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May 7, 2021

Linda Stanek  
Wisconsin Department of Natural Resources  
2300 N. Dr. Martin Luther King, Jr. Drive  
Milwaukee, WI 53212-3128

SUBJECT: Site Investigation Report Amendment, Spic and Span, Inc., 4301 North Richards Street, Milwaukee, WI., DNR BRRTS # 02-41-585636, DNR FID # 241040690

Dear Linda:

This Amendment addresses the comments presented in your letter dated January 19, 2021.

1. Site Investigation Scoping (Wis. Admin. Code NR 716.07) requires an evaluation of the history of the facility, previous discharges and uses of the Site that may be associated with discharges. *The area of PCE use is shown on the attached Figure 1A. PCE was not used outside this area. PCE use began in 1985 and continued until 1999 and all of the equipment was removed except for one small 35 pound machine that was used for occasional small jobs until 2018. There is no record of a spill of PCE. The petroleum solvent tanks and cleaning operations were located in the room immediately to the west. There was a waste solvent tank located outside the western side of the building (Closed ERP Site BRRTS # 02-41-000033) and a diesel fuel tank located outside the south side of the building (Closed LUST Site BRRTS # 03-41-559767).*
2. Wis. Admin. § NR 716.11(3)(a) requires the field investigation to determine the nature, degree and extent, both areal and vertical, of the hazardous substances or environmental pollution in all affected media.
  - a. Soil Pathway
    - Define the vertical and horizontal extent of soil contamination to the north, including deeper soil impacts in the area of the exterior hand boring. *The boring completed on the exterior north of the building was completed to a depth below the estimated depth of the building footing and the concentration of PCE was just above detection limits. A few feet to the north of this there is a fence and then a wall on the north property line. The nearest accessible location would*

*be at least ten feet north of HA-1 and after accounting for the concrete slab and subgrade, soils would not be encountered until an estimated depth of eight to nine feet below the finish floor of the building. Based on the investigative work performed at the site, the vertical extent of the contaminants is limited in depth to above the native clay soils and the horizontal extent is limited to the immediate area around the PCE cleaning room and along utility lines outside of this area.*

- Define the vertical and horizontal extent of soil impacts to the east, including impacts along the sanitary sewer line. *Additional borings were completed to the east. These included SB-17, located east of SB-12 along the sanitary sewer; SB-16, located east of SB-13 along the storm sewer; and SB-18, located east of SB-4 and between SB-16 and SB-17. PCE and its breakdown products were not detected in SB-16, indicating that contamination is limited on the north side of the building. The concentration of PCE decreased significantly in SB-17 in comparison to SB-12 (71 mg/kg compared to 4.8 mg/kg) at a depth of 10 to 12.5 feet and was not detected in the sample from 17.5 to 20.0 feet. And in SB-18, PCE was detected just above the laboratory detection limits at a concentration roughly 100 times less than detected in the soil sample from a similar interval in the boring to the west, SB-4. PCE and its breakdown products were not detected in the sample from the deeper interval in SB-18. The soil boring locations are shown on the attached Figure 2A and the soil sample analytical results are summarized in the attached Table 1A.*
- Define the vertical and horizontal extent of soil impact to the west of SB-8 and SB-9. *An additional boring, SB-19, was completed between and to the west of SB-8 and SB-9 and adjacent to the sanitary sewer. PCE and its breakdown products were not detected in the samples. Low concentrations of petroleum compounds were detected in the shallow sample from 10 to 12.5 feet bgs. that may have migrated along the sewer line from the area further to the west where the solvent tank was removed and remediated.*
- Define how soil exceedances correlate to the former processes at the facility. *The soil exceedances are generally highest in the source area and the concentrations decrease with distance from the source. Selective migration seems to have occurred along utility lines, especially the sanitary sewer but these concentrations*

*also decrease with distance. There was an isolated exceedance for 1,2,4-Trimethylbenzene in the area of the former solvent cleaning room located immediately to the west of the dry cleaning room.*

b. Groundwater Pathway

- The extent of groundwater contamination has not been investigated. Although groundwater was not encountered in temporary well SB-9, on-site groundwater levels were measured at 3-4 feet below ground surface (bgs) to the west of the building during the waste solvent tank investigation. Additionally, groundwater levels were measured at 12-15 feet bgs during site investigation activities on the adjacent property to the south. In order to evaluate groundwater contamination, we recommend that Wis. Admin. Code § NR 141 compliant monitoring wells be installed, and groundwater sampling and monitoring be conducted. *In regard to the water encountered west of the building and on the adjacent property to the south, in both cases the water was perched in the fill material above the native clay (see attached cross sections). And in the case of the wells to the south, minimal water was recovered from the wells after development. In the area of our investigation, eleven borings were completed to depths between 20 and 25 feet bgs. A moist to wet seam was encountered in two of the borings SB-9 and SB-14 at a depth of approximately 21 feet bgs, but the underlying soils were not wet. The temporary well placed in SB-9 did not produce significant water. Based on this, we do not consider these wet seams to be representative of ground water. Additionally, PCE was not detected in soil samples collected below 20 feet bgs. and native clays were encountered at depths of 15 to 20 feet bgs.*

*Based on our discussion, GRAEF prepared a geological cross section that included the borings and wells from the site to south. This geological data, combined with the data from the Spic and Span site indicate that the limited water encountered in the shallow fill soils is indicative of perched conditions above the native clay soils. The north-south geological cross section is included with an east-west cross section in Appendix A.*

*Overall we do not believe installation of wells is warranted for the following reasons:*

- *No indication of significant water at depth;*
- *No indication of significant contamination at depth; and*
- *Native clay soils at depth that would limit migration of*

contaminants.

c. Vapor Pathway

- Verify that the building is slab-on-grade with no basement or sump water concerns. *There is a small basement located on the east side of the building and shown on Figure 1. The rest of the building is slab on grade. There is a sump on the north side of the basement that is connected to the sanitary sewer. On 1/25/21 the sump was sampled with a PID and VOCs were not detected. Odors were also not noted. The sump water was clear and was sampled for VOCs. PCE, TCE and cis-1,2-Dichloroethene were detected in the sample but the concentrations of all these compounds were below the Enforcement Standards, indicating that conditions in the fill surrounding the sanitary sewer lateral are not a significant source of VOC vapors for the building interior and not likely to affect the conditions further to the east in Richards Street.*
- *To further investigate the sub-slab vapor results, monitoring was conducted in the sanitary sewers and storm sewers where they could be accessed. The estimated utility depths are shown on the attached Figure 2A. Most of the inlets in the in the area of the source were sealed prior to the start of dry cleaning operations. These sealed inlets are noted on Figure 2A.*

*Accessible sanitary and storm sewer drains were screened with a PID on 1/25/21 and VOCs were not detected. On April 2, 2021, vapor samples were collected for laboratory analysis from the sanitary sewer manhole to the east and storm sewer manhole to the south as shown in Figure 2A. Although PCE and its breakdown products were detected in the sample from the sanitary sewer the concentrations were at least ten times lower than the Vapor Risk Screening Levels (VRSLs) even for the Residential category. PCE and TCE were not detected in the sample collected from the storm sewer although cis -1,2-Dichloroethene and trans-1,2-Dichloroethene were detected at very low concentrations just above the reporting limits.*

*An additional sub-slab vapor sample, SSV-7, was collected from along the sanitary sewer line east of SSV-1. The concentrations of PCE and TCE in this sample were below the Industrial VRSLs and approximately 1/8 the concentrations observed in SSV-1, indicating that sub-slab soil vapor concentrations decrease with distance from*



*the source area. The vapor sampling data is presented in Table 2A.*

*Based on this, it does not appear that the laterals from the Spic and Span facility are acting as conduits for vapor migration and in consideration of the additional soil sampling data that indicates the extent of impact is limited, the risk of soil vapor migration appears to be minimal.*

*In regard to mitigation and remediation, the area to address is generally limited to an approximately 50' by 50' zone in the eastern area of PCE use. This area is shown in Figure 4A. Based on our discussion, a simple risk evaluation was completed without use of the current occupational/worker standards under OSHA and/or NIOSH, and only working within the assumptions of the EPA and WDNR indoor vapor risk model. Using the the concentrations of PCE and TCE detected in the soil borings, this analysis indicates that if all of the PCE vents at 90% of the Indoor Vapor Action Level (VAL) all the PCE would be eliminated in 1/20 of the model exposure period, or stated differently, if all of the PCE vents at a constant concentration over the exposure period the concentration would be 1/22 the exposure limit. Similarly, the evaluation for TCE indicates that the risk level is about 1/10 the VAL for TCE. This evaluation is conservative in that it assumes that all of the PCE and TCE is eliminated as vapor to the work space and that none of the PCE is retained in the soil, lost by vapor migration below the surface and/or degraded by chemical and biological processes. The risk evaluation details are provided in Appendix B.*

3. *An evaluation of potential PFAS compounds that may have historically been used, handled, or stored on site was completed. A Directory search was performed for the address of 4601 North Richards Street. Square D and Spic and Span were the only companies listed for the address. Square D constructed the building on site after 1951. This information came from the City of Glendale building records. The 1937 and 1951 aerial photographs show the property was covered mainly by agricultural land (see Appendix B). Copies of the Aerial Photos are attached. Spic and Span, operator of the facility since 1961, did not have record of use of any PFAS containing products. There is no indication from the records reviewed and owner information that the property usage included the categories associated with PFAS use listed under Item 1 of the reference Voluntary Party Liability Exemption (VPLE) Program PFAS Manufacturing and Use Information.*



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*Additionally, Spic and Span provided a list of products used on site and the SDS and other data sources for these products were reviewed for the potential presence of PFAS. Based on the review, there is not indication that the products contained PFAS. A summary of this review is provided in Appendix C.*

Please contact Brian Schneider at 414-266-9284 if you have any questions.

Sincerely,

Brian Schneider, P.E., LEED AP  
Project Manager

BWS:bws

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Attachments: Figure 1A – Site Plan  
Figure 2A - Detailed Floor Plan  
Figure 3A – Soil Contamination Iso-Concentration Map  
Figure 4A – Sub-Slab Soil Vapor Iso-Concentration Map  
Table 1A – Soil Sample Analytical Results  
Table 2A – Vapor Sampling Data  
Appendix A: Geological Cross Sections  
Appendix B: PCE and TCE Risk Evaluation  
Appendix C: Aerial Images from 1937 & 1951/ PFAS Product Review

cc: File



# Legend

- Manhole
- - - Estimated Sanitary Sewer
- Sanitary Sewer
- Storm Sewer
- ▭ Building Footprint
- ▭ Parcel Boundary
- ▭ Basement
- ▭ Dry Cleaning Room
- ▭ Asphalt
- ▭ Gravel
- ▭ Landscape
- ▭ Figure 2 Extent

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RICHARDS ST

02-41-000033  
Closed ERP Site  
Petroleum Solvents

02-41-585636  
Open ERP Site  
Perchloroethylene and  
Breakdown Products

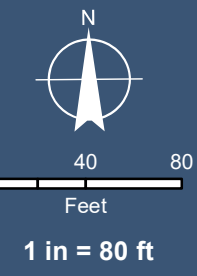
03-41-559767  
Closed LUST Site  
Diesel Fuel

FIGURE 1A

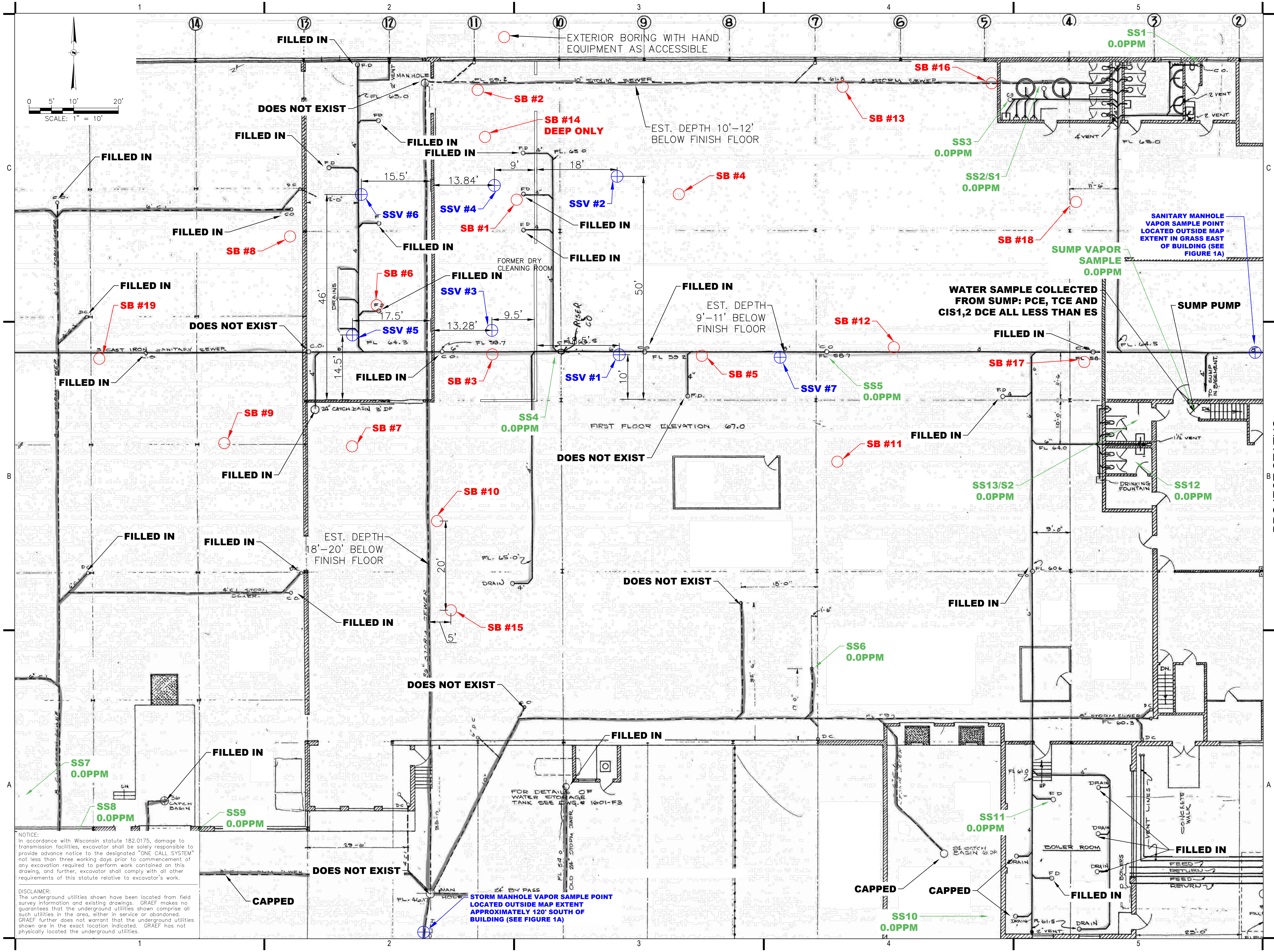


**SITE PLAN**  
4301 N RICHARDS STREET  
CITY OF MILWAUKEE  
MILWAUKEE COUNTY, WISCONSIN

Reviewed on:  
05-05-2021







NOTICE:  
In accordance with Wisconsin statute 182.0175, damage to transmission facilities, excavator shall be solely responsible to provide advance notice to the designated "ONE CALL SYSTEM" not less than three working days prior to commencement of any excavation required to perform work contained on this drawing, and further, excavator shall comply with all other requirements of this statute relative to excavator's work.

DISCLAIMER:  
The underground utilities shown have been located from field survey information and existing drawings. GRAEF makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. GRAEF further does not warrant that the underground utilities shown are in the exact location indicated. GRAEF has not physically located the underground utilities.

X:\ML\2019\20190153-02\Design\GIS\Maps\Figure 2A - Detailed Floor Plan 5/6/2021 3:37 PM











Former Spic And Span  
Soil Boring Analytical Data-Compounds Exceeding RCLs  
4301 North Richards Street  
Milwaukee

Contaminant	Not-to-Exceed non-Industrial D-C Soil RCL (mg/kg)	Not-to-Exceed Industrial D-C Soil RCL (mg/kg)	Basis	Non-industrial RCL-gw (mg/kg)	B-1 2.0-4.0 Feet 5/26/20 (mg/kg)	B-1 8.0-10.0 Feet 5/26/20 (mg/kg)	B-2 0.0-2.0 Feet 5/26/20 (mg/kg)	B-2 8.0-10.0 Feet 5/26/20 (mg/kg)	B-3 0.0-2.0 Feet 5/26/20 (mg/kg)	B-3 8.0-10.0 Feet 5/26/20 (mg/kg)	B-4 0.0-2.0 Feet 5/26/20 (mg/kg)	B-4 6.0-8.0 Feet 5/26/20 (mg/kg)	B-5 2.0-4.0 Feet 5/26/20 (mg/kg)	B-5 6.0-8.0 Feet 5/26/20 (mg/kg)	B-6 2.0-4.0 Feet 5/26/20 (mg/kg)	B-6 8.0-10.0 Feet 5/26/20 (mg/kg)	B-7 4.0-6.0 Feet 5/26/20 (mg/kg)	B-8 4.0-6.0 Feet 5/26/20 (mg/kg)	HA-1 4.0-4.5 Feet 7/28/20 mg/kg	B-9 7.5-10.0 Feet 8/10/20 (mg/kg)	B-9 15.0-17.5 Feet 8/10/20 (mg/kg)	B-9 22.5-25.0 Feet 8/10/20 (mg/kg)
					Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated	Unsaturated
cis-1,2-Dichloroethene	156.0	2,340.		0.0412	<0.032	0.204	<0.032	0.22	<0.032	<0.032	<0.032	0.125 J	<0.032	<0.032	0.044 J	0.5 J	0.213	<0.022	<0.021	<0.021	<0.021	<0.021
Tetrachloroethene (PCE)	33.0	145.		.0045	0.164	17.7	0.171 J	12.5	0.204	0.166	0.218	16.1	0.39	46	0.208	9.3	19.4	0.033 J	0.071 J	0.46	<0.04	<0.04
Trichloroethene (TCE)	33.0	841.		0.0036	<0.041	0.6	<0.041	1.03	<0.041	<0.041	<0.041	1.02	<0.041	2.9	<0.041	<0.041	4.7	<0.041	<0.048	<0.048	<0.048	<0.048
Trimethylbenzene, 1,2,4-	219.0	219.	nc	1.3787	<0.025	<0.05	<0.025	0.102	0.083	0.025 J	0.04 J	<0.05	<0.025	<0.025	0.044 J	261	<0.05	<0.025	<0.054	<0.054	<0.054	<0.054
Trimethylbenzene, 1,3,5-	182.0	182.	Csat	1.3787	<0.032	<0.064	<0.032	0.032 J	<0.032	<0.032	<0.032	<0.064	<0.032	<0.032	<0.032	156	<0.064	<0.032	<0.017	<0.017	<0.017	<0.017
o-Xylene	.260	434.		3.96	<0.044	<0.088	<0.044	<0.044	<0.044	<0.044	<0.044	<0.088	<0.044	<0.044	<0.044	5.3	<0.088	<0.044	<0.028	<0.028	<0.028	<0.028
tert-Butylbenzene	183	183.			<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	4.00	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037
sec-Butylbenzene	145	145.			<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	31.1	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024
n-Butylbenzene	108	108.			<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	31.4	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018
1,2-Dichlorobenzene	376	376.		1.168	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024
Isopropylbenzene	NE	NE		NE	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
n-Propylbenzene	NE	NE		NE	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019
Vinyl Chloride	1.6	2.08		0.0001	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066

J Flag: Analyte detected between LOD and LOQ.

**Highlight** Denotes That Concentration is above th Non-Industrial DC RCL

**Text** Denotes that concentrations is above the Groundwater RCLs

**Bold** Detected Compound

Former Spic And Span  
Soil Boring Analytical Data-Compounds Exceeding RCLs  
4301 North Richards Street  
Milwaukee

Contaminant	Not-To-Exceed Non-Industrial D-C Soil RCL (mg/kg)	Not-To-Exceed Industrial D-C Soil RCL (mg/kg)	Basis	Non-Industrial RCL-gw (mg/kg)	B-10 10.0-12.5 Feet 8/10/20 (mg/kg)	B-10 22.5-25.0 Feet 8/10/20 (mg/kg)	B-11 15.0-17.5 Feet 8/10/20 (mg/kg)	B-12 12.5-15.0 Feet 8/10/20 (mg/kg)	B-12 22.5-25.0 Feet 8/10/20 (mg/kg)	B-13 10.0-12.5 Feet 8/10/20 (mg/kg)	B-13 17.5-20.0 Feet 8/10/20 (mg/kg)	B-14 17.5-20.0 Feet 8/10/20 (mg/kg)	B-14 22.5-25.0 Feet 8/10/20 (mg/kg)	B-15 7.5-10.0 Feet 8/10/20 (mg/kg)	B-15 22.5-25.0 Feet 8/10/20 (mg/kg)	B-16 15.0-17.5 Feet 3/9/21 (mg/kg)	B-16 20.0-22.5 Feet 3/9/21 (mg/kg)	B-17 10.0-12.5 Feet 3/9/21 (mg/kg)	B-17 17.5-20.0 Feet 3/9/21 (mg/kg)	B-18 5.0-7.5 Feet 3/9/21 (mg/kg)	B-18 17.5-20.0 Feet 3/9/21 (mg/kg)	B-19 10.0-12.5 Feet 3/9/21 (mg/kg)	B-19 17.5-20.0 Feet 3/9/21 (mg/kg)
					Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat	Unsat
cis-1,2-Dichloroethene	156.0	2,340.		0.0412	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	<0.021	
Tetrachloroethene	33.0	145.		0.045	<0.04	<0.04	<0.04	71	<0.04	0.54	<0.04	0.47	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	4.8	<0.04	0.106 J	<0.04	<0.04
Trichloroethene (TCE)	33.0	841.		0.0036	<0.048	<0.048	<0.048	0.148 J	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	<0.048	0.062 J	<0.048	<0.048	<0.048	<0.048
Trimethylbenzene, 1,2,4-	219.0	219.	nc	1.3787	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054	<0.054
Trimethylbenzene, 1,3,5-	182.0	182.	Csat	1.3787	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017	<0.017
o-Xylene	.260	434.		3.96	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
tert-Butylbenzene	183	183.			<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	<0.037	0.163	<0.037
sec-Butylbenzene	145	145.			<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	2.09	<0.024
n-Butylbenzene	108	108.			<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	<0.018	1.49	<0.018
1,2-Dichlorobenzene	376	376.		1.168	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	<0.024	0.073 J	<0.024
Isopropylbenzene	NE	NE		NE	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.117	<0.025
n-Propylbenzene	NE	NE		NE	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	<0.019	0.264	<0.019
Vinyl Chloride	1.6	2.08		0.0001	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	<0.066	0.126 J

J Flag: Analyte detected between LOD and LOQ.

**Highlight**

Denotes That Concentration is above th Non-Industrial DC RCL

**Text**

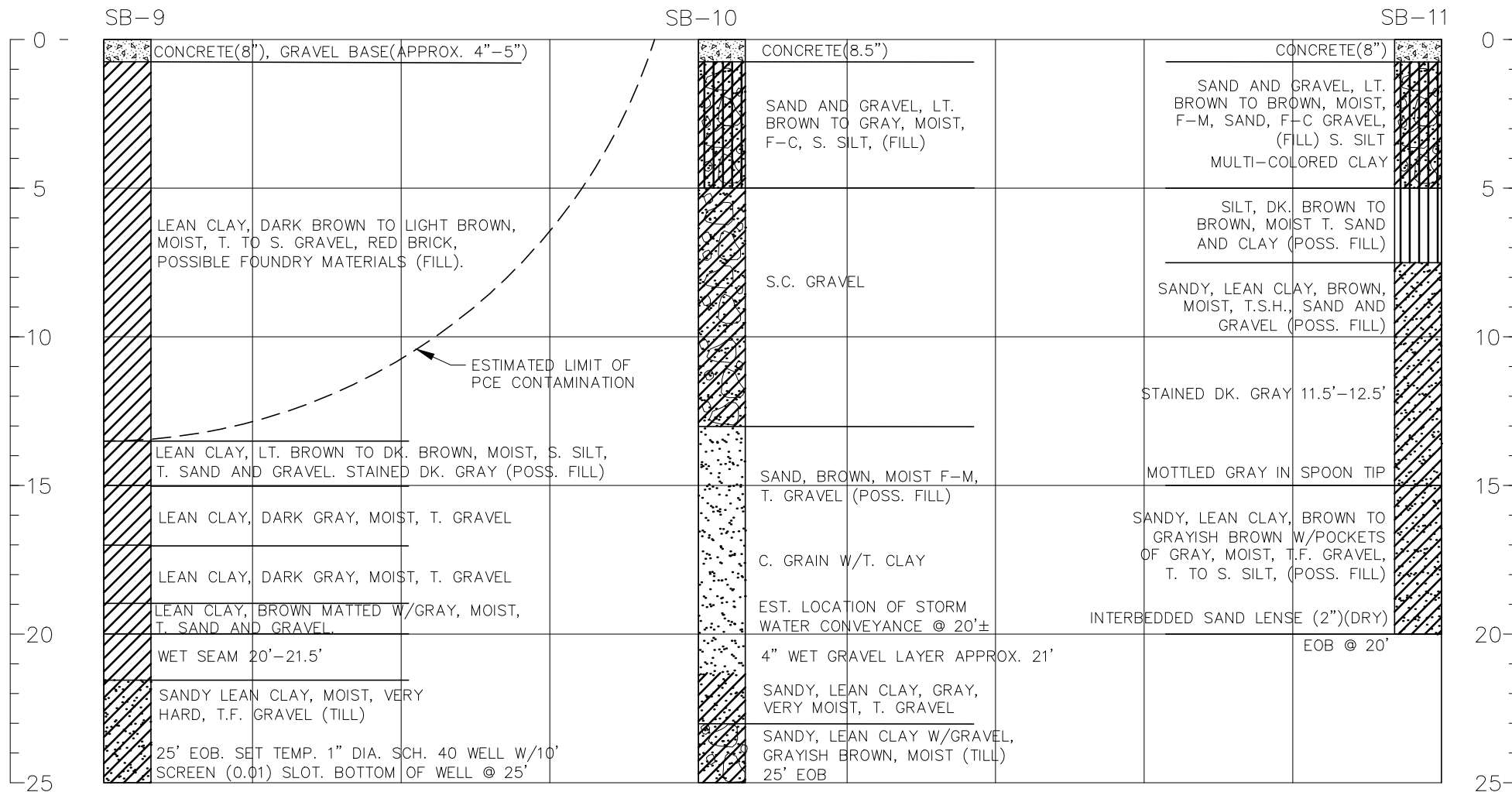
Denotes that concentrations is above the Groundwater RCLs

WI Vapor Quick Look-Up Guide  
 Sub-slab Vapor Risk Screening Levels  
 Based on 2017 November 2017 U.S. EPA Regional Screening Levels

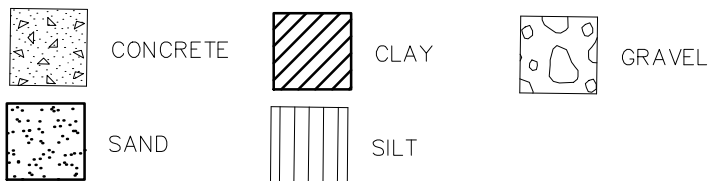
Spic And Span 4301 North Richards St. Chemical	Residential AF= 0.03 Sub-Slab Vapor VRSL		Small Commerical AF= 0.03 Sub-Slab Vapor VRSL		Large Commerical / Industrial AF = 0.01 Sub-Slab Vapor VRSL		SSVS-1		SSVS-2		SSVS-3		SSVS-4		SSVS-5		SSVS-6		SSV-7		Storm V		Sanitary V	
	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV	ug/m <sup>3</sup>	ppbV
Cis-1,2-Dichloroethene	--	--	--	--	--	--	<59	< 15	<9.6	<2.4	<18	<4.5	14	3.5	50 J	13 J	91	23	ND	ND	0.87	0.22	11	2.7
Tetrachloroethylene (PCE)* Tetrachloroethene	1,400	210	6,000	900	18,000	2,700	81,000	12,000	18,000	2,700	34,000	5,000	15,000	2,200	11,000	1,700	7,500	1,100	11,000	1,600	ND	ND	12	1.7
Trans-1,2-Dichloroethene *	--	--	--	--	--	--	<54	< 14	<1.7	<0.43	<16	<4.1	<8.3	<2.1	< 8.9	< 2.2	<3.7	<0.93	ND	ND	0.78	0.20	ND	ND
1,2-Dichloroethylene	--	--	--	--	--	--	<54	< 14	<1.7	<0.43	<16	<4.1	<8.3	<2.1	< 8.9	< 2.2	<3.7	<0.93	ND	ND				
Trichloroethylene (TCE)* Trichloroethene	70	13	290	53	880	160	1,400	270	570	110	1,100	200	590	110	1,100	200	670	120	270	51	ND	ND	7.4	1.4
Vinyl chloride	57	22	930	270	2,800	1,100	<33	<13	<1.1	<0.41	<2.0	<0.78	<1.1	<0.42	< 5.5	< 2.2	<0.47	<0.18	ND	ND	ND	ND	1.7	0.66

\* = Laboratory reported as compound named Verses WDNR name  
 J = result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value  
 E= Results Exceeded Calibration Range  
 RL = Reporting Limit or Requested Limit  
 MDL = Minimum Detection Limit  
 ND = None Detected at the reporting limit (or MDL or EDL if shown)

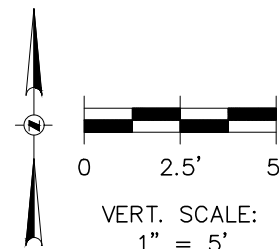
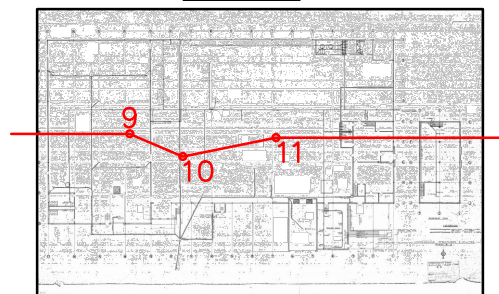
# APPENDIX A

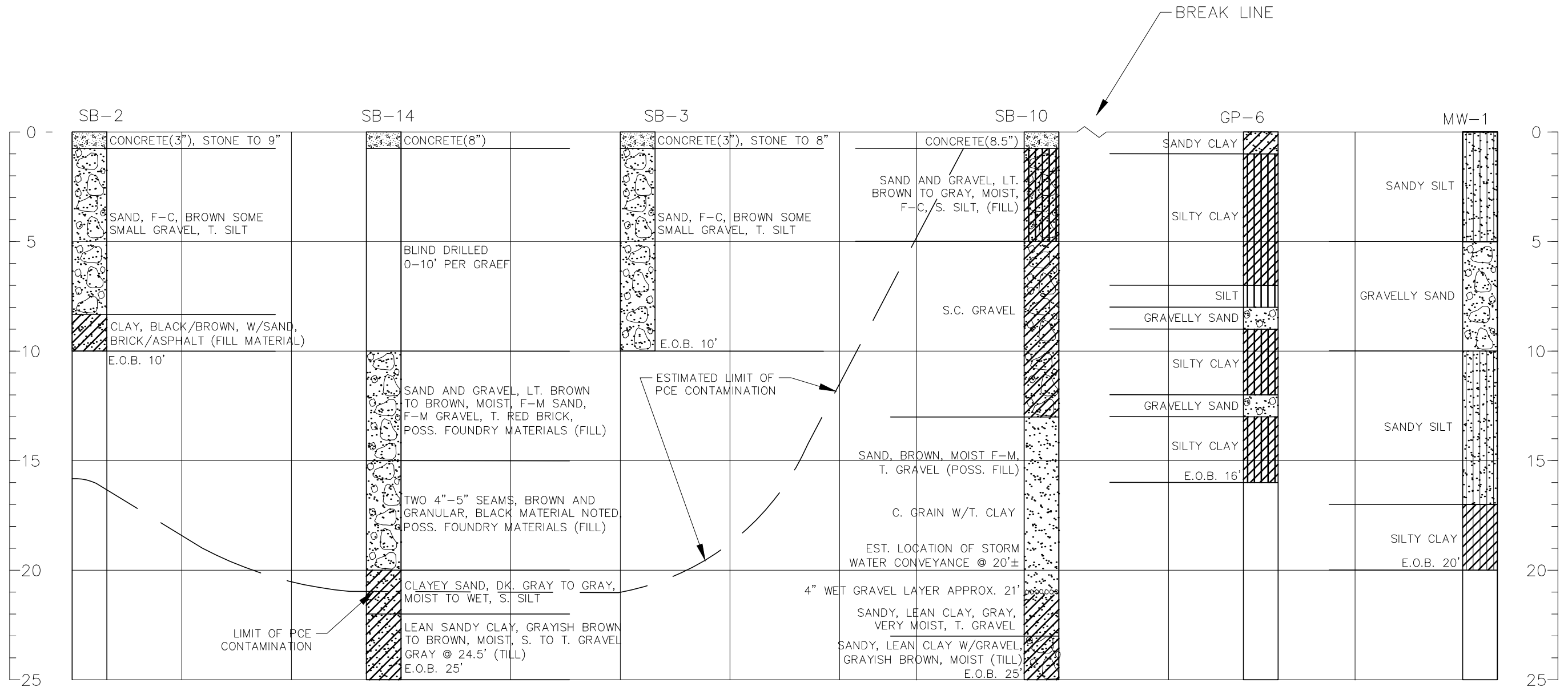


**MATERIAL SYMBOLS**

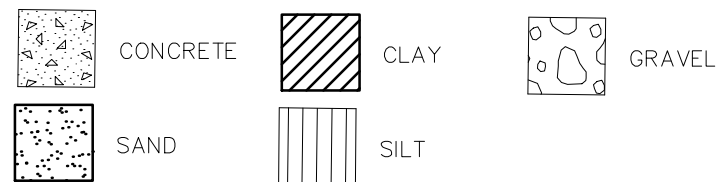


**KEY MAP**

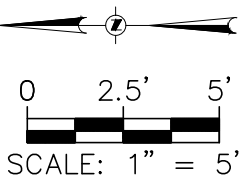
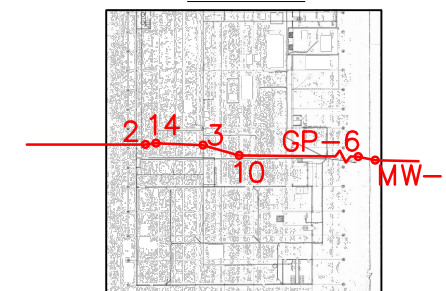




**MATERIAL SYMBOLS**

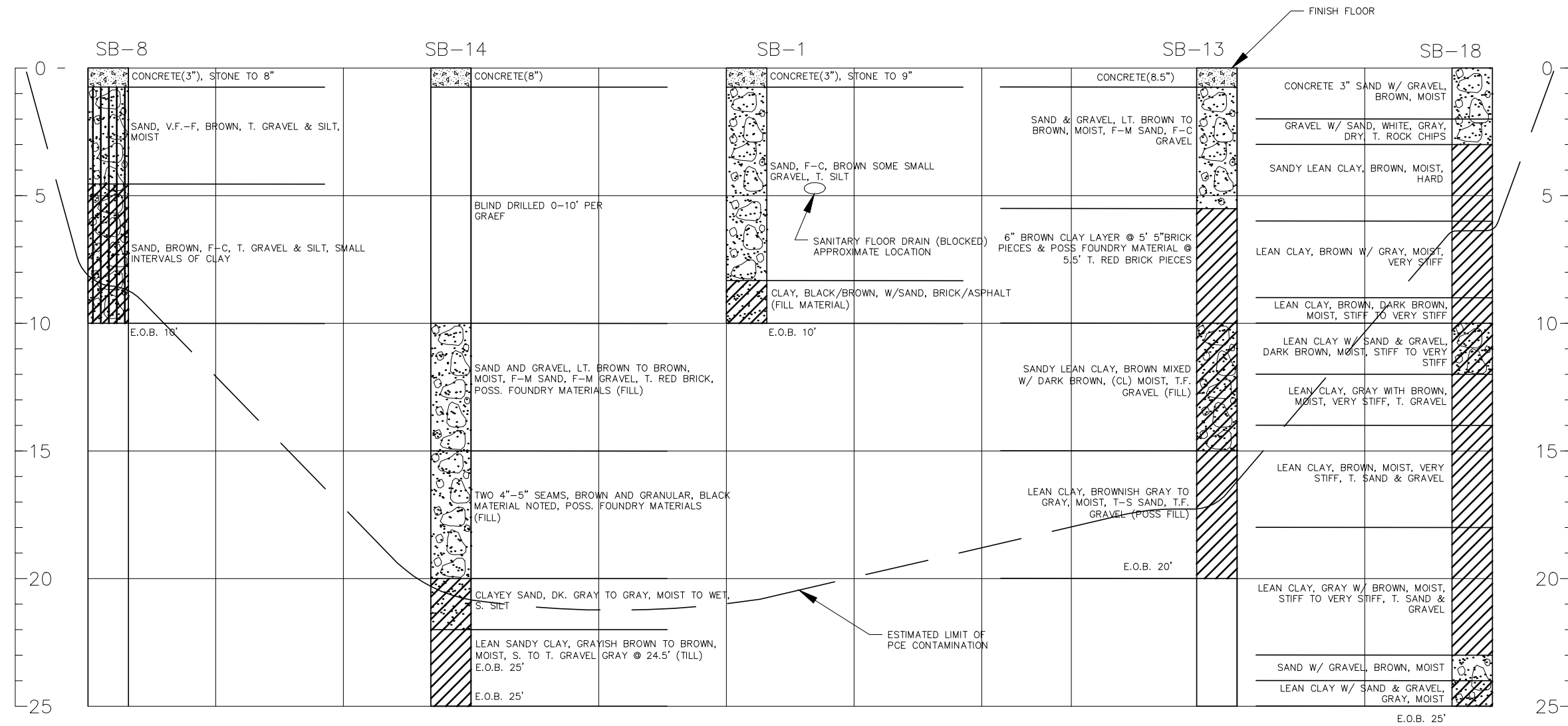


**KEY MAP**

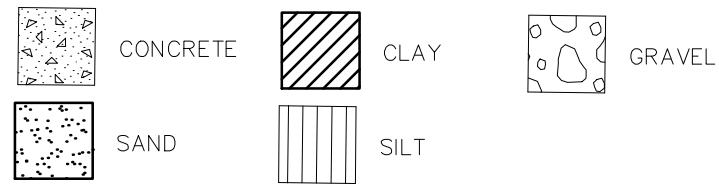


VERT. SCALE:  
 1" = 5'  
 HORIZONTAL DIMENSIONS  
 ARE NOT TO SCALE

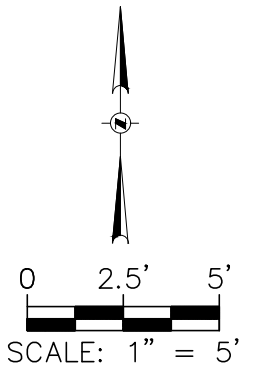
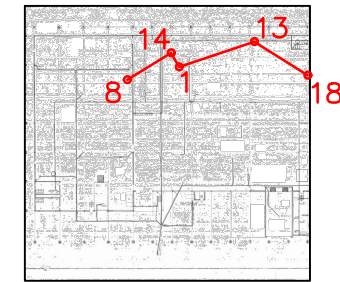




**MATERIAL SYMBOLS**



**KEY MAP**



# APPENDIX B

Vapor Intrusion Risk Analysis

Chemical	Molecular Weight g/mole	OSHA/NIOSH			WDNR	WDNR
		8-hr. TWA PPM	OSHA 8-hr. TWA µg/L	OSHA 8-hr. TWA µg/m <sup>3</sup>	Indoor Air Vapor Action Level (VAL) µg/m <sup>3</sup>	Sub-Slab Vapor VRSL Industrial µg/m <sup>3</sup>
PCE	165.8	25		<b>169,531</b>	<b>180</b>	18,000
TCE	131.4	25		<b>134,357</b>	<b>9</b>	880

Risk Analysis

Estimated Mass of PCE in Soil

Length (ft)	Width (ft)	Depth (ft)	Mass of Soil Kg	Contaminated Zone Ave. PCE Conc. (mg/kg)	PCE Mass mg	Volume Air
<b>90</b>	<b>70</b>	<b>7.5</b>	11,434,500	<b>17.2</b>	196,673,400	-

Days to Eliminate Mass venting at 90% of the WDNR Indoor Air Vapor Action Level (VAL)

Length (ft)	Width (ft)	Height (ft)	Volume (m <sup>3</sup> )	PCE @ 90% VAL µg/m <sup>3</sup>	PCE Vented per Air Exchange (mg) Air Exchanges/hr	PCE mg lost per hour	Work Days to Complete Removal	Model Exposure (Days)	Safety Factor
<b>195</b>	<b>195</b>	<b>25</b>	26,903	<b>162</b>	4,358	<b>6</b>	26,149	313.4	<b>6,250</b>

If all of the PCE vents at 90% of the Indoor VAL all the PCE would be eliminated in 1/20 of the model exposure period.

Concentration of PCE in the air if extended over the modeled exposure period

Volume Air per exchange (m <sup>3</sup> )	Air Exchanged per hr (m <sup>3</sup> )	Air Exchanged per model period (m <sup>3</sup> )	Ave. Conc. Of PCE µg/m <sup>3</sup>	WDNR VAL µg/m <sup>3</sup>	Safety Factor
26,903	<b>161,416</b>	<b>24,212,418,750</b>	8.1228316	<b>180</b>	<b>22</b>

If all of the PCE vents at a constant concentration over the exposure period the concentration would be 1/22 the exposure limit.

Estimated Mass of TCE in Soil

Length (ft)	Width (ft)	Depth (ft)	Mass of Soil Kg	Contaminated Zone Ave. PCE Conc. (mg/kg)	PCE Mass mg	Volume Air
<b>90</b>	<b>70</b>	<b>7.5</b>	11,434,500	<b>1.9</b>	21,725,550	306,691

Days to Eliminate Mass venting at 90% of the WDNR Indoor Air Vapor Action Level (VAL) **180**

Length (ft)	Width (ft)	Height (ft)	Volume (m <sup>3</sup> )	PCE @ 90% VAL µg/m <sup>3</sup>	PCE Vented per Air Exchange (mg) Air Exchanges/hr	PCE mg lost per hour	Work Days to Complete Removal	Model Exposure (Days)	Safety Factor
<b>200</b>	<b>200</b>	<b>25</b>	28,300	<b>8</b>	224	<b>6</b>	1,345	673.1	<b>6,250</b>

If all of the TCE vents at 90% of the Indoor VAL all the TCE would be eliminated at 1/19 of the model exposure period.

Concentration of PCE in the air if extended over the modeled exposure period

Volume Air per exchange (m <sup>3</sup> )	Air Exchanged per hr (m <sup>3</sup> )	Air Exchanged per model period (m <sup>3</sup> )	Ave. Conc. Of PCE µg/m <sup>3</sup>	WDNR VAL µg/m <sup>3</sup>	Safety Factor
28,300	<b>169,800</b>	<b>25,470,000,000</b>	0.8529859	<b>9</b>	<b>10</b>

If all of the TCE vents at a constant concentration over the exposure period the concentration would be 1/10 the exposure limit.


Notes:

- 1 Ventilation system operates 24 hrs per day, 250 days per year. It is assumed that venting does not occur over weekends and holidays.
- 2 Worker Exposure per EPA is 8 hrs per day x 250 days per year x 25 years.
- 3 The safety factors do not account for partitioning between soil, water and vapor. This omission is highly conservative in that only a fraction of the PCE and TCE would be in vapor phase.
- 4 The Safety Factors do not account for loss of vapor through the subsurface. This is a conservative omission.
- 5 The safety factors do not account for bioattenuation.

# APPENDIX C

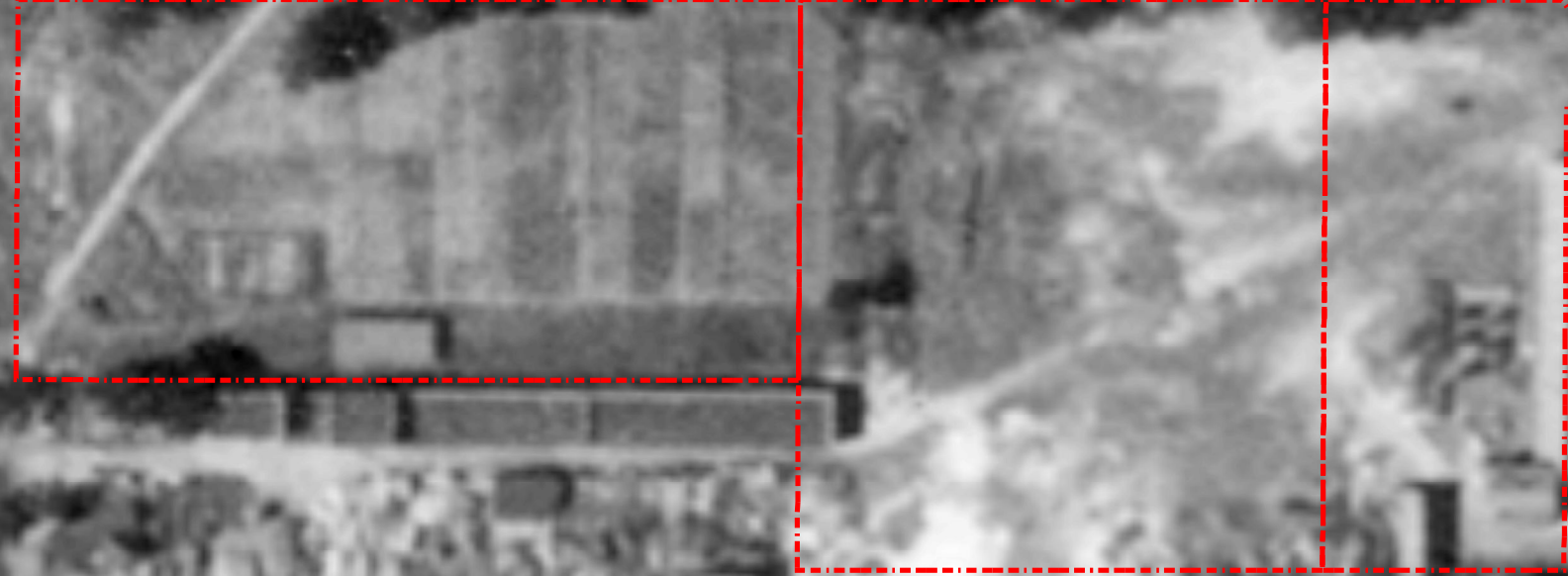


**Legend**

 Parcel Boundary

N LYDELL AVE

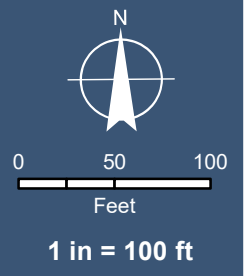
RICHARDS ST



**1937 AERIAL**

4301 N RICHARDS STREET

CITY OF MILWAUKEE  
MILWAUKEE COUNTY, WISCONSIN



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**Legend**

 Parcel Boundary

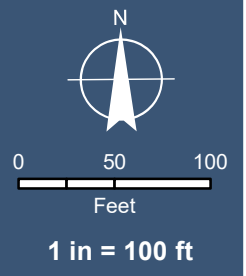
N LYDELL AVE

RICHARDS ST



**1951 AERIAL**

4301 N RICHARDS STREET  
CITY OF MILWAUKEE  
MILWAUKEE COUNTY, WISCONSIN



Milwaukee Cour

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## PFAS REVIEW OF PRODUCTS HISTORICALLY USED ON SITE

Spic and Span provided a list of products used on site and the SDS and other data sources for these products were reviewed for the potential presence of PFAS.

### ECOLAB

Performance Alkali: NONE

Performance Detergent:

Performance Booster: NONE

Turbulizer: NONE

### LIPKE KENTEX

POG Remover: \*\*\*\*\* TRADE SECRETS

Laundry Wetspot: \*\*\*\*\*TRADE SECRETS

Digester: NONE

Jinx Ink: NONE

Yellow Go: NONE

Amonia 20%: NONE

Rust Go: NONE

The Comp Tox Chemicals Dashboard was also searched - [CompTox Chemicals Dashboard | PFASMASTER Chemicals \(epa.gov\)](#). – for potential PFAS in the ingredients. None of the ingredients were listed.

Information on the Performance Detergent, the POG Remover and the Laundry Wetspot could not be found but given that these products would be for a similar use, it is not likely that they would contain PFAS.