



Groundwater Monitoring and Remedial Action Plan Report

1940-48 North Dr. Martin Luther King Jr. Drive
Milwaukee, Wisconsin

Prepared For:

The Redevelopment Authority of the City of Milwaukee
Milwaukee, Wisconsin

December 14, 2005
Project No. 1E-0308029



GILES
ENGINEERING ASSOCIATES, INC.



GILES

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GEOTECHNICAL, ENVIRONMENTAL & CONSTRUCTION MATERIALS CONSULTANTS

- Atlanta, GA
- Dallas, TX
- Los Angeles, CA
- Milwaukee, WI
- Orlando, FL
- Washington, D.C.

December 13, 2005

Wisconsin Department of Natural Resources
2300 North Dr. Martin Luther King Jr. Drive
Milwaukee, WI 53212

Attention: Pam Mylotta
Hydrogeologist

Subject: Groundwater Monitoring and
Remedial Action Plan Report
1940-48 North Dr. Martin Luther King Jr. Drive
Milwaukee, Wisconsin
FID No. 341106590
BRRTS No. 02-41-537847
Giles Project No. 1E-0308029

Dear Ms. Mylotta:

Giles Engineering Associates, Inc (Giles), on behalf of our client, the Redevelopment Authority of the City of Milwaukee (RACM), is presenting this Groundwater Monitoring and Remedial Options Report for the above-referenced property (Site) for your review. The Site is located on the east side of North Dr. Martin Luther King Jr. Drive, south of West Brown Street, and includes the individual parcels currently known as 1940 North Dr. Martin Luther King Jr. Drive, 1944 North Dr. Martin Luther King Jr. Drive, 1948 North Dr. Martin Luther King Jr. Drive, and 227-227R West Brown Street. The Site is approximately 0.26 acre in size and is currently vacant and grass covered. The topography is relatively level. The general location of the Site is shown on Figure 1. The proposed development includes two buildings, a garage structure, a concrete parking area, scored concrete walking areas, and small landscape features. The Site features, including the proposed development, are shown on Figure 2.

BACKGROUND INFORMATION

Review of Giles' *Site Investigation Report* for the Site, dated October 3, 2005 (Revision 1) indicated that the historical land uses of the Site that raised potential environmental concerns (according to a *Phase I Environmental Site Assessment*, prepared by the City of Milwaukee Health Department and Department of City Development and dated November 17, 1999) included insulation contractor, auto trim and supply company, printing company, auto repair garage, and jewelry manufacturer. In 1994, Hydro-Search, Inc. completed a *Phase II Environmental Site Assessment* of the 227-227R West Brown Street portion of the Site (October 19, 1994). Arsenic and chromium were detected above their respective Wisconsin



Administrative Code (WAC) Natural Resources Chapter 720 (NR 720) direct-contact residual contaminant levels (RCLs). It was recommended in the Phase I ESA that further environmental investigation of the Site be performed.

Giles performed a magnetometer survey, exploratory test trenching, and completed five soil borings at the Site. The magnetometer survey identified two unknown magnetic anomalies; subsequent exploratory test trenching uncovered buried metal pipes and related building debris. No underground storage tanks (USTs) or buried drums were detected. Fill and possible fill soil, consisting primarily of silty clay to clayey silt with fine to coarse sand and gravel and trace building debris (wood, brick, concrete) was observed at the Site from the ground surface to approximately eight feet below the ground surface (bgs). Native soil consisted of silty clay to silty fine to medium sand and gravel. Two of the soil borings were converted into temporary groundwater wells; and one of the soil borings was converted into an NR 141-compliant groundwater monitoring well (MW-1). The depth-to-groundwater in MW-1 was measured between 14 and 16 feet bgs.

The soil analytical results included in the Site Investigation Report indicate that the top four feet of the Site are primarily impacted with polycyclic aromatic hydrocarbons (PAHs) and lead that exceed Wisconsin Department of Natural Resources (WDNR) suggested and NR 720.11, respectively, non-industrial, direct-contact RCLs. Based on the results of a toxicity characteristic leaching procedure, the highest detected concentration of lead (497 milligrams per kilogram [mg/kg]) was determined to not be characteristically hazardous. The soil analytical results are shown on Figure 3.

The groundwater analytical results included in the Site Investigation Report indicate that the groundwater samples submitted from the temporary wells were impacted Resource Conservation and Recovery Act (RCRA) metals that exceeded NR 140 enforcement standards (ES) and/or preventive action limits (PAL). However, the groundwater sample submitted from NR 141-compliant MW-1 contained only a concentration of total chromium that exceeded the NR 140 PAL. This concentration of chromium was also below the laboratory method quantitation limit (MQL). Volatile organic compounds (VOCs) and PAHs were not detected above laboratory method detection limits (MDL) in the submitted groundwater samples. The groundwater analytical results are shown on Figure 4.

GROUNDWATER MONITORING

Giles performed two additional groundwater sampling events of MW-1 on July 14, 2005 and October 20, 2005. The groundwater monitoring was performed to demonstrate that detections of RCRA metals in the groundwater at the Site would not exceed NR 140 ES. The groundwater samples were submitted to APL, Inc. analytical laboratory (WDNR certification no. 241340550) for analysis of RCRA metals by Environmental Protection Agency (EPA) Methods 200, 6000, or 7000 Series. The sample collection, preservation, storage, and transportation were performed in general accordance with WDNR and American Society for Testing and Materials (ASTM) requirements.



The groundwater analytical results indicate that the groundwater samples submitted during the two additional sampling events contained concentrations of selenium that exceeded the NR 140 PAL. No other RCRA metals were detected above their respective laboratory MQL and/or MDL. Additionally, no exceedances of NR 140 ES were detected during the two rounds of groundwater sampling. Groundwater analytical results from July 14, 2005 and October 20, 2005 are summarized in Table 1 and are shown on Figure 4. The groundwater analytical laboratory reports and chain-of-custody documentation are included in Appendix A.

REMEDIAL ACTION PLAN

As previously stated, the development plan for the Site includes two buildings, a garage structure, a concrete parking area, scored concrete walking areas, and small landscape features. The development plan is shown on the attached Figures. The following is a recommended pathway to case closure for the Site incorporating this plan:

- Because the groundwater at the Site is not significantly impacted, the groundwater monitoring well MW-1 will be abandoned in accordance with NR 141 prior to construction activities.
- During construction activities, any soil that is excavated from the top eight feet of the Site and cannot be reused as structural backfill will be disposed of at a licensed special waste landfill.
- The proposed buildings and paved areas will function as engineered controls to prevent direct-contact exposure with impacted soil within the top four feet of the Site.
- A barrier will not be placed in proposed landscape areas due to their relatively small size. Additionally, direct-contact risk at the landscape areas is considered low due to the placement of top soil for planting.
- A soil management plan will be in place prior to the commencement of construction activities.
- Following the completion of construction, a Request for Case Closure packet will be completed for the Site. The packet will include a draft deed restriction and a cap (building foundations and paved areas) maintenance plan.
- The Request for Case Closure packet will also include a request for an NR 140.28 PAL Exemption.
- A soil GIS Registry packet will be completed for the Site and submitted with the Request for Case Closure packet.



Groundwater Monitoring and Remedial Action Plan Report
1940-48 North Dr. Martin Luther King Jr. Drive
Giles Project No. 1E-0308029
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CLOSING

Supplemental groundwater monitoring activities have been completed at 1940-48 North Dr. Martin Luther King Drive in Milwaukee, Wisconsin. Fill soil at the Site is impacted with lead and PAHs. Based on the forgoing, Giles, on behalf of the RACM, requests that the WDNR conceptually approve the remedial action proposed for the Site as set forth in the preceding section of this report. If you have any questions or comments related to this submittal, please contact the undersigned at (262) 544-0118.

Respectfully submitted,

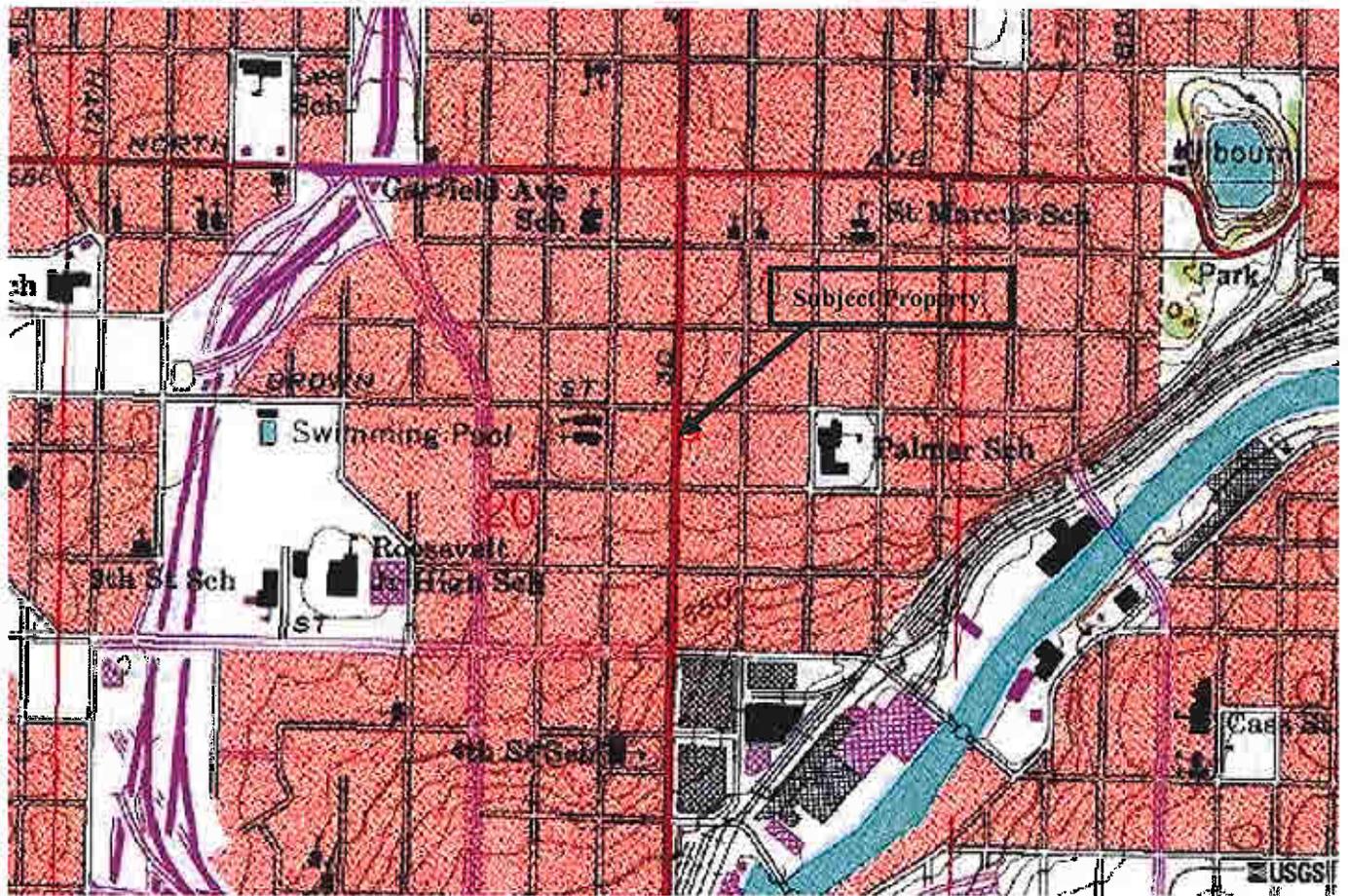
GILES ENGINEERING ASSOCIATES, INC.

Erika L. Biemann, CHMM
Staff Environmental Scientist II

Steven C. Thuemling
Project Scientist II

Enclosures: Figure 1: Site Location
 Figure 2: Site Features and Boring Location Plan
 Figure 3: Soil Analytical Results
 Figure 4: Groundwater Analytical Results
 Table 1: Monitoring Well Analytical Results
 Appendix A Groundwater Laboratory Analytical Reports and Chains-of-Custody

Distribution: Wisconsin Department of Natural Resources
 Attn: Ms. Pam Mylotta (1)
 The Redevelopment Authority of the City of Milwaukee
 Attn: Ms. Johanna Howard (3)



Source: USGS Milwaukee, Wisconsin 7.5-minute series (topographic) quadrangle map (1958 photorevised 1971)

Scale: 1:24,000



**FIGURE 1
SITE LOCATION**

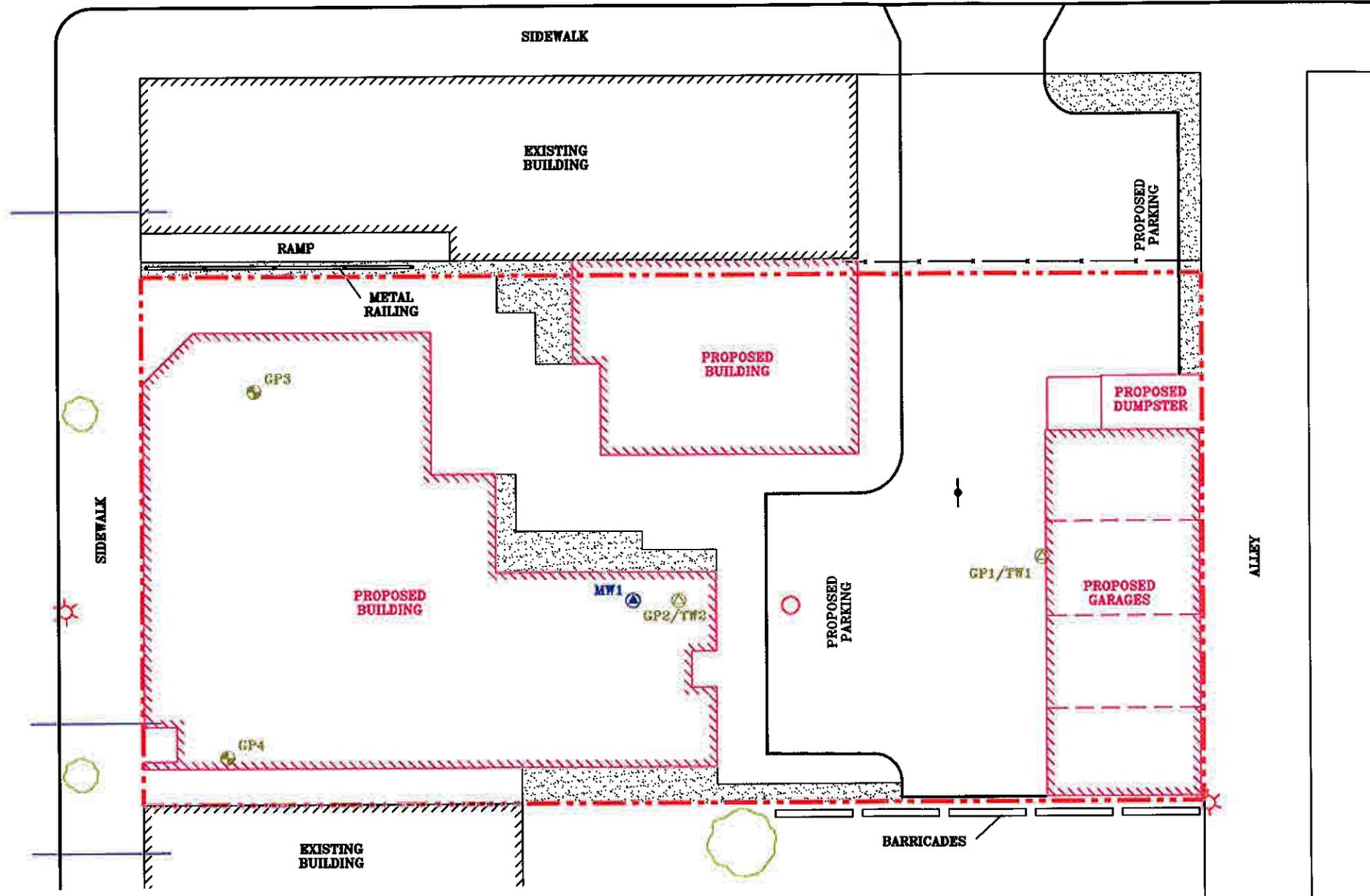
**1940-48 North Dr. Martin Luther King Jr. Drive
Milwaukee, Wisconsin
Project No. 1E-0308029**



GILES
ENGINEERING ASSOCIATES, INC.

NORTH MARTIN LUTHER KING JR. DRIVE

WEST BROWN STREET



LEGEND:

- SUBJECT PROPERTY LINE
- CURB LINE
- - - FENCE
- ☼ LIGHT POST
- TELEPHONE POLE
- WATER LINE
- ◯ TREE
- ⬮ SIGN
- - - PROPOSED CURB LINE
- ▨ PROPOSED LANDSCAPE AREA

LEGEND:

- ⊕ MW1 GROUNDWATER MONITORING WELL
- ⊙ GP4 GEOPROBE BORING
- ⊙ GP2/TW2 GEOPROBE BORING/TEMPORARY MONITORING WELL



GILES ENGINEERING ASSOCIATES, INC.
 NO W22350 JOHNSON DRIVE, SUITE A1
 WAUKESHA, WI 53186 (262)-544-0118

FIGURE 2
 SITE FEATURES AND BORING LOCATION PLAN
 1940-1948 N. Dr. MARTIN LUTHER KING Jr. DRIVE
 MILWAUKEE, WISCONSIN

DESIGNED	DRAWN	SCALE	DATE	REVISED
ELB	JSZ	1"=20'	11-18-05	--
PROJECT NO.: 1E-0308029			CAD No. E308029A	

2-4' DEPTH
 PID = BDL
 VOCs < LOD
 DETECTED PAHs
 AT = 61j
 B(a) = (377)
 B(b) = (393)
 B(k) = 150
 B(a)P = (293)
 B(ghi) = 168
 C = 400
 F = 623
 IP = (145)
 PA = 378
 P = 755
 DETECTED RCRA METALS
 As = (5.1)
 Ba = 55
 Cd = 1.1j
 Cr (Total) = 11
 Pb = (188)
 Hg = 0.25
 Se = 0.7

5-6' DEPTH
 PID = BDL
 VOCs < LOD
 PAHs < LOD
 DETECTED RCRA METALS
 As = 2.2
 Ba = 15
 Cd = 1.8j
 Cr (Total) = 10
 Pb = 25
 Se = 0.5

NORTH
 MARTIN
 LUTHER
 KING
 JR.
 DRIVE

2-4' DEPTH
 PID = BDL
 VOCs < LOD
 DETECTED PAHs
 B(a) = (834)
 B(b) = (480)
 B(k) = 154
 B(a)P = (262)
 B(ghi) = 92j
 C = 381
 F = 624
 IP = 78j
 PA = 284
 P = 749
 DETECTED RCRA METALS
 As = (9.8)
 Ba = 181
 Cd = 1.9
 Cr (Total) = 13
 Pb = (343)
 Hg = 0.71
 Se = 1.1

5-6' DEPTH
 PID = BDL
 VOCs < LOD
 PAHs < LOD
 DETECTED RCRA METALS
 As = 4.2
 Ba = 8.6
 Cd = 1.8
 Cr (Total) = 8.1
 Pb = 31
 Se = 1

0-2' DEPTH
 PID = BDL
 VOCs < LOD
 DETECTED PAHs
 AT = 77j
 B(a) = (845)
 B(b) = (860)
 B(k) = 262
 B(a)P = (555)
 B(ghi) = 254
 C = 782
 F = 1,100
 PA = 549
 P = 1,320
 DETECTED RCRA METALS
 As = (9.9)
 Ba = 203
 Cd = 0.8j
 Cr (Total) = 13
 Pb = (487)
 Pb (TCLP) = <0.064
 Hg = 2
 Se = 1.3

12-14' DEPTH
 PID = BDL
 VOCs < LOD
 PAHs < LOD
 DETECTED RCRA METALS
 As = 1
 Ba = 12
 Cr (Total) = 7.9
 Pb = 24
 Se = 1.1

0-2' DEPTH
 PID = BDL
 Pb = (294)
 Pb (TCLP) = 0.02

0-4' DEPTH
 PID = BDL
 VOCs < LOD
 PAHs < LOD
 DETECTED RCRA METALS
 As = (0.6)
 Ba = 93
 Cd = 1.2j
 Cr (Total) = (18)
 Pb = 15
 Se = 0.8

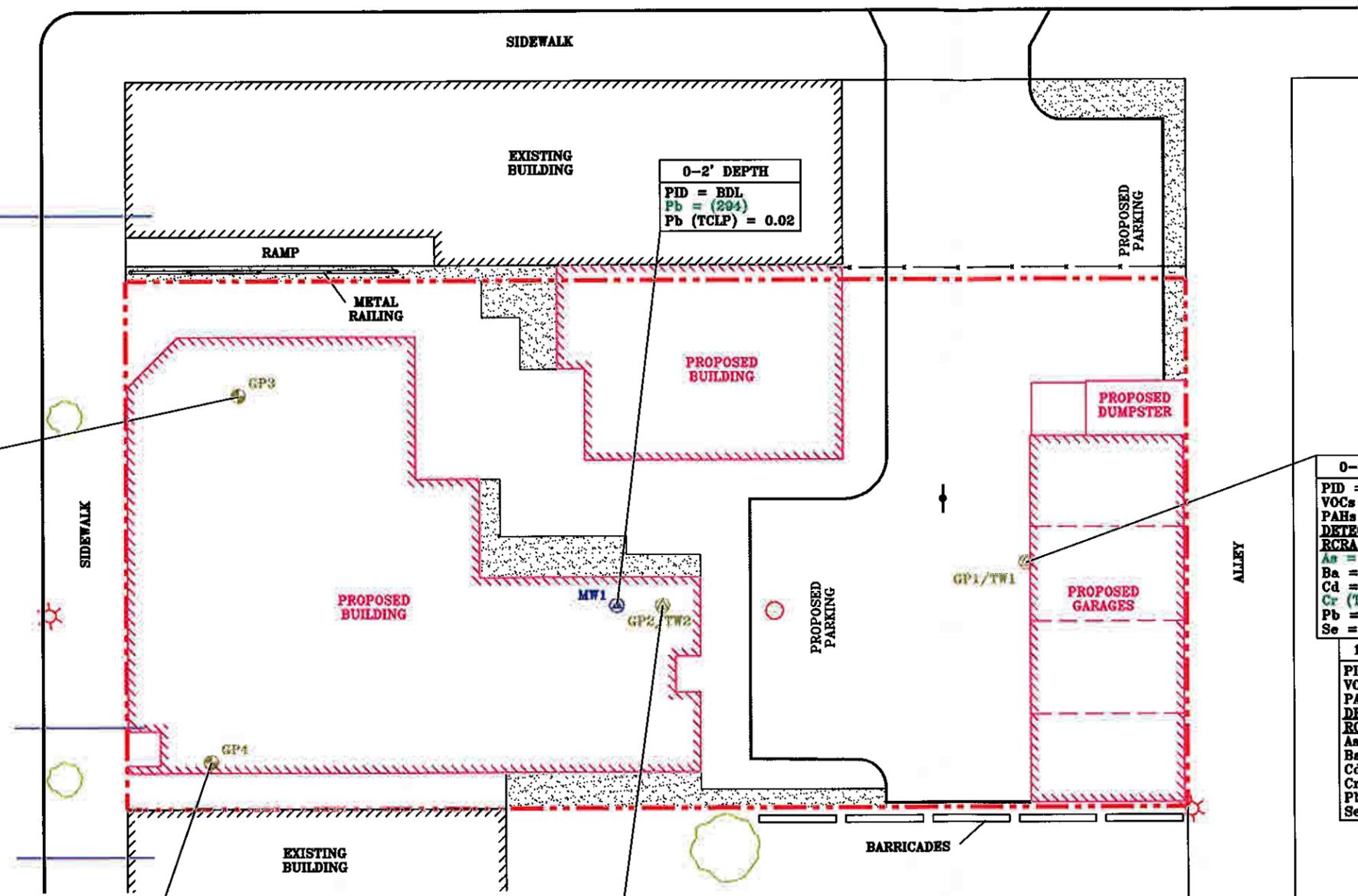
16-18' DEPTH
 PID = BDL
 VOCs < LOD
 PAHs < LOD
 DETECTED RCRA METALS
 As = 1
 Ba = 19
 Cd = 1.9
 Cr (Total) = 9.3
 Pb = 42
 Se = 1.5

CHEMICAL KEY:
 -ACP: ACENAPHTHYLENE
 -As: ARSENIC
 -AN: ACENAPHTHENE
 -AT: ANTHRACENE
 -B(a): BENZO (a) ANTHRACENE
 -B(b): BENZO (b) FLUORANTHENE
 -B(a)P: BENZO (a) PYRENE
 -B(g,h,i): BENZO (g,h,i) PERYLENE
 -B(k): BENZO (k) FLUORANTHENE
 -Ba: BARIUM
 -Cd: CADMIUM
 -Cr: CHROMIUM
 -C: CHRYSENE
 -DiBa: di BENZO (a,h) ANTHRACENE
 -F: FLUORANTHENE
 -FL: FLUORENE
 -Hg: MERCURY
 -IP: INDENO (1,2,3-cd) PYRENE
 -MN: METHYLNAPHTHALENE
 -Napht: NAPHTHALENE
 -P: PYRENE
 -Pb: LEAD
 -PA: PHENANTHRENE
 -Se: SELENIUM

ABBREVIATIONS:
 -BDL: BELOW DETECTION LIMIT
 -LOD: LIMIT OF DETECTION
 -NR: NATURAL RESOURCES
 -PAH: POLYNUCLEAR AROMATIC HYDROCARBON
 -PID: PHOTOIONIZATION DETECTOR (FIELD)
 -RCRA: RESOURCE CONSERVATION AND RECOVERY ACT
 -TCLP: TOXICITY CHARACTERISTIC LEACHING PROCEDURE
 -WAC: WISCONSIN ADMINISTRATIVE CODE
 -WDNR: WISCONSIN DEPARTMENT OF NATURAL RESOURCES

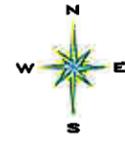
NOTES:
 FIELD PID RESULTS EXPRESSED IN INSTRUMENT UNITS
 RCRA METAL RESULTS EXPRESSED IN MILLIGRAMS PER KILOGRAM (mg/kg) EQUIVALENT TO PARTS PER MILLION (ppm)
 (TCLP) RESULTS EXPRESSED IN MILLIGRAMS PER LITER (mg/l) EQUIVALENT TO PARTS PER MILLION (ppm)
 VOC AND PAH RESULTS EXPRESSED IN MICROGRAMS PER KILOGRAM (ug/kg) EQUIVALENT TO PARTS PER BILLION (ppb)
 -j: CONCENTRATION BETWEEN LABORATORY LIMIT OF DETECTION AND QUANTITATION LIMIT.

RCRA METAL NOTES:
 RESULTS INDICATED IN GREEN/PARENTHESIS EXCEED THE WAC NR 720.11 - TABLE 2 RESIDUAL CONTAMINANT LEVELS BASED ON HUMAN HEALTH RISK FROM DIRECT CONTACT RELATED TO LAND - NON-INDUSTRIAL SITE USE. APPLICABLE TO SOIL 0-4 FEET BELOW GROUND SURFACE



LEGEND:
 - - - - - SUBJECT PROPERTY LINE
 ——— CURB LINE
 ——— FENCE
 ☼ LIGHT POST
 ○ TELEPHONE POLE
 ——— WATER LINE
 ○ TREE
 ——— SIGN
 ——— PROPOSED CURB LINE
 [] PROPOSED LANDSCAPE AREA

LEGEND:
 MW1 GROUNDWATER MONITORING WELL
 GP4 GEOPROBE BORING
 GP2/TW2 GEOPROBE BORING/TEMPORARY MONITORING WELL



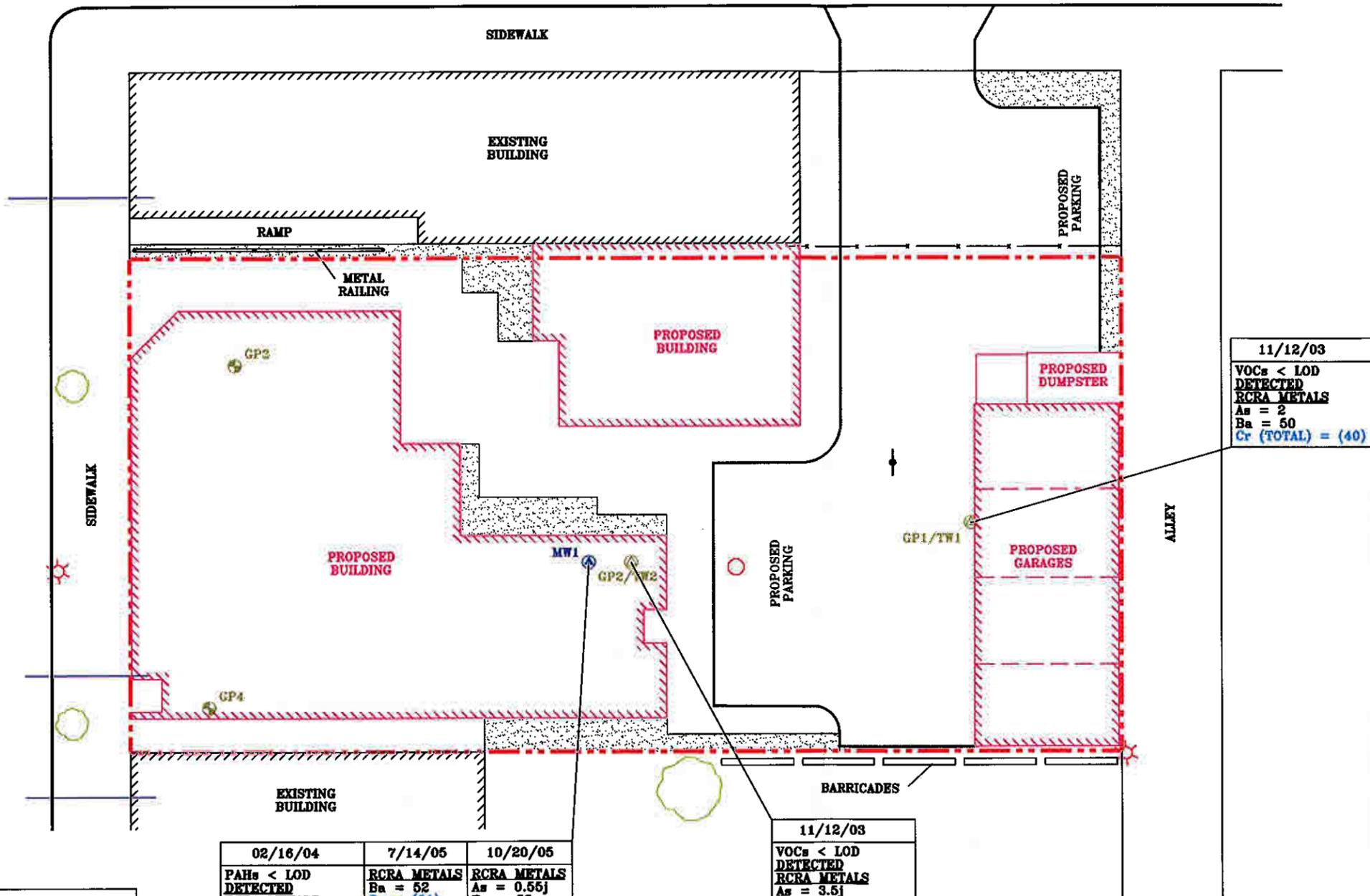
GILES ENGINEERING ASSOCIATES, INC.
 N8 W22350 JOHNSON DRIVE, SUITE A1
 WAUKESHA, WI 53186 (262)-544-0118

FIGURE 3
 SOIL ANALYTICAL RESULTS
 1940-1948 N. Dr. MARTIN LUTHER KING Jr. DRIVE
 MILWAUKEE, WISCONSIN

DESIGNED	DRAWN	SCALE	DATE	REVISED
TJH	JSZ	1"=20'	3-2-04	11-21-05
PROJECT NO.: 1E-0308029			CAD No. E308029B	

WEST BROWN STREET

NORTH MARTIN LUTHER KING JR. DRIVE



11/12/03

VOCs < LOD
DETECTED
RCRA METALS
As = 2
Ba = 50
Cr (TOTAL) = (40)

11/12/03

VOCs < LOD
DETECTED
RCRA METALS
As = 3.5j
Ba = 60
Cd = (0.71j)
Cr (TOTAL) = (60)
Pb = 21
Se = 3.2j

02/16/04	7/14/05	10/20/05
PAHs < LOD DETECTED	RCRA METALS	RCRA METALS
Ba = 350	Ba = 52	As = 0.55j
Cr (TOTAL) = (20j)	Se = (21)	Ba = 53
Se = 2.6j		Cd = 0.33j
		Pb = 1.2
		Se = (12)

LEGEND:

- - - SUBJECT PROPERTY LINE
- CURB LINE
- FENCE
- LIGHT POST
- TELEPHONE POLE
- WATER LINE
- TREE
- SIGN
- PROPOSED CURB LINE
- PROPOSED LANDSCAPE AREA

LEGEND:

- MW1 GROUNDWATER MONITORING WELL
- GP4 GEOPROBE BORING
- GP2/TW2 GEOPROBE BORING/
TEMPORARY MONITORING WELL

CHEMICAL KEY:

- As: ARSENIC
- Ba: BARIUM
- Cd: CADMIUM
- Cr: CHROMIUM
- Pb: LEAD
- Se: SELENIUM

ABBREVIATIONS:

- LOD: LIMIT OF DETECTION
- NR: NATURAL RESOURCES
- RCRA: RESOURCE CONSERVATION AND RECOVERY ACT
- VOC: VOLATILE ORGANIC COMPOUND
- WAC: WISCONSIN ADMINISTRATIVE CODE

NOTES:

VOC AND RCRA METAL RESULTS EXPRESSED IN MICROGRAMS PER LITER (ug/l) EQUIVALENT TO PARTS PER BILLION (ppb)

RESULTS INDICATED IN BLUE/PARENTHESES EXCEED THE WAC NR 140.10 TABLE 1 PUBLIC HEALTH GROUNDWATER QUALITY STANDARDS - PREVENTIVE ACTION LIMIT

RESULTS INDICATED IN RED/UNDERLINED EXCEED THE WAC NR 140.10 TABLE 1 PUBLIC HEALTH GROUNDWATER QUALITY STANDARDS - ENFORCEMENT STANDARD

-j: CONCENTRATION BETWEEN LABORATORY LIMIT OF DETECTION AND QUANTITATION LIMIT.

GILES ENGINEERING ASSOCIATES, INC.
 N8 W22350 JOHNSON DRIVE, SUITE A1
 WAUKESHA, WI 53186 (262)-544-0118

FIGURE 4
 GROUNDWATER ANALYTICAL RESULTS
 1940-1948 N. Dr. MARTIN LUTHER KING Jr. DRIVE
 MILWAUKEE, WISCONSIN

DESIGNED	DRAWN	SCALE	DATE	REVISED
TJH	JSZ	1"=20'	3-2-04	11-21-05
PROJECT NO.: 1E-0308029			CAD No. E308029C	



Table 1
Monitoring Well Analytical Results
RCRA Metals
1940-48 North Dr. Martin Luther King Jr. Drive
Milwaukee, Wisconsin
Project No. 1E-0308029

Parameters		Sample Location			WAC NR 140 PAL ¹	WAC NR 140 ES ²
		MW-1				
Date Sampled		02/16/04	07/14/05	10/20/05		
RCRA Metals (ug/l)	Arsenic	<1.22	<1.0	0.55J	1	10
	Barium	330	52	53	400	2,000
	Cadmium	<0.4	<1.0	0.33J	0.5	5
	Chromium, Total	(20) J	<7.8	<7.8	10	100
	Lead	<1.5	<6.0	1.2	1.5	15
	Mercury	<0.2	<0.2	<0.12	0.2	2
	Selenium	2.6 J	(21)	(12)	10	50
	Silver	<9	<8.0	<1.8	10	50

NOTES:

WAC: Wisconsin Administrative Code

RCRA: Resource Conservation and Recovery Act

NR: Natural Resources Chapter of the WAC

ug/l: Micrograms per liter; equivalent to parts per billion (ppb)

J: Concentrations between laboratory Limit of Detection and Limit of Quantification

ES: Enforcement Standard

PAL: Preventive Action Limit

¹: WAC NR 140.10 Table 1 Public Health Groundwater Quality Standards- PAL

²: WAC NR 140.10 Table 1 Public Health Groundwater Quality Standards- ES

Results indicated in blue/parenthesis exceed the WAC NR 140.10 PAL

Results indicated in red/underline exceed the WAC NR 140.10 ES



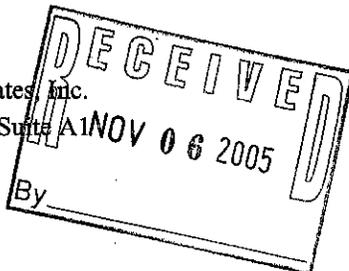
Environmental Division

8222 W Calumet Rd., Milwaukee, WI 53223
Phone: (414) 355-5800 Fax: (414) 355-3099

INORGANIC REPORT

BATCH NUMBER: 20051630
DATE REPORTED: 03-Nov-05
DATE RECEIVED: 21-Oct-05
SAMPLE PREP (C): Rec On Ice
PROJECT ID: 1E-0308029
PROJECT NAME: 1944 Dr. MLK Jr

Erika Biemann
Giles Engineering Associates, Inc.
N8 W22350 Johnson Rd. Suite A1
Waukesha, WI 53186



Sample Number: 39818
Sample ID: MW-1
Sample Description:

Collection: 10/20/05 Time: 1:00
Matrix: Water

Compound	Result	LOD	LOQ	Units	RQ	Method	Date	Dil.	Analyst
Arsenic - Furnace AA	0.00055	0.00019	0.001	mg/l	J	6020	10/28/05	1	998093910
Barium - ICAP	0.053	0.0006	0.002	mg/l	RJ	200.7	10/27/05	1	2408
Cadmium - Furnace AA	0.00033	0.00004	0.001	mg/l	J	6020	10/28/05	1	998093910
Chromium, Total - ICAP	<0.0078	0.008	0.025	mg/l	RJ	200.7	10/27/05	1	2408
Lead - Furnace AA	0.0012	0.00037	0.001	mg/l	RJ	6020	10/28/05	1	998093910
Mercury CV	<0.00012	0.0001	0.0004	mg/l	RJ	245.1	10/28/05	1	2409
Selenium - Furnace AA	0.012	0.00035	0.001	mg/l	RJ	6020	10/28/05	1	998093910
Silver - ICAP	<0.0018	0.002	0.006	mg/l	RJ	200.7	10/27/05	1	2408

Approved By: [Signature] Date: 10/4/05
Quality Control Manager

- RQ Comment
- J Result between LOD and LOQ; estimated value below the lowest calibration point.
- RJ Results expressed as total.



INORGANIC REPORT

8222 W. Calumet Rd. Milwaukee, WI 53223
Phone: (414) 355-5800 Fax: (414) 355-3099

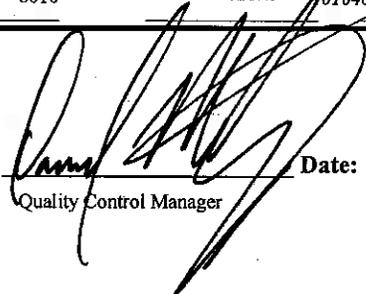
Erika Pape
Giles Engineering Associates, Inc.
N8 W22350 Johnson Rd. Suite A1
Waukesha, WI 53186

INVOICE NUMBER 20051177
DATE REPORTED: 02-Aug-05
DATE RECEIVED: 15-Jul-05
SAMPLE TEMP (C): Rec On Ice
PROJECT ID: 1E0308029
PROJECT NAME:

Sample Number: 38033 Matrix: GW
Sample ID: MW1

Collection: 7/14/2005 Time: 10:30
Sample Description:

Test	Result	Units	RQ	LOD	LOQ	Method	Analyst:	Date:	QC#	Comments
Arsenic - Furnace AA	<0.001	mg/l	RJ	0.001	0.003	7060	998093910	7/21/2005	1010483	
Barium - ICAP	0.052	mg/l	RJ	0.0006	0.002	6010	RD	8/1/2005	1010481	
Cadmium - Furnace AA	<0.001	mg/l	RJ	0.001	0.003	7131	998093910	7/21/2005	1010484	
Chromium, Total - ICAP	<0.0078	mg/l	RJ	0.008	0.025	6010	RD	8/1/2005	1010481	
Lead - Furnace AA	0.006	mg/l	RJ	0.001	0.003	7421	998093910	7/21/2005	1010485	
Mercury CV	<0.0002	mg/l	X	0.0002	0.0006	7471	nr	7/20/2005	1010437	
Selenium - Furnace AA	0.021	mg/l	RJ	0.001	0.003	7740	998093910	7/21/2005	1010486	
Silver - ICAP	<0.0080	mg/l	RJ	0.008	0.025	6010	RD	8/1/2005	1010481	

Approved By: 

Date: 8/3/05

Quality Control Manager

- RQ Comment
- RJ Result expressed as Total.
- X Insufficient sample for spike and duplicate.

MDL: Method Detection Limit determined by 40CFR Part 136 Appendix B "J" = Results between LOD and LOQ "#" = no LOD or LOQ required.
 LOQ = 10 (S) x Dilution Factor, where "S" is the Standard Deviation from the MDL Study
 LOD = 3.143 (S) x Dilution Factor, where "S" is the Standard Deviation from the MDL Study
 Rounding Rules: Three significant figures were used for concentrations above 99 ug/L, two significant figures for concentrations between 1-99 ug/L, and one significant figure for lower concentrations.
 DNR Analytical Detection Limit Guidance, April 1995.



Accredited by A2LA • ISO 9000 Compliant
Department of Natural Resources State Certified Laboratory #241340550

APL warrants the test results to be of a precision normal for the sample type and methodology employed for each sample submitted. APL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. APL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by this terms and conditions set forth herein.

