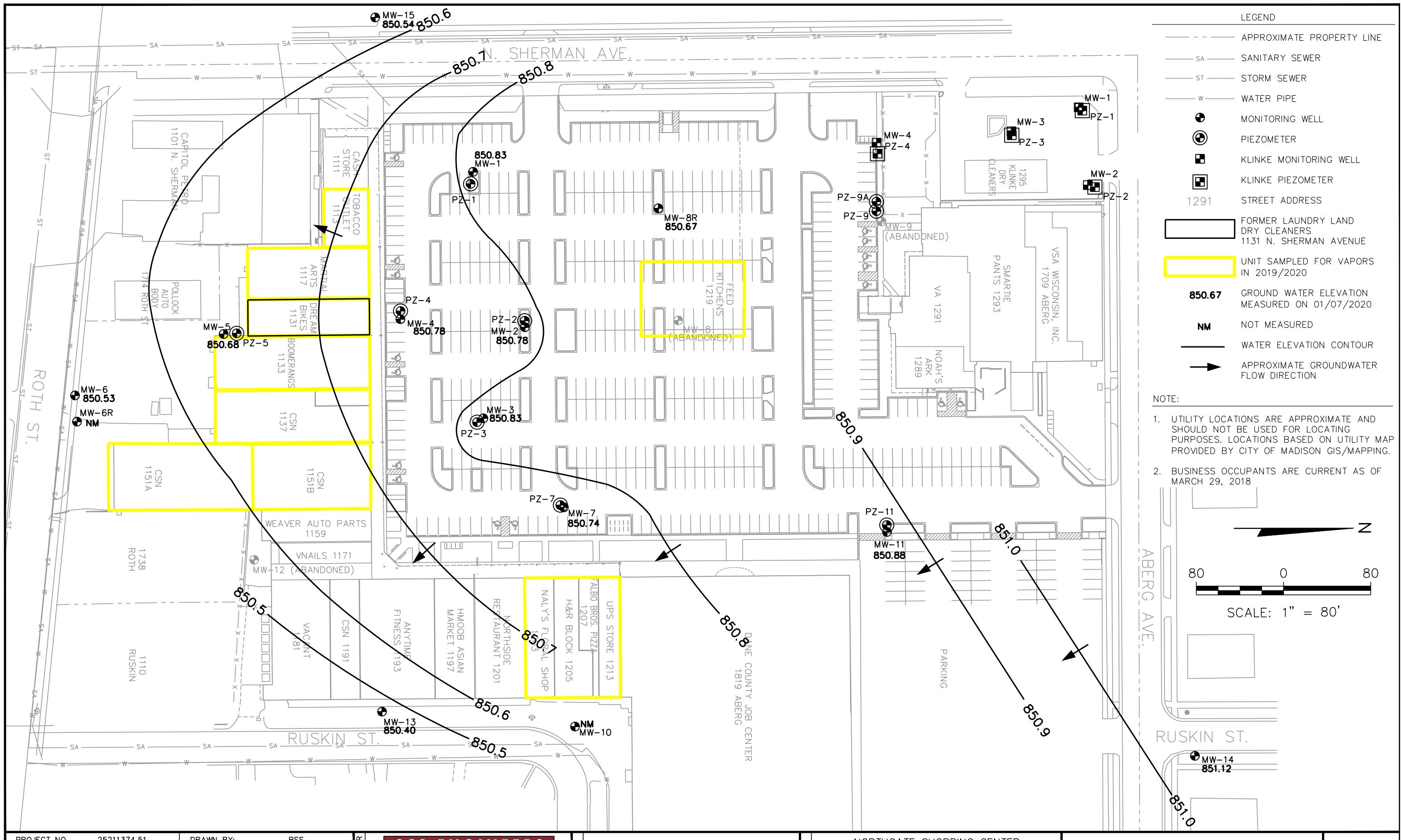
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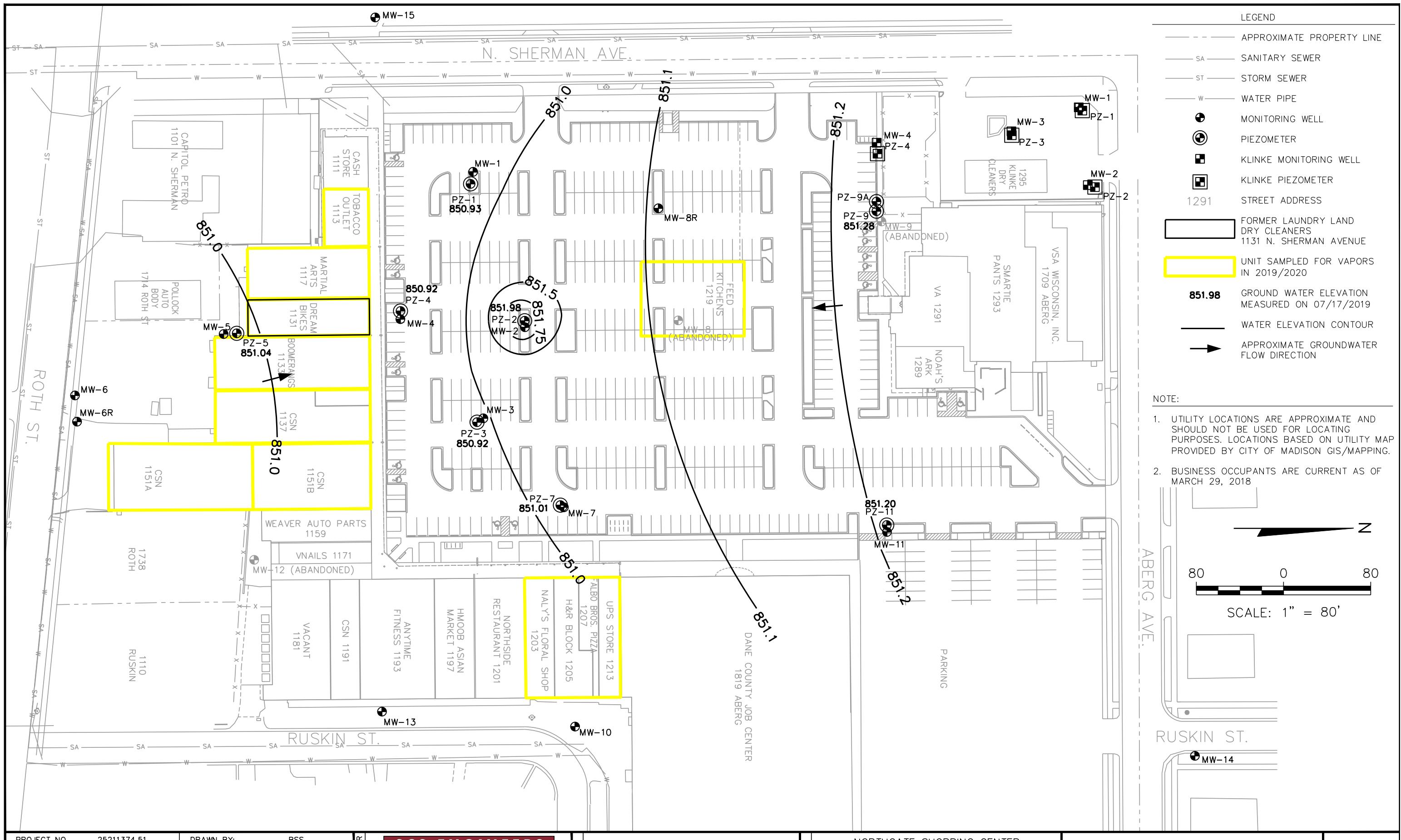
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Date: 1/17/2020  
Date: 7/2/2020

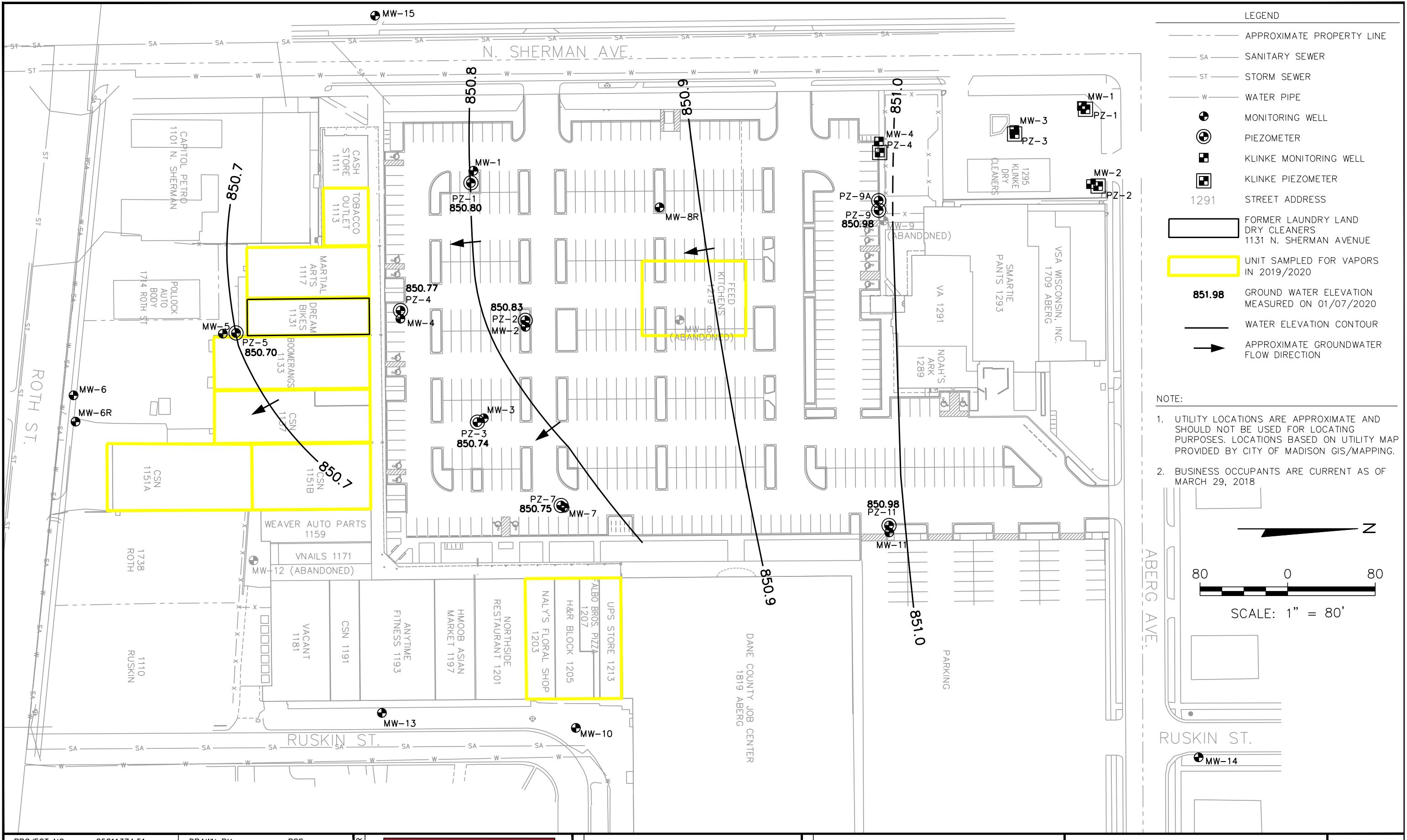
## Figures

- 1 Water Table Contour Map – July 17, 2019
- 2 Water Table Contour Map – January 7, 2020
- 3 Piezometric Surface Contour Map – July 17, 2019
- 4 Piezometric Surface Contour Map – January 7, 2020
- 5 CVOC Concentrations at the Water Table – 2008/2009
- 6 CVOC Concentrations at the Water Table – December 19, 2017
- 7 CVOC Concentrations at the Water Table – January 7, 2020
- 8 CVOC Concentrations at the Piezometric Level – 2008/2009
- 9 CVOC Concentrations at the Piezometric Level – December 19, 2017
- 10 CVOC Concentrations at the Piezometric Surface – January 7, 2020









PROJECT NO.	25211374.51
DRAWN:	07/13/2020
REVISED:	09/14/2020

DRAWN BY:	BSS
CHECKED BY:	BJS
APPROVED BY:	BJS 09/15/2012

**SCS ENGINEERS**  
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NORTHGATE SHOPPING CENTER  
1127 NORTH SHERMAN AVE.  
MADISON, WI

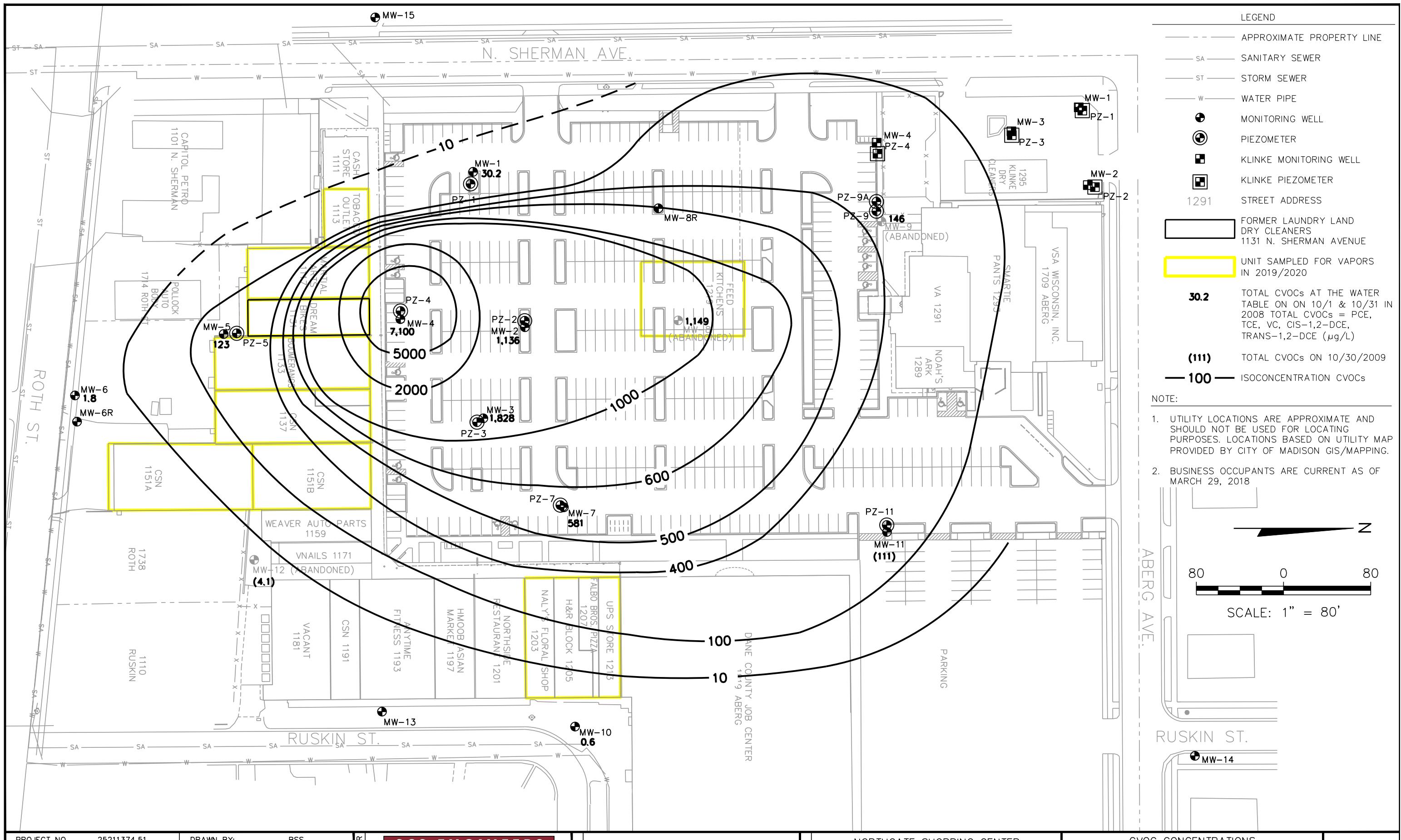
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JANUARY 7, 2020

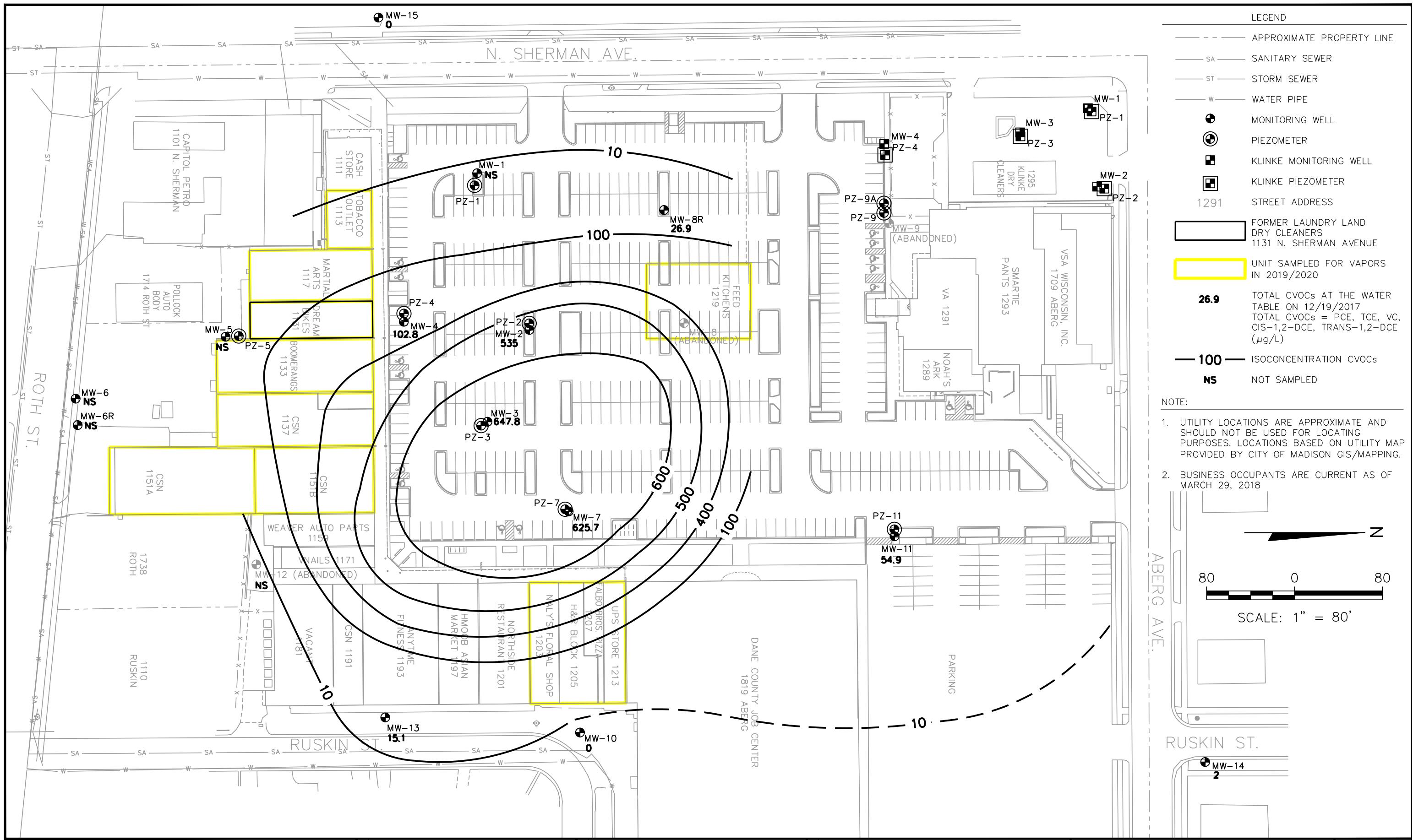
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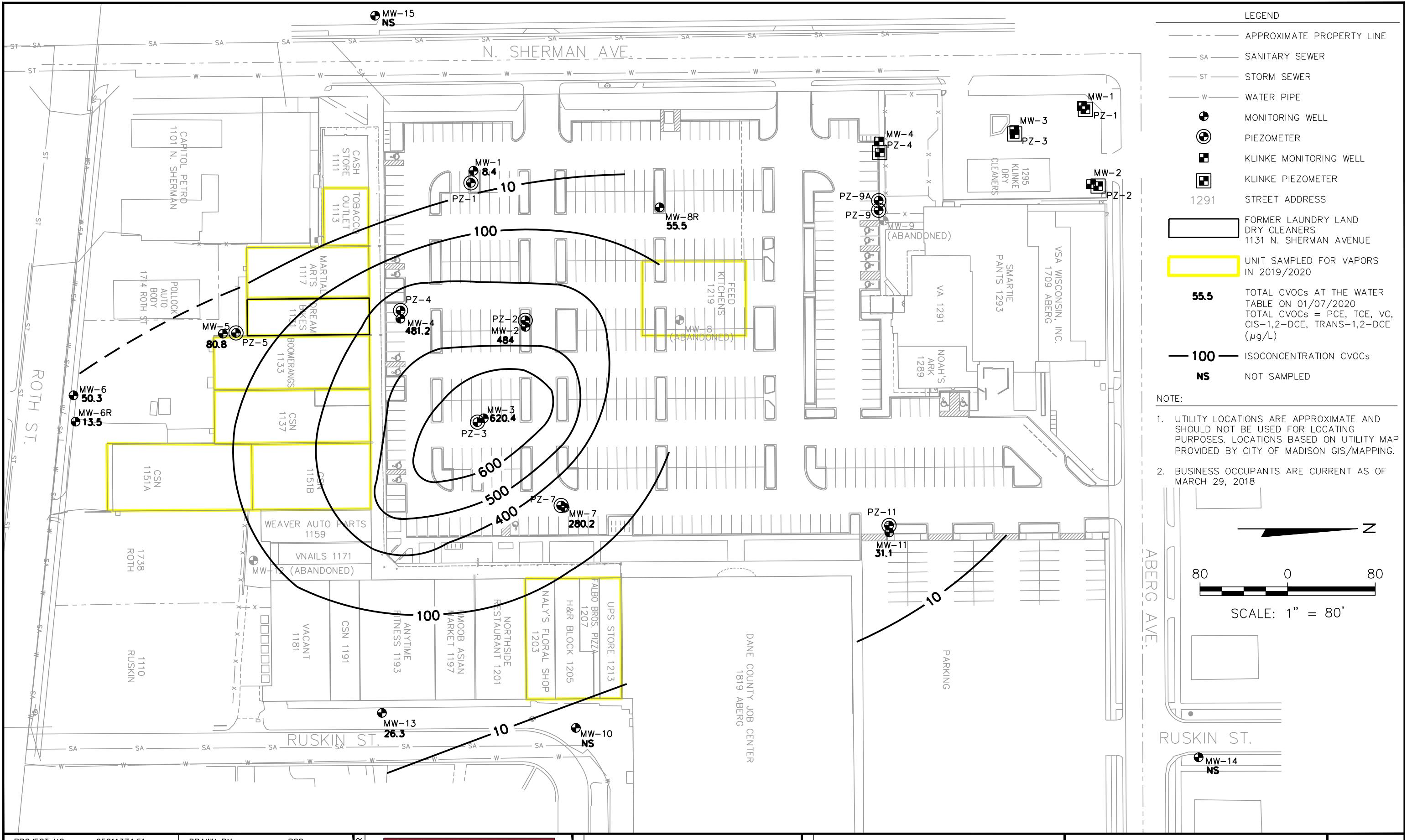
## FIGURE

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## 4







PROJECT NO.	25211374.51
DRAWN:	07/13/2020
REVISED:	09/14/2020

DRAWN BY:	BSS
CHECKED BY:	BJS
APPROVED BY:	BJS 09/15/2012

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751

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25 BONETTI ROAD  
NE, WI 53529

SITE NORTHGATE SHOPPING CENTER  
1127 NORTH SHERMAN AVE.  
MADISON, WI

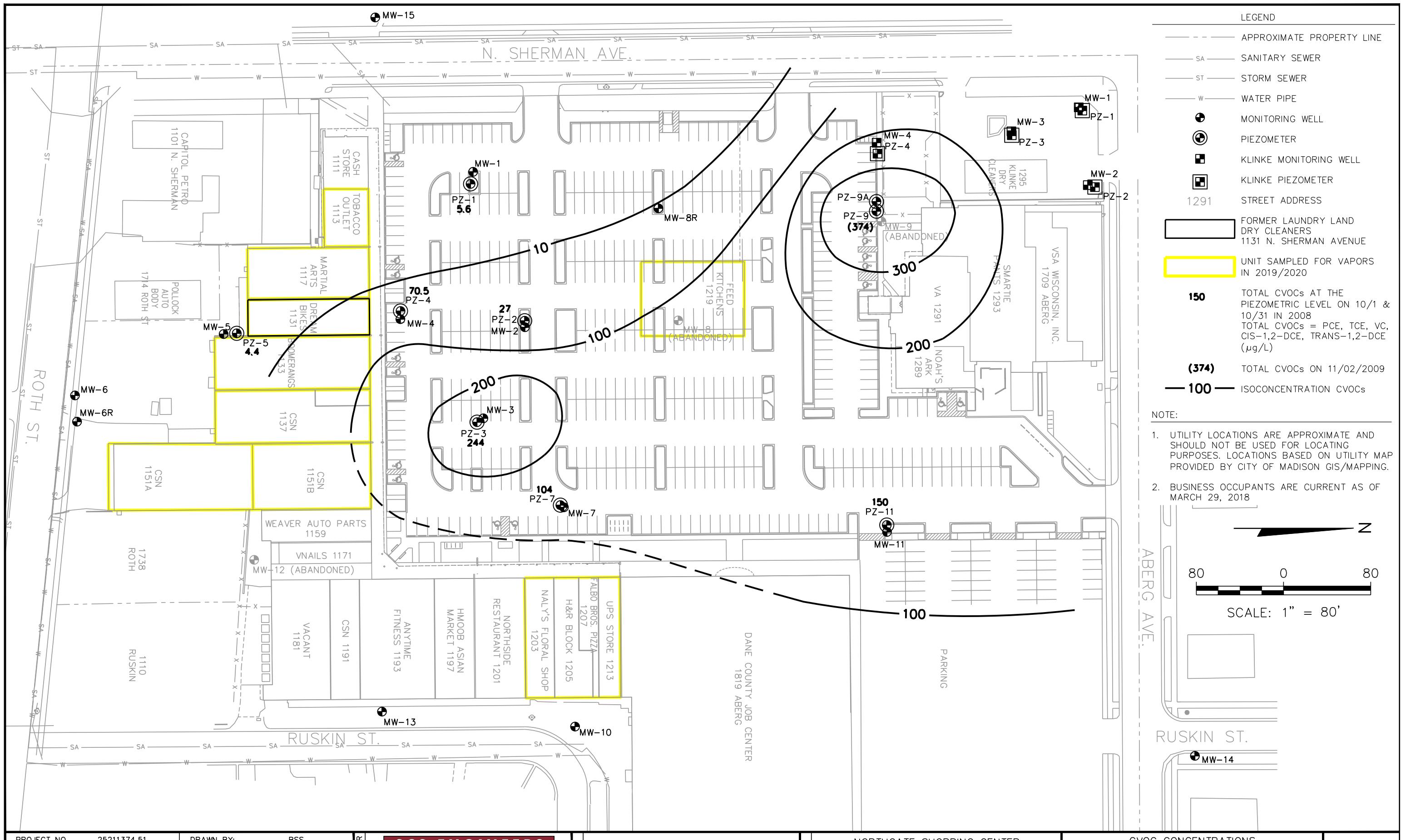
CVOC CONCENTRATIONS  
AT THE WATER TABLE  
JANUARY 7, 2020

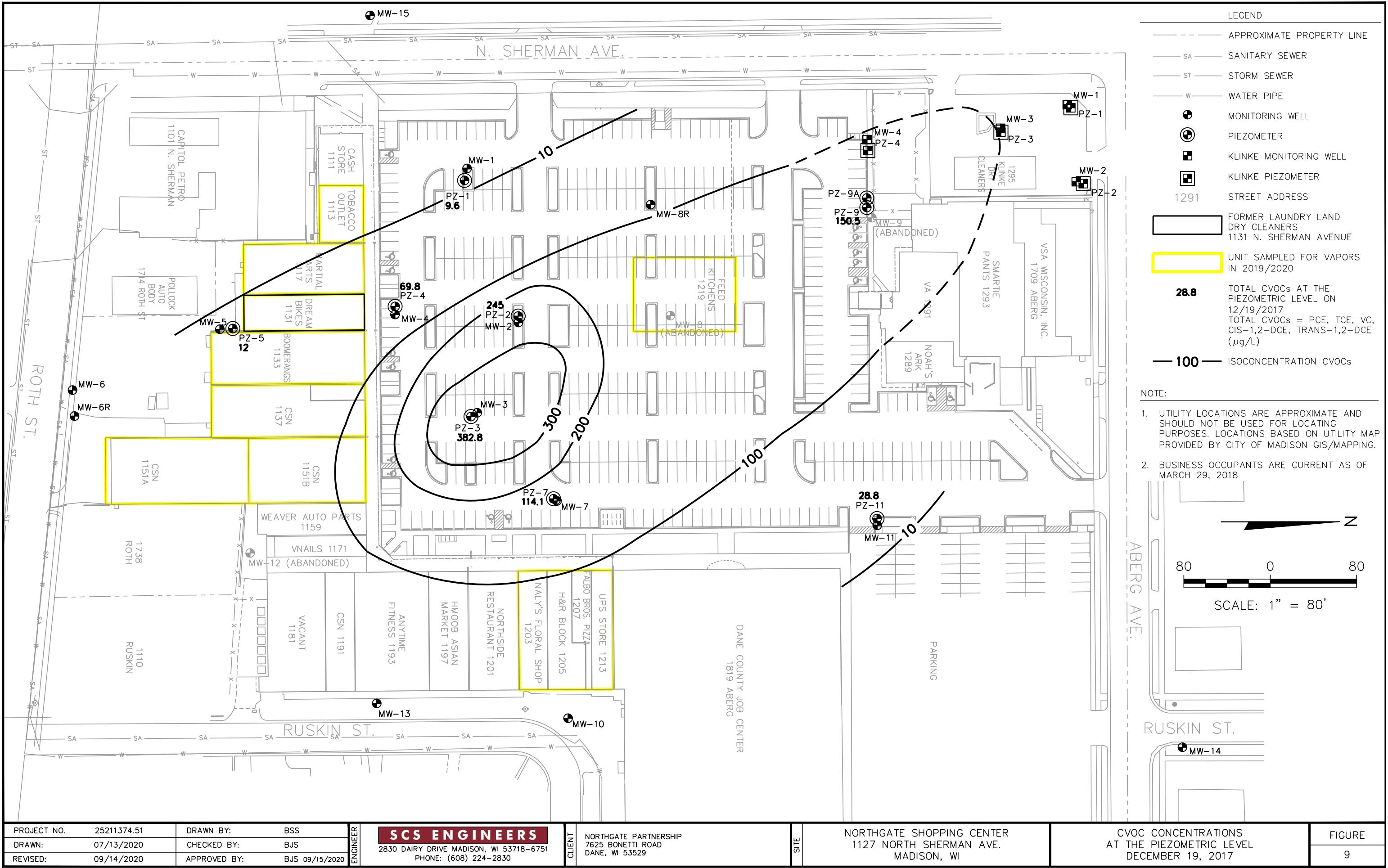
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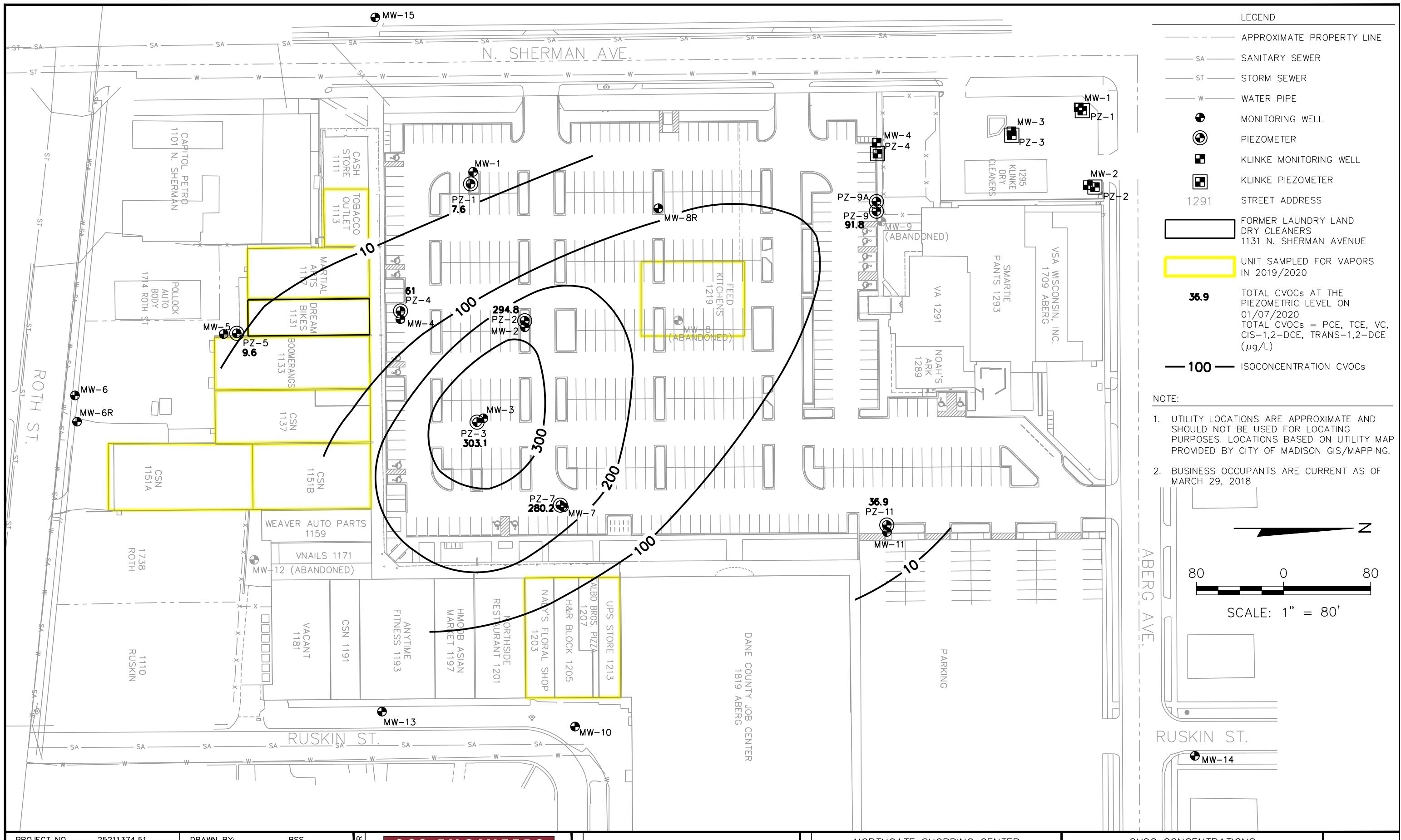
## FIGURE

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### 7

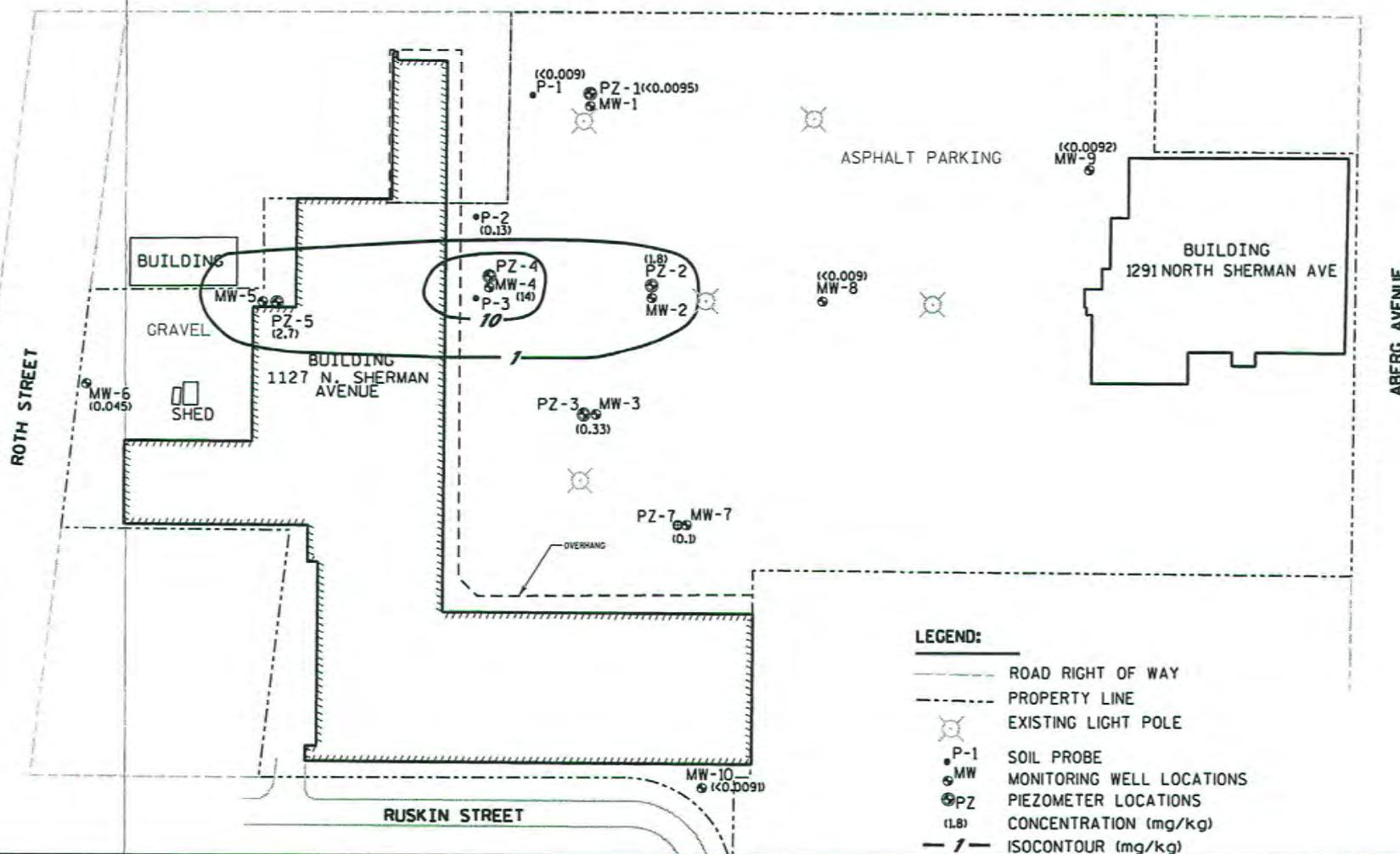






Attachment A  
Figures from 2008 Phase 2

NORTH SHERMAN AVENUE



**AYRES**  
ASSOCIATES



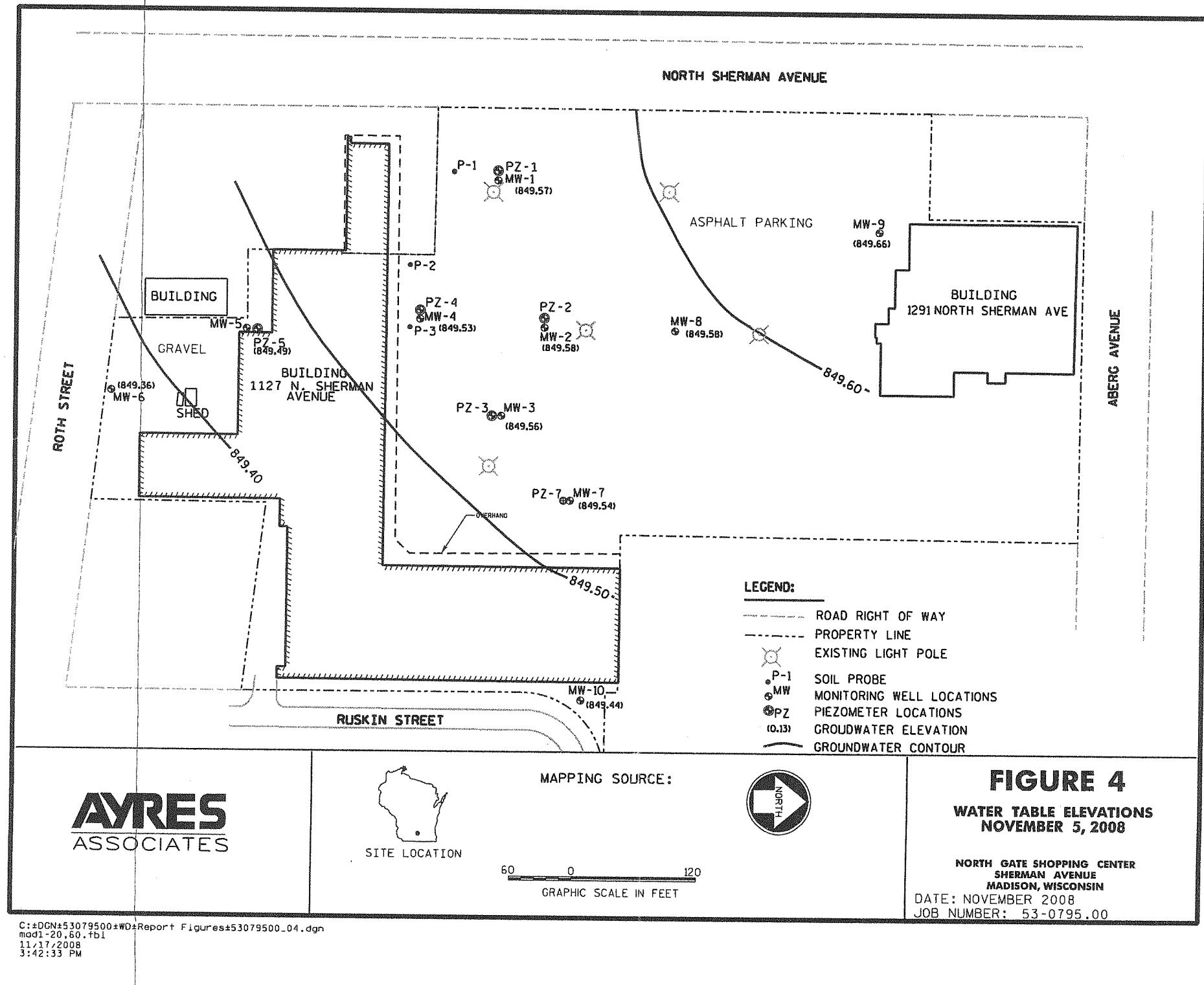
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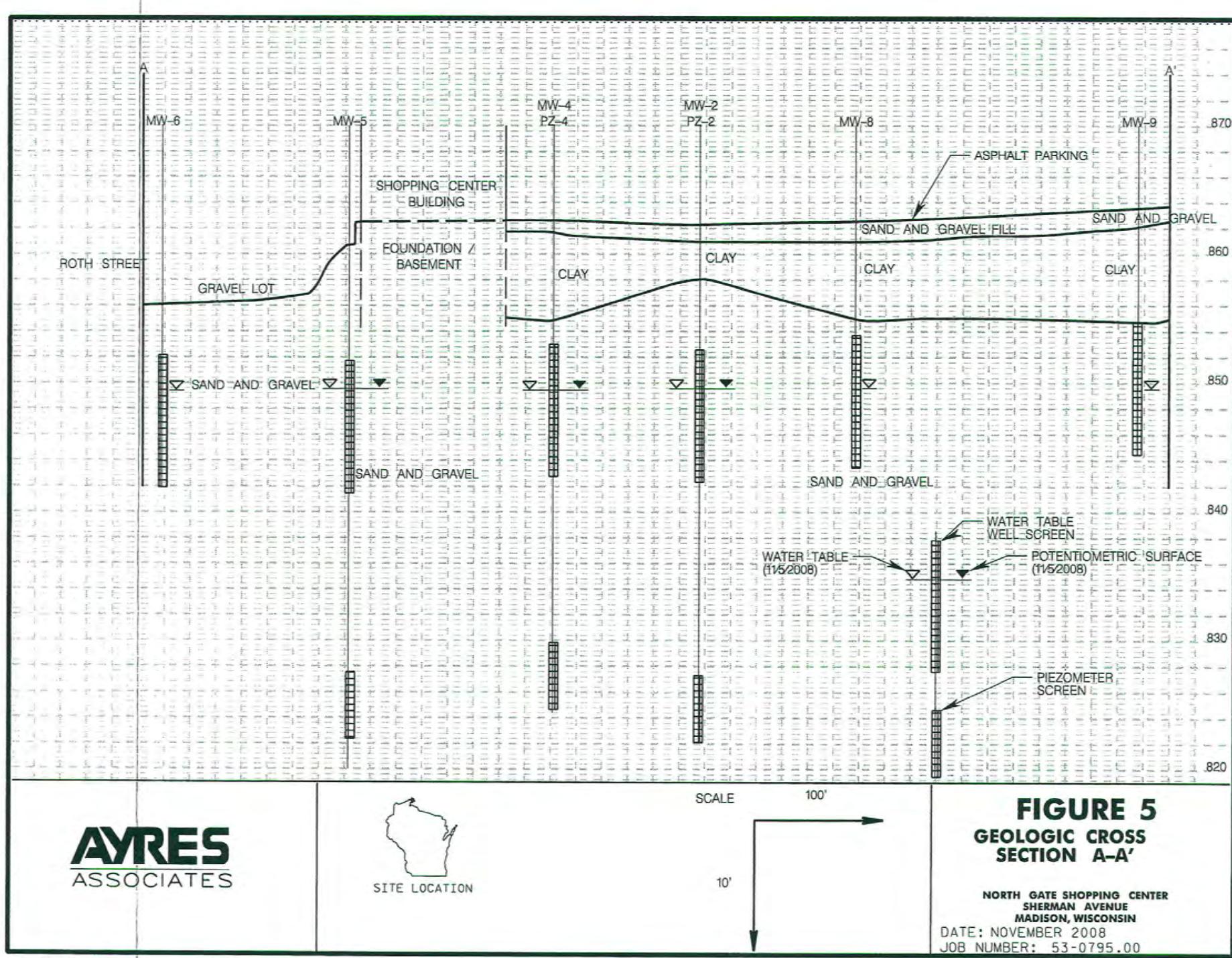


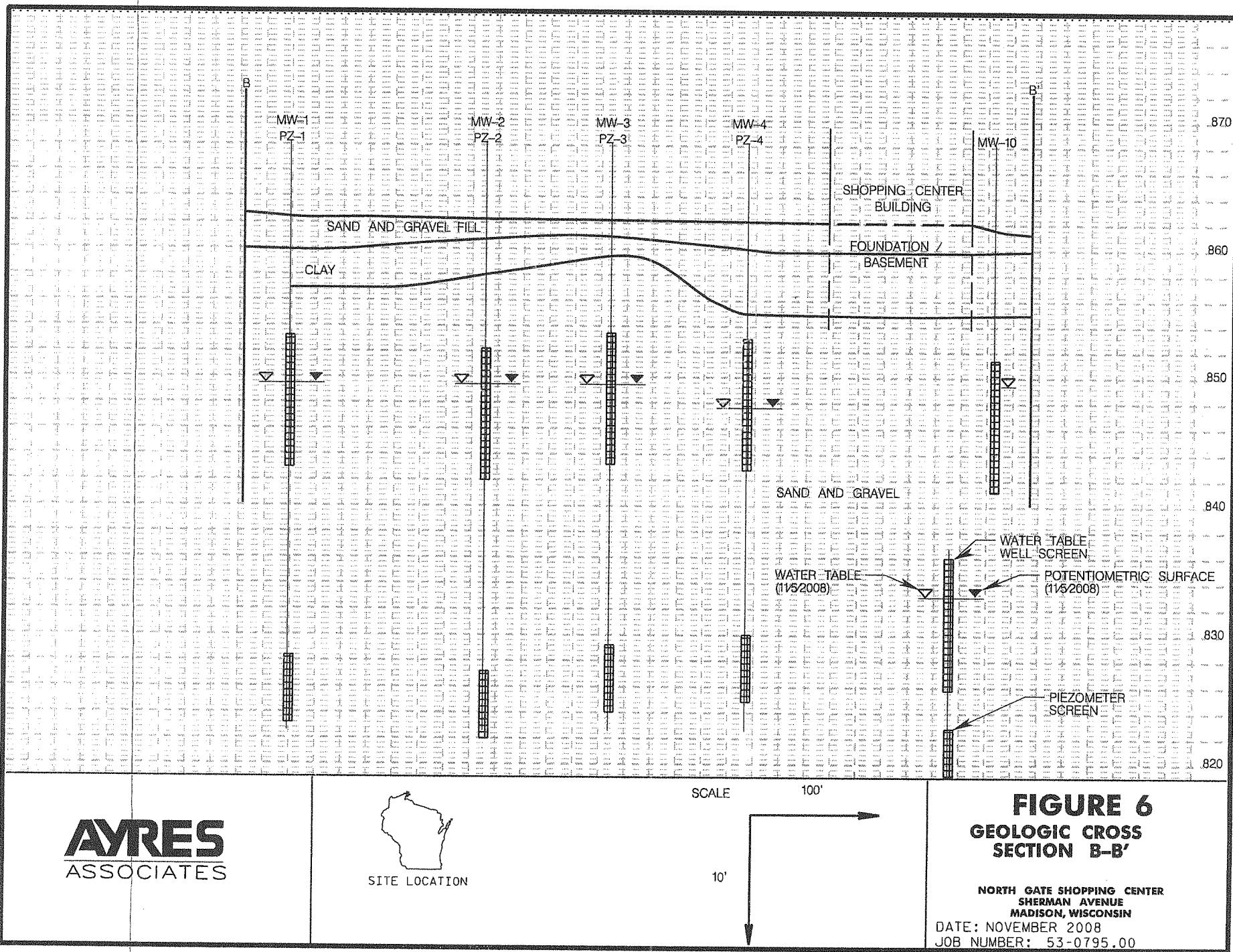
60 0 120  
GRAPHIC SCALE IN FEET

**FIGURE 3**  
**PCE IN SOIL (0-4')**

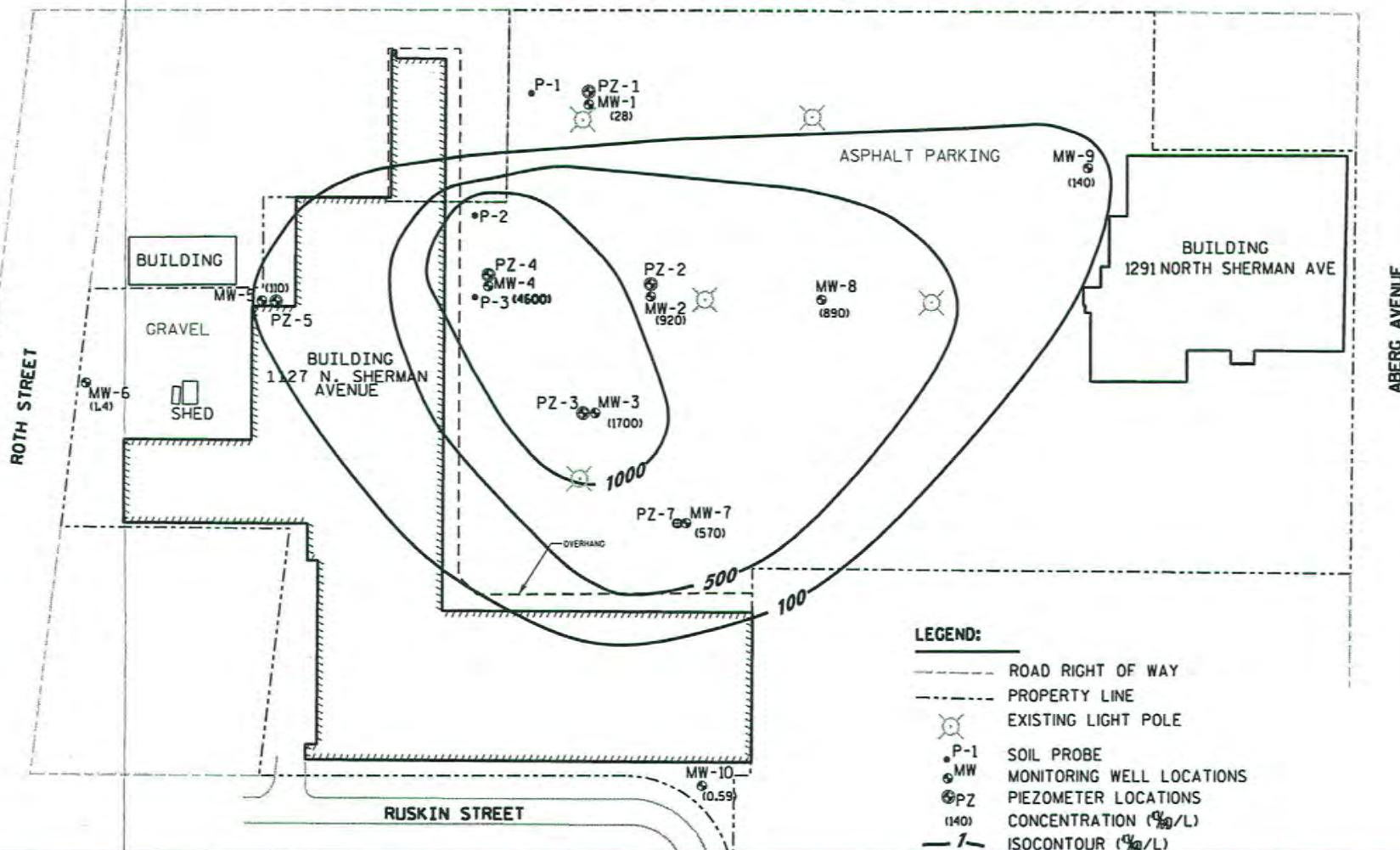
NORTH GATE SHOPPING CENTER  
SHERMAN AVENUE  
MADISON, WISCONSIN  
DATE: NOVEMBER 2008  
JOB NUMBER: 53-0795.00







NORTH SHERMAN AVENUE



**AYRES**  
ASSOCIATES



MAPPING SOURCE:



60 0 120  
GRAPHIC SCALE IN FEET

**FIGURE 7**

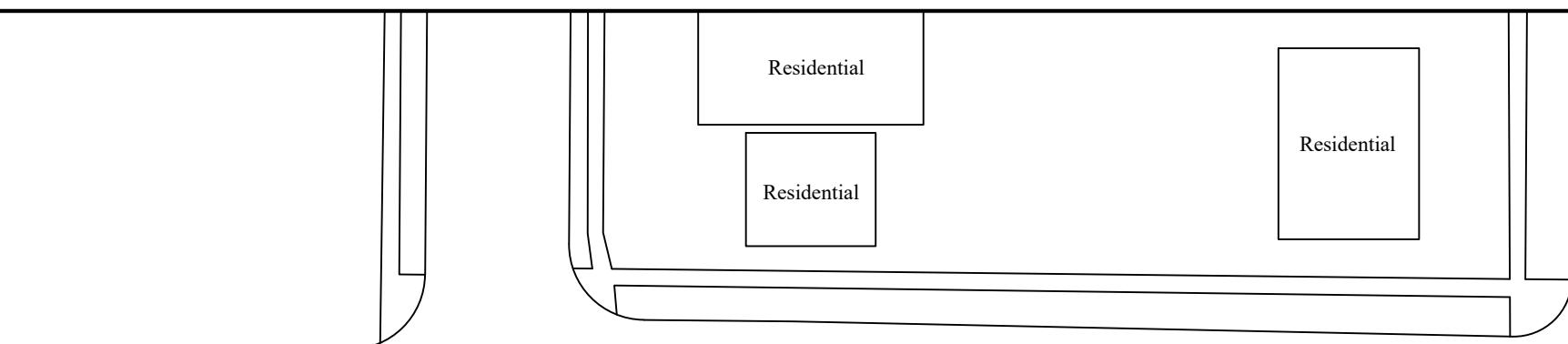
PCE IN GROUNDWATER  
OCTOBER 2008

NORTH GATE SHOPPING CENTER  
SHERMAN AVENUE  
MADISON, WISCONSIN

DATE: NOVEMBER 2008  
JOB NUMBER: 53-0795.00

Attachment B

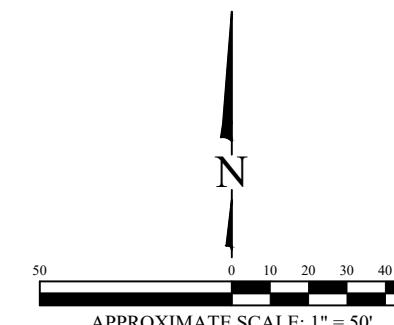
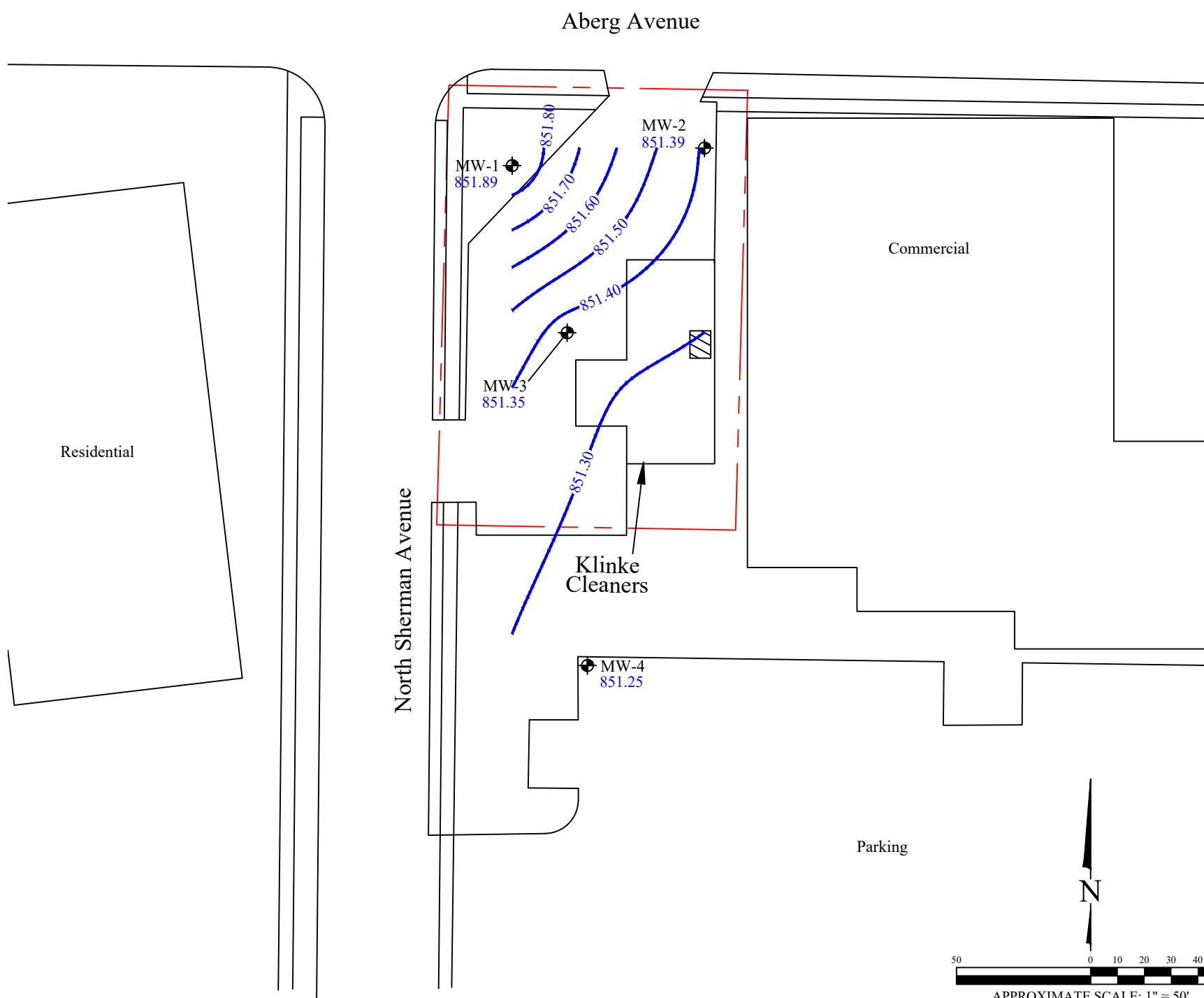
Klinke Report Dated 2020/2/28



#### Legend

- Property boundary
- Former dry cleaning machine location (approximate)
- MW-1 Water table monitoring well
- 851.40 Water table elevation contour
- 851.89 Groundwater elevation in feet AMSL

Note:  
AMSL = Above Mean Sea Level



WATER TABLE CONTOUR MAP  
FEBRUARY 4, 2020

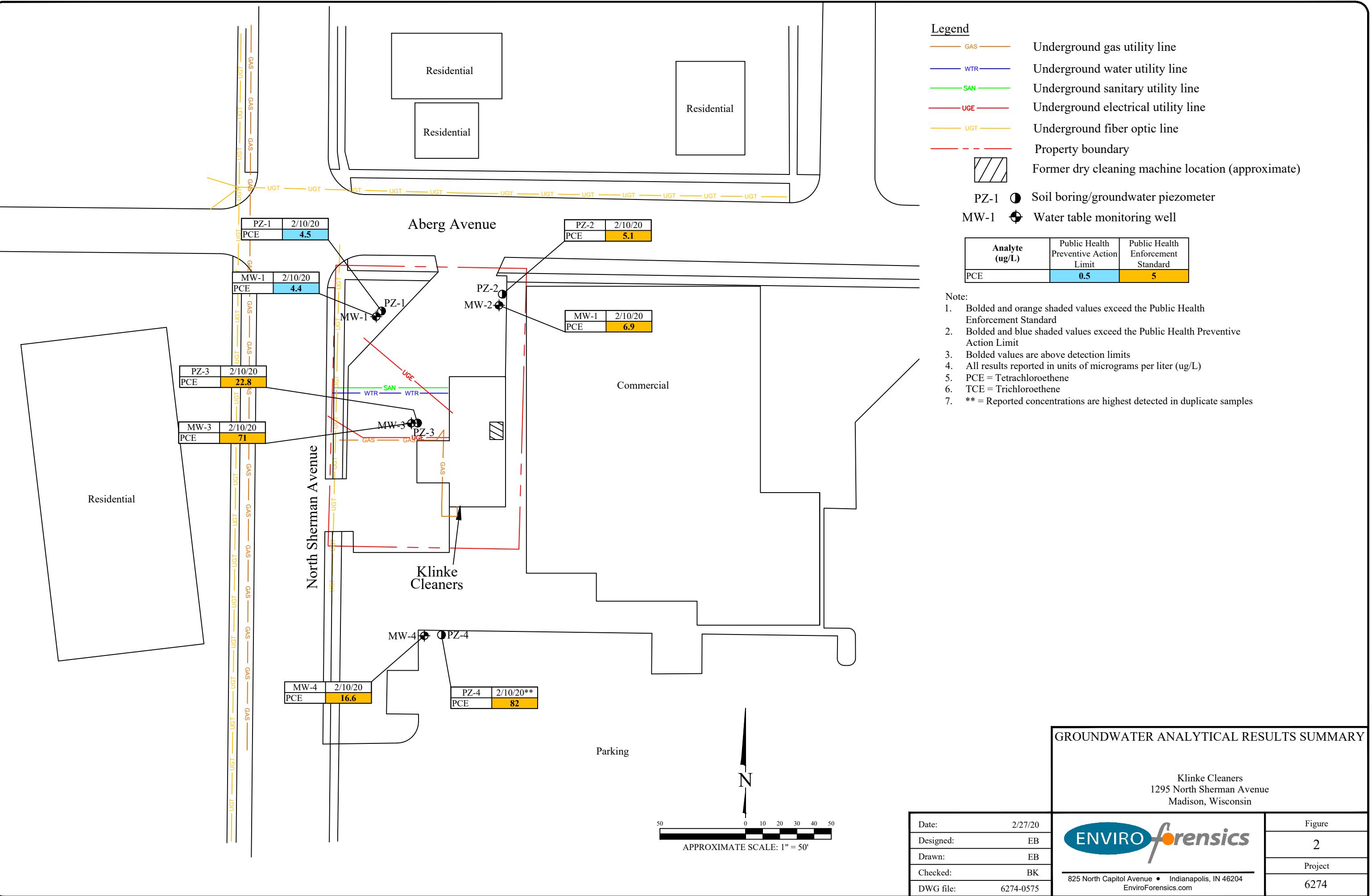
Klinke Cleaners  
1295 North Sherman Avenue  
Madison, Wisconsin

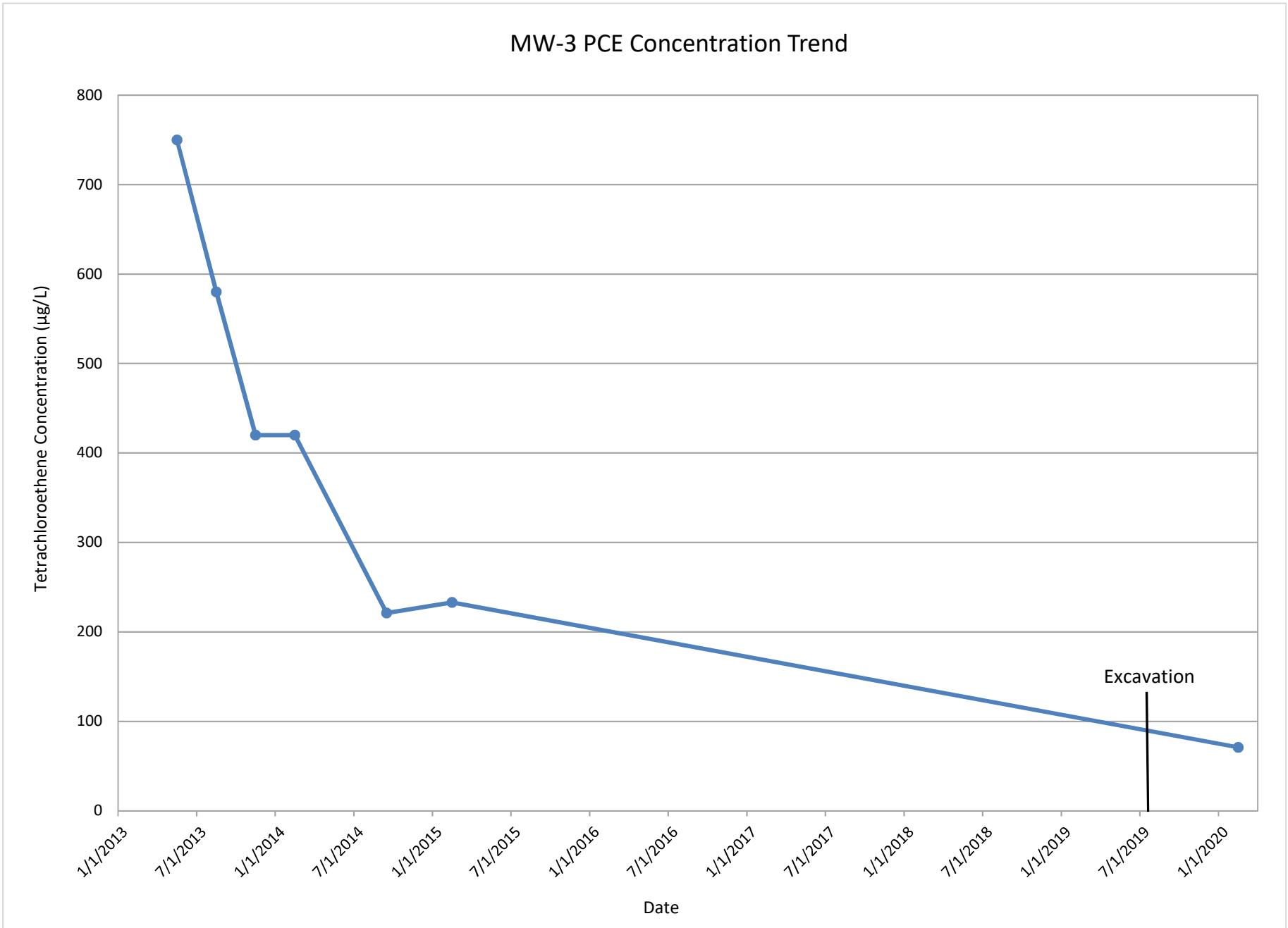
Date:	2/27/20
Designed:	EB
Drawn:	EB
Checked:	BK
DWG file:	6274-0576



825 North Capitol Avenue • Indianapolis, IN 46204  
EnviroForensics.com

Figure
1
Project
6274





**TABLE 1**  
**SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS**  
 Klinke Cleaners - Sherman Ave.  
 Madison, Wisconsin

Well Identification	Sample Date	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	Trichlorofluoromethane
<b>Enforcement Standard</b>	<b>5</b>	<b>5</b>	<b>70</b>	<b>3,490</b>	
<b>Preventive Action Limit</b>	<b>0.5</b>	<b>0.5</b>	<b>7</b>	<b>698</b>	
MW-1	5/21/2013	<b>11</b>	<0.19	<0.12	<b>0.95 J</b>
	8/21/2013	<b>7.9</b>	<0.19	<0.12	<0.19
	11/20/2013	<b>11.6</b>	<0.33	<0.38	<b>0.83 J</b>
	2/21/2014	<b>9.8</b>	<b>0.42 J</b>	<0.38	<0.35
	9/23/2014	<b>8.9</b>	<0.33	<0.38	<0.71
	2/4/2015	<b>11.5</b>	<b>0.53 J</b>	<0.45	<0.87
	2/10/2020	<b>4.4</b>	<0.3	<0.37	<0.35
MW-2	5/21/2013	<b>3.6</b>	<0.19	<0.12	<0.19
	8/21/2013 **	<b>13</b>	<b>1.2</b>	<0.12	<0.19
	11/20/2013	<b>12.9</b>	<b>1.19</b>	<0.38	<0.71
	2/27/2014	<b>10.8</b>	<b>1.26</b>	<0.38	<0.35
	9/23/2014	<b>13.2</b>	<b>0.85 J</b>	<0.38	<0.71
	2/3/2015	<b>12.4</b>	<b>1.38 J</b>	<0.45	<0.87
	2/10/2020	<b>6.9</b>	<0.3	<0.37	<0.35
MW-3	5/23/2013 **	<b>750</b>	<b>2.0</b>	<b>2.1</b>	<b>4.9</b>
	8/21/2013	<b>580</b>	<b>2.2</b>	<b>5.7</b>	<b>5.6</b>
	11/20/2013	<b>420</b>	<16.5	<19	<35.5
	2/21/2014 **	<b>420</b>	<b>1.33</b>	<b>0.69 J</b>	<b>2.55</b>
	9/24/2014	<b>221</b>	<b>0.76 J</b>	<0.38	<0.71
	2/4/2015	<b>233</b>	<4.7	<4.5	<8.7
	2/10/2020	<b>71</b>	<0.3	<0.37	<b>2.38</b>
MW-4	5/21/2013	<b>38</b>	<b>0.26 J</b>	<0.12	<0.19
	8/22/2013	<b>81</b>	<0.19	<0.12	<0.19
	11/20/2013	<b>99</b>	<0.33	<0.38	<0.71
	2/21/2014	<b>103</b>	<b>0.76 J</b>	<0.38	<0.35
	9/23/2014	<b>183</b>	<0.33	<0.38	<0.71
	2/4/2015	<b>101</b>	<0.47	<0.45	<0.87
	2/10/2020	<b>16.6</b>	<0.3	<0.37	<0.35
PZ-1	5/21/2013	<b>20</b>	<b>0.40 J</b>	<0.12	<0.19
	8/21/2013	<b>15</b>	<b>0.27 J</b>	<0.12	<0.19
	11/20/2013	<b>13.6</b>	<0.33	<0.38	<0.71
	2/21/2014	<b>15.2</b>	<b>0.37 J</b>	<0.38	<0.35
	9/23/2014	<b>12.8</b>	<0.33	<0.38	<0.71
	2/4/2015	<b>11.8</b>	<0.47	<0.45	<0.87
	2/10/2020	<b>4.5</b>	<0.3	<0.37	<0.35

**TABLE 1**  
**SUMMARY OF GROUNDWATER SAMPLE ANALYTICAL RESULTS**  
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Well Identification	Sample Date	Tetrachloroethene	Trichloroethene	cis-1,2-Dichloroethene	Trichlorofluoromethane
<b>Enforcement Standard</b>	<b>5</b>	<b>5</b>	<b>70</b>	<b>3,490</b>	
<b>Preventive Action Limit</b>	<b>0.5</b>	<b>0.5</b>	<b>7</b>	<b>698</b>	
PZ-2	5/21/2013	<b>38</b>	<b>4.7</b>	<0.12	<0.19
	8/21/2013	<b>35</b>	<b>4.1</b>	<0.12	<0.19
	11/20/2013	<b>28.8</b>	<b>3.07</b>	<0.38	<0.71
	2/27/2014	<b>32</b>	<b>3.02</b>	<0.38	<0.35
	9/24/2014	<b>36</b>	<b>3.20</b>	<0.38	<0.71
	2/3/2015	<b>26.4</b>	<b>2.63</b>	<0.45	<0.87
	2/10/2020	<b>5.1</b>	<0.3	<0.37	<0.35
PZ-3	5/23/2013	<b>98</b>	<b>1.5</b>	<0.12	<b>2.5</b>
	8/21/2013	<b>82</b>	<b>1.1</b>	<0.12	<0.19
	11/20/2013 **	<b>64</b>	<b>1.03</b>	<3.8	<7.1
	2/21/2014	<b>21.3</b>	<b>0.37 J</b>	<0.38	<0.35
	9/24/2014	<b>65</b>	<b>0.70 J</b>	<0.38	<0.71
	2/4/2015	<b>62</b>	<b>0.75 J</b>	<0.45	<0.87
	2/10/2020	<b>22.8</b>	<0.3	<0.37	<0.35
PZ-4	5/21/2013	<b>180</b>	<b>1.9</b>	<0.12	<0.19
	8/21/2013	<b>210</b>	<b>1.9</b>	<0.12	<0.19
	11/20/2013	<b>173</b>	<b>3.8 J</b>	<3.8	<7.1
	2/21/2014	<b>200</b>	<b>2.84</b>	<0.38	<0.35
	9/23/2014	<b>184</b>	<b>2.15 J</b>	<1.9	<3.55
	2/3/2015	<b>280</b>	<b>1.67</b>	<0.45	<0.87
	2/10/2020 **	<b>82</b>	<0.3	<0.37	<b>0.70 J</b>

**Notes:**

All concentrations reported in micrograms per liter ( $\mu\text{g/l}$ )

Samples analyzed using EPA SW-846 Method 8260

**Bolded** values are above the laboratory detection limit

**Bolded** and blue shaded values exceed the Public Health Preventive Action Limit

**Bolded** and orange shaded values exceed the Public Health Enforcement Standard

Public Health standards are listed in Wisconsin Administrative Code (WAC) Chapter NR 140

\*\* = Reported concentrations are the highest detected in duplicate samples

J = Analyte concentration between the laboratory Method Detection Limit and Reporting Lim

NE = Not Established