

**Source Property Information**

BRRTS #:	03-41-001944	Closure Date:	6/8/10
ACTIVITY NAME:	South Milwaukee Municipal Garage	FID#:	241441860
PROPERTY ADDRESS:	910-922 Marshall Ave	DATCP#:	N/A
MUNICIPALITY:	South Milwaukee	COMM#:	53172-2662-22-A
PARCEL ID#:	7769988		

**\*WTM Coordinates:**

X:	694728	Y:	272590
----	--------	----	--------

*\*Coordinates are in WTM83, NAD83 (1991)*

**WTM Coordinates Represent:**

- Approximate Center of Contaminant Source
- Approximate Source Parcel Center

**Please check as appropriate:** (BRRTS Action Code)

**Contaminated Media:**

- |  |  |
|--|--|
| <input type="checkbox"/> <u>Groundwater</u> Contamination > ES (236) | <input checked="" type="checkbox"/> <u>Soil</u> Contamination > *RCLs or **SSRCL (232) |
| <input type="checkbox"/> Groundwater Contamination in ROW            | <input type="checkbox"/> Soil Contamination in ROW                                     |
| <input type="checkbox"/> Off-Source Contamination                    | <input type="checkbox"/> Off-Source Contamination                                      |

*(note: for list of impacted off-source properties see attached list of "Impacted Off-Source Property")*

*(note: for list of impacted off-source properties see attached list of "Impacted Off-Source Property")*

**Land Use Controls:**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Soil: maintain industrial zoning (220) | <input type="checkbox"/> Cover or Barrier (222)             |
| <input type="checkbox"/> Structural Impediment (224)                       | <input type="checkbox"/> Vapor Mitigation (226)             |
| <input type="checkbox"/> Site-Specific Condition (228)                     | <input type="checkbox"/> Maintain Liability Exemption (230) |

*(note: soil contaminant concentrations between residential and industrial levels)*

*(note: maintenance plan for groundwater or direct contact)*

*(note: local government or economic development corporation)*

**Monitoring wells properly abandoned? (234)**

- Yes     
  No     
  N/A

This Adobe Fillable form is intended to provide a list of information that is required for evaluation for case closure. It is to be used in conjunction with Form 4400-202, Case Closure Request. The closure of a case means that the Department has determined that no further response is required at that time based on the information that has been submitted to the Department.

**NOTICE: Completion of this form is mandatory** for applications for case closure pursuant to ch. 292, Wis. Stats. and ch. NR 726, Wis. Adm. Code, including cases closed under ch. NR 746 and ch. NR 726. The Department will not consider, or act upon your application, unless all applicable sections are completed on this form and the closure fee and any other applicable fees, required under ch. NR 749, Wis. Adm. Code, Table 1 are included. It is not the Department's intention to use any personally identifiable information from this form for any purpose other than reviewing closure requests and determining the need for additional response action. The Department may provide this information to requesters as required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

BRRTS #:  PARCEL ID #:   
ACTIVITY NAME:  WTM COORDINATES: X:  Y:

**CLOSURE DOCUMENTS** (the Department adds these items to the final GIS packet for posting on the Registry)

- Closure Letter**
- Maintenance Plan** (if activity is closed with a land use limitation or condition (land use control) under s. 292.12, Wis. Stats.)
- Conditional Closure Letter**
- Certificate of Completion (COC)** for VPLE sites

**SOURCE LEGAL DOCUMENTS**

- Deed:** The most recent deed as well as legal descriptions, for the **Source Property** (where the contamination originated). Deeds for other, off-source (off-site) properties are located in the **Notification** section.  
*Note: If a property has been purchased with a land contract and the purchaser has not yet received a deed, a copy of the land contract which includes the legal description shall be submitted instead of the most recent deed. If the property has been inherited, written documentation of the property transfer should be submitted along with the most recent deed.*
- Certified Survey Map:** A copy of the certified survey map or the relevant section of the recorded plat map for those properties where the legal description in the most recent deed refers to a certified survey map or a recorded plat map. (lots on subdivided or platted property (e.g. lot 2 of xyz subdivision)).  
**Figure #:**                      **Title:**
- Signed Statement:** A statement signed by the Responsible Party (RP), which states that he or she believes that the attached legal description accurately describes the correct contaminated property.

**MAPS** (meeting the visual aid requirements of s. NR 716.15(2)(h))

- Maps must be no larger than 8.5 x 14 inches unless the map is submitted electronically.
- Location Map:** A map outlining all properties within the contaminated site boundaries on a U.S.G.S. topographic map or plat map in sufficient detail to permit easy location of all parcels. If groundwater standards are exceeded, include the location of all potable wells within 1200 feet of the site.  
*Note: Due to security reasons municipal wells are not identified on GIS Packet maps. However, the locations of these municipal wells must be identified on Case Closure Request maps.*  
**Figure #: 1**                      **Title: Site Location Map**
  - Detailed Site Map:** A map that shows all relevant features (buildings, roads, individual property boundaries, contaminant sources, utility lines, monitoring wells and potable wells) within the contaminated area. This map is to show the location of all contaminated public streets, and highway and railroad rights-of-way in relation to the source property and in relation to the boundaries of groundwater contamination exceeding a ch. NR 140 Enforcement Standard (ES), and/or in relation to the boundaries of soil contamination exceeding a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Levels (SSRCL) as determined under s. NR 720.09, 720.11 and 720.19.  
**Figure #: 2**                      **Title: Site Plan**
  - Soil Contamination Contour Map:** For sites closing with residual soil contamination, this map is to show the location of all contaminated soil and a single contour showing the horizontal extent of each area of contiguous residual soil contamination that exceeds a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Level (SSRCL) as determined under s. NR 720.09, 720.11 and 720.19.  
**Figure #: 7**                      **Title: Soil Analytical Results**

BRRTS #: 03-41-001944

ACTIVITY NAME: South Milwaukee Municipal Garage

**MAPS (continued)**

- Geologic Cross-Section Map:** A map showing the source location and vertical extent of residual soil contamination exceeding a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Level (SSRCL). If groundwater contamination exceeds a ch. NR 140 Enforcement Standard (ES) when closure is requested, show the source location and vertical extent, water table and piezometric elevations, and locations and elevations of geologic units, bedrock and confining units, if any.

**Figure #: 3 Title: Cross Section Location Plan**

**Figure #: 4 and 5 Title: Cross Section A-A' and Cross Section B-B'**

- Groundwater Isoconcentration Map:** For sites closing with residual groundwater contamination, this map shows the horizontal extent of all groundwater contamination exceeding a ch. NR140 Preventive Action Limit (PAL) and an Enforcement Standard (ES). Indicate the direction and date of groundwater flow, based on the most recent sampling data.

**Note:** This is intended to show the total area of contaminated groundwater.

**Figure #: 8 Title: Groundwater Analytical Results and Isoconcentration Map**

- Groundwater Flow Direction Map:** A map that represents groundwater movement at the site. If the flow direction varies by more than 20° over the history of the site, submit 2 groundwater flow maps showing the maximum variation in flow direction.

**Figure #: 6 Title: Groundwater Contour Map**

**Figure #: Title:**

**TABLES (meeting the requirements of s. NR 716.15(2)(h)(3))**

Tables must be no larger than 8.5 x 14 inches unless the table is submitted electronically. Tables must not contain shading and/or cross-hatching. The use of **BOLD** or *ITALICS* is acceptable.

- Soil Analytical Table:** A table showing remaining soil contamination with analytical results and collection dates.  
**Note:** This is one table of results for the contaminants of concern. Contaminants of concern are those that were found during the site investigation, that remain after remediation. It may be necessary to create a new table to meet this requirement.

**Table #: 2, 2A, 4, 6 Title: Soil Analytical Results (PAHS)/(PVOCs and Naphthalene)/(GRO) revised/(PVOC) revised**

- Groundwater Analytical Table:** Table(s) that show the most recent analytical results and collection dates, for all monitoring wells and any potable wells for which samples have been collected.

**Table #: 3 and 4 Title: GW Analytical Results (VOCs, PVOCs, DRO, GRO, and Pb), GW Analytical Results (PAHs)**

- Water Level Elevations:** Table(s) that show the previous four (at minimum) water level elevation measurements/dates from all monitoring wells. If present, free product is to be noted on the table.

**Table #: 1 Title: Groundwater Elevation and Survey Data**

**IMPROPERLY ABANDONED MONITORING WELLS**

For each monitoring well not properly abandoned according to requirements of s. NR 141.25 include the following documents.

**Note:** If the site is being listed on the GIS Registry for only an improperly abandoned monitoring well you will only need to submit the documents in this section for the GIS Registry Packet.

**Not Applicable**

- Site Location Map:** A map showing all surveyed monitoring wells with specific identification of the monitoring wells which have not been properly abandoned.

**Note:** If the applicable monitoring wells are distinctly identified on the Detailed Site Map this Site Location Map is not needed.

**Figure #: 1 Title: Missing Monitoring Well Location**

- Well Construction Report:** Form 4440-113A for the applicable monitoring wells.

- Deed:** The most recent deed as well as legal descriptions for each property where a monitoring well was not properly abandoned.

**Notification Letter:** Copy of the notification letter to the affected property owner(s).

BRRTS #: 03-41-001944

ACTIVITY NAME: South Milwaukee Municipal Garage

## NOTIFICATIONS

### Source Property

- Letter To Current Source Property Owner:** If the source property is owned by someone other than the person who is applying for case closure, include a copy of the letter notifying the current owner of the source property that case closure has been requested.
- Return Receipt/Signature Confirmation:** Written proof of date on which confirmation was received for notifying current source property owner.

### Off-Source Property

Group the following information per individual property and label each group according to alphabetic listing on the "Impacted Off-Source Property" attachment.

- Letter To "Off-Source" Property Owners:** Copies of all letters sent by the Responsible Party (RP) to owners of properties with groundwater exceeding an Enforcement Standard (ES), and to owners of properties that will be affected by a land use control under s. 292.12, Wis. Stats.  
**Note:** Letters sent to off-source properties regarding residual contamination must contain standard provisions in Appendix A of ch. NR 726.  
**Number of "Off-Source" Letters:**
- Return Receipt/Signature Confirmation:** Written proof of date on which confirmation was received for notifying any off-source property owner.
- Deed of "Off-Source" Property:** The most recent deed(s) as well as legal descriptions, for all affected deeded **off-source property(ies)**. This does not apply to right-of-ways.  
**Note:** If a property has been purchased with a land contract and the purchaser has not yet received a deed, a copy of the land contract which includes the legal description shall be submitted instead of the most recent deed. If the property has been inherited, written documentation of the property transfer should be submitted along with the most recent deed.
- Letter To "Governmental Unit/Right-Of-Way" Owners:** Copies of all letters sent by the Responsible Party (RP) to a city, village, municipality, state agency or any other entity responsible for maintenance of a public street, highway, or railroad right-of-way, within or partially within the contaminated area, for contamination exceeding a groundwater Enforcement Standard (ES) and/or soil exceeding a Residual Contaminant Level (RCL) or a Site Specific Residual Contaminant Level (SSRCL).  
**Number of "Governmental Unit/Right-Of-Way Owner" Letters:**



ENVIRONMENTAL & REGULATORY SERVICES DIVISION  
BUREAU OF PECFA  
P.O. Box 8044  
Madison, Wisconsin 53708-8044  
TTY: Contact Through Relay  
Fax: (608) 267-1381  
Jim Doyle, Governor  
Aaron Oliver, Secretary

June 8, 2010

Kyle Vandercar PE  
City of South Milwaukee  
2424 15th Ave  
South Milwaukee, WI 53172

**RE: Final Closure with Land Use Limitation for Industrial Zoning and an Improperly Abandoned Monitoring Well**

**Commerce # 53172-2662-22-A**                      **DNR BRRTS # 03-41-001944**  
South Milwaukee Municipal Garage – Diesel Fuel, Fuel Oil, 910-922 Marshall Ave, South Milwaukee

Dear Mr. Vandercar:

On April 23, 2010, the Wisconsin Department of Commerce (Commerce) determined that this site does not pose a significant threat to human health and the environment and, as long as current and subsequent property owners adhere to the following limitation:

This site must remain zoned for industrial use and cannot be developed for residential, commercial, agricultural or other non-industrial use. Residual contaminated soil with concentrations exceeding the non-industrial soil standards for Anthracene and Benzo(a)anthracene remains in the vicinity of monitoring well MW-6.

Commerce has the authority per section 292.12(2), Wis. Stats., to require maintaining industrial zoning at this property. Failure to adhere to this limitation may result in financial penalties from \$10 to \$5,000 per day in accordance with section 292.99(1), Wis. Stats.

This site was conditionally closed the site with the requirement that all monitoring wells be properly abandoned. Commerce has since been informed that a monitoring well (MW-3) could not be properly abandoned because it could not be located – likely damaged during utility work in the area.

Recent changes in state law allow Commerce to grant final closure of your site as long as the current and subsequent property owners adhere to the following limitation:

If monitoring well MW-3 is located in the future, the then-current owner of the subject property will be required to properly abandon the well in compliance with the requirements in NR 141, Wis. Admin. Code, and to submit the required abandonment documentation to Commerce.

Failure to adhere to this limitation may result in financial penalties from \$10 to \$5,000 per day in accordance with section 292.99(1), Wis. Stats. Be aware that property owners may be held liable for any contamination associated with improperly abandoned monitoring wells that create a conduit for contaminants to enter groundwater.

This site is now listed as "closed" on the Commerce database and will be included on the Department of Natural Resources (DNR) Geographic Information System (GIS) Registry of Closed Remediation Sites to address residual soil and groundwater contamination. You can review all sites on the GIS Registry via the DNR's website at <http://dnr.wi.gov/org/aw/rr/gis/index.htm>.

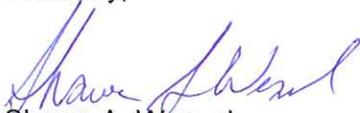
It is in your best interest to keep all documentation related to the environmental activities at your site. If it is determined that any remaining contamination poses a threat, the case may be reopened and further investigation or remediation may be required.

If you intend to construct or reconstruct a potable well on this property, you must get prior DNR approval. To obtain approval, complete Form 3300-254, GIS Registry Site Well Approval Application, and submit it to the DNR Drinking and Groundwater program's regional water supply specialist. This form can be obtained on-line at <http://www.dnr.state.wi.us/org/water/dwg/3300254.pdf> or through the GIS Registry web address listed above.

All current and future owners and occupants of the property need to be aware that excavation of contaminated soil may pose a hazard. Special precautions may be needed to prevent inhalation, ingestion or dermal contact with the residual contamination when it is removed. If soil is excavated, the property owner at the time of excavation must have the soil sampled and analyzed to determine if residual contamination remains. If sampling confirms that contamination is present, the property owner at the time of excavation must determine whether the material would be considered solid or hazardous waste and ensure that any storage, treatment or disposal is in compliance with applicable standards and rules.

Thank you for your efforts to bring this case to closure. If you have any questions, please contact me in writing at the letterhead address or by telephone at (608) 261-5401.

Sincerely,



Shawn A. Wenzel  
Senior Hydrogeologist  
Site Review Section

cc: Thomas Bauman, Giles Engineering Associates, Inc.



ENVIRONMENTAL & REGULATORY SERVICES DIVISION  
BUREAU OF PECFA  
P.O. Box 8044  
Madison, Wisconsin 53708-8044  
TTY: Contact Through Relay  
Fax: (608) 267-1381  
Jim Doyle, Governor  
Aaron Oliver, Secretary

April 23, 2010

Kyle Vandercar PE  
City of South Milwaukee  
2424 15th Ave  
South Milwaukee, WI 53172

**RE: Case Closure Consideration with Proposed Land Use Limitation for Industrial Zoning**  
**Commerce # 53172-2662-22-A DNR BRRTS # 03-41-001944**  
South Milwaukee Municipal Garage, 910-922 Marshall Ave, South Milwaukee

Dear Mr. Vandercar:

The Wisconsin Department of Commerce (Commerce) has reviewed the request for case closure prepared by your consultant, Giles Engineering Assoc Inc, for the site referenced above. It is understood that residual soil contamination remains on site. This letter serves as written notice that no further investigation or remedial action is necessary.

Please be aware that compliance with the requirements of this letter is a responsibility to which you, and any subsequent property owners must adhere, pursuant to section 292.12, Wisconsin Stats. If these requirements are not followed, Commerce may take enforcement action under section 292.11, Wis. Stats., to ensure compliance with the specified requirements, limitations or other conditions related to the property, or this case may be reopened pursuant to section NR 726.09, Wis. Administrative Code.

#### **PAL Exemption**

During the final groundwater sampling event conducted on January 31, 2008, the preventive action limits (PAL) for BENZENE, and MTBE were exceeded at monitoring well MW-5, at 0.52 and 30 micrograms per liter, respectively. Commerce is issuing a PAL exemption, per section NR 140.28(2), Wisconsin Administrative Code, for BENZENE and MTBE at the referenced property.

#### **Well Abandonment Requirements**

All monitoring wells must be properly abandoned within 60 days and the appropriate documentation forwarded to Commerce at the letterhead address within 120 days of the date of this letter. Noncompliance with the abandonment requirement and deadline can result in enforcement action and financial penalties. A final closure letter will be sent after the abandonment requirement has been met.

#### **Missing / Improperly Abandoned Monitoring Well**

It is understood that monitoring well MW-3 is missing, therefore unable to be properly abandoned at this time. If monitoring well MW-3 is located in the future, the then-current owner of the subject property will be required to properly abandon the well in compliance with the requirements in NR 141, Wis. Admin. Code, and to submit the required abandonment documentation to Commerce.

#### **Land Use Limitation Requirement for Industrial Zoning**

Residual contaminated soil with concentrations exceeding the non-industrial soil standards (per NR 720.11) remains in the vicinity of **monitoring well MW-6**. Soil samples that are representative of currently remaining residual soil contamination on this property were collected on **10/18/07**, contained **Anthracene and Benzo(a)anthracene** at concentrations that exceeded established *non-industrial* standards, but met the established *industrial* soil standards developed for this site. Therefore, this site must remain zoned for industrial use and cannot be developed for residential, commercial, agricultural or other non-industrial use, unless (at the time that the non-industrial use is proposed) an investigation is conducted, to determine the degree and extent of contamination that remains on the property, and remedial action is taken as necessary to meet all applicable non-industrial soil cleanup standards..

This limitation must be adhered to by the current property owner and subsequent owners. Failure to maintain the industrial zoning classification may result in financial penalties from \$10 to \$5,000 per day in accordance with section 292.99(1), Wis. Stats. Acceptance of this limitation makes it unnecessary to conduct additional activities on the property at this time. If you do not want this limitation on your property, you must contact the undersigned to determine what remedial activities will be required, at your own expense, to close this case without the industrial zoning requirement.

### **GIS Registry of Closed Remediation Sites**

Information submitted with your closure request will be included on the Department of Natural Resources (DNR) GIS Registry of Closed Remediation Sites. All sites on the Registry can be viewed via the Remediation and Redevelopment (RR) Sites Map at <http://dnr.wi.gov/org/aw/rr/gis/index.htm>. Because residual contamination remains at the time of case closure, if you intend to construct or reconstruct a potable well on this property, you must get prior DNR approval.

### **Residual Soil Contamination**

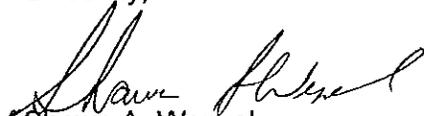
All current and future owners and occupants of the property need to be aware that excavation of contaminated soil may pose a hazard. Special precautions may be needed to prevent inhalation, ingestion or dermal contact with the residual contamination when it is removed. If soil is excavated, the property owner at the time of excavation must have the soil sampled and analyzed to determine if residual contamination remains. If sampling confirms that contamination is present, the property owner at the time of excavation must determine whether the material would be considered solid or hazardous waste and ensure that any storage, treatment or disposal is in compliance with applicable standards and rules. Costs for sampling and excavation activities conducted after the date of this letter are not eligible for PECFA reimbursement.

### **Claim Submittal Requirement**

Timely filing of your final PECFA claim (if applicable) is encouraged. If your claim is not received within 120 days of the date of this letter, interest costs incurred after 60 days of the date of this letter will not be eligible for PECFA reimbursement.

Thank you for your efforts to protect Wisconsin's environment. If you have any questions, please contact me in writing at the letterhead address or by telephone at (608) 261-5401.

Sincerely,

  
Shawn A. Wenzel  
Senior Hydrogeologist  
Site Review Section

cc: Thomas Bauman, Giles Engineering Associates, Inc.

776	TOWNSHIP	RANGE	SECTION	¼ SEC.		776 9988
5		22	11	SE	CITY OF S. MILW.	<del>23519 6083</del>

TAX ROLL DESCRIPTION ~~A PARCEL OF LAND IN SE¼ SEC. 11-5-22 DESCR. IN DEED VOL. 1238, PAGE 566, 2486 PAGE 596~~  
~~CONT. 7.534 ACRES MORE OR LESS.~~ 776-9988

~~BE-N-BY MONTANA AVE AND CAWENEY CO. E. BLVD HEIGHTS SUBD. S. BY TILE CO. W. BY C. AND NW. RY...~~  
 1951. A parcel of land in SE¼ Sec 11-5-22 Desc in DV 2486 P 596 one parcels desc in DV 2352 P 399, Vol 2864 P 169 & Vol 2869 P 151  
 Cont 7.31 ac.

VOL.	PAGE	DOC. NO.	DOC.	DATE	GRANTEE'S NAME
1238	566	1611793	WD	5-23-21	WM H. KANE ET AL (LILLIAN HAUERWAS)
2486	596	2784863	WD	4-20-48	Doris M. Bogumil & George J. Hauerwas to City of South Milwaukee

THIS PARCEL DIVIDED REFER TO  
 DEED - DESCRIPTION

THAT PART OR PARCEL OF LAND LYING IN THE SE¼ OF SEC. 11, COM. AT THE NW COR. OF LOT 2, IN BLK. 6 IN S. MILW. BLVD. HEIGHTS, RUN. TH. W. ON THE S. L. EXTENDED OF MONTANA AVE. OF ABOVE MENTIONED SUBD. 631.49 FT. TO THE ELY L. OF THE R.O.W. OF THE C.N.W.R.R. CO. TH.S. 11 DEG. E. ON AND ALONG THE ELY L. OF SAME R.O.W. 585.4 FT. TO A PT. SD. PT. BEING THE INTERSECTION OF THE W. L. EXTENDED OF MEMOMONEE AVE. OF S. MILW. BLVD. HEIGHTS WITH THE ELY L. OF SD. R.O.W. TH. E. ON ALONG SD. EXTENDED W. L. OF MEMOMONEE AVE. 515.5 FT. TO THE SW COR. OF LOT 3 IN BLK. 15 OF S. MILW. BLVD. HEIGHTS, TH. N. ON AND ALONG THE W. L. OF SD. S. MILW. BLVD. HEIGHTS 574 FT. TO THE PLACE OF COM. CONTAINING 7.534 ACRES OF LAND.

Parts subs. conveyed - refer to Key Nos. <sup>4313, 4314 + 6054</sup> ~~N-20001, V-22509 & V-22505~~, 6082.

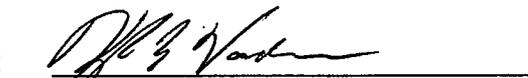
~~1054 Roll: Com 97' W & 353' S of intersec of C/L of 9th Ave & N line of SE¼ Sec 11-5-22 th W 426' th S 261' th W 152.76' to W line of C&NW Ry Co. prop th S 110' E 319.32' th E 485.5' th N 120' th E 30' th N 14' th W 30' th N 120' th E 30' th N 320' to beg. Cont. 6.306 Acres.~~

1959 TR: Com 97' W & 353' S of intersec of C/L of 9th Ave & N li of SE¼ Sec 11-5-22 th W 426' th S 139.50' th E 35' th S 433.80' th E 363.80' th N 120' th E 30' th N 14' th W 30' th N 120' th E 30' th N 320' to beg. Cont 5 ac more or less.

1960 Tax Roll Desc.: Com 97' W & 423' S of intersec of cen li of 9th Ave & N li of SE¼ Sec 11-5-22 th W 386'; th S 69.50 ft. th W 5 ft. th S. 433.80 ft. th E. 363.80 ft. th N. 120 ft. th E. 30 ft. th N. 14 ft. th W. 30 ft. th N. 120 ft. th E. 30 ft. th N. 250 ft. to beg. Cont. 4.262 Ac m or l

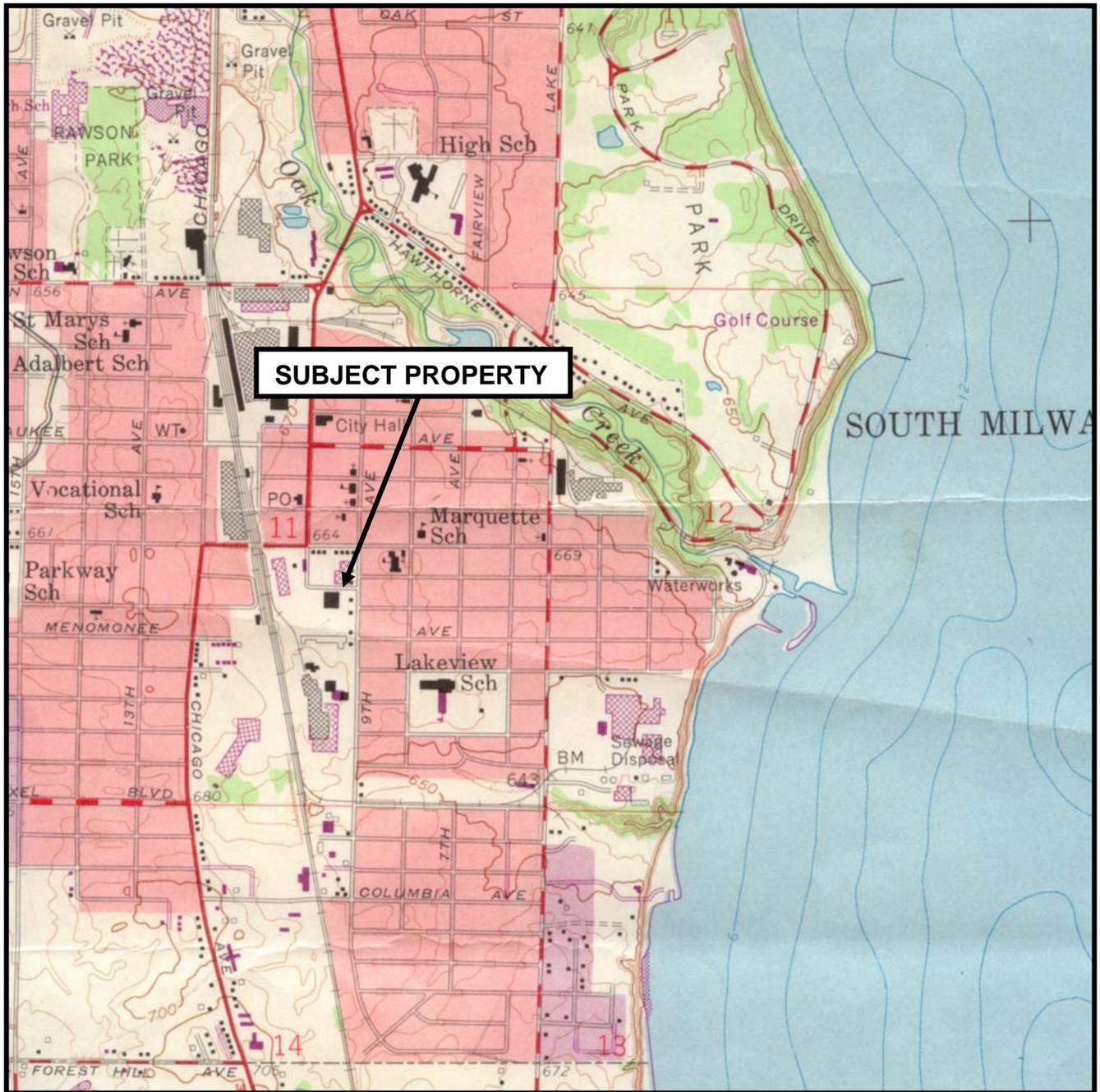
TR DESC Com 97' W & 439' S of intersec of C/L 9th Ave & N li of SE¼ Sec 11-5-22; th W 210' th N 16' th W 176' th S 69.50' th W 5' th S 433.80' th E 363.80' th N 120' th E 30' th N 14' th W 30' th N 120' th E 30' th N 234' to beg

The City of South Milwaukee, as the party responsible for impacted soil and groundwater detected at 910 Marshall Avenue, South Milwaukee, Wisconsin (WDNR Activity No. 03-41-001944 and 03-41-108230) believes that the current legal description has been attached for the property that is within the contaminated site boundary. That legal description is for a larger parcel (Parcel No. 7769988), of which 910 Marshall Avenue (the eastern 200 feet of the property applicable to the portion occupied by the Public Works garage) is part of the legal deed included in this packet.

By:   
Kyle E. Vandercar

Title: City Engineer

Date: 04/08/09

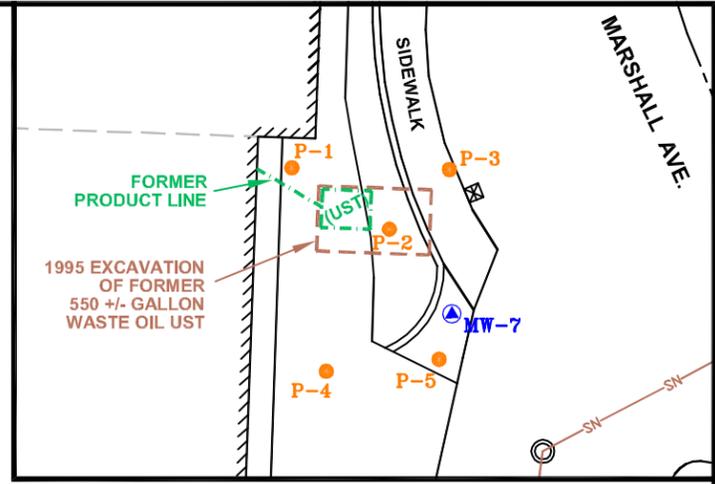
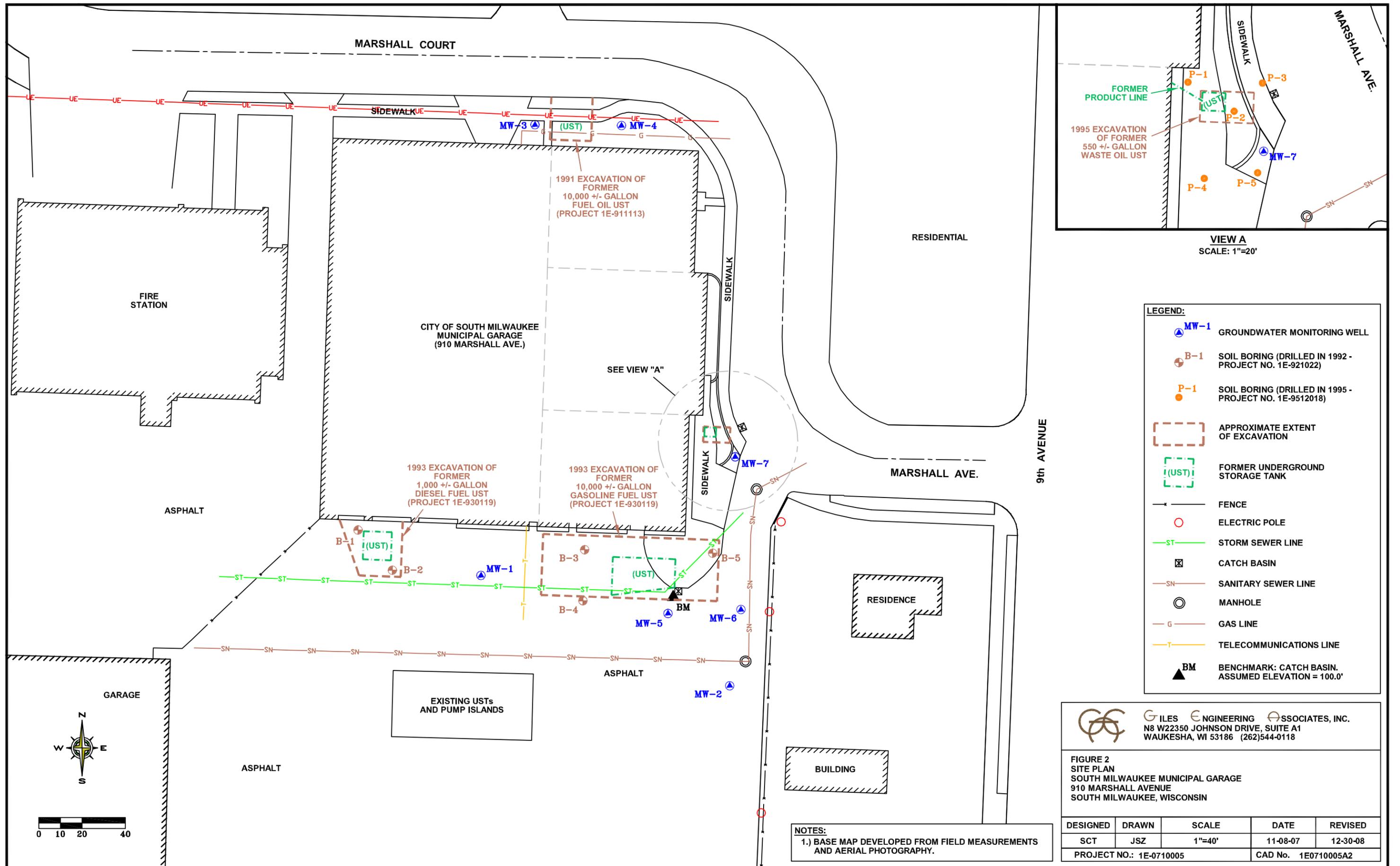


Source: USGS 7.5 Minute Series (topographic) *South Milwaukee, Wisconsin* Quadrangle Map (1958; photorevised in 1971)

**Figure 1**  
**Subject Property Location**

**South Milwaukee Municipal Garage**  
**910 Marshall Avenue**  
**South Milwaukee, Wisconsin**  
**Project No. 1E-0710005**





**VIEW A**  
SCALE: 1"=20'

**LEGEND:**

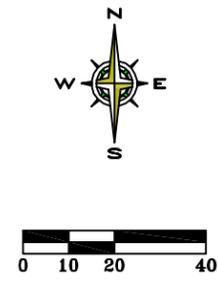
- ▲ MW-1 GROUNDWATER MONITORING WELL
- B-1 SOIL BORING (DRILLED IN 1992 - PROJECT NO. 1E-921022)
- P-1 SOIL BORING (DRILLED IN 1995 - PROJECT NO. 1E-9512018)
- APPROXIMATE EXTENT OF EXCAVATION
- (UST) FORMER UNDERGROUND STORAGE TANK
- FENCE
- ELECTRIC POLE
- ST STORM SEWER LINE
- CATCH BASIN
- SN SANITARY SEWER LINE
- MANHOLE
- G GAS LINE
- T TELECOMMUNICATIONS LINE
- ▲ BM BENCHMARK: CATCH BASIN. ASSUMED ELEVATION = 100.0'

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

**FIGURE 2**  
 SITE PLAN  
 SOUTH MILWAUKEE MUNICIPAL GARAGE  
 910 MARSHALL AVENUE  
 SOUTH MILWAUKEE, WISCONSIN

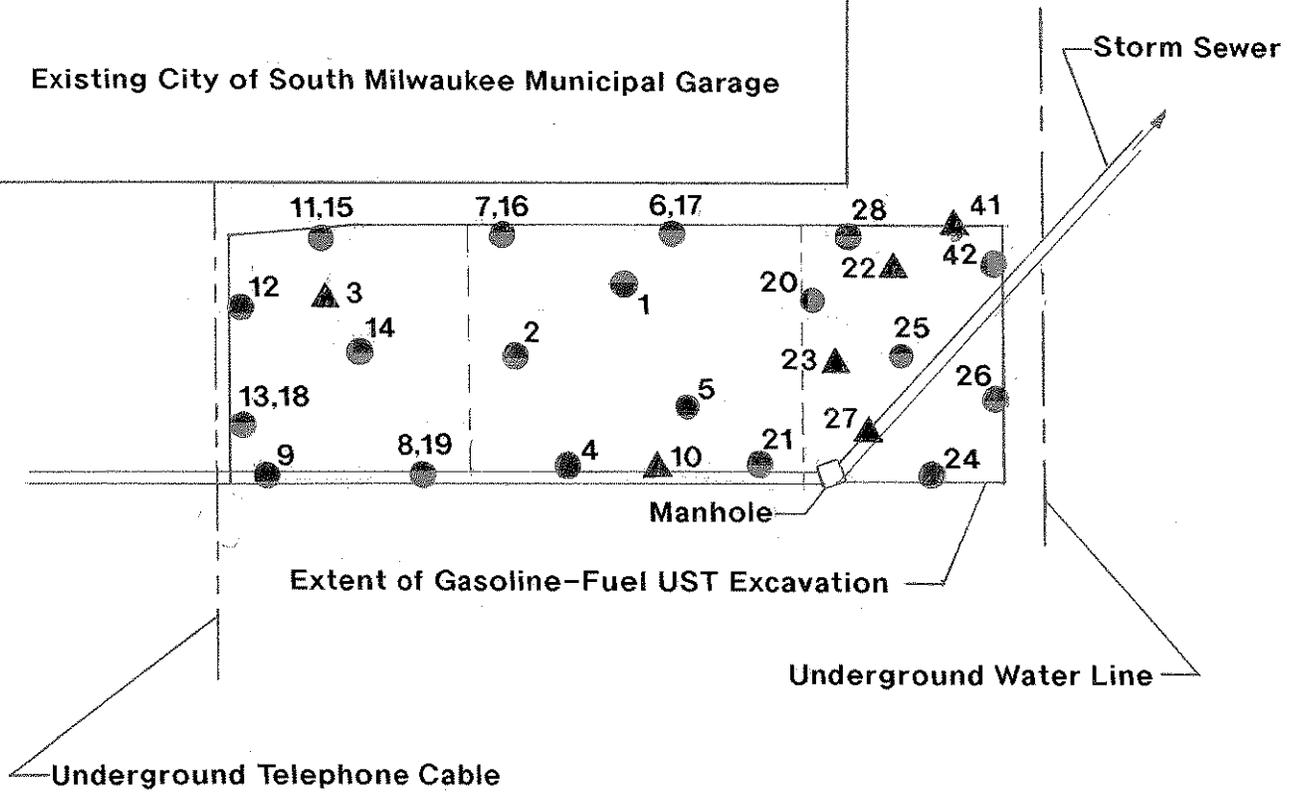
DESIGNED	DRAWN	SCALE	DATE	REVISED
SCT	JSZ	1"=40'	11-08-07	12-30-08
PROJECT NO.: 1E-0710005			CAD No. 1E0710005A2	

**NOTES:**  
 1.) BASE MAP DEVELOPED FROM FIELD MEASUREMENTS AND AERIAL PHOTOGRAPHY.





Existing City of South Milwaukee Municipal Garage



- 4 ● Sample Location and Number  
( Submitted for Analytical Testing )
- 41 ▲ Sample Location and Number

Scale (Feet)

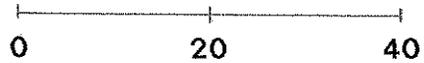
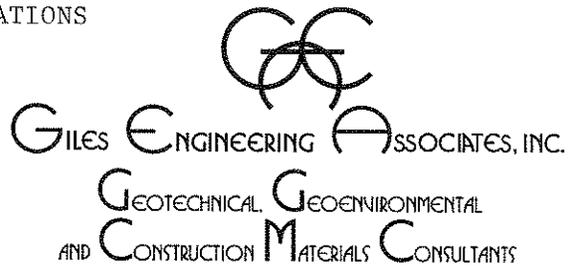


FIGURE 6  
GASOLINE-FUEL UST EXCAVATION SAMPLING LOCATIONS

South Milwaukee Municipal Garage  
910 Marshall Avenue  
South Milwaukee, Wisconsin  
GEA Project No. 1E-930119



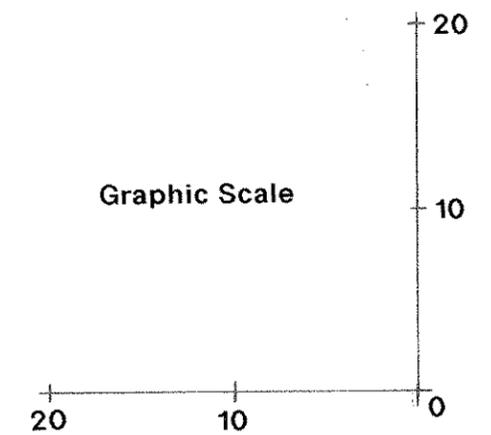
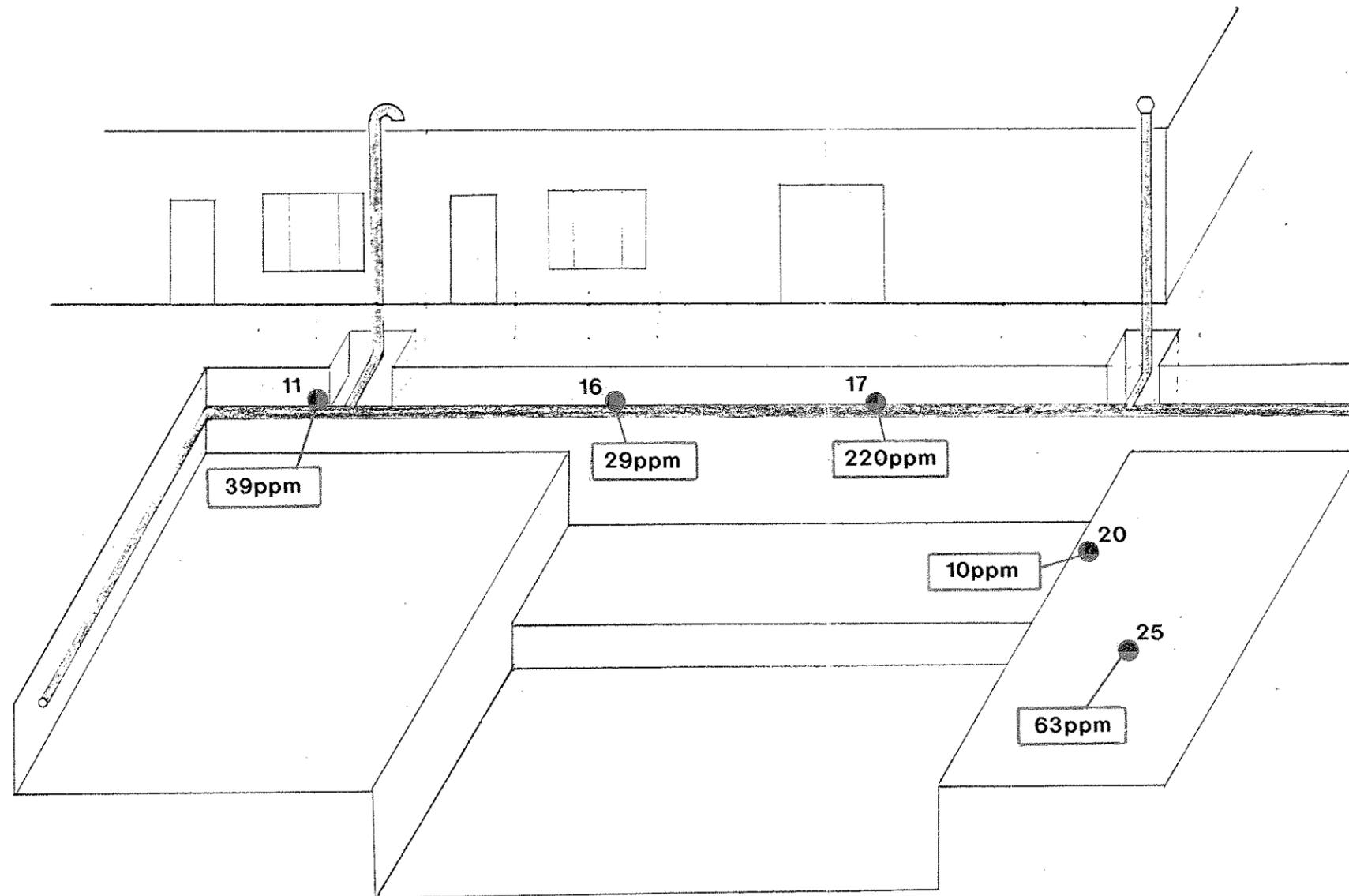
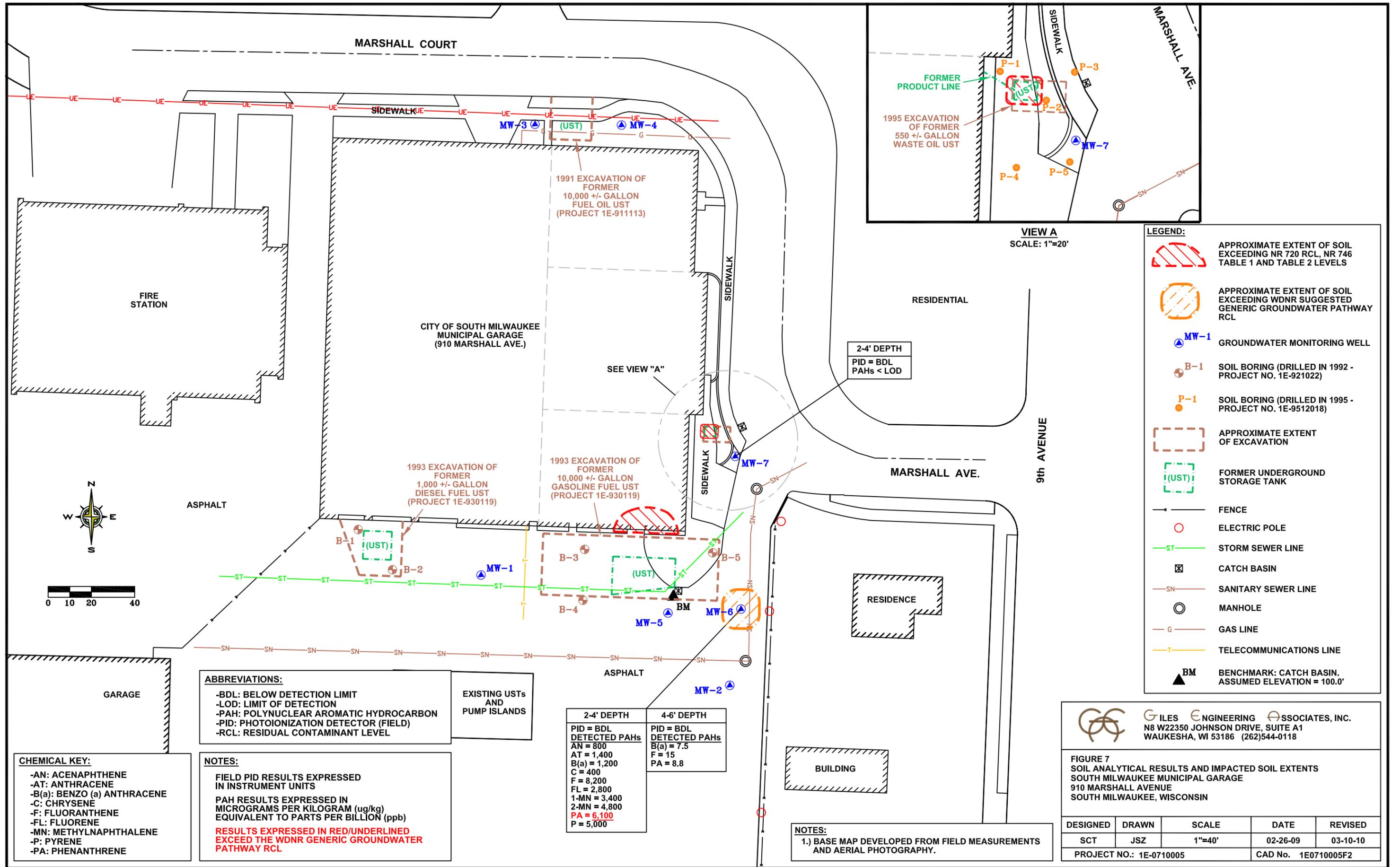


FIGURE 8  
GRO ANALYTICAL RESULTS  
FORMER GASOLINE UST EXCAVATION

South Milwaukee Municipal Garage  
910 Marshall Avenue  
South Milwaukee, Wisconsin  
GEA Project No. 1E-930119



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Geotechnical Geo-Environmental Geo-Hydrological  
and Construction Materials Consultants



**ABBREVIATIONS:**  
 -BDL: BELOW DETECTION LIMIT  
 -LOD: LIMIT OF DETECTION  
 -PAH: POLYNUCLEAR AROMATIC HYDROCARBON  
 -PID: PHOTOIONIZATION DETECTOR (FIELD)  
 -RCL: RESIDUAL CONTAMINANT LEVEL

**EXISTING USTs AND PUMP ISLANDS**

**CHEMICAL KEY:**  
 -AN: ACENAPHTHENE  
 -AT: ANTHRACENE  
 -B(a): BENZO (a) ANTHRACENE  
 -C: CHRYSENE  
 -F: FLUORANTHENE  
 -FL: FLUORENE  
 -MN: METHYLNAPHTHALENE  
 -P: PYRENE  
 -PA: PHENANTHRENE

**NOTES:**  
 FIELD PID RESULTS EXPRESSED IN INSTRUMENT UNITS  
 PAH RESULTS EXPRESSED IN MICROGRAMS PER KILOGRAM (ug/kg) EQUIVALENT TO PARTS PER BILLION (ppb)  
**RESULTS EXPRESSED IN RED/UNDERLINED EXCEED THE WDNR GENERIC GROUNDWATER PATHWAY RCL**

2-4' DEPTH	4-6' DEPTH
PID = BDL	PID = BDL
DETECTED PAHs	DETECTED PAHs
AN = 800	B(a) = 7.5
AT = 1,400	F = 15
B(a) = 1,200	PA = 8.8
C = 400	
F = 8,200	
FL = 2,800	
1-MN = 3,400	
2-MN = 4,800	
<b>PA = 6,100</b>	
P = 5,000	

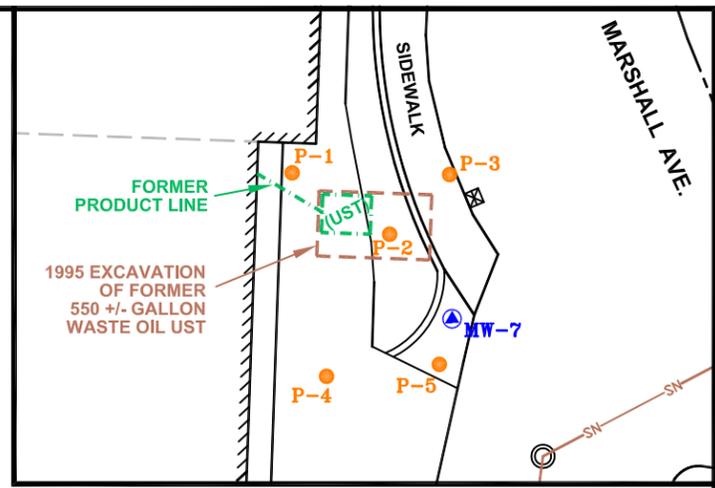
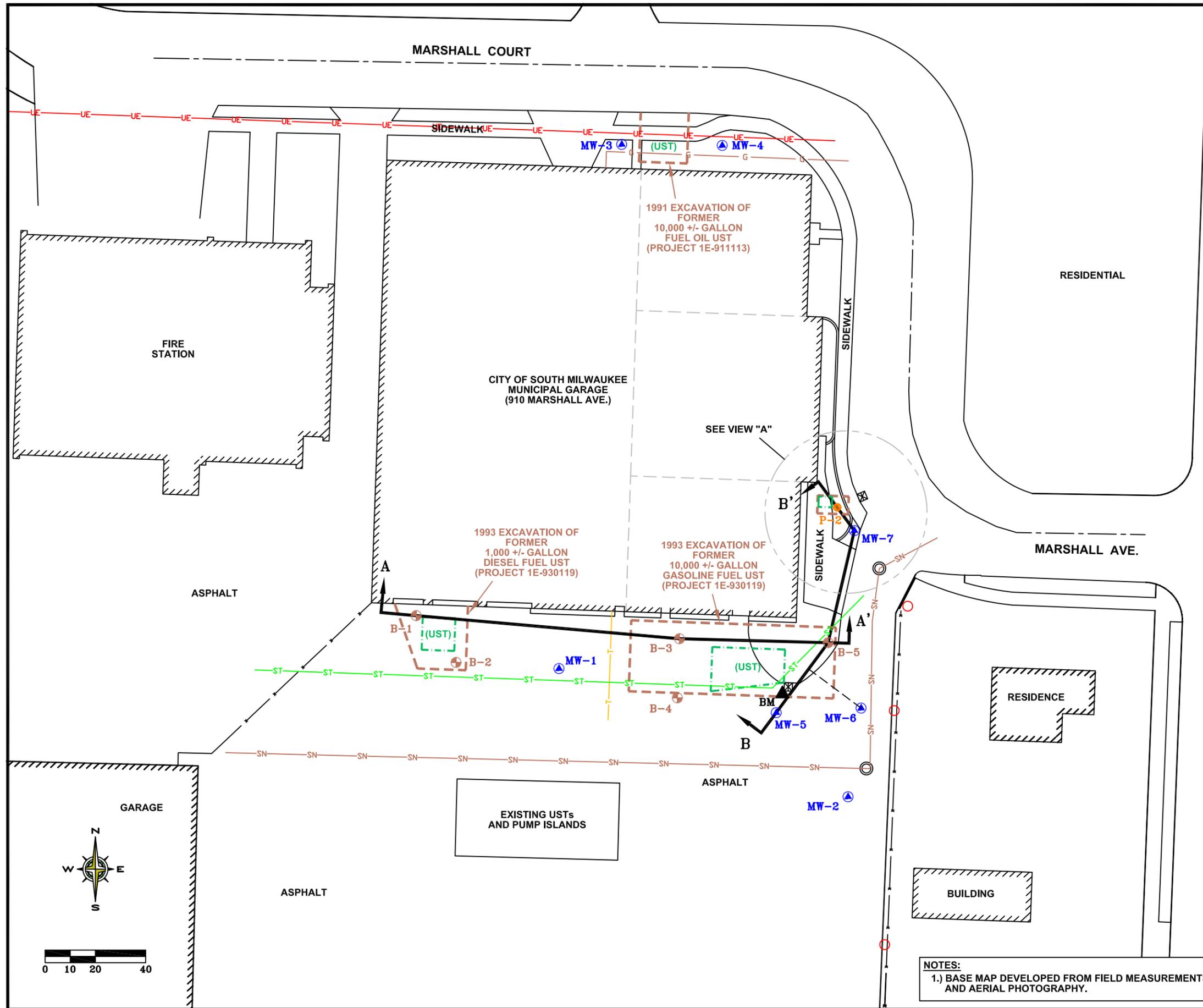
**NOTES:**  
 1.) BASE MAP DEVELOPED FROM FIELD MEASUREMENTS AND AERIAL PHOTOGRAPHY.

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**FIGURE 7**  
 SOIL ANALYTICAL RESULTS AND IMPACTED SOIL EXTENTS  
 SOUTH MILWAUKEE MUNICIPAL GARAGE  
 910 MARSHALL AVENUE  
 SOUTH MILWAUKEE, WISCONSIN

DESIGNED	DRAWN	SCALE	DATE	REVISED
SCT	JSZ	1"=40'	02-26-09	03-10-10

PROJECT NO.: 1E-0710005 CAD No. 1E0710005F2



**VIEW A**  
SCALE: 1"=20'

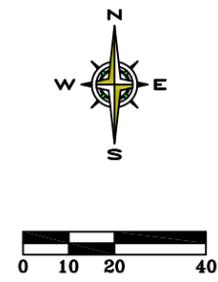
- LEGEND:**
- A-A' LINE OF CROSS-SECTION
  - MW-1 GROUNDWATER MONITORING WELL
  - B-1 SOIL BORING (DRILLED IN 1992 - PROJECT NO. 1E-921022)
  - P-1 SOIL BORING (DRILLED IN 1995 - PROJECT NO. 1E-9512018)
  - APPROXIMATE EXTENT OF EXCAVATION
  - FORMER UNDERGROUND STORAGE TANK
  - FENCE
  - ELECTRIC POLE
  - STORM SEWER LINE
  - CATCH BASIN
  - SANITARY SEWER LINE
  - MANHOLE
  - GAS LINE
  - TELECOMMUNICATIONS LINE
  - BM BENCHMARK: CATCH BASIN. ASSUMED ELEVATION = 100.0'

**GILES ENGINEERING ASSOCIATES, INC.**  
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WAUKESHA, WI 53186 (262)544-0118

**FIGURE 3**  
CROSS-SECTION LOCATION PLAN  
SOUTH MILWAUKEE MUNICIPAL GARAGE  
910 MARSHALL AVENUE  
SOUTH MILWAUKEE, WISCONSIN

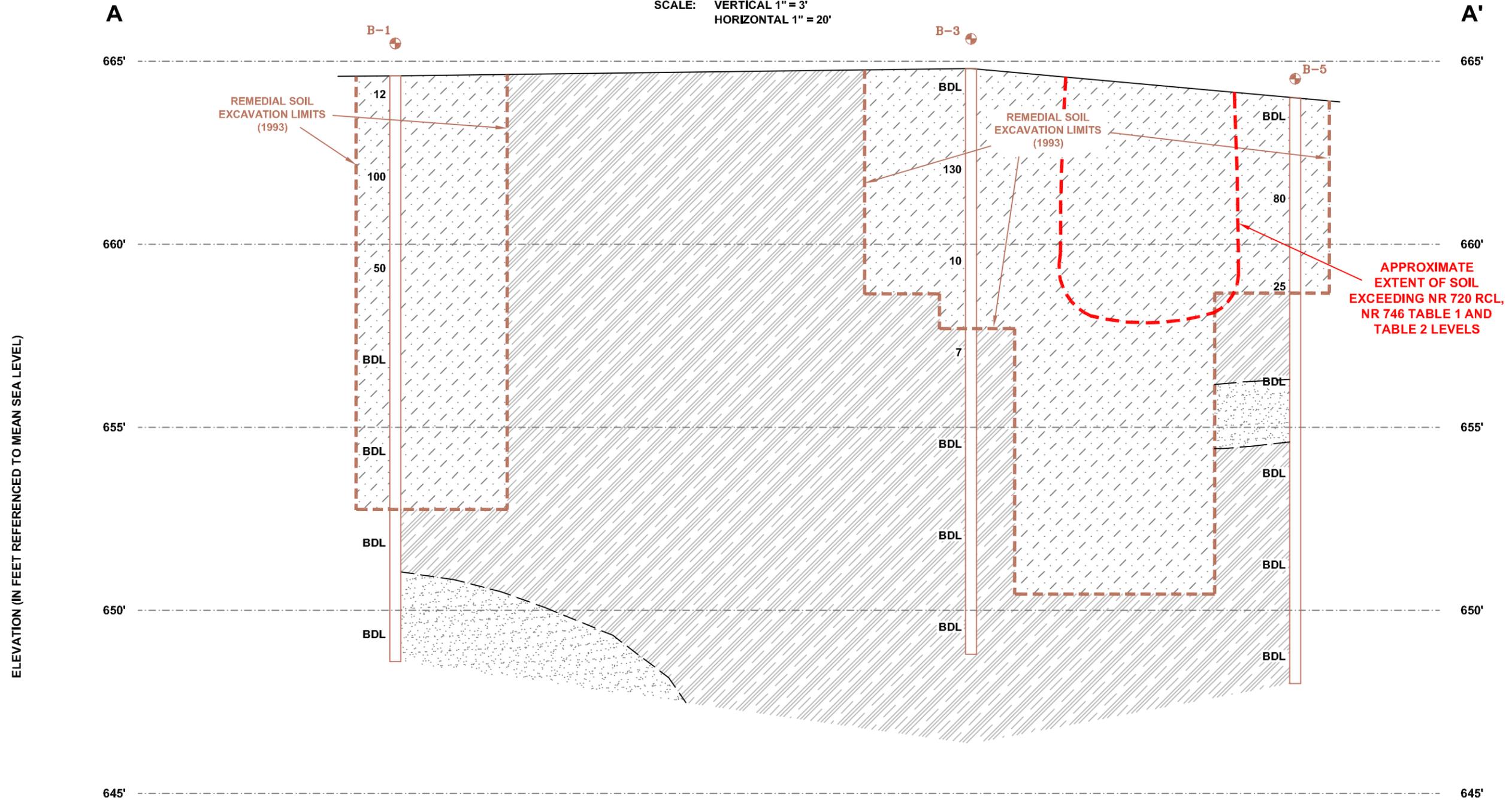
DESIGNED	DRAWN	SCALE	DATE	REVISED
SCT	JSZ	1"=40'	02-26-09	03-10-10
PROJECT NO.: 1E-0710005			CAD No. 1E0710005B2	

**NOTES:**  
1.) BASE MAP DEVELOPED FROM FIELD MEASUREMENTS AND AERIAL PHOTOGRAPHY.



# CROSS SECTION A-A'

SCALE: VERTICAL 1" = 3'  
HORIZONTAL 1" = 20'



ELEVATION (IN FEET REFERENCED TO MEAN SEA LEVEL)

SOIL KEY:	
	FILL: SILTY CLAY
	SILTY CLAY TO CLAYEY SILT
	SILT AND SAND
	SOIL CONTACT LINES ARE DASHED WHERE INFERRED

LEGEND:	
	SOIL BORING (DRILLED IN 1992 - PROJECT NO. 1E-921022)
	APPROXIMATE EXTENT OF EXCAVATION
12	PHOTOIONIZATION DETECTOR (PID) READING
BDL	BELOW PID DETECTION LIMIT

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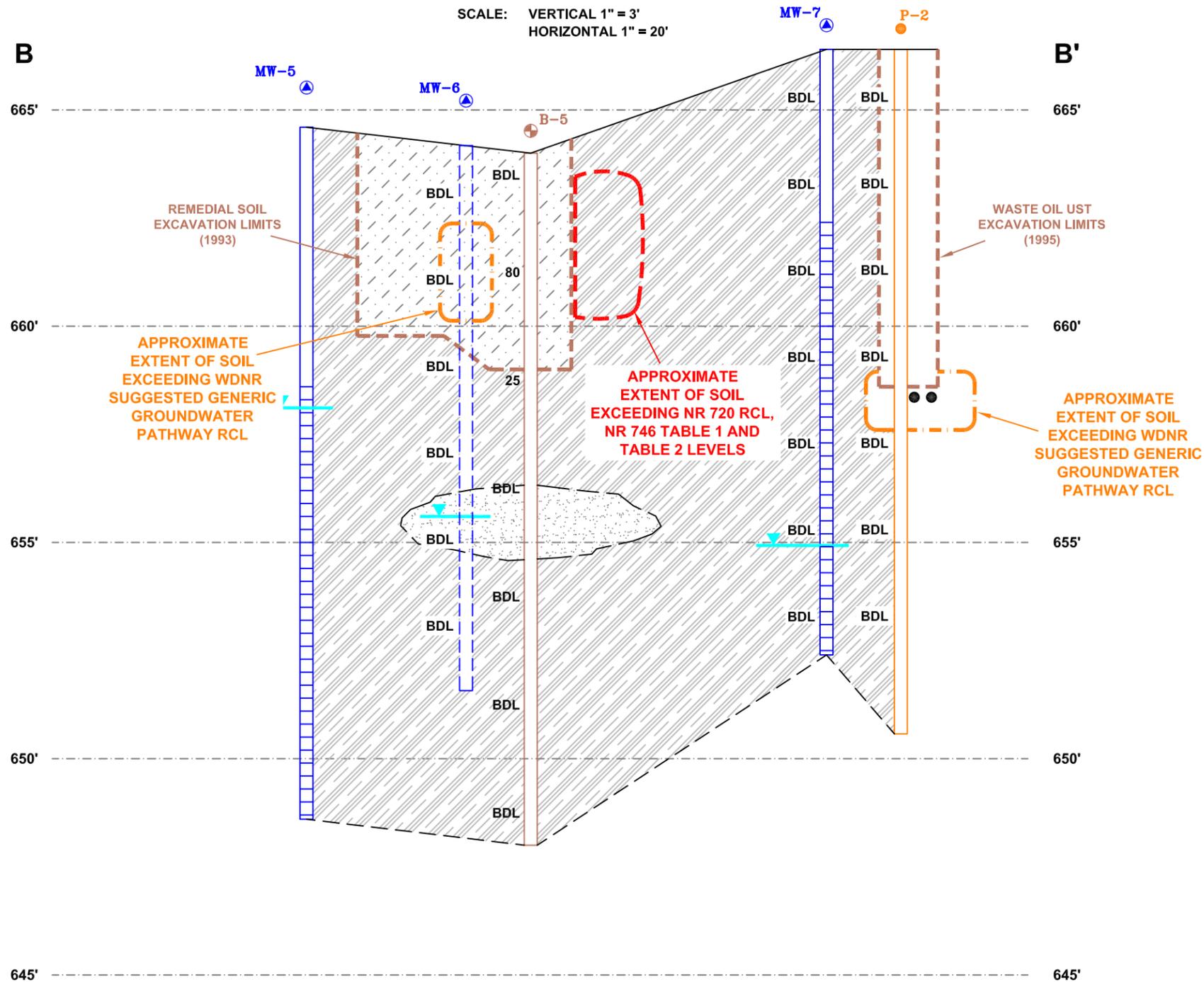
**FIGURE 4**  
CROSS-SECTION A-A'  
SOUTH MILWAUKEE MUNICIPAL GARAGE  
910 MARSHALL AVENUE  
SOUTH MILWAUKEE, WISCONSIN

DESIGNED	DRAWN	SCALE	DATE	REVISED
SCT	JSZ	SEE TITLE	04-09-09	10-26-09
PROJECT NO.: 1E-0710005			CAD No. 1E0710005C	

### CROSS SECTION B-B'

SCALE: VERTICAL 1" = 3'  
HORIZONTAL 1" = 20'

ELEVATION (IN FEET REFERENCED TO MEAN SEA LEVEL)



LEGEND:	
● ●	CONFIRMATION SOIL SAMPLES (A & B)
MW-5	GROUNDWATER MONITORING WELL
□ □ □	WELL SCREEN
B-5	SOIL BORING (DRILLED IN 1992 - PROJECT NO. 1E-921022)
P-2	SOIL BORING (DRILLED IN 1995 - PROJECT NO. 1E-9512018)
---	APPROXIMATE EXTENT OF EXCAVATION
25	PHOTOIONIZATION DETECTOR (PID) READING
BDL	BELOW PID DETECTION LIMIT
▼	STATIC WATER LEVEL (1-31-08)

SOIL KEY:	
	FILL: SILTY CLAY
	SILTY CLAY TO CLAYEY SILT
	SILT AND SAND
---	SOIL CONTACT LINES ARE DASHED WHERE INFERRED

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FIGURE 5  
CROSS-SECTION B-B'  
SOUTH MILWAUKEE MUNICIPAL GARAGE  
910 MARSHALL AVENUE  
SOUTH MILWAUKEE, WISCONSIN

DESIGNED	DRAWN	SCALE	DATE	REVISED
SCT	JSZ	SEE TITLE	03-18-09	03-10-10
PROJECT NO.: 1E-0710005			CAD No. 1E0710005D2	

**CHEMICAL KEY:**  
 -B: BENZENE  
 -E: ETHYLBENZENE  
 -F: FLUORANTHRENE  
 -MTBE: METHYL TERT BUTYL ETHER  
 -PA: PHENANTHRENE  
 -T: TOLUENE

**ABBREVIATIONS:**  
 -DRO: DIESEL RANGE ORGANIC  
 -GRO: GASOLINE RANGE ORGANIC  
 -LOD: LIMIT OF DETECTION  
 -NR: NATURAL RESOURCES  
 -PAH: POLYNUCLEAR AROMATIC HYDROCARBON  
 -PVOC: PETROLEUM VOLATILE ORGANIC COMPOUND  
 -VOC: VOLATILE ORGANIC COMPOUND  
 -WAC: WISCONSIN ADMINISTRATIVE CODE

**NOTES:**  
 VOC, PVOC AND PAH RESULTS EXPRESSED IN MICROGRAMS PER LITER (ug/l) EQUIVALENT TO PARTS PER BILLION (ppb)  
 RESULTS INDICATED IN BLUE/PARENTHESIS EXCEED WAC NR 140 PREVENTIVE ACTION LIMITS  
 RESULTS INDICATED IN RED/UNDERLINED EXCEED WAC NR 140 ENFORCEMENT STANDARDS  
 -j: CONCENTRATION BETWEEN LABORATORY LIMIT OF DETECTION AND QUANTITATION LIMIT.

10-16-92 DRO < 100 GRO < 100 Pb = 15 VOCs < LOD	1-17-95 GRO < 50 Pb < 2.0 PVOCs < LOD	5-4-95 GRO < 50 Pb < 2.0 PVOCs < LOD
	7-18-95 GRO < 50 Pb < 2.0 PVOCs < LOD	11-6-07 PVOCs < LOD
		1-31-08 PVOCs < LOD

8-11-92 GRO = 370 DETECTED VOCs B = 110 E = 2 MTBE = 830	10-16-92 DRO < 100 GRO = 1,300 Pb = 303 VOCs < LOD	9-7-94 GRO = 490 Pb < 2.0 DETECTED PVOCs B = 42 MTBE = 700	1-17-95 GRO = 450 Pb < 2.0 DETECTED PVOCs B = 20 MTBE = 780
---	--	---	--

5-4-95 GRO = 530 Pb < 2.0 DETECTED PVOCs B = 41 MTBE = 790	7-18-95 GRO = 550 Pb < 2.0 DETECTED PVOCs B = 35 MTBE = 790	10-17-95 GRO = 580 Pb < 2.0 DETECTED PVOCs B = 27 MTBE = 940	1-17-96 GRO = 340 Pb < 2.0 DETECTED PVOCs B = 17 MTBE = 670
---	--	---	--

4-18-96 GRO = 410 DETECTED PVOCs B = 17 MTBE = 610	7-18-96 GRO = 400 DETECTED PVOCs B = 25 MTBE = 630	10-18-96 GRO = 450 DETECTED PVOCs B = 21 MTBE = 670	11-6-07 DETECTED PVOCs MTBE = 270	1-31-08 DETECTED PVOCs B = (0.52 j) MTBE = (30)
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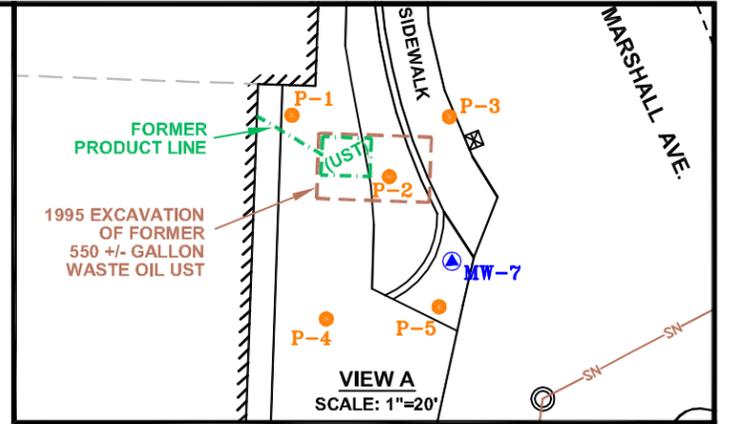
10-16-92 DRO < 100 GRO < 100 Pb = 14 VOCs < LOD	1-17-95 GRO < 50 Pb < 2.0 PVOCs < LOD	5-4-95 GRO < 50 Pb < 2.0 PVOCs < LOD
---	--	---

7-18-95 GRO < 50 Pb < 2.0 PVOCs < LOD	11-6-07 PVOCs < LOD	1-31-08 PVOCs < LOD
--	------------------------	------------------------

10-20-92 DRO < 100 GRO < 100 Pb < 0.05 DETECTED VOCs T = 3	11-6-07 PVOCs < LOD	1-31-08 PVOCs < LOD
---	------------------------	------------------------

11-6-07 VOCs < LOD PAHs < LOD	1-31-08 PVOCs < LOD
-------------------------------------	------------------------

11-6-07 VOCs < LOD DETECTED PAHs F = 0.084 j PA = 0.045 j	1-31-08 PVOCs < LOD
---	------------------------



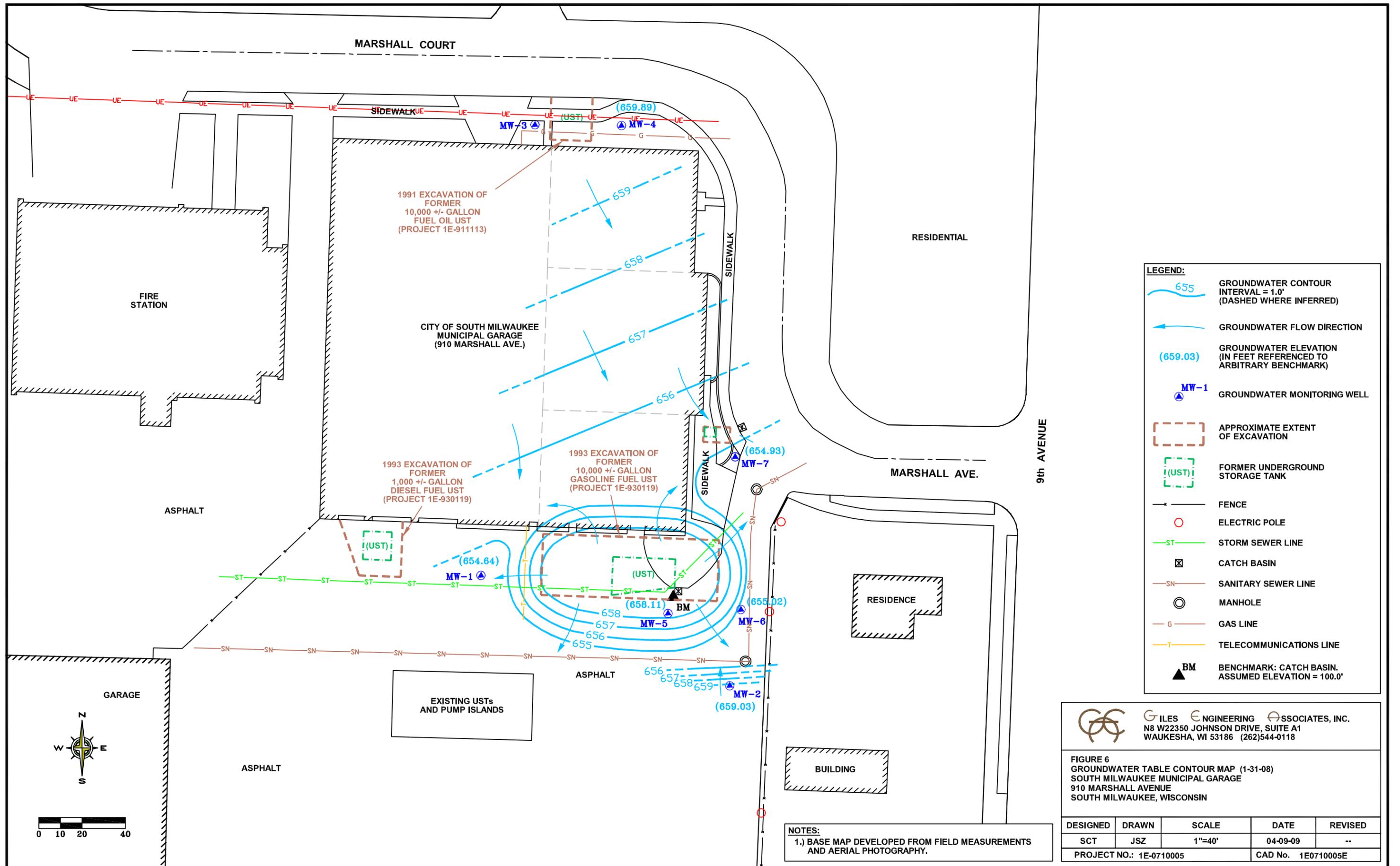
- LEGEND:**
- ESTIMATED EXTENT OF "MTBE" EXCEEDING NR 140 PAL
  - ESTIMATED EXTENT OF "BENZENE" EXCEEDING NR 140 PAL
  - MW-1 GROUNDWATER MONITORING WELL
  - B-1 SOIL BORING (DRILLED IN 1992 - PROJECT NO. 1E-921022)
  - P-1 SOIL BORING (DRILLED IN 1995 - PROJECT NO. 1E-9512018)
  - APPROXIMATE EXTENT OF EXCAVATION
  - (UST) FORMER UNDERGROUND STORAGE TANK
  - FENCE
  - ELECTRIC POLE
  - ST STORM SEWER LINE
  - CATCH BASIN
  - SN SANITARY SEWER LINE
  - MANHOLE
  - G GAS LINE
  - T TELECOMMUNICATIONS LINE
  - BM BENCHMARK: CATCH BASIN. ASSUMED ELEVATION = 100.0'

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**FIGURE 8**  
 GROUNDWATER ANALYTICAL RESULTS AND ISOCONCENTRATION MAP  
 SOUTH MILWAUKEE MUNICIPAL GARAGE  
 910 MARSHALL AVENUE  
 SOUTH MILWAUKEE, WISCONSIN

DESIGNED	DRAWN	SCALE	DATE	REVISED
SCT	JSZ	1"=40'	03-18-09	10-27-09
PROJECT NO.: 1E-0710005			CAD No. 1E0710005G	

**NOTES:**  
 1.) BASE MAP DEVELOPED FROM FIELD MEASUREMENTS AND AERIAL PHOTOGRAPHY.



**LEGEND:**

- 655 GROUNDWATER CONTOUR INTERVAL = 1.0' (DASHED WHERE INFERRED)
- GROUNDWATER FLOW DIRECTION
- (659.03) GROUNDWATER ELEVATION (IN FEET REFERENCED TO ARBITRARY BENCHMARK)
- ▲ MW-1 GROUNDWATER MONITORING WELL
- APPROXIMATE EXTENT OF EXCAVATION
- (UST) FORMER UNDERGROUND STORAGE TANK
- FENCE
- ELECTRIC POLE
- ST— STORM SEWER LINE
- ⊠ CATCH BASIN
- SN— SANITARY SEWER LINE
- MANHOLE
- G— GAS LINE
- T— TELECOMMUNICATIONS LINE
- ▲ BM BENCHMARK: CATCH BASIN. ASSUMED ELEVATION = 100.0'

**GILES ENGINEERING ASSOCIATES, INC.**  
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 WAUKESHA, WI 53186 (262)544-0118

**FIGURE 6**  
 GROUNDWATER TABLE CONTOUR MAP (1-31-08)  
 SOUTH MILWAUKEE MUNICIPAL GARAGE  
 910 MARSHALL AVENUE  
 SOUTH MILWAUKEE, WISCONSIN

DESIGNED	DRAWN	SCALE	DATE	REVISED
SCT	JSZ	1"=40'	04-09-09	--
PROJECT NO.: 1E-0710005			CAD No. 1E0710005E	

**NOTES:**  
 1.) BASE MAP DEVELOPED FROM FIELD MEASUREMENTS AND AERIAL PHOTOGRAPHY.

**Table 2  
Soil Analytical Results (PAHs)**

South Milwaukee Garage  
910 Marshall Avenue  
South Milwaukee, Wisconsin  
Project No. 1E-0710005

Analyte	Sample Location			Suggested Generic RCLs	
	MW-6	MW-6	MW-7	Groundwater Pathway	Direct Contact, Industrial Pathway (Soils 0 - 4 feet)
Sample Depth (feet)	2-4	4-6	2-4		
Sample Date	10/18/07	10/18/07	10/18/07		
PID	BDL	BDL	BDL		
<b>PAHs (ug/kg)</b>					
Acenaphthene	800	<56	<5.7	<b>38,000</b>	<b>6,000,000</b>
Acenaphthylene	<500	<95	<98	<b>700</b>	<b>360,000</b>
Anthracene	1,400	<5.6	<5.7	<b>3,000,000</b>	<b>300,000,000</b>
Benzo (a) anthracene	1,200	7.5	<5.7	<b>17,000</b>	<b>3,900</b>
Benzo (b) fluoranthene	<29	<5.6	<5.7	<b>360,000</b>	<b>3,900</b>
Benzo (k) fluoranthene	<29	<5.6	<5.7	<b>870,000</b>	<b>39,000</b>
Benzo (a) pyrene	<29	<5.6	<5.7	<b>48,000</b>	<b>390</b>
Benzo (g,h,i) perylene	<29	<5.6	<5.7	<b>6,800,000</b>	<b>39,000</b>
Chrysene	400	<5.6	<5.7	<b>37,000</b>	<b>390,000</b>
Dibenzo (a,h) anthracene	<44	<8.3	<8.6	<b>38,000</b>	<b>390</b>
Fluoranthene	8,200	15	<11	<b>500,000</b>	<b>40,000,000</b>
Fluorene	2,800	<11	<11	<b>100,000</b>	<b>40,000,000</b>
Indeno (1,2,3-cd) pyrene	<29	<5.6	<5.7	<b>680,000</b>	<b>3,900</b>
1-Methylnaphthalene	3,400	<33	<34	<b>23,000</b>	<b>70,000,000</b>
2-Methylnaphthalene	4,800	<28	<29	<b>20,000</b>	<b>40,000,000</b>
Naphthalene	<180	<33	<34	<b>400</b>	<b>110,000</b>
Phenanthrene	6,100	8.8	<5.7	<b>1,800</b>	<b>390,000</b>
Pyrene	5,000	<5.6	<5.7	<b>8,700,000</b>	<b>30,000,000</b>

**NOTES:**

**PID:** Photoionization Detector

**PAHs:** Polynuclear Aromatic Hydrocarbons

**ug/kg:** Micrograms per kilogram; equivalent to parts per billion (ppb)

**WDNR:** Wisconsin Department of Natural Resources

**BDL:** Below Detection Limit

**RCLs:** Residual Contaminant Levels

**Results in brown/#...# exceed the WDNR suggested generic RCLs (Direct Contact, Industrial Pathway) for soil shallower than 4 feet**

**TABLE 2A  
SOIL ANALYTICAL RESULTS  
(PVOCs + Naphthalene)**

South Milwaukee Garage  
910 Marshall Avenue  
South Milwaukee, Wisconsin  
Project No. 1E-0710005

Analyte	Sample Location			WAC NR 720.09 RCLs	NR 746.06 Table 1 (Product Indicator)	NR 746.06 Table 2 (Direct Contact)
	MW-6	MW-6	MW-7			
Sample Depth (feet)	2-4	4-6	2-4			
Sample Date	10/18/07	10/18/07	10/18/07			
PID	BDL	BDL	BDL			
<b>PVOCs (ug/kg)</b>						
Benzene	<29	<28	<29	6	8,500	1,100
Ethylbenzene	<29	<28	<29	2,900	4,600	NS
Methyl tert-butyl Ether	<29	<28	<29	NS	NS	NS
Naphthalene	<59	<56	<57	NS	2,700	NS
Toluene	<29	<28	<29	1,500	38,000	NS
1,2,4-Trimethylbenzene	<29	<28	<29	NS	83,000	NS
1,3,5-Trimethylbenzene	<29	<28	<29	NS	11,000	NS
Xylenes, total	<88	<83	<86	4,100	42,000	NS

**NOTES:**

**PID:** Photoionization Detector

**BDL:** Below Detection Limit

**PVOCs:** Petroleum Volatile Organic Compounds

**ug/kg:** Micrograms per kilogram; equivalent to parts per billion (ppb)

**WAC:** Wisconsin Administrative Code

**NR:** Natural Resources Chapter

**RCLs:** Residual Contaminant Levels

**NS:** No Established Standard

**TABLE 4 (Revised)**  
**GRO ANALYTICAL TEST RESULTS**  
**GASOLINE - FUEL UST EXCAVATION**  
**CONFIRMATION SAMPLES**

South Milwaukee Municipal Garage  
910 Marshall Avenue  
South Milwaukee, Wisconsin  
GEA Project No. 1E-930119

Sample Number	Sample Depth (feet)	Sample Date	PID	GRO (mg/kg)
1	11	2/1/93	BDL	<10
2	13	2/1/93	BDL	<10
4	8	2/1/93	BDL	<10
5	11	2/1/93	BDL	<10
6	8	2/1/93	BDL	<10
7	8	2/1/93	BDL	<10
8	5	2/1/93	5	<10
9	5	2/1/93	BDL	<10
11	4	2/1/93	6	39
12	5	2/1/93	15	<10
13	4	2/1/93	BDL	<10
14	6	2/1/93	BDL	<10
15	1	2/1/93	35	<10
16	3	2/1/93	110	29
17	3	2/1/93	250	<u>220</u>
18	2	2/1/93	BDL	<10
19	2.5	2/1/93	BDL	<10
20	6	2/1/93	BDL	10
21	11	2/1/93	BDL	<10
24	4	2/1/93	BDL	<10
25	7	2/2/93	BDL	63
26	4	2/1/93	BDL	<10
28	5	2/2/93	12	<10
42	3	2/3/93	15	<10
<b>WAC NR 720.09 RCLs</b>				<b>100</b>

**NOTES:**

**PID:** Photoionization Detector

**BDL:** Below Detection Limit

**GRO:** Gasoline Range Organics

**mg/kg:** Milligrams per kilogram; equivalent to parts per million (ppm)

**WAC:** Wisconsin Administrative Code

**NR:** Natural Resources Chapter

**RCLs:** Residual Contaminant Levels

**Results in red/underlined exceed the WAC NR 720.09 Generic RCL based on groundwater protection**

**TABLE 5 (Revised)**  
**DRO ANALYTICAL TEST RESULTS**  
**DIESEL - FUEL UST EXCAVATION**  
**CONFIRMATION SAMPLES**

South Milwaukee Municipal Garage  
 910 Marshall Avenue  
 South Milwaukee, Wisconsin  
 GEA Project No. 1E-930119

Sample Number	Sample Depth (feet)	Sample Date	PID	DRO (mg/kg)
30	9	2/2/93	BDL	<10
34	9	2/2/93	BDL	<10
36	9	2/3/93	BDL	17
38	10	2/2/93	BDL	<10
43	12	2/2/93	BDL	<10
<b>WAC NR 720.09 RCLs</b>				<b>100</b>

**NOTES:**

**PID:** Photoionization Detector

**BDL:** Below Detection Limit

**DRO:** Diesel Range Organics

**mg/kg:** Milligrams per kilogram; equivalent to parts per million (ppm)

**WAC:** Wisconsin Administrative Code

**NR:** Natural Resources Chapter

**RCLs:** Residual Contaminant Levels

**TABLE 6  
PVOC ANALYTICAL TEST RESULTS  
GASOLINE AND DIESEL - FUEL UST EXCAVATION  
CONFIRMATION SAMPLES**

South Milwaukee Municipal Garage  
910 Marshall Avenue  
South Milwaukee, Wisconsin  
GEA Project No. 1E-930119

Analyte	Sample Number Monitoring Well and Test Boring Number										WAC NR 720.09 RCLs	NR 746.06 Table 1 (Product Indicator)	NR 746.06 Table 2 (Direct Contact)
	1	2	4	5	14	15	16	17	20	43			
Sample Depth (feet)	11	13	8	11	6	1	3	3	6	12			
Sample Date	2/1/93	2/1/93	2/1/93	2/1/93	2/1/93	2/1/93	2/1/93	2/1/93	2/1/93	2/3/93			
PID	BDL	BDL	BDL	BDL	BDL	35	110	250	BDL	BDL			
<b>PVOCs (ug/kg)</b>													
Benzene	<2	<2	<2	<2	<2	<2	<5	<500	<2	<2	6	8,500	1,100
Ethylbenzene	<2	<2	<2	<2	3	<2	47	#4,700#	<2	<2	2,900	4,600	NS
Methyl tert-butyl Ether	<2	<2	<2	<2	<2	<2	<5	<500	<2	<2	NS	NS	NS
Naphthalene	<59	<56	<56	<56	<56	<56	<56	<56	<56	<57	NS	2,700	NS
Toluene	<2	<2	<2	<2	<2	3	<5	790	<2	<2	1,500	38,000	NS
1,2,4-Trimethylbenzene	7	6	3	<2	16	<2	350	28,000	4	3	NS	83,000	NS
1,3,5-Trimethylbenzene	<2	<2	<2	<2	4	<2	83	7,300	<2	<2	NS	11,000	NS
Xylenes, total	5	4	3	<2	19	4	340	<u>26,000</u>	<2	<2	4,100	42,000	NS

**NOTES:**

**PID:** Photoionization Detector

**BDL:** Below Detection Limit

**PVOCs:** Petroleum Volatile Organic Compounds

**ug/kg:** Micrograms per kilogram; equivalent to parts per billion (ppb)

**WAC:** Wisconsin Administrative Code

**NR:** Natural Resources Chapter

**RCLs:** Residual Contaminant Levels

**NS:** No Established Standard

**Results in red/underlined exceed the WAC NR 720.09 Generic RCL based on groundwater protection**

**Results indicated in brown/#...# exceed the WAC NR 746-Table 1 Residual Petroleum Product Indicator Levels**

**TABLE 3 (Revised)**  
**RESULTS OF SOIL ANALYTICAL TESTING**  
**WASTE OIL UST EXCAVATION**  
**CONFIRMATION SAMPLES**

South Milwaukee Municipal Garage  
 910 Marshall Avenue  
 South Milwaukee, Wisconsin  
 Project No. 1E-9506013

Sample Number	Sample Depth (feet)	Sample Date	PID	DRO (mg/kg)
A	8	2/2/93	BDL	<u>560</u>
B	8	2/2/93	BDL	<u>200</u>
H	3	2/3/93	BDL	4
<b>WAC NR 720.09 RCLs</b>				<b>100</b>

**NOTES:**

**PID:** Photoionization Detector

**BDL:** Below Detection Limit

**DRO:** Diesel Range Organics

**mg/kg:** Milligrams per kilogram; equivalent to parts per million (ppm)

**WAC:** Wisconsin Administrative Code

**NR:** Natural Resources Chapter

**RCLs:** Residual Contaminant Levels

**Results in red/underlined exceed the WAC NR 720.09 Generic RCL based on groundwater protection**

**Table 3 (Revised)**  
**Groundwater Analytical Results**  
**(VOCs, PVOCs, DRO, GRO, and Lead)**

South Milwaukee Garage  
910 Marshall Avenue  
South Milwaukee, Wisconsin  
Project No. 1E-0710005

Sample Location	Sample Date	DRO (ug/l)	GRO (ug/l)	Lead (ug/l)	Detected VOCs/PVOCs (ug/l)			
					Benzene	Ethylbenzene	MTBE	Toluene
P-2	10/16/92	1,100	NA	NA	<0.6	<1.0	<1.0	<1.0
MW-1	10/16/92	<100	<100	15	<1	<1	<1	<1
	01/17/95	NA	<50	<2.0	<0.6	<1.0	<1.0	<1.0
	05/04/95	NA	<50	<2.0	<0.6	<1.0	<1.0	<1.0
	07/18/95	NA	<50	<2.0	<0.6	<1.0	<1.0	<1.0
	11/06/07	NA	NA	NA	<0.25	<0.22	<0.23	<0.11
	01/31/08	NA	NA	NA	<0.25	<0.22	<0.23	<0.11
MW-2	10/16/92	<100	<100	14	<1	<1	<1	<1
	01/17/95	NA	<50	<2.0	<0.6	<1.0	<1.0	<1.0
	05/04/95	NA	<50	<2.0	<0.6	<1.0	<1.0	<1.0
	07/18/95	NA	<50	<2.0	<0.6	<1.0	<1.0	<1.0
	11/06/07	NA	NA	NA	<0.25	<0.22	<0.23	<0.11
	01/31/08	NA	NA	NA	<0.25	<0.22	<0.23	<0.11
MW-3	10/16/92	<100	<100	41	<1	<1	<1	<1
MW-4	10/20/92	<100	<100	<0.05	<1	<1	<1	3
	11/06/07	NA	NA	NA	<0.25	<0.22	<0.23	<0.11
	01/31/08	NA	NA	NA	<0.25	<0.22	<0.23	<0.11
MW-5	08/11/92	NA	370	NA	<u>110</u>	2	<u>830</u>	<1
	10/16/92	<100	1,300	303	<1	<1	<1	<1
	09/07/94	NA	490	<2.0	<u>42</u>	<5.0	<u>700</u>	<5.0
	01/17/95	NA	450	<2.0	<u>20</u>	<1.0	<u>780</u>	<1.0
	05/04/95	NA	530	<2.0	<u>41</u>	<1.0	<u>790</u>	<1.0
	07/18/95	NA	550	<2.0	<u>35</u>	<1.0	<u>790</u>	<1.0
	10/17/95	NA	580	<2.0	<u>27</u>	<10	<u>940</u>	<10
	01/17/96	NA	340	<2.0	<u>17</u>	<5.0	<u>670</u>	<5.0
	04/18/96	NA	410	NA	<u>17</u>	<5.0	<u>610</u>	<5.0
	07/18/96	NA	400	NA	<u>25</u>	<5.0	<u>630</u>	<5.0
	10/18/96	NA	450	NA	<u>21</u>	<5.0	<u>670</u>	<1
	11/06/07	NA	NA	NA	<0.25	<0.22	<u>270</u>	<0.11
01/31/08	NA	NA	NA	<u>(0.52j)</u>	<0.22	<u>(30)</u>	<0.11	
MW-6	11/06/07	NA	NA	NA	<0.2	<0.5	<0.5	<0.2
	01/31/08	NA	NA	NA	<0.25	<0.22	<0.23	<0.11
MW-7	11/06/07	NA	NA	NA	<0.2	<0.5	<0.5	<0.2
	01/31/08	NA	NA	NA	<0.25	<0.22	<0.23	<0.11
<b>NR 140 PAL</b>		<b>NS</b>	<b>NS</b>	<b>1.5</b>	<b>0.5</b>	<b>140</b>	<b>12</b>	<b>200</b>
<b>NR 140 ES</b>		<b>NS</b>	<b>NS</b>	<b>15</b>	<b>5</b>	<b>700</b>	<b>60</b>	<b>1,000</b>

**NOTES:**

**VOCs:** Volatile Organic Compounds

**PVOCs:** Petroleum Volatile Organic Compounds

**DRO:** Diesel Range Organics

**GRO:** Gasoline Range Organics

**MTBE:** Methyl tert butyl Ether

**ug/l:** micrograms per kilogram equivalent to parts per billion (ppb)

**MW:** Monitoring Well

**NA:** Not analyzed

**NS:** No Standards are established for this compound

**NR:** Natural Resources Chapter of the Wisconsin Administrative Code

**PAL:** Preventive Action Limit

**ES:** Enforcement Standard

**j:** Results reported between the Method Detection Limit (MDL) and Limit of Quantitation (LOQ) are less certain than results at or above the LOQ

**Results in parentheses/blue exceed the Wisconsin Administrative Code NR 140.10 PAL**

**Results in underlined/red exceed the Wisconsin Administrative Code NR 140.10 ES**

**Table 4**  
**Groundwater Analytical Results**  
**(Detected PAHs)**

South Milwaukee Garage  
910 Marshall Avenue  
South Milwaukee, Wisconsin  
Project No. 1E-0710005

Sample Location	MW-6	MW-7	NR 140 PAL	NR 140 ES
Sample Date	11/06/07	11/06/07		
Detected PAHs (ug/l)				
Fluoranthene	0.084 j	<0.081	80	400
Phenanthrene	0.045 j	<0.030	NS	NS

**NOTES:**

**PAHs:** Polynuclear Aromatic Hydrocarbons

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

**NR:** Natural Resources Chapter of the Wisconsin Administrative Code

**WAC:** Wisconsin Administrative Code

**j:** Result detected between laboratory method detection limit and quantitation limit

**NS:** No Established Standard

**PAL:** WAC NR 140 Preventive Action Limit

**ES:** WAC NR 140 Enforcement Standard

**TABLE 1  
Groundwater Elevation Summary**

South Milwaukee Garage  
910 Marshall Avenue  
South Milwaukee, Wisconsin  
Project No. 1E-0710005

Well No.	Surface Elevation	Top of Casing Elevation	Screen		Groundwater		
			Top of Screen Elevation	Bottom of Screen Elevation	Measurement Date	Depth to Water (feet)	Groundwater Elevation
MW-1	665.04	664.58	659.60	649.60	10/16/92	8.73	655.85
					09/07/94	--	--
					01/17/95	--	--
					05/04/95	8.14	656.44
					07/18/95	8.68	655.90
					10/17/95	8.70	655.88
					01/17/96	8.53	656.05
					04/18/96	--	--
					07/18/96	8.55	656.03
		10/18/96	--	--			
		663.52	658.54	648.54	11/06/07	8.90	654.62
01/31/08	8.88	654.64					
MW-2	665.04	664.62	659.60	649.60	10/16/92	14.24	650.38
					09/07/94	--	--
					01/17/95	--	--
					05/04/95	4.26	660.36
					07/18/95	5.19	659.43
					10/17/95	5.17	659.45
					01/17/96	--	--
					04/18/96	--	--
					07/18/96	5.09	659.53
		10/18/96	--	--			
		663.9	658.88	648.88	11/06/07	5.79	658.11
01/31/08	4.87	659.03					
MW-3	665.08	664.82	659.80	649.80	10/16/92	3.52	661.30
					09/07/94	--	--
					01/17/95	--	--
					05/04/95	--	--
					07/18/95	--	--
					10/17/95	3.25	661.57
					01/17/96	--	--
					04/18/96	--	--
					07/18/96	--	--
					10/18/96	--	--
					11/06/07	--	--
01/31/08	--	--					
MW-4	665.56	664.56	660.00	640.00	10/16/92	3.55	661.01
					09/07/94	--	--
					01/17/95	--	--
					05/04/95	--	--
					07/18/95	--	--
					10/17/95	3.42	661.14
					01/17/96	3.94	660.62
					04/18/96	--	--
					07/18/96	--	--
		10/18/96	--	--			
		664.27	659.71	639.71	11/06/07	5.31	658.96
01/31/08	4.38	659.89					
MW-5	664.63	664.29	659.85	649.85	10/16/92	6.68	657.61
					09/07/94	6.16	658.13
					01/17/95	6.15	658.14
					05/04/95	5.49	658.80
					07/18/95	5.92	658.37
					10/17/95	6.16	658.13
					01/17/96	5.41	658.88
					04/18/96	--	--
					07/18/96	5.42	658.87
	10/18/96	6.52	657.77				
	663.5	663.16	658.72	648.72	11/06/07	6.07	657.09
01/31/08	5.05	658.11					
MW-6	664.04	663.50	658.50	648.50	11/06/07	10.19	653.31
					01/31/08	8.48	655.02
MW-7	661.86	661.47	656.47	646.47	11/06/07	7.64	653.83
					01/31/08	6.54	654.93

Note:

Benchmark: Finished Floor at Office Entrance, South Side of Building = 665.99 feet above mean sea level (MSL)  
Top of PVC elevations for all monitoring wells were resurveyed on 11/6/2007

Facility/Project Name <i>CITY OF South MILWAUKEE MUNICIPAL GOVT</i>	Grid Location 337,500 ft. <input checked="" type="checkbox"/> N. <input type="checkbox"/> S.	Well Name <i>MW-3</i>
Facility License, Permit or Monitoring Number	2,579,500 ft. <input checked="" type="checkbox"/> E. <input type="checkbox"/> W.	Wis. Unique Well Number _____ DNR Well Number _____
Type of Well Water Table Observation Well <input checked="" type="checkbox"/> 11 Piezometer <input type="checkbox"/> 12	Section Location <i>NW 1/4 of SE 1/4 of Section 11</i>	Date Well Installed <i>10/12/92</i> m m d d y y
Distance Well Is From Waste/Source Boundary 10 ft.	T <i>5</i> N, R <i>22</i> <input checked="" type="checkbox"/> E <input type="checkbox"/> W	Well Installed By: (Person's Name and Firm) <i>STEVEN C. THUMBLING</i>
Is Well A Point of Enforcement Std. Application? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Location of Well Relative to Waste/Source <input checked="" type="checkbox"/> Upgradient <input type="checkbox"/> Sidegradient <input type="checkbox"/> Downgradient <input type="checkbox"/> Not Known	<i>Giles Engineering</i>

A. Protective pipe, top elevation <i>665.18</i> ft. MSL	1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
B. Well casing, top elevation <i>664.82</i> ft. MSL	2. Protective cover pipe: a. Inside diameter: _____ in. b. Length: _____ ft. c. Material: _____ Steel <input type="checkbox"/> 04 <i>ALUMINUM</i> Other <input checked="" type="checkbox"/>
C. Land surface elevation <i>665.1</i> ft. MSL	d. Additional protection? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, describe: <i>EXPANSION RING</i>
D. Surface seal, bottom <i>664.3</i> ft. MSL or _____ ft.	3. Surface seal: _____ Bentonite <input type="checkbox"/> 30 _____ Concrete <input checked="" type="checkbox"/> 01 <i>PORTLAND</i> Other <input type="checkbox"/>
12. USCS classification of soil near screen: <input type="checkbox"/> GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input checked="" type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock	4. Material between well casing and protective pipe: _____ Bentonite <input checked="" type="checkbox"/> 30 _____ Annular space seal <input type="checkbox"/>
13. Sieve analysis attached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	5. Annular space seal: _____ Granular Bentonite <input checked="" type="checkbox"/> 33 _____ Lbs/gal mud weight... Bentonite-sand slurry <input type="checkbox"/> 35 _____ Lbs/gal mud weight... Bentonite slurry <input type="checkbox"/> 31 _____ % Bentonite... Bentonite-cement grout <input type="checkbox"/> 50 <i>.04</i> Ft <sup>3</sup> volume added for any of the above
14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input checked="" type="checkbox"/> 41 Other <input type="checkbox"/>	How installed: _____ Tremie <input type="checkbox"/> 01 _____ Tremie pumped <input type="checkbox"/> 02 _____ Gravity <input checked="" type="checkbox"/> 08
15. Drilling fluid used: Water <input type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input checked="" type="checkbox"/> 99	6. Bentonite seal: _____ Bentonite granules <input type="checkbox"/> 33 <input checked="" type="checkbox"/> 1/4 in. <input type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite pellets <input type="checkbox"/> 32 _____ Other <input type="checkbox"/>
16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7. Fine sand material: Manufacturer, product name and mesh size <i>WEDROM WASHAL SILICA</i> Volume added <i>.02</i> ft <sup>3</sup>
Describe _____	8. Filter pack material: Manufacturer, product name and mesh size <i>RED FLINT SAND #30</i> Volume added <i>.04</i> ft <sup>3</sup>
17. Source of water (attach analysis): <i>N/A</i>	9. Well casing: _____ Flush threaded PVC schedule 40 <input checked="" type="checkbox"/> 23 _____ Flush threaded PVC schedule 80 <input type="checkbox"/> 24 _____ Other <input type="checkbox"/>
E. Bentonite seal, top <i>664.3</i> ft. MSL or _____ ft.	10. Screen material: <i>PVC</i> Screen type: _____ Factory cut <input checked="" type="checkbox"/> 11 _____ Continuous slot <input type="checkbox"/> 01 _____ Other <input type="checkbox"/>
F. Fine sand, top <i>662.8</i> ft. MSL or _____ ft.	Manufacturer <i>DIETRICH</i> Slot size: _____ 0.01 in. Slotted length: _____ 12.2 ft.
G. Filter pack, top <i>661.8</i> ft. MSL or _____ ft.	11. Backfill material (below filter pack): _____ None <input type="checkbox"/> <i>NATURAL SAND</i> Other <input type="checkbox"/>
H. Well screen, top <i>659.8</i> ft. MSL or _____ ft.	
I. Well screen, bottom <i>649.8</i> ft. MSL or _____ ft.	
J. Filter pack, bottom <i>649.1</i> ft. MSL or _____ ft.	
K. Borehole, bottom <i>649.1</i> ft. MSL or _____ ft.	
L. Borehole, diameter <i>8.2</i> in.	
M. O.D. well casing <i>2.38</i> in.	
N. I.D. well casing <i>2.00</i> in.	

I hereby certify that the information on this form is true and correct to the best of my knowledge.  
Signature *Steven C. Thumling* Firm *Giles Engineering*

Please complete and return both sides of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5,000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation.