RAMBOLL

ENVIRONMENT
& HEALTH

Ms. Jennifer S. Dorman
Environmental Program Associate
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
2300 North Dr. Martin Luther King, Jr. Drive
Milwaukee, WI 53212

VERIFICATION OF ENVIRONMENTAL CONSULTANT RETENTION AND NR 716 SITE INVESTIGATION WORK PLAN
MARQUETTE UNIVERSITY APRC SITE
1201-1221 W. WELLS STREET, MILWAUKEE, WISCONSIN
BRRTS NO. 02-41-580746, FID NO. 341293920

Dear Ms. Dorman:

On behalf of Marquette University, Ramboll US Corporation (Ramboll) prepared this letter to inform the Wisconsin Department of Natural Resources (WDNR) that Ramboll has been retained to complete a Wisconsin Administrative Code (WAC) Chapter NR 716 Site Investigation for the above referenced site.

Based on our discussions with Mr. Trevor Nobile (WDNR Project Manager) on December 21, 2017, regarding the accelerated property development schedule and timing of pre-development site investigation activities, it was agreed that a formal NR 716 Work Plan submittal in advance of the field activities. The NR 716 Site Investigation activities are being conducted in two phases: pre-construction and post-construction. The pre-construction investigation activities took place on January 10 and 11, 2018. The attached document outlines the planned work activities. As discussed with Mr. Nobile, a NR 716 Work Plan will be submitted to the WDNR in advance of the post-construction investigation activities and will incorporate the results of the pre-construction investigation activities.

If you have any questions or require additional information, please feel free to contact us.

Yours sincerely,

Susan Petrofske
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cc: Joel Smullen, Marquette University (electronic copy)
Trevor Nobile, WDNR (electronic copy)

Attachment: Work Plan for Pre-Construction Site Investigation

January 16, 2018

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ATTACHMENT A

WORK PLAN FOR PRE-CONSTRUCTION SITE INVESTIGATION

WORK PLAN FOR PRE-CONSTRUCTION SITE INVESTIGATION

APRC SITE
1201-1221 WEST WELLS STREET
MILWAUKEE, WISCONSIN 53233

BRRTS NO. 02-41-580746

INTRODUCTION AND BACKGROUND

Ramboll US Corporation (Ramboll) has prepared this Work Plan for Pre-Construction Site Investigation for the Marquette University's property (the "site" or "property") located historic addresses 1201 through 1221 West Wells Street in the City of Milwaukee, Milwaukee County, Wisconsin. The investigation activities are being conducted to address soil and groundwater impacts that were detected at the site during performance of a Phase II Environmental Site Assessment (ESA). The impacts appear related to historic operations at the site by prior owners and operators reportedly including dry cleaning and service station operations.

The Wisconsin Department of Natural Resources (WDNR) was notified of a historic release using Form 4400-225 (Notification for Hazardous Substance Discharge) on December 14, 2017. The WDNR issued a Responsible Party letter to Marquette University on December 21, 2017, and assigned BRRTS Activity Number 02-41-580746 and FID No. 341293920.

Site Location

The APRC site includes multiple historic addresses between 1201 through 1221 West Wells Street in the City of Milwaukee, Milwaukee County, Wisconsin (Figure 1). The site currently contains a parking lot and utilizes an address of 733 North 12th Street. It is anticipated that a new address may be issued following site redevelopment.

The approximately 1.3-acre property is located on the Marquette University campus located in downtown Milwaukee. The location of the subject property is depicted on Figure 1. The site is predominantly a paved, surface parking lot with no buildings. It is bordered to the north by West Wells Street, to the east by North 12th Street, to the south by Zilber Hall, and to the west by green space and Abbotsford Hall.

Involved Parties

Site Owner: Marquette University
517 North 14th Street
Milwaukee, WI 53233
Contact: Mr. Joel Smullen, (414) 288-4620

Consultant: Ramboll US Corporation
175 North Corporate Drive, Suite 160
Brookfield, WI 53045
Contact: Ms. Jeanne Tarvin, (262) 901-0085

Agency: Wisconsin Department of Natural Resources
2300 North Dr. Martin Luther King, Jr. Drive
Milwaukee, WI 53212
Contact: Mr. Trevor Nobile, (414) 263-8524

SUMMARY OF PHASE II ESA ACTIVITIES

Ramboll conducted a Phase II ESA to identify potential soil and/or groundwater impacts at the former dry cleaner and filling station site located at 1201 West Wells Street, the historical dry cleaners noted at 1221 West Wells Street, 1205 West Wells Street, and 1209 West Wells Street, and the "filling station" and auto repair and wash location at 1221A West Wells Street. The Phase II ESA activities were conducted on October 9 and 10, 2017, and included performing a ground penetrating radar (GPR) survey to identify potential underground storage tanks (USTs) identified during the Phase I ESA, advancing a total of six borings which were converted to temporary groundwater monitoring wells (B-1/TW-1 through B-6/TW-6), and collecting soil and groundwater samples for laboratory analysis. Following sample collection, the temporary wells were abandoned.

The results of the Phase II activities are documented in the Phase II ESA report (Ramboll Environ, November 10, 2017). The following summarizes the Phase II ESA conclusions. Sample locations referenced herein are included on the attached Figure 2. Soil and groundwater exceedance maps are included as Figure 3 and Figure 4, respectively. Tabulated soil and groundwater results from the Phase II are also attached.

- The GPR survey did not identify any subsurface anomalies that would be indicative of the presence of historic USTs in the areas scanned to a depth of 5 feet below ground surface (bgs).
- PCE, a common dry cleaning solvent, was detected in soil and/or groundwater samples in the northern and eastern portions of the site in areas generally consistent with the historic dry cleaning operations reported to have taken place at the site. The highest concentration of PCE in soil was detected in the shallow soil sample collected from the fill material at boring B-4 (371 ug/kg at 2 to 3 feet bgs), which appears south of the former dry cleaners footprint. Based on the limited nature of this assessment, it is unclear if the historic dry cleaning operations extended to this area or if the presence of PCE in the fill in this area of the site is the result of subsequent redevelopment and grading activities that may have taken place over the years.
- PCE and TCE were detected above the Enforcement Standard (ES) in the groundwater sample collected from temporary well TW-3, located adjacent to and hydraulically downgradient of the former dry cleaning operations. Vinyl chloride, a breakdown product or PCE, was also reported at a concentration above the ES in the groundwater sample collected from TW-5, located within the former dry cleaning operations area. TW-5 also contained PCE and 1,2-DCA above their respective Wisconsin Administrative Code (WAC) Chapter NR 140 Preventative Action Limits (PALs). While TW-5 is located within the area of the former dry cleaning operations, there is insufficient information to determine if the detected groundwater impacts at this location may be related in part to the former One Hour Valet Dry Cleaner located hydraulically upgradient of the site.
- Petroleum-related volatile organic compounds (VOCs; benzene, ethylbenzene, and/or 1,2,4 – trimethlybenzene) were detected in groundwater samples collected from temporary wells TW-5 and TW-6, located on the northeast corner of the site, in the area of former filling/automobile service station operations. Ethylbenzene was also detected in select soil samples collected from B-5 and B-6; however, the detected concentrations were below the WAC NR 720 Soil Residual Contaminant Levels (RCLs). B-5/TW-5 and B-6/TW-6 are located near geotechnical boring SB-6 where petroleum impacts were encountered.
- Low concentrations of PAHs were detected in the soil samples collected at the site; however, none of the PAH concentrations exceed the WAC NR 720 RCLs. Several individual PAHs were detected in groundwater

above their respective WAC NR 140 PALs, but below the ES. It appears that the PAHs are likely related to suspended sediment in the temporary wells and not representative of groundwater conditions.

- No metals were detected in soil above non-industrial direct contact RCLs except for arsenic. The arsenic concentrations in soil ranged from an estimated value of 3.3 to 8.3 mg/kg, all concentrations near or below the background threshold value. Based on the wide spread distribution of arsenic in soil, the detections appear related to a background soil condition and arsenic is not considered a site parameter of concern in shallow soil.
- Arsenic was present in groundwater in two temporary wells (TW-1 and TW-6) at or just above its WAC NR 140 ES. Like the PAHs, the detected arsenic concentrations are likely the result of turbid groundwater samples due to suspended sediment commonly present in temporary wells. Parameters such as metals and PAHs, having higher molecular weights, tend to adsorb onto soil particles and can be present as suspended sediment in turbid groundwater samples. Although temporary wells are cost effective, can be installed quickly, and provide a synoptic picture of groundwater quality via groundwater samples collected for screening purposes, due to the nature of their construction, turbidity levels may initially be high, which may result in analytical results with a high bias.
- Additional metals (cadmium, lead, mercury, and selenium) were detected in select shallow soil samples at concentrations above the groundwater pathway RCL; however, none of these compounds were detected in the groundwater samples collected from the corresponding temporary wells. Based on the limited nature of this assessment, it is unclear if the presence of metals in the shallow fill material in the two southern most borings B-2 and B-4 is related to historic site operations or the historic fill identified in the Phase I ESA at the Marquette University Student Services Building located immediately south of the site.

Based on the investigation results, Ramboll recommended that further assessment of the soil and groundwater at the site is warranted to define the nature and extent of the identified impacts.

Planned Redevelopment Activities

Marquette University intends to redevelop the site as an athletic performance research center that will be constructed in several phases. Phase 1 will include construction of a multi-story building on the southwest corner of Wells Street and 12th Street as shown on attached Figure 5. The northern half has a slab on-grade 2-story space on the first level and the southern half will have a full basement which will include occupied locker rooms. During construction of the basement, support structures, and utility corridors, excess soil from the site will require off-site disposal.

NR 716 Site Investigation Approach Overview

Based on the accelerated development schedule, Ramboll will conduct the site investigation activities in a phased approach. The first phase will focus on collecting data needed in advance of the development and will primarily assess the magnitude and extent of soil impacts and include a vapor intrusion assessment, as required under WAC NR 716. Groundwater assessment activities, including the installation of WAC NR 141 compliant groundwater monitoring wells, will be initiated during the second phase of investigation performed following completion of the planned construction activities.

The following summarizes the site investigation activities that will be performed during the pre-construction activities.

WORK PLAN FOR PRE-CONSTRUCTION INVESTIGATION

Additional Soil and Groundwater Sampling

Prior to initiating field activities, the existing site-specific Health and Safety Plan (HASP) developed for the Phase II ESA work will be updated and followed by all field personnel for the on-site work. Additionally, Ramboll will notify the state underground utility protection service (Digger's Hotline) to identify on-site commercial utilities. To obtain subsurface clearance for private utilities on site, Ramboll will discuss proposed boring locations with knowledgeable site personnel and consult available site plans, if available, prior to advancement of borings. A private utility locator will also be contracted to identify utilities in the vicinity of each drilling location.

Based on the Phase II ESA results, Ramboll will advance ten soil borings (B-7 through B-16) at the approximate locations shown on Figure 5 to further assess soils located beneath the proposed building footprint and also to delineate the extent of soil impacts previously identified at the site prior to construction of the building on-site. In addition, one of the borings (B-7), located west of B-3/TW-3 and B-4/TW-4, will be converted into a temporary groundwater monitoring well to facilitate the collection of a groundwater sample. The final boring locations will be determined in the field based on field observations, utility clearance, access constraints, and if available, information provided by knowledgeable facility personnel.

Advancement of the ten soil borings will be performed using direct-push technology (DPT) to depths of approximately 13 feet bgs. Soil samples will be continuously collected from the borings using a 2-inch diameter 4- to 5-foot long macro-core device or Dual Tube sampling system, complete with an acetate/ polyvinyl chloride (PVC) sleeve for visual classification, field screening, and laboratory analysis. Soil characteristics (e.g., texture, color) along with visual and/or olfactory evidence of impacts will be noted on soil boring logs. The samples will be screened for total VOCs with a photoionization detector (PID), and the PID readings will be recorded on the soil boring logs. Up to three soil samples will be collected from each location based on locations and conditions encountered. One sample will be collected within the first 4 feet bgs to assess the direct contact pathway and also characterize soils that will be disturbed during site redevelopment. A soil sample will be collected from the depth interval with evidence of possible impacts (e.g., elevated PID reading, odors, staining or discolored soil). An additional soil sample will be collected below the interval exhibiting the indications of impacts, but above the water table, in order to potentially vertically delineate impacted soil.

Following soil sample collection activities, one boring (B-7) will be converted to a temporary monitoring well, which will be constructed using a 1-inch diameter PVC riser with a 10-foot 10-slot screen. A groundwater sample will be obtained through the temporary monitoring well installed in the DPT borings. The groundwater sample will be collected using a peristaltic pump fitted with disposable tubing. The pump will be used to purge a small volume of water from the temporary well in an attempt to reduce turbidity. If the rate of groundwater recharge or the depth to groundwater precludes the use of a peristaltic pump, the sample will be collected using a disposable bailer.

Upon completion of the sampling, each boring and/or temporary well will be appropriately abandoned by removing the PVC riser and screen material, backfilling the borehole with soil from its respective boring, and topping it off with bentonite chips (which will be hydrated to seal the boring). Each boring will be refinished at grade with the same material that was drilled through. Locations will be surveyed with a GPS unit to obtain coordinate locations for future reference.

The soil samples will be collected and placed in appropriately preserved, laboratory-supplied containers. After the samples have been collected, they will be sealed, labeled, and placed on ice pending delivery under chain-of-custody procedures to the laboratory for analysis.

All retained soil and groundwater samples will be analyzed for the following parameters:

- VOCs – United States Environmental Protection Agency (USEPA) SW-846 Method 8260
- Resource Conservation and Recovery Act (RCRA) Metals (RCRA 8 Metals) – USEPA SW-846 Method 6010

In addition, one composite sample of all soil borings located within the building footprint will be submitted for laboratory analysis for future waste profiling purposes. The composite sample will be submitted for landfill Protocol B analysis which may include TCLP VOCs, TCLP RCRA 8 metals, free liquids, flashpoint, PCBs, reactive sulfide, and reactive cyanide.

The soil samples will be submitted to a Wisconsin-certified laboratory for a standard turnaround time (TAT) (10 business days).

Vapor Intrusion Assessment

As required by WAC NR 716, the vapor intrusion pathway will be assessed. Three soil gas probes (SG-1 through SG-3) will be completed in the paved parking lot at a depth above the apparent water table and will be sealed at the surface to prevent short circuiting. The soil gas sampling locations were selected in the areas where the highest VOC concentrations were detected in soil and/or groundwater during the Phase II ESA activities. The soil gas sampling locations include areas where the redevelopment plans include both a slab on grade construction and a basement.

One vapor sample will be collected from each soil gas probe using a 6-liter Summa canister fitted with a flow controller. The sample will be collected over an approximate 30-minute period, and will be submitted to a certified laboratory for analysis of VOCs using USEPA Method TO-15. The soil gas probes will be completed with temporary flush mount covers in the event that additional sampling at these locations is warranted prior to initiation of the construction activities.

Investigation-Derived Waste Management

While drilling residuals (i.e., soil cuttings and wash water) are expected to be minimal, excess materials and other investigative-derived waste (IDW) will be staged on northern portion of the APRC2 site (1214 to 1222 West Wells Street location) in clean, labeled, 55-gallon drums and/or sealed in 5-gallon plastic buckets for future disposal pending the laboratory analytical results. The composite soil sample activities described above can be used to identify appropriate disposal alternatives.

Soil Management Plan

The results of the pre-construction soil investigation activities discussed above will be utilized to evaluate soil handling options during redevelopment. In general, it is anticipated that impacted soil will be managed off site at a licensed solid waste facility. A Soil Management Plan will be prepared to ensure proper material handling activities during construction.

Reporting

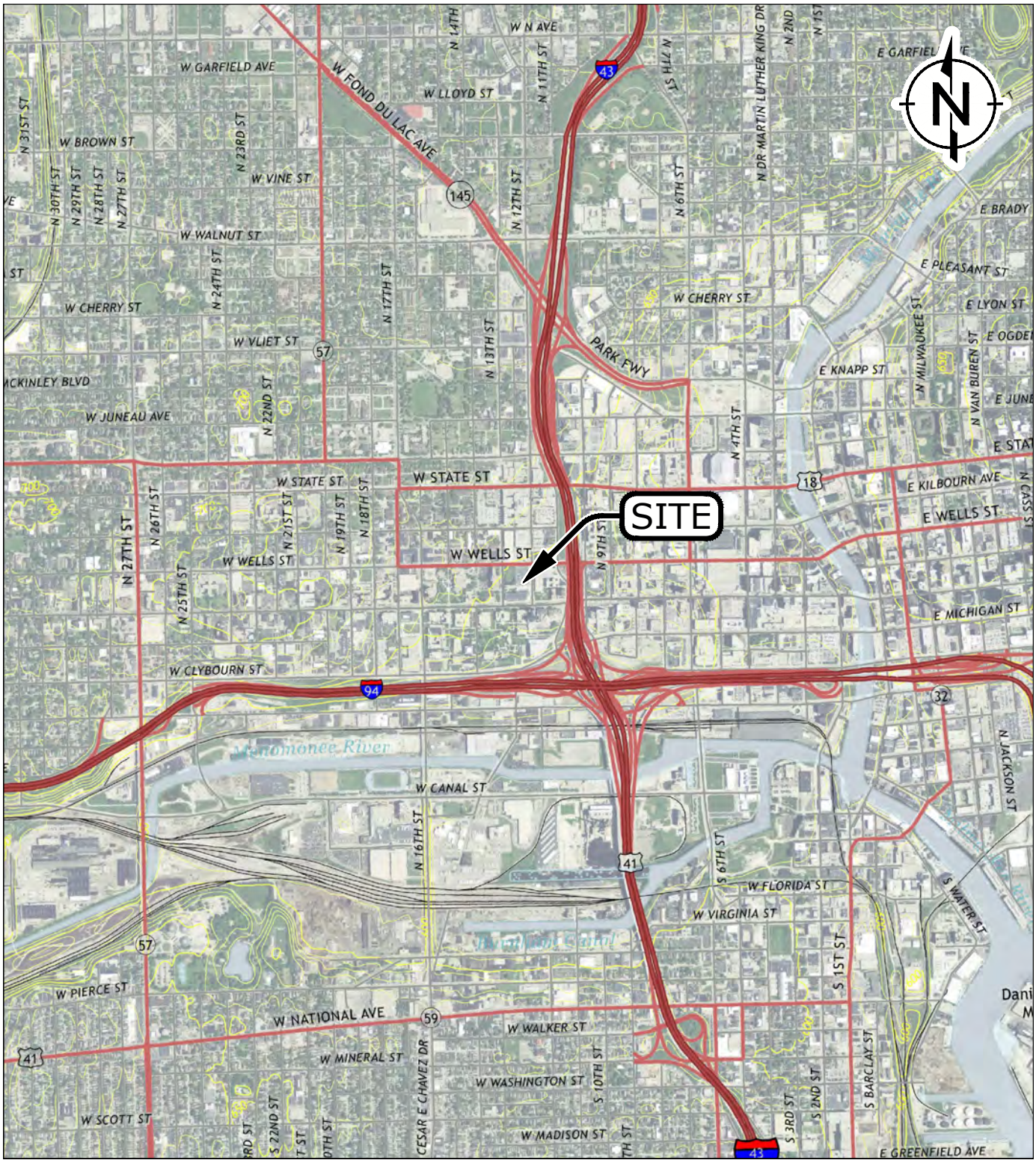
Following completion of the pre-construction investigation activities and receipt of the analytical results, Ramboll will review the data collected as part of the investigation activities and compare that information to applicable WAC NR 720 RCLs and NR 140 Groundwater Quality Standards. The results will be summarized in a letter report for submittal to the WDNR and will be used to develop the formal post-construction WAC NR 716 Site Investigation Work Plan. The investigation results from both phases of activities will be incorporated into a WAC NR 716 Site Investigation Report following completion of the post-construction groundwater investigation.

Work Plan Attachments

Figure 1: Site Location Map
Figure 2: Phase II ESA Sampling Locations
Figure 3: NR 720 RCL Exceedances in Soil
Figure 4: NR 140 Exceedances in Groundwater (Phase II ESA)
Figure 5: Proposed Pre-Construction Site Investigation Sampling Locations

Table 1: Soil Analytical Results (Phase II ESA)
Table 2: Groundwater Analytical Results (Phase II ESA)

FIGURES



CONTOUR INTERVAL 10 FEET

0 1/2 1 MILE

0 2000 4000 FEET

LEGEND:

PROPERTY BOUNDARY (APPROXIMATE)

SOURCE:
2016 USGS 7.5 Minute Series Milwaukee, Wisconsin Topographic Quadrangle.
Site Location; N: 43.039581° W: -87.927909° WGS84

QUADRANGLE LOCATION

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SITE LOCATION MAP
MARQUETTE UNIVERSITY
1201 WEST WELLS STREET
MILWAUKEE, WISCONSIN

FIGURE 1

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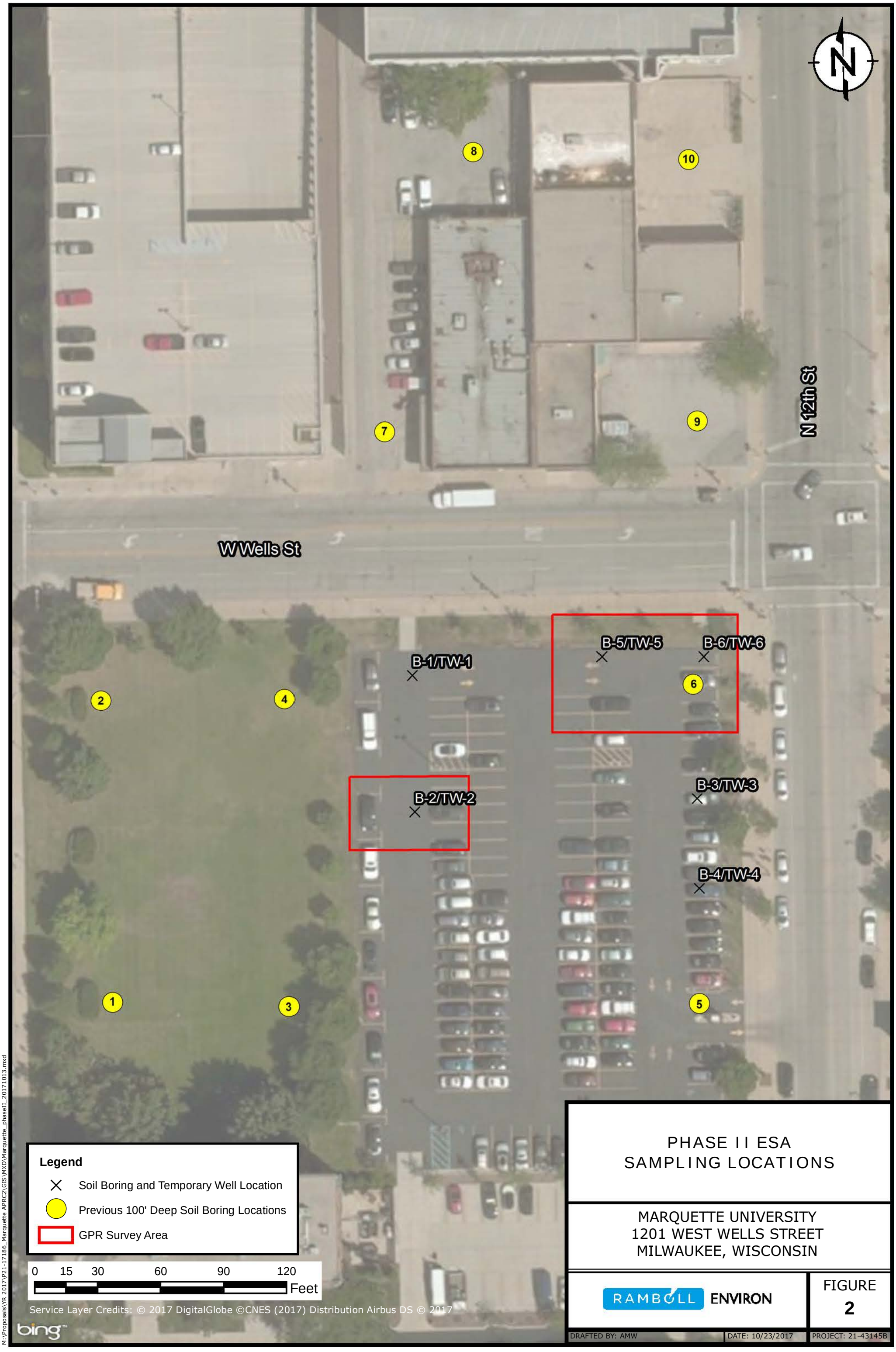
E:\00_CAD FILES\21\2143145_MU Wells Street_PH2_Record Files\01_Site Location Map.dwg



PHASE II ESA
SAMPLING LOCATIONS

MARQUETTE UNIVERSITY
1201 WEST WELLS STREET
MILWAUKEE, WISCONSIN

RAMBOLL ENVIRON

FIGURE
2

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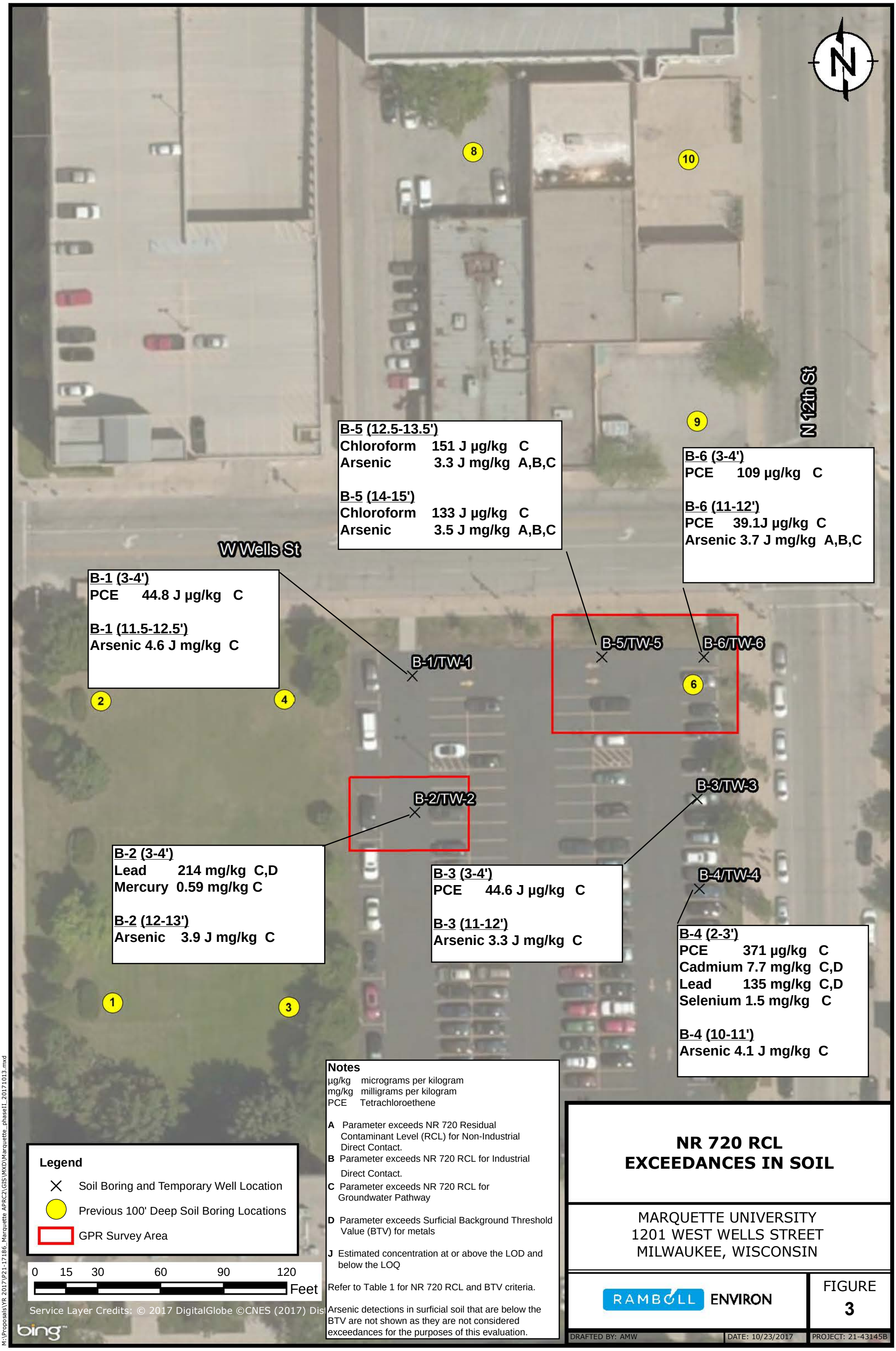

NR 720 RCL EXCEEDANCES IN SOIL

MARQUETTE UNIVERSITY
1201 WEST WELLS STREET
MILWAUKEE, WISCONSIN

RAMBOLL ENVIRON

FIGURE 3

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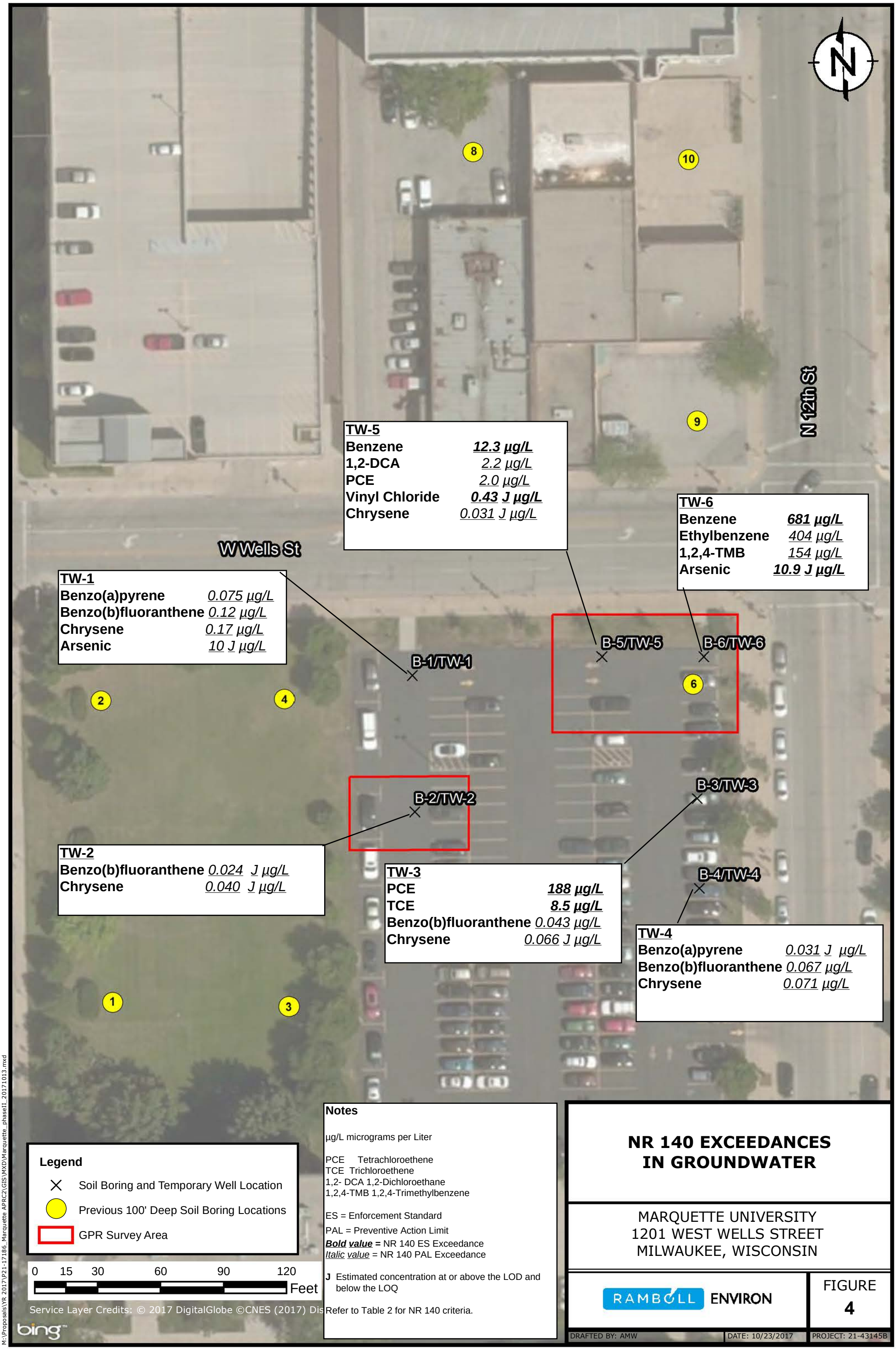

NR 140 EXCEEDANCES IN GROUNDWATER

MARQUETTE UNIVERSITY
1201 WEST WELLS STREET
MILWAUKEE, WISCONSIN

RAMBOLL ENVIRON

FIGURE
4

DRAFTED BY: AMW | DATE: 10/23/2017 | PROJECT: 21-43145B

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PROPOSED PRE-CONSTRUCTION SITE INVESTIGATION SAMPLING LOCATIONS

MARQUETTE UNIVERSITY
1201 WEST WELLS STREET
MILWAUKEE, WISCONSIN

RAMBOLL ENVIRON

FIGURE
5

DRAFTED BY: MJL	DATE: 1/10/2018	PROJECT: 1690005255-001

TABLES

TABLE 1. SOIL ANALYTICAL RESULTS
MARQUETTE UNIVERSITY PHASE II
1201 WEST WELLS STREET
MILWAUKEE, WISCONSIN
RAMBOLL-ENVIRON PROJECT NO. 21-43145B

Parameters	Soil RCLs			BTV	B-1 (3-4')	B-1 (11.5-12.5')	B-2 (3-4')	B-2 (12-13')	B-3 (3-4')	B-3 (11-12')	B-4 (2-3')	B-4 (10-11')	B-5 (12.5-13.5')	B-5 (14-15')	B-6 (3-4')	B-6 (11-12')
	Non-Industrial Direct Contact	Industrial Direct Contact	Groundwater Pathway		10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17
VOCs (µg/kg)																
Benzene	1,600	7,070	5.1	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Bromobenzene	342,000	679,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Bromochloromethane	216,000	906,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Bromodichloromethane	418	1,830	0.3	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Bromoform	25,400	113,000	2.3	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Bromomethane	9,600	43,000	5.1	--	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9	<69.9
sec-Butylbenzene	145,000	145,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	159	46.5 J	<25.0	<25.0
tert-Butylbenzene	183,000	183,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
n-Butylbenzene	108,000	108,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	324	152	<25.0	<25.0
Carbon tetrachloride	916	4,030	3.9	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Chlorobenzene	370,000	761,000	135.8	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Chlorodibromomethane	8,280	38,900	32	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Chloroethane	2,120,000	2,120,000	226.6	--	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0	<67.0
Chloroform	454	1,980	3.3	--	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	<46.4	**151 J C**	**133 J C**	<46.4	<46.4
Chloromethane	159,000	669,000	15.5	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
2-Chlorotoluene	907,000	907,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
4-Chlorotoluene	253,000	253,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2-Dibromo-3-chloropropane	7.50	92.3	0.17	--	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2	<91.2
1,2-Dibromoethane	50.0	221	0.0282	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Dibromomethane	34,000	143,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2-Dichlorobenzene	376,000	376,000	1,168	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,3-Dichlorobenzene	297,000	297,000	1,152.8	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,4-Dichlorobenzene	3,740	16,400	144	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Dichlorodifluoromethane	126,000	530,000	3,086.3	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1-Dichloroethane	5,060	22,200	483.4	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2-Dichloroethane	652	2,870	2.84	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1-Dichloroethene	320,000	1,190,000	5.02	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
cis-1,2-Dichloroethene	156,000	2,340,000	41.2	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
trans-1,2-Dichloroethene	1,560,000	1,850,000	62.6	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2-Dichloropropane	406	1,780	3.3	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,3-Dichloropropane	1,490,000	1,490,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
2,2-Dichloropropane	191,000	191,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1-Dichloropropene	--	--	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
cis-1,3-Dichloropropene	1,210,000	1,210,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
trans-1,3-Dichloropropene	1,510,000	1,510,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Diisopropyl ether	2,260,000	2,260,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Ethylbenzene	8,020	35,400	1,570	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	74.1	1,060	<25.0	61.8 J
Fluorotrichloromethane	1,230,000	1,230,000	4,477.5	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Hexachlorobutadiene	1,630	7,190	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Isopropylbenzene	268,000	268,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	112	211	<25.0	<25.0
p-Isopropyltoluene	162,000	162,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Methylene chloride	61,800	1,150,000	2.56	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Methyl-tert-butyl-ether	63,800	282,000	27	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Naphthalene	5,520	24,100	658.2	--	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0	<40.0
n-Propylbenzene	264,000	264,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	545	778	<25.0	32.5 J
Styrene	867,000	867,000	220	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1,2,2-Tetrachloroethane	810	3,600	0.16	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1,1,2-Tetrachloroethane	2,780	12,300	53.4	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Tetrachloroethene	33,000	145,000	4.54	--	**44.8 J C**	<25.0	<25.0	<25.0	**44.6 J C**	<25.0	**371 C**	<25.0	<25.0	<25.0	**109 C**	**39.1 J C**
Toluene	818,000	818,000	1,107.2	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2,3-Trichlorobenzene	62,600	934,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2,4-Trichlorobenzene	24,000	113,000	408	--	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6	<47.6
1,1,1-Trichloroethane	640,000	640,000	140.2	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,1,2-Trichloroethane	1,590	7,010	3.2	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Trichloroethene	1,300	8,410	3.6	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2,3-Trichloropropane	5.10	109.0	51.9	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
1,2,4-Trimethylbenzene[1]	219,000	219,000	1,382.1	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	36.6 J	<25.0	<25.0
1,3,5-Trimethylbenzene[1]	182,000	182,000	1,382.1	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
Vinyl chloride	66.8	2,080	0.1	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
o-Xylene	434,000	434,000	--	--	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0	<25.0
m-&p-Xylene[2]	388,000	388,000	--	--	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0	<50.0
Xylenes, total	260,000	260,000	3,960	--	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0	<75.0

TABLE 1. SOIL ANALYTICAL RESULTS
MARQUETTE UNIVERSITY PHASE II
1201 WEST WELLS STREET
MILWAUKEE, WISCONSIN
RAMBOLL-ENVIRON PROJECT NO. 21-43145B

Parameters	Soil RCLs			BTV	B-1 (3-4')	B-1 (11.5-12.5')	B-2 (3-4')	B-2 (12-13')	B-3 (3-4')	B-3 (11-12')	B-4 (2-3')	B-4 (10-11')	B-5 (12.5-13.5')	B-5 (14-15')	B-6 (3-4')	B-6 (11-12')
	Non-Industrial Direct Contact	Industrial Direct Contact	Groundwater Pathway		10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17	10/09/17
PAHs (µg/kg)																
Acenaphthene	3,590,000	45,200,000	--	--	<4.3	7.1 J	13.3 J	<4.6	9.3 J	<4.6	<4.6	<4.4	<4.4	<4.8	<4.5	<4.3
Acenaphthylene	--	--	--	--	<3.7	<3.9	6.3 J	<3.9	<3.8	<3.9	<3.9	<3.8	<3.7	<4.1	<3.8	<3.7
Anthracene	17,900,000	100,000,000	196,949.2	--	<6.3	<6.8	25.3	<6.7	16.7 J	<6.8	10.6 J	<6.5	<6.4	<7.0	<6.6	<6.4
Benzo(a)anthracene	1140	20,800	--	--	11.7 J	17.3	64.3	<3.7	26.0	5.5 J	27.6	<3.6	<3.6	<3.9	5.9 J	<3.6
Benzo(a)pyrene	115	2110	470	--	12.1	15.3	65.7	<2.9	20.2	4.9 J	26.3	3.7 J	<2.8	<3.1	4.2 J	<2.8
Benzo(b)fluoranthene	1150	21,100	479.3	--	20.6	21.8	79.0	<3.3	25.7	7.1 J	39.9	4.7 J	3.5 J	<3.5	6.5 J	<3.2
Benzo(ghi)perylene	--	--	--	--	11.1	10.7	38.8	<2.4	11.6	4.3 J	20.9	5.1 J	<2.3	<2.5	3.2 J	<2.3
Benzo(k)fluoranthene	11,500	211,000	--	--	7.1 J	9.4 J	33.5	<2.9	10.9	<3.0	14.4	<2.9	<2.8	<3.1	<2.9	<2.8
Chrysene	115,000	2,110,000	144.6	--	15.2	21.5	67.2	<4.0	24.4	6.6 J	33.7	<3.8	<3.8	<4.1	6.5 J	<3.8
Dibenzo(a,h,)anthracene	115	2110	--	--	<2.5	<2.7	9.0 J	<2.6	3.2 J	<2.6	4.4 J	<2.6	<2.5	<2.8	<2.6	<2.5
Fluoranthene	2,390,000	30,100,000	88,877.8	--	33.9	52.2	143	<6.1	66.1	15.2 J	77.5	6.5 J	<5.9	<6.4	10.7 J	<5.8
Fluorene	2,390,000	30,100,000	14,829.9	--	<4.6	6.2 J	15.0 J	<4.9	9.7 J	<4.9	<4.9	<4.7	<4.7	<5.1	<4.8	<4.6
Indeno(1,2,3-cd)pyrene	1150	21,100	--	--	8.3	9.2	34.6	<2.6	9.9	3.0 J	17.4	2.6 J	<2.5	<2.7	<2.5	<2.5
1-Methylnaphthalene	17,600	72,700	--	--	<4.5	<4.8	7.5 J	<4.7	<4.7	<4.8	<4.8	<4.6	12.1 J	47.0	<4.6	5.0 J
2-Methylnaphthalene	239,000	3,010,000	--	--	<5.6	<5.9	7.7 J	<5.9	<5.8	<5.9	<5.9	<5.7	<5.6	8.4 J	<5.8	<5.6
Naphthalene	5,520	24,100	658.2	--	<9.4	<10.0 C4	20.4 J	<9.9	<9.8	<10	<9.9	<9.6 C4	52.5	35.3	<9.7	10.0 J
Phenanthrene	--	--	--	--	15.6 J	53.0	128	<13.7	79.8	<13.8	57.0	<13.3	<13.1	<14.3	<13.5	<13.1
Pyrene	1,790,000	22,600,000	54,545.5	--	27.9	43.9	126	<5.3	56.2	12.5 J	61.1	5.4 J	<5.1	<5.5	12.1 J	<5.1
Metals (mg/kg)																
Arsenic[3]	0.677	3.00	0.58	8.3	**3.7 J A,B,C**	**4.6 J C**	**8.2 A,B,C**	**3.9 J C**	**6.9 A,B,C**	**3.3 J A,B,C**	**6.1 A,B,C**	**4.1 J A,B,C**	**3.3 J A,B,C**	**3.5 J A,B,C**	**3.9 J A,B,C**	**3.7 J A,B,C**
Barium[3]	15,300	100,000	164.8	364	48.0	72.1	105	49.9	86.2	65.6	128	47.8	20.0	94.4	43.7	43.1
Cadmium[3]	71	985	0.75	1.07	0.15 J	0.23 J	0.43 J	0.19 J	0.19 J	0.28 J	**7.7 C,D**	0.15 J	0.16 J	0.18 J	0.21 J	0.14 J
Chromium	--	--	360,000	43.5	19.5	19.0	39.0	18.3	20.4	27.1	14.0	17.7	9.3	27.9	16.1	14.2
Lead[3]	400	800	27	51.6	7.0	9.8	**214 C,D**	8.2	13.8	9.0	**135 C,D**	7.8	7.1	8.7	6.9	6.6
Mercury	3.13	3.13	0.21	--	0.015 J	<0.013	**0.59 C**	<0.012	<0.012	0.016 J	0.013 J	<0.012	<0.012	0.020 M0	<0.012	0.012 J
Selenium	391	5,840	0.52	--	<1.2	<1.2	<1.3	<1.3	<1.2	<1.2	**1.5 J C**	<1.3	<1.2	<1.2	<1.2	<1.2
Silver	391	5,840	0.85	--	<0.37	<0.38	<0.42	<0.39	<0.37	<0.38	<0.41	<0.39	<0.37	<0.37	<0.37	<0.37

Notes:

VOCs = Volatile Organic Compounds
PAHs = Polynuclear Aromatic Hydrocarbons
RCL = Residual Contaminant Level
BTV = Background Threshold Value
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram

[1] Groundwater Pathway RCL listed is for 1,2,4- and 1,3,5-Trimethylbenzenes combined.

[2] Direct Contact RCL listed is for the more stringent m-Xylene.

[3] Parameter BTV is larger than one or more of the RCLs or is the only standard available.

A Parameter exceeds NR 720 Residual Contaminant Level (RCL) for Non-Industrial Direct Contact.
B Parameter exceeds NR 720 RCL for Industrial Direct Contact.
C Parameter exceeds NR 720 RCL for Groundwater Pathway.
D Parameter exceeds Surficial BTV for metals.
J Estimated concentration at or above the LOD and below the LOQ.
M0 = Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.
-- No RCL or Surficial BTV established.
Direct contact RCL exceedances apply to soil from 0 to 4 feet below ground surface.
Soil RCLs and surficial BTVs established by the WDNR RR program using the EPA's RSL web-calculator with WAC NR 720 default parameters (WDNR PUB-RR-890, June 2014 - updated RCL spreadsheet, March 2017).

TABLE 2. GROUNDWATER ANALYTICAL RESULTS
MARQUETTE UNIVERSITY PHASE II
1201 WEST WELLS STREET
MILWAUKEE, WISCONSIN
RAMBOLL-ENVIRON PROJECT NO. 21-43145B

Parameters	NR 140 Standards		TW-1	TW-2	TW-3	TW-4	TW-5	TW-6
	ES	PAL	10/10/17	10/10/17	10/10/17	10/10/17	10/10/17	10/10/17
VOCs (µg/L)								
Benzene	**5**	*0.5*	<0.50	<0.50	<0.50	<0.50	***12.3***	***681***
Bromobenzene	**--**	--	<0.23	<0.23	<0.23	<0.23	<0.23	<2.3
Bromochloromethane	**--**	--	<0.34	<0.34	<0.34	<0.34	<0.34	<3.4
Bromodichloromethane	**0.6**	*0.06*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
Bromoform	**4.4**	*0.44*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
Bromomethane	**10**	*1*	<2.4	<2.4	<2.4	<2.4	<2.4	<24.3
n-Butylbenzene	**--**	--	<0.50	<0.50	<0.50	<0.50	13.5	5.8 J
sec-Butylbenzene	**--**	--	<2.2	<2.2	<2.2	<2.2	7.3	<21.9
tert-Butylbenzene	**--**	--	<0.18	<0.18	<0.18	<0.18	0.67 J	<1.8
Carbon tetrachloride	**5**	*0.5*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
Chlorobenzene	**--**	--	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
Chloroethane	**400**	*80*	<0.37	<0.37	<0.37	<0.37	<0.37	<3.7
Chloroform	**6**	*0.6*	<2.5	<2.5	<2.5	<2.5	<2.5	<25.0
Chloromethane	**30**	*3*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
2-Chlorotoluene	**--**	--	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
4-Chlorotoluene	**--**	--	<0.21	<0.21	<0.21	<0.21	<0.21	<2.1
Dibromochloromethane	**60**	*6*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
1,2-Dibromo-3-chloropropane	**0.2**	*0.02*	<2.2	<2.2	<2.2	<2.2	<2.2	<21.6
1,2-Dibromoethane	**0.05**	*0.005*	<0.18	<0.18	<0.18	<0.18	<0.18	<1.8
Dibromomethane	**--**	--	<0.43	<0.43	<0.43	<0.43	<0.43	<4.3
1,2-Dichlorobenzene	**600**	*60*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
1,3-Dichlorobenzene	**600**	*120*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
1,4-Dichlorobenzene	**75**	*15*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
Dichlorodifluoromethane	**1000**	*200*	<0.22	<0.22	<0.22	<0.22	<0.22	<2.2
1,1-Dichloroethane	**850**	*85*	<0.24	<0.24	<0.24	<0.24	<0.24	<2.4
1,2-Dichloroethane	**5**	*0.5*	<0.17	<0.17	<0.17	<0.17	*2.2*	<1.7
1,1-Dichloroethene	**7**	*0.7*	<0.41	<0.41	<0.41	<0.41	<0.41	<4.1
cis-1,2-Dichloroethene	**70**	*7*	<0.26	<0.26	3.3	<0.26	3.4	4.9 J
trans-1,2-Dichloroethene	**100**	*20*	<0.26	<0.26	0.65 J	<0.26	2.0	<2.6
1,2-Dichloropropane	**5**	*0.5*	<0.23	<0.23	<0.23	<0.23	<0.23	<2.3
1,3-Dichloropropane	**--**	--	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
2,2-Dichloropropane	**--**	--	<0.48	<0.48	<0.48	<0.48	<0.48	<4.8
1,1-Dichloropropene	**--**	--	<0.44	<0.44	<0.44	<0.44	<0.44	<4.4
cis-1,3-Dichloropropene	**0.4**	*0.04*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
trans-1,3-Dichloropropene	**0.4**	*0.04*	<0.23	<0.23	<0.23	<0.23	<0.23	<2.3
Diisopropyl ether	**--**	--	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
Ethylbenzene	**700**	*140*	<0.50	<0.50	<0.50	<0.50	23.6	*404*
Hexachlorobutadiene	**--**	--	<2.1	<2.1	<2.1	<2.1	<2.1	<21.1
Isopropylbenzene	**--**	--	<0.14	<0.14	<0.14	<0.14	12.7	9.3 J
p-Isopropyltoluene	**--**	--	<0.50	<0.50	<0.50	<0.50	3.2	<5.0
Methylene chloride	**5**	*0.5*	0.42 JB	0.46 JB	0.31 JB	0.46 JB	<0.23	<2.3
Methyl-tert-butyl-ether	**60**	*12*	<0.17	<0.17	<0.17	<0.17	<0.17	<1.7
Naphthalene	**100**	*10*	<2.5	<2.5	<2.5	<2.5	<2.5	<25.0
n-Propylbenzene	**--**	--	<0.50	<0.50	<0.50	<0.50	47.7	21.8
Styrene	**100**	*10*	<0.50 L1	<0.50 L1	<0.50 L1	<0.50 L1	<0.50 L1	<5.0 L1
1,1,1,2-Tetrachloroethane	**70**	*7*	<0.18	<0.18	<0.18	<0.18	<0.18	<1.8
1,1,2,2-Tetrachloroethane	**0.2**	*0.02*	<0.25	<0.25	<0.25	<0.25	<0.25	<2.5
Tetrachloroethene	**5**	*0.5*	<0.50	<0.50	***188***	<0.50	*2.0*	<5.0
Toluene	**800**	*160*	<0.50	<0.50	<0.50	<0.50	0.68 J	65.1
1,2,3-Trichlorobenzene	**--**	--	<2.1	<2.1	<2.1	<2.1	<2.1	<21.3
1,2,4-Trichlorobenzene	**70**	*14*	<2.2	<2.2	<2.2	<2.2	<2.2	<22.1
1,1,1-Trichloroethane	**200**	*40*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
1,1,2-Trichloroethane	**5**	*0.5*	<0.20	<0.20	<0.20	<0.20	<0.20	<2.0
Trichloroethene	**5**	*0.5*	<0.33	<0.33	***8.5***	<0.33	<0.33	<3.3
Trichlorofluoromethane	**3490**	*698*	<0.18	<0.18	<0.18	<0.18	<0.18	<1.8
1,2,3-Trichloropropane	**60**	*12*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
1,2,4-Trimethylbenzene[1]	**480**	*96*	<0.50	<0.50	<0.50	<0.50	17.9	*154*
1,3,5-Trimethylbenzene[1]	**480**	*96*	<0.50	<0.50	<0.50	<0.50	<0.50	7.5 J
Vinyl chloride	**0.2**	*0.02*	<0.18	<0.18	<0.18	<0.18	***0.43*** ***J***	<1.8
m&p-Xylene[2]	**2,000**	*400*	<1.0 L1	<1.0 L1	<1.0 L1	<1.0 L1	1.2 JL1	246 L1
o-Xylene[2]	**2,000**	*400*	<0.50	<0.50	<0.50	<0.50	<0.50	<5.0
Xylenes, total	**2,000**	*400*	<1.5 LS	<1.5 LS	<1.5 LS	<1.5 LS	<1.5 LS	250 LS
PAHs (µg/L)								
Acenaphthene	**--**	--	0.051	0.022 J	0.0084 J	0.014 J	0.028 J	0.015 J
Acenaphthylene	**--**	--	0.0082 J	<0.010	<0.0065	<0.0053	0.0062 J	0.0062 J
Anthracene	**3000**	*600*	0.060	<0.021	<0.014	0.014 J	<0.011	<0.012
Benzo(a)anthracene	**--**	--	0.088	<0.015	0.023 J	0.030 J	0.0085 J	0.0087 J
Benzo(a)pyrene	**0.2**	*0.02*	*0.075*	<0.021	0.020 J	*0.031* *J*	<0.011	<0.012
Benzo(b)fluoranthene	**0.2**	*0.02*	*0.12*	*0.024* *J*	*0.043*	*0.067*	<0.0062	<0.0064
Benzo(ghi)perylene	**--**	--	0.077	0.019 J	0.033 J	0.046	<0.0073	<0.0075
Benzo(k)fluoranthene	**--**	--	0.074	0.020 J	0.026 J	0.036 J	<0.0081	<0.0084
Chrysene	**0.2**	*0.02*	*0.17*	*0.040* *J*	*0.066* *J*	*0.071*	*0.031* *J*	<0.014
Dibenzo(a,h,)anthracene	**--**	--	0.013 J	<0.020	<0.013	<0.011	<0.011	<0.011
Fluroanthene	**400**	*80*	0.35	0.13	0.15	0.21	0.033 J	0.066
Fluorene	**400**	*80*	0.040 J	<0.016	<0.010	0.014 J	0.017 J	0.011 J
Indeno(1,2,3-cd)pyrene	**--**	--	0.059 J	<0.036	<0.023	0.034 J	<0.019	<0.020
1-Methylnaphthalene	**--**	--	0.033	<0.012	0.012 J	0.0082 J	1.4	3.2
2-Methylnaphthalene	**--**	--	0.036	<0.010	0.014 J	0.012 J	0.041	0.15
Naphthalene	**100**	*10*	0.17	<0.037	<0.024	<0.020	2.5	5.6
Phenanthrene	**--**	--	0.33	0.089 J	0.13	0.17	0.073 J	0.10
Pyrene	**250**	*50*	0.32	0.11	0.14	0.17	0.030 J	0.055
Metals (µg/L)								
Arsenic	**10**	*1*	*10* *J*	<8.3	<8.3	<8.3	<8.3	***10.9*** ***J***
Barium	**2000**	*400*	239	170	114	141	370	204
Cadmium	**5**	*0.5*	<1.3	<1.3	<1.3	<1.3	<1.3	<1.3
Chromium	**100**	*10*	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
Lead	**15**	*1.5*	<4.3	<4.3	<4.3	<4.3	<4.3	<4.3
Selenium	**50**	*10*	<16.6	<16.6	<16.6	<16.6	<16.6	<16.6
Silver	**50**	*10*	<3.3	<3.3	<3.3	<3.3	<3.3	<3.3
Mercury	**2**	*0.2*	<0.25 D3	<0.13	<0.13	<0.50 D3	<0.50 D3	<0.25 D3

Notes:

VOCs = Volatile Organic Compounds
PAHs = Polynuclear Aromatic Hydrocarbons
µg/L = micrograms per Liter
[1] Standards are for 1,2,4- and 1,3,5-Trimethylbenzene
[2] Standards are for Total Xylenes (-m, -p and -o).
ES = Enforcement Standard
PAL = Preventive Action Limit
Bold value = NR 140 ES Exceedance
Italic value = NR 140 PAL Exceedance
-- No NR 140 ES or PAL established.
J = Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
B = Analyte was detected in the associated method blank.
L1 = Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.
LS = Analyte recovery in the laboratory control sample (LCS) was outside QC limits for one or more of the constituent analyties used in the calculated result.
D3 = Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.