

January 18, 2024

Mr. Riley Neumann
Wisconsin Department of Natural Resources
2300 North Dr. Martin Luther King, Jr. Drive
Milwaukee, Wisconsin 53212-3128

Re: *Additional Vapor Investigation Work Plan*
BRRTS #: 02-41-576336
FID #: 241828620
Sunrise Shopping Center – Former Dry Cleaner
2410-2424 10th Avenue & 1009 Marquette Avenue
South Milwaukee, Wisconsin 53172

Mr. Neumann:

A *Case Closure* form (Form 4400-202) and *Case Closure Report* were submitted to Wisconsin Department of Natural Resources (WDNR) under cover letter dated August 14, 2023, for the above-referenced facility (FID # 241828620), BRRTS number 02-41-576336. In a response letter dated October 16, 2023, the WDNR requested additional vapor intrusion investigations within the former dry cleaner (2410 10th Avenue) and adjacent spaces (2412 10th Avenue and Ace Hardware). WDNR further requested that a work plan be submitted prior to performing those additional investigations. This letter report is provided as an *Additional Vapor Investigation Work Plan* proposing investigation methodology and addressing comments from the October 2023 response letter.

Response to Comments/Vapor Intrusion Work Plan

Comment: *Complete sub-slab depressurization system commissioning. This includes indoor air sampling and additional pressure field extension testing. DNR recommendation is to complete the additional indoor air sampling in the affected tenant spaces and the Ace Hardware basement. The DNR recommends using passive, longer-term samplers (i.e., 10 days) for the indoor air samples. The pressure field extension testing can be paired with the indoor air sampling.*

Response: As requested, an additional (third) round of pressure field extension (PFE) testing will be performed to document the effectiveness of the sub-slab depressurization (SSD) system. The first two (2) rounds of sampling were completed on August 24th and December 10, 2020, following the August 21st startup of the SSD system. Consistent with methodology utilized during 2020 testing and detailed in the Remedial Construction Report Addendum dated April 1, 2021, testing will be performed per WDNR guidance document

RR-800 to demonstrate depressurization at the required pressure differential of 0.004-in water column (WC) vacuum.

To collect sub-slab pressure gradient measurements, vapor pins will be installed through the floor slab of the 2410 and 2412 10th Avenue tenant spaces (Cheata Bikes and vacant, respectively), the area addressed by the SSD system. (Multiple past vapor sampling showed no vapor intrusion concern requiring mitigation in the Ace Hardware or the 2414 10th Avenue tenant space.) During the 2024 third round of testing, past testing locations TP-1 to TP-11 will be replicated, as accessible. Figure 1 in Attachment B provides the anticipated vapor pin locations. All sampling results (2020 and 2024) will be summarized in a table and an additional figure will be included in the amendment to the August 2023 *Case Closure*, as requested by WDNR.

In addition to the vapor pin vacuum testing, vacuum readings will be collected on the SSD system individual risers (5) and the final vertical riser to verify that the readings remain within the appropriate operating range of 0.004-in WC minimum to 1.65-in WC maximum.

Following the completion of the PFE testing, long-term passive air samplers will be installed within three (3) tenant spaces. Specifically, passive samplers to address WDNR's request for indoor sampling will be installed as follows:

Adjacent north of former dry cleaner

- Within the southern portion of the Ace Hardware basement, generally consistent with historical sub-slab sample point SS-1
- Within the southern portion of the Ace Hardware main floor, approximately splitting historical sub-slab sample points SS-2 and SS-3

Former dry cleaner

- Within the front portion of the 2410 10th Avenue tenant space, generally replicating the location of the past indoor air sample IAS-1
- Within the central portion of the 2410 10th Avenue tenant space, generally replicating the location of the past soil gas sample SG-1 and historical sub-slab sample point SS-5

Adjacent south of former dry cleaner

- Within the 2412 10th Avenue tenant space, generally replicating the location of the past indoor air sample IAS-3

See Figure 2 for the proposed passive air sampling locations. Radiello passive samplers will be obtained from Pace Analytical Services, Inc., (Pace Analytical) of Green Bay, Wisconsin, an independent commercial analytical laboratory. The samplers, which are capable of exposure times between 15-minutes and 30-days, will be utilized to collect 10-day samples as recommended by WDNR. On the 10th day the samples will be collected and submitted to Pace analytical for analysis of Tetrachloroethene (Perc) and associated breakdown compounds. Perc and Trichloroethene are the primary contaminants identified in the soil within the former dry cleaner vicinity, and only Perc was previously identified

as a potential vapor intrusion concern. All sampling results will be added to Table A.4.C, which summarized the indoor air sampling completed in April 2017 prior to soil remediation and installation of the SSD system. Assuming results indicate compliance with the indoor air vapor actions levels (VALs) taken from the *Wisconsin Vapor Quick Look-Up Table Indoor Air Vapor Action Levels and Vapor Risk Screening Levels* (August 2023 update), an amendment to the August 2023 *Case Closure* will be provided to WDNR seeking closure.

Comment: *Collect vapor headspace and water samples from the sumps, new and old, located in the Ace Hardware basement due to the known groundwater contamination.*

Response: Water is collected on a monthly basis from all three (3) sumps located in the Ace Hardware basement (see Figure 3 for locations). Table A.5 in the August 2023 *Case Closure* included the historical results of sump water samples collected from the original sump (northwest corner of basement) between June 14, 2017 (pre-system) through June 12, 2023 (monthly sampling). This report includes in Attachment A an updated summary (Table A.5.A) that includes all results from the original sump through the most recent sample collected on January 5, 2024. Tables A.5.B and A.5.C have also been added to include the results of the sump samples collected since the additional two (2) treatment systems began operation in September 2023. Review of Table A.5.A shows that Perc concentrations in (original) sump 1 are generally stable, above the Enforcement Standard, but lower than concentrations observed in monitoring well MW-5 behind the 2410 10th Avenue tenant space. Perc concentrations in sump 2 have varied, though the majority of results indicate concentrations above the Preventative Action Limit, but below the Enforcement Standard. With a single exception, the Perc concentrations in sump 3 have been reported at levels below the method detection limit.

To prevent any concerns from vapor intrusion into the Ace Hardware basement area from the three (3) sumps, each sump is equipped with an air-tight sump lid which will remain in-place. (See photographs of the sump covers below.) The previous vapor sampling of sump pit 1 indicated that all Perc concentrations were below the indoor air VALs as reported in Table A.4.D of the August 2023 *Case Closure*).

Sump 1



Sump 2



Sump 3



Per WDNR's request vapor samples will be collected from each of the three (3) sump pits. For consistency with the past sampling conducted on January 5, 2018, the vapor samples will be collected via a 30-sec grab sample using Summa® canisters. Because the sumps remain sealed other than during the collection of the monthly water sample, a deviation from the vapor purge and 24-hr re-equilibration time procedures specified in RR-986 is requested. Upon receiving WDNR approval the vapor samples will be collected and submitted to Pace Analytical for analysis of volatile organic compounds (VOCs) via TO-15. Results will be added to Table A.4.D and provided in the amendment to the August 2023 *Case Closure*.

Comment: *Sanitary sewer vapor sampling should be completed, as recommended in DNR guidance document RR-649. You should refer to this guidance document on how to conduct sampling. The DNR recommends sampling the sanitary sewer manhole closest to the source, as well as the first upstream manhole and first downstream manhole of that location.*

Response: As directed, vapor sampling of the sewer manholes upstream, within, and downstream of contamination will be completed in accordance with RR-649. Sanitary manholes are located upstream and downstream of the Perc contamination, but the only manhole within the area of contamination is a storm sewer manhole. No sanitary sewer manhole is available for sampling within the area of contamination. The locations of the three (3) manholes to be sampled are depicted in Figure 4.

As described on page 14 of RR-649, "The recommended sampling method for manholes currently consists of collection of a grab sample with an evacuated canister." RR-649 further states that a grab sample (i.e., no flow controller) using a 1-L canister is sufficient. Therefore, the sampling of the sanitary sewer manholes is consistent to the above-proposed sump sampling procedure. Sewer manhole samples will be submitted to Pace Analytical for analysis of VOCs via TO-15.

Comment: *Provide the location of the new sumps on applicable site figures. Discuss if these new sumps would change the groundwater conceptual site model at the site.*

Response: Figure 3 of this report includes the locations of the three (3) Ace Hardware basement sumps. The figure will be added into the amendment to the August 2023 *Case Closure*. The sumps will be added to other applicable figures in the amendment.

The relatively small volume of groundwater collected by the addition of the two (2) new sumps is not anticipated to have any impact on the site-wide groundwater flow direction. However, the potentiometric surface water map constructed from the next quarterly sampling event will be compared to previous potentiometric surface maps to confirm the lack of any changes to the groundwater flow direction.

Comment: *Describe the relationship between the depths of the sumps and drain tiles and monitoring wells MW-5 and MW-201.*

Response: As part of the above-discussed field activities, measurements will be collected of the Ace Hardware basement height, the depth of the three (3) sumps, and the depth of static water depth in the sumps (i.e., depth just below the point at which the associated pump initiates discharge). The measurements will be compared to construction information for monitoring wells MW-5 and MW-201, as well as the measured depth to groundwater in those monitoring wells. All information and any conclusions inferred from that information will be included in the amendment to the August 2023 *Case Closure*.

Comment: *Discuss the vertical definition of the groundwater contaminant plume.*

Response: The two (2) monitoring wells located closest to the source of Perc contamination are MW-2 and MW-5. MW-2 is located to the east of the former dry cleaner space (2410), and MW-5 is located to the west of the building. Both of these wells encountered clay and clayey soils from just below the asphalt surface to a final depth of 15-ft below ground surface (bgs). Temporary monitoring well TW-2 (located near MW-5) encountered similar stratigraphy but was extended a little further into the clay to a final depth of 20-ft bgs. A tight gray clay layer was observed between 8-ft and 18-ft bgs. The deepest boring (GP-306) was extended to 25-ft and encountered predominantly clay with some clayey sand seams and finished in tight clay at 23 to 25-ft bgs. The deepest soil samples were collected at depths to 15-ft bgs at locations GP-5 through GP-7 and GP-103. The VOC concentrations at these depths were all less than the method detection limits. All of the Perc concentrations in soil samples collected at depths of 8-ft bgs or greater were all below the groundwater Residual Contaminant Levels. Further, the post-remediation confirmation soil borings (GP-112E, GP-112W, and GP-112S) installed in August 2018 around MW-5 showed that the residual contamination was isolated in the shallow subsurface and the vertical extent of groundwater contamination limited to the upper most 15-ft bgs.

Comment: *Revisions to the closure package will be required before closure. These revisions will be requested at a later date.*

Response: All requested revisions will be addressed as part of the amendment to the August 2023 *Case Closure*.

Upon approval of this *Additional Vapor Investigation Work Plan* by WDNR, the proposed sampling will be conducted. If you have any questions or require additional information, please contact me at (847) 996-3580. Thank you for your time and assistance.

Sincerely,
DAI Environmental, Inc.



Christopher Cailles, P.E.
Project Engineer

Attachments

ATTACHMENT A
TABLE A.5.A-A.5.C

**Table A.5.A. Ace Hardware Sump Water Analytical Table for Tetrachlorethene (mg/L)
(Sump 1 – Northwest Corner of Basement)**

Sample Location	Sample Date	Tetrachloroethene
Sump	01/05/24	0.0066
	12/11/23	0.0074
	11/07/23	<u>0.012</u>
	10/05/23	<u>0.011</u>
	09/14/23	<u>0.013</u>
	09/05/23	<u>0.013</u>
	08/08/23	<u>0.015</u>
	07/10/23	<u>0.017</u>
	06/12/23	<u>0.012</u>
	05/09/23	0.0075
	04/07/23	0.0066
	03/07/23	0.0069
	02/06/23	<u>0.0072</u>
	01/13/23	0.0081
	12/05/22	<u>0.0076</u>
	11/21/22	<u>0.0077</u>
	10/03/22	<u>0.011</u>
	09/13/22	0.0091
	08/01/22	<u>0.01</u>
	07/14/22	<u>0.01</u>
	06/02/22	<u>0.012</u>
	05/06/22	<u>0.006</u>
	04/01/22	0.0041
	03/03/22	<u>0.01</u>
	02/01/22	<u>0.01</u>
	01/18/22	<u>0.013</u>
	12/06/21	<u>0.013</u>
	11/05/21	<u>0.014</u>
	10/04/21	<u>0.016</u>
	09/10/21	<u>0.015</u>
08/06/21	<u>0.016</u>	
07/02/21	<u>0.014</u>	
06/14/21	<u>0.013</u>	
05/03/21	<u>0.016</u>	
04/06/21	<u>0.012</u>	
03/08/21	<u>0.01</u>	
02/02/21	<u>0.014</u>	
01/12/21	0.005	
PAL¹		0.0005
Enforcement Standard²		0.005

¹ – Preventive Action Limits (PALs) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

² – Enforcement Standards (ES) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

Bold – Concentration exceeds the PAL

Underlined – Concentration exceeds the PAL and the ES

NOTE – All other VOCs reported below the Limit of Detection
VOCs via USEPA Method SW8260

**Table A.5.A (Continued). Ace Hardware Sump Water Analytical Table
for Tetrachlorethene (mg/L)
(Sump 1 – Northwest Corner of Basement)**

Sample Location	Sample Date	Tetrachloroethene
Sump	12/09/20	0.0048
	11/12/20	0.0068
	10/12/20	0.009
	09/03/20	0.0065
	08/17/20	0.01
	07/14/20	0.0078
	06/03/20	0.0068
	05/05/20	0.0054
	04/06/20	0.005
	03/10/20	0.0063
	02/03/20	0.006
	01/07/2012/03/19	0.00650.0068
	11/04/19	0.008
	10/02/19	0.0069
	09/05/19	0.0076
	08/02/19	0.005
	07/19/19	0.0062
	06/25/19 (first monthly)	0.0054
	06/06/19 (week 4)	0.0069
	05/29/19 (week 3)	0.0043
05/23/19 (week 2)	0.0042	
05/15/19 (week 1)	0.0093	
02/04/19	0.0064	
01/05/18	0.0082	
06/04/17	0.006	
PAL¹		0.0005
Enforcement Standard²		0.005

¹ – Preventive Action Limits (PALs) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

² – Enforcement Standards (ES) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

Bold – Concentration exceeds the PAL

Underlined – Concentration exceeds the PAL and the ES

NOTE – All other VOCs reported below the Limit of Detection
VOCs via USEPA Method SW8260

**Table A.5.B. Ace Hardware Sump Water Analytical Table for Tetrachlorethene (mg/L)
(Sump 2 – Southeast Interior Wall of Basement)**

Sample Location	Sample Date	Tetrachloroethene
Sump	01/05/24	0.0022
	12/11/23	<0.00041
	11/07/23	0.0068
	10/05/23	0.0052
	09/27/23	0.0049
	09/19/23	0.0043
	09/14/23	0.0038
	09/05/23	<0.00041
PAL¹		0.0005
Enforcement Standard²		0.005

¹ – Preventive Action Limits (PALs) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

² – Enforcement Standards (ES) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

Bold – Concentration exceeds the PAL

Underlined – Concentration exceeds the PAL and the ES

NOTE – All other VOCs reported below the Limit of Detection
VOCs via USEPA Method SW8260

**Table A.5.C. Ace Hardware Sump Water Analytical Table for Tetrachlorethene (mg/L)
(Sump 3 – Southwest Interior Wall of Basement)**

Sample Location	Sample Date	Tetrachloroethene
Sump	01/05/24	<0.00041
	12/11/23	<0.00041
	11/07/23	<0.00041
	10/05/23	<0.00041
	09/27/23	<0.00041
	09/19/23	<0.00041
	09/14/23	<0.00041
	09/05/23	0.0026
PAL¹		0.0005
Enforcement Standard²		0.005

¹ – Preventive Action Limits (PALs) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

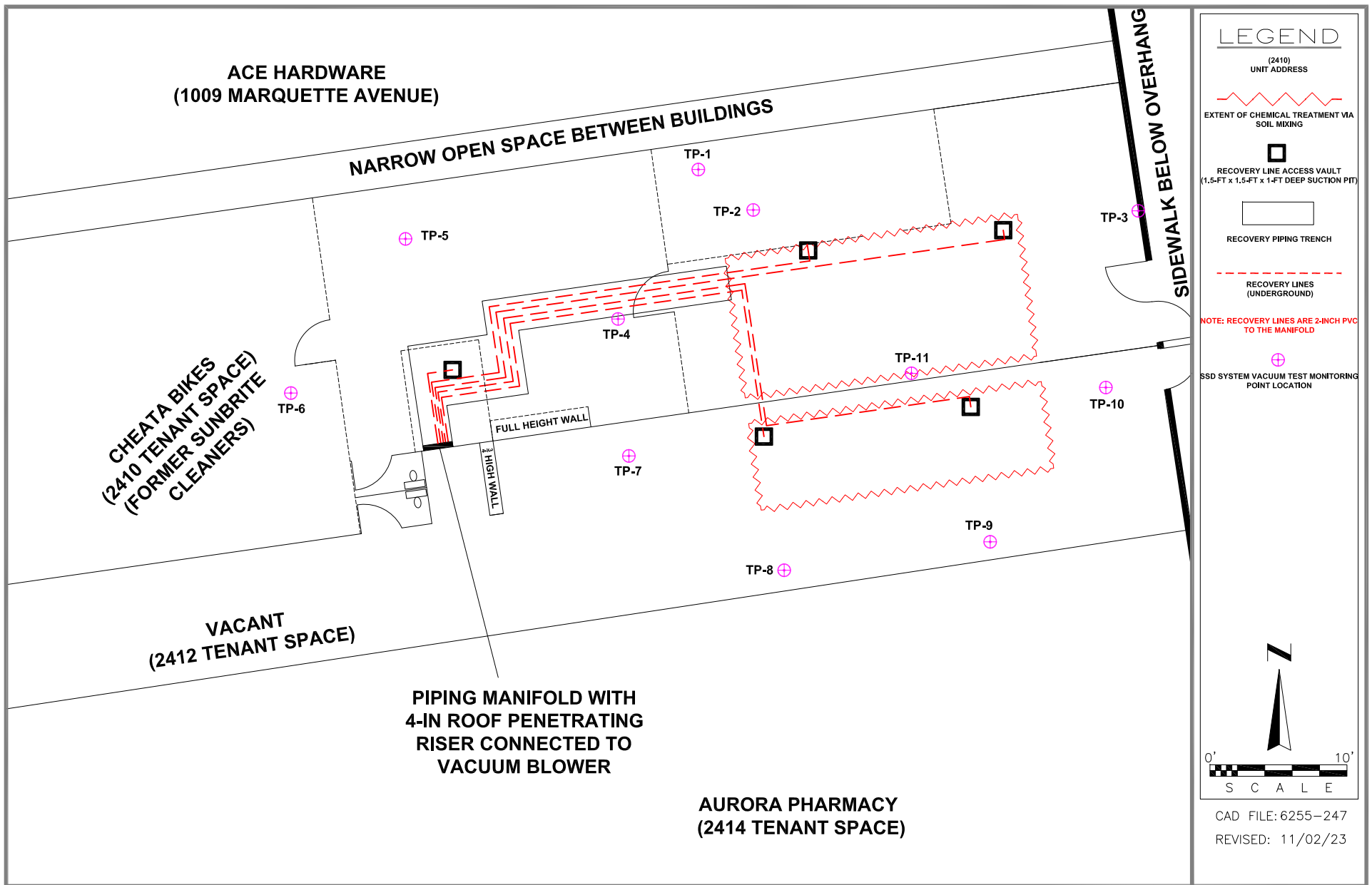
² – Enforcement Standards (ES) taken from Wisconsin Administrative Code, Chapter NR 140, Table 1

Bold – Concentration exceeds the PAL

Underlined – Concentration exceeds the PAL and the ES

NOTE – All other VOCs reported below the Limit of Detection
VOCs via USEPA Method SW8260

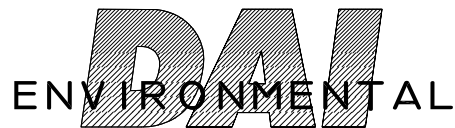
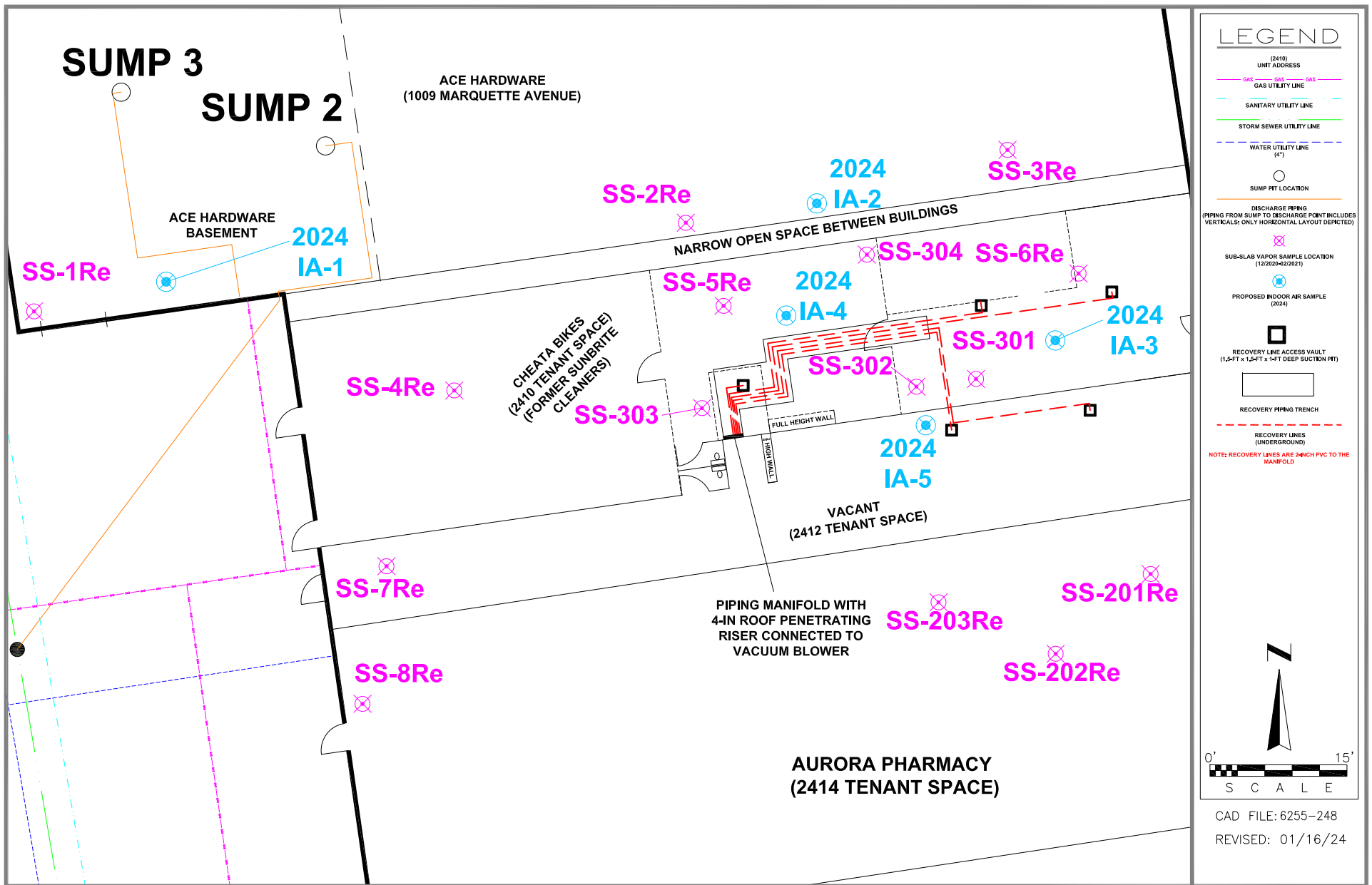
ATTACHMENT B
FIGURES



DAI
ENVIRONMENTAL

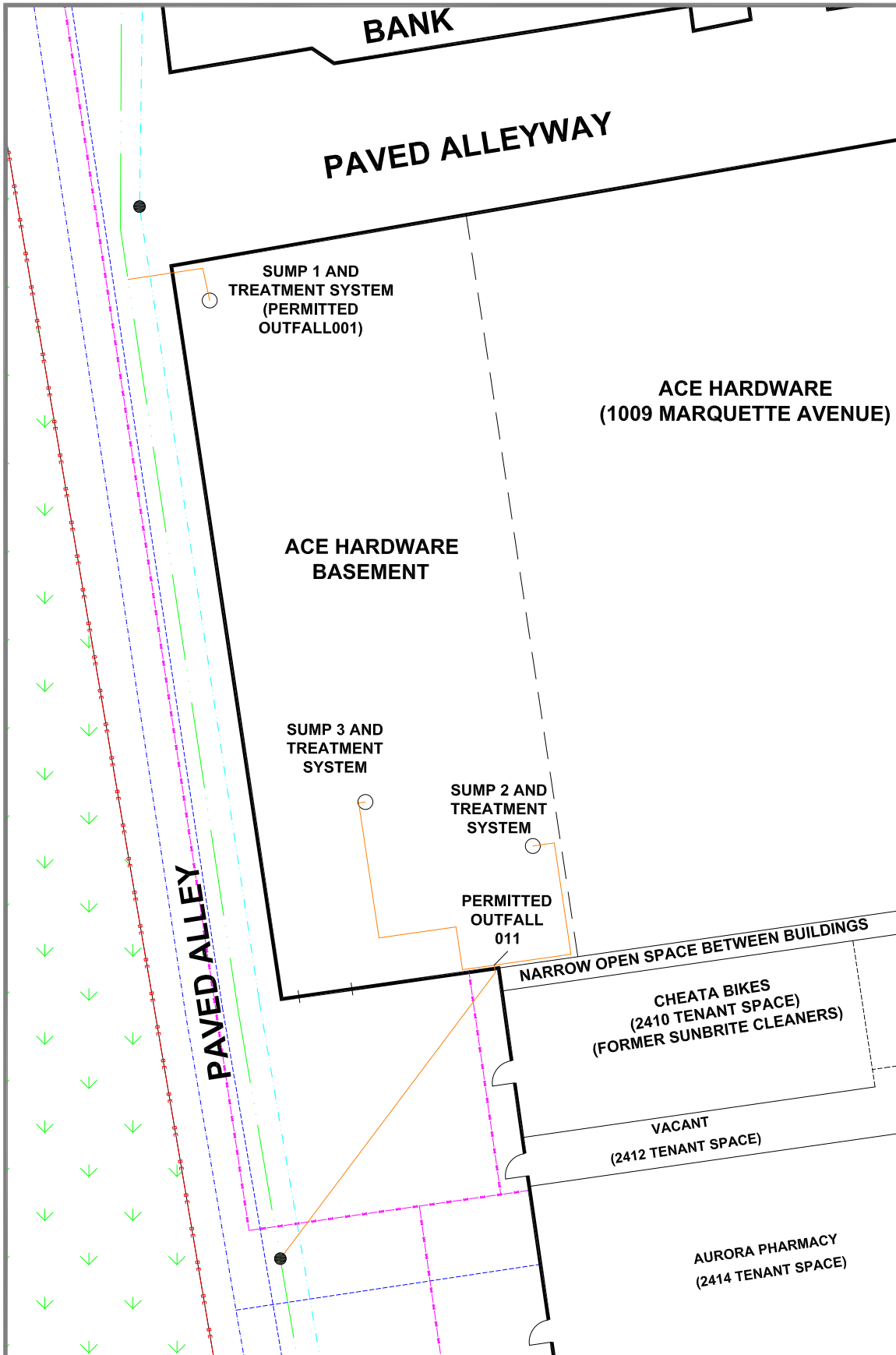
SUNRISE SHOPPING CENTER-FORMER DRY CLEANER
2410-2424 10TH AVENUE
1009 MARQUETTE AVENUE
SOUTH MILWAUKEE, WISCONSIN

FIGURE 1
SITE DETAIL WITH SSD SYSTEM LAYOUT AND
LOCATIONS OF PAST VACUUM TEST MONITORING
POINTS TO BE REPLICATED

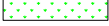
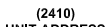
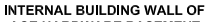



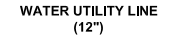
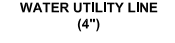


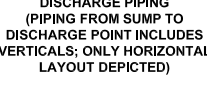





SUNRISE SHOPPING CENTER-FORMER DRY CLEANER
 2410-2424 10TH AVENUE
 1009 MARQUETTE AVENUE
 SOUTH MILWAUKEE, WISCONSIN

FIGURE 2
POST-REMEDIATION VAPOR INTRUSION SAMPLE MAP
AND PROPOSED INDOOR AIR SAMPLES



LEGEND

-  VEGETATION
-  (2410) UNIT ADDRESS
-  INTERNAL BUILDING WALL OF ACE HARDWARE BASEMENT
-  GAS UTILITY LINE
-  SANITARY UTILITY LINE
-  STORM SEWER UTILITY LINE
-  WATER UTILITY LINE (12")
-  WATER UTILITY LINE (4")
-  OVERHEAD ELECTRIC UTILITY LINE
-  SUMP PIT LOCATION
-  DISCHARGE PIPING (PIPING FROM SUMP TO DISCHARGE POINT INCLUDES VERTICALS; ONLY HORIZONTAL LAYOUT DEPICTED)
-  MANHOLE LOCATION



 S C A L E

CAD FILE: 6255-249
 REVISED: 01/16/24



SUNRISE SHOPPING CTR-FMR DRY CLEANER
 2410-2424 10TH AVENUE
 1009 MARQUETTE AVENUE
 SOUTH MILWAUKEE, WISCONSIN

FIGURE 3
ACE HARDWARE BUILDING
SHOWING SUMP LOCATIONS
AND DISCHARGE PIPING LAYOUT

