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608-437-3900 / jdrapeaupioneer@rxn.com

## **TECHNICAL MEMORANDUM**

### **RE: SOIL & GROUNDWATER MANAGEMENT PLAN CITGO/EXPO SERVICE// PROPOSED KWIK TRIP 527 1700 PEWAUKEE ROAD, WAUKESHA, WI**

**Date September 22, 2016**

The site is located in the Southeast ¼ of the Northeast ¼ of Section 34, Township 7 North, Range 19 East, City of Waukesha, Wisconsin (Figure 1). The subject property is situated on the northwest quadrant of the intersection of Pewaukee Road and Gascoigne Dr. The site is 0.57 acres in size, is relatively flat and rests at approximately the same elevation as the surrounding area.

#### **BACKGROUND:**

During property acquisition process, the soils and groundwater were evaluated and discussed in the Giles Engineering – *Geotechnical Engineering Exploration and Analysis Report* dated July 28, 2016, and the Pioneer Environmental Inc (PEI) - *Phase II Environmental Site Assessment (ESA) Report* dated July 24, 2016. The *Phase I ESA Report* (July 24, 2016) identified one recognized environmental condition (REC) on the subject property related to the operation of an underground storage tank (UST) system at the site, as well as a controlled REC (CREC) due to the closed leaking underground storage tank (LUST) case at the site. No nearby properties were identified with past or present site activities that result in a current recognized environmental condition for the subject property.

The subject property has been a gasoline service station since the 1960's, prior to that it was agricultural lands. In the 1990's the station in operation had numerous environmental issues, including leaking USTs. In 1996 five USTs, including gasoline, waste oil and fuel oil tanks, were removed from the site, as was the former gas station building. Petroleum soil contamination was discovered as a result of the tank system removal. In 2001, a new C-store Building and USTs (2-gasoline USTs and 1-diesel UST) were installed. Environmental site investigation activities began in 2001 and lead to conditional case closure by the WDNR in 2014. The WDNR closed the site with petroleum contaminated soil and groundwater GIS Listing. Figure 2 shows the current site layout. Figure 3-5 shows the findings of the previous investigation, and the historic extents of soil and groundwater contamination. The site was also closed with a cap maintenance plan in place.

The results of this Phase II ESA indicate that the previous petroleum contamination identified by the Phase I ESA have resulted in the continued presence of petroleum contamination in the subsurface at the site. VOCs are present in soil at two soil boring locations (B5 and B6) on the southern portion of the site. As for groundwater; One or more VOC constituents were present in groundwater at five locations, excluding B6. Benzene exceeded the NR140 PAL at three locations (B3, B4 and B5). The locations of B4 and B5, adjacent to the southern property boundary, indicates that the benzene plume exceeding the PAL may extend near to the Gascoigne Drive ROW. This is similar to the projected extents of the previous PECFA/BRRTS investigation. No other groundwater quality standards were exceeded. The estimated areas of petroleum contaminated soil and groundwater based on 2016 data and historic data is indicated in Figures 5 & 6.

## **SOIL & SOIL VAPOR QUALITY ISSUES:**

The soils generally consisted of fill materials including silty clay, sand and gravel were present across the boring locations at the site and extending from the surface to depths ranging between approximately 2 feet bgs to 7 feet bgs. Native soils encountered at the site were comprised of silty clay as well as sand and gravel and varied based on boring location and sample depth. (See Geotech Report).

The previous investigation (1996-2014) & Phase II ESA results identified petroleum soil contamination in numerous locations around the site. The Phase II results indicate this is most likely residual petroleum contamination from the previous release/investigation. Petroleum contaminated soil still remains on the site. Figure 5 & 7 shows the possible extent of petroleum contaminated soil based on the ESA results.

It is PEI's understanding that limited subsurface work is planned, however, the replacement of the canopy and some of the pavement is proposed. Based on our understanding there is likely petroleum contaminated soil in the area of the canopy footings. Thus during any soil excavation work, PEI personnel need to be on-site to evaluate soil quality conditions and collected appropriate samples. Tentative soil disposal location will be WM disposal facility (Orchard Ridge Landfill in Menomonee Falls, WI).

*Estimated Petroleum Contaminated Soil quantities: 100-200 tons  
Distance to WM landfill – 20 miles*

## **GROUNDWATER QUALITY & DEWATERING:**

Groundwater was encountered in several of the borings, and it was determined that groundwater is likely present at 15 feet bls, Perched water in aggregate fill material is possible, and was observed in the UST basin sump at 10 ft bg. During the Phase II ESA, petroleum contaminated groundwater was confirmed to still be present on the site (Figure 6 & 7).

PEI does not anticipate a large volume of groundwater to be encountered based on depths of typical footings and since the lean clay material is not very porous, thus minimal influx of groundwater. However, any perched water encountered in excavations should be handled as potentially petroleum contaminated. PEI will coordinate vacuum truck service (Covanta Services) to remove a portion of this water to facilitate satisfactory removal and appropriate installation of structure backfill material.

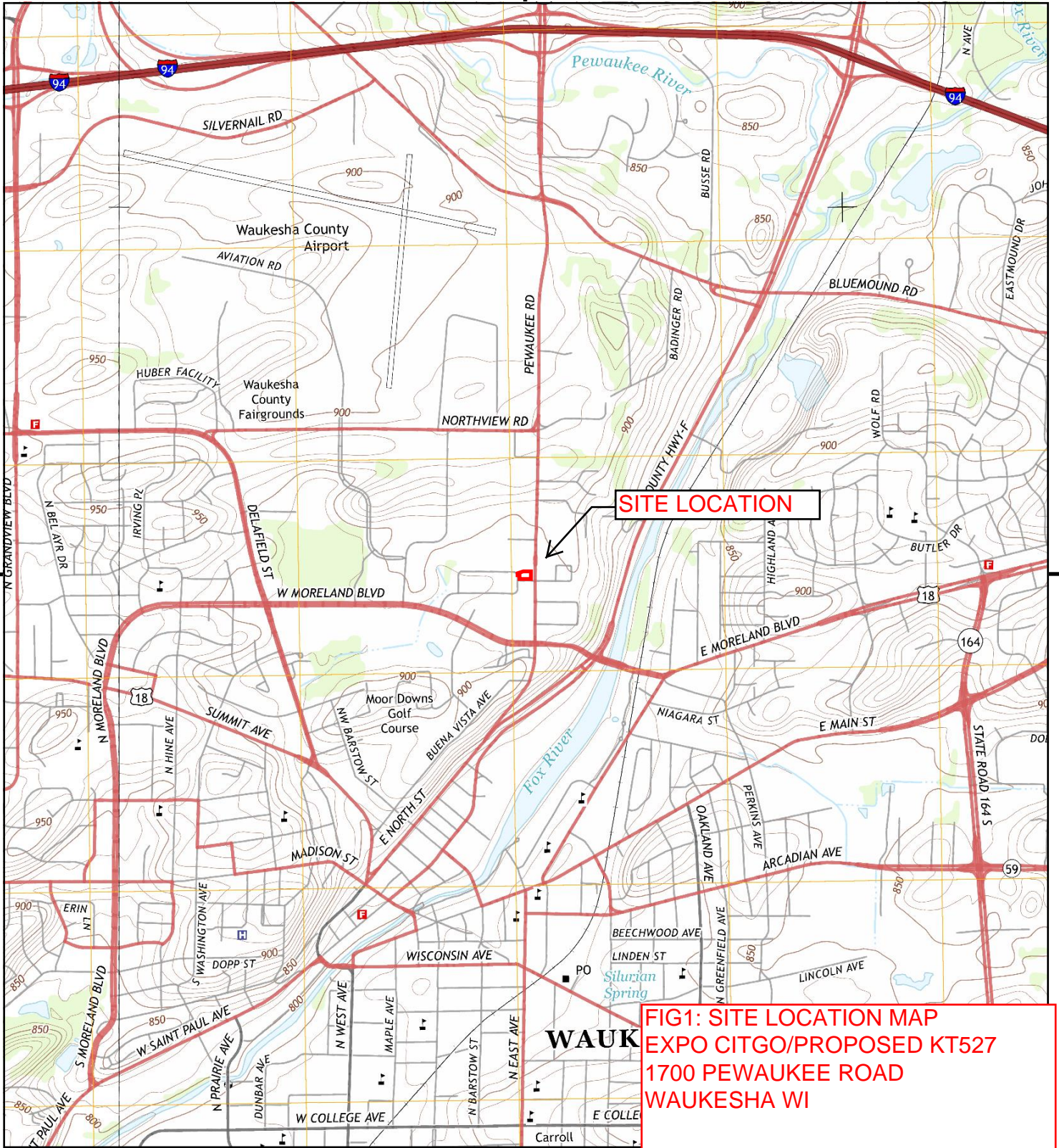
## **SUMMARY & RECOMMENDATIONS:**

Based on Previous investigation and Phase II ESA data, petroleum soil contamination exists in numerous areas of the subject property. During excavation activities at the site, PEI personnel will need to be on-site to evaluate soil quality conditions. Any petroleum contaminated soils encountered will require special handling and disposal, if the material needs to be removed from the Kwik Trip Site. In addition, PEI will coordinate the extraction of perched water from any perched water encountered during excavation activities. PEI should be notified 2 weeks prior to soil excavation activities, to allow for proper scheduling of equipment and personnel.

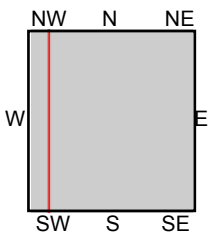
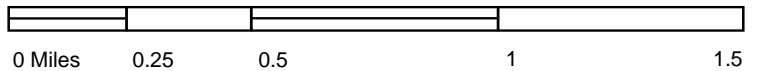
*NOTE: The Phase I & II ESA found recognized environmental concerns with the subject property; however, with any developments on previously occupied properties, the potential of encountering unknown environmental concerns is always a possibility. If during site development activities, any unusual materials, soils with questionable odors, or "orphan" tanks are encountered, Kwik Trip/PEI should be notified immediately. Removal or disposal of any "contaminated" soils or discharge of groundwater not in accordance with WDNR regulations could subject Kwik Trip to litigation and unwarranted expenses.*

Drafted By: \_\_\_\_\_  
Joseph Drapeau, Senior Project Manager  
***PIONEER ENVIRONMENTAL INC***  
608.437.3900 office // 608.358.7182 mobile

Attachments: Site Maps



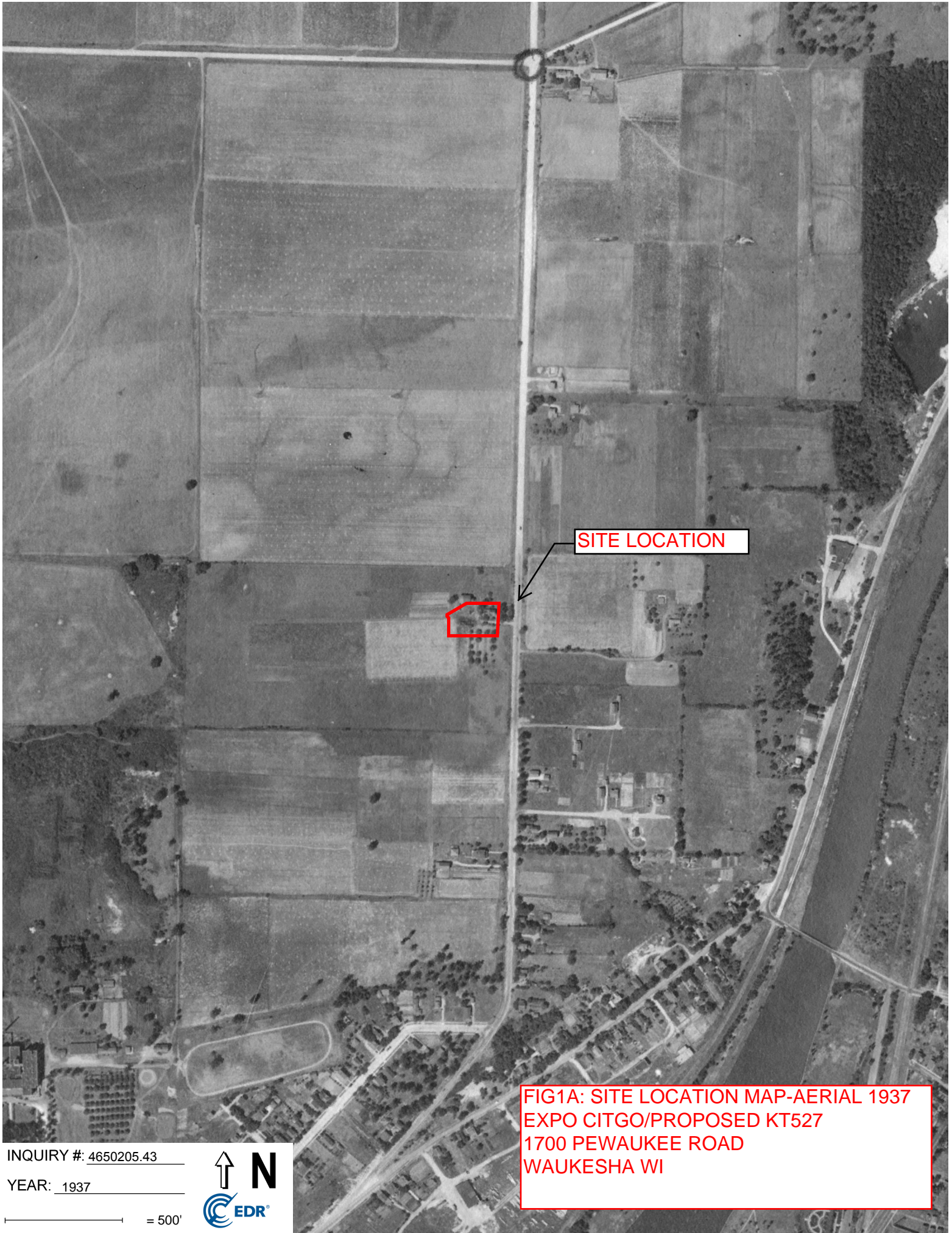
This report includes information from the following map sheet(s).



TP, Waukesha, 2013, 7.5-minute  
NW, Hartland, 2013, 7.5-minute

SITE NAME: KT527 EXPO Express  
ADDRESS: 1700 Pewaukee Road  
Waukesha, WI 53188  
CLIENT: Pioneer Environmental





SITE LOCATION

FIG1A: SITE LOCATION MAP-AERIAL 1937  
EXPO CITGO/PROPOSED KT527  
1700 PEWAUKEE ROAD  
WAUKESHA WI

INQUIRY #: 4650205.43

YEAR: 1937

— = 500'





**SITE LOCATION**

**FIG1B: SITE LOCATION MAP-AERIAL 2010**  
**EXPO CITGO/PROPOSED KT527**  
**1700 PEWAUKEE ROAD**  
**WAUKESHA WI**

INQUIRY #: 4650205.43

YEAR: 2010

— = 500'



## kt527-SITE AERIAL MAP



U.S. Public Land Survey System		Orthophoto Image Boundaries
— Section and Quarter-Section Lines	— State Trunk highway	— 200-scale GeoTIFF
— Approximate Section and Quarter-Section Lines	— County Trunk Highway	— 400-scale GeoTIFF
	— Local Road	— 200-scale MrSID
<b>Roads</b>	<b>Water</b>	— 400-scale MrSID
— Interstate Highway	— Water	
— U.S. Highway		

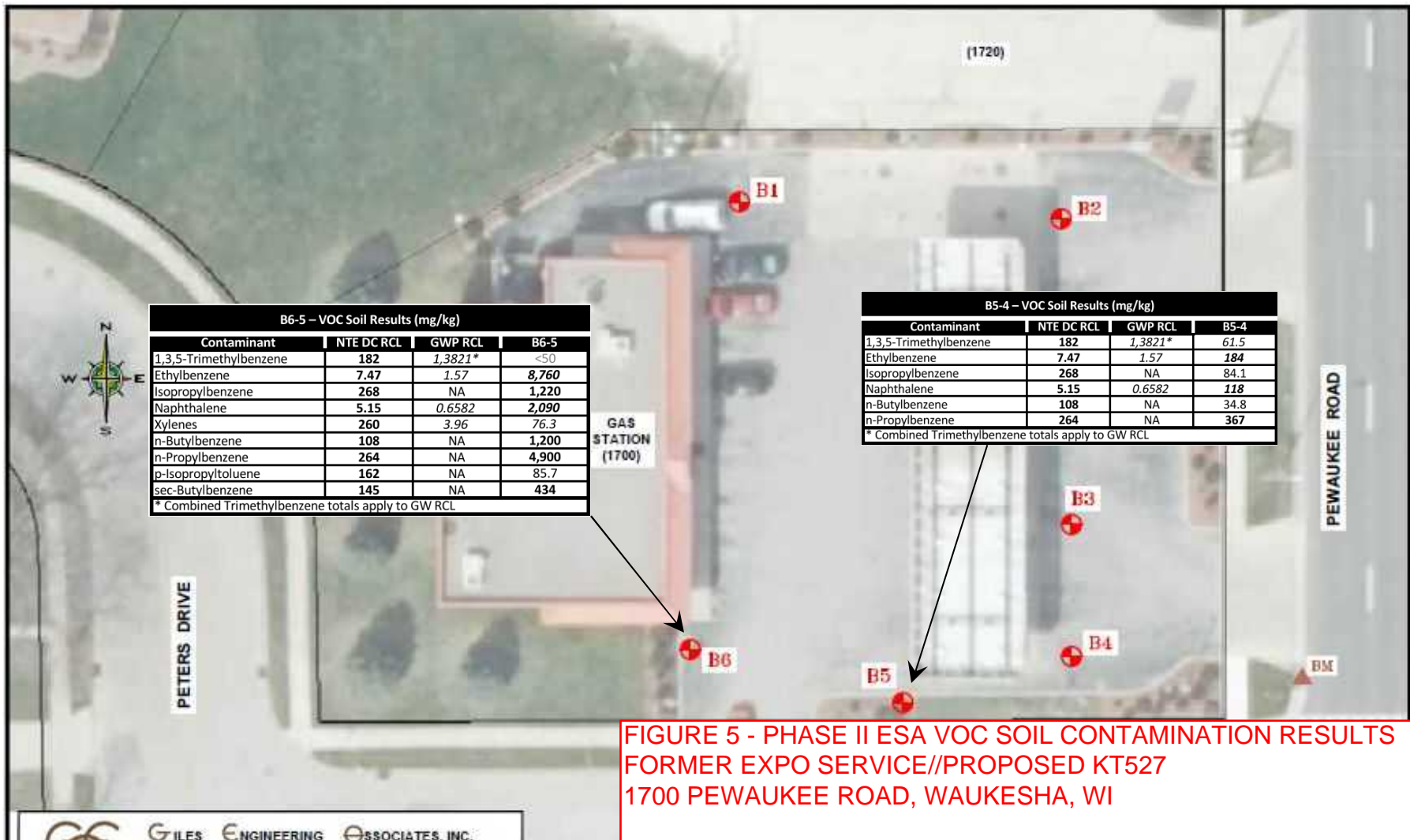


FIGURE 5 - PHASE II ESA VOC SOIL CONTAMINATION RESULTS  
FORMER EXPO SERVICE//PROPOSED KT527  
1700 PEWAUKEE ROAD, WAUKESHA, WI

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

**FIGURE 1**  
TEST BORING LOCATION PLAN  
PROPOSED KWIK TRIP NO. 527  
1700 PEWAUKEE ROAD  
WAUKESHA, WISCONSIN

**LEGEND:**

**B1** GEOTECHNICAL TEST BORING

**BM** BENCHMARK: STORM DRAIN. ASSUMED ELEVATION = 100.0'

DESIGNED	DRAWN	SCALE	DATE	REVISED
AMJ	JSZ	approx. 1"=30'	07-13-16	--

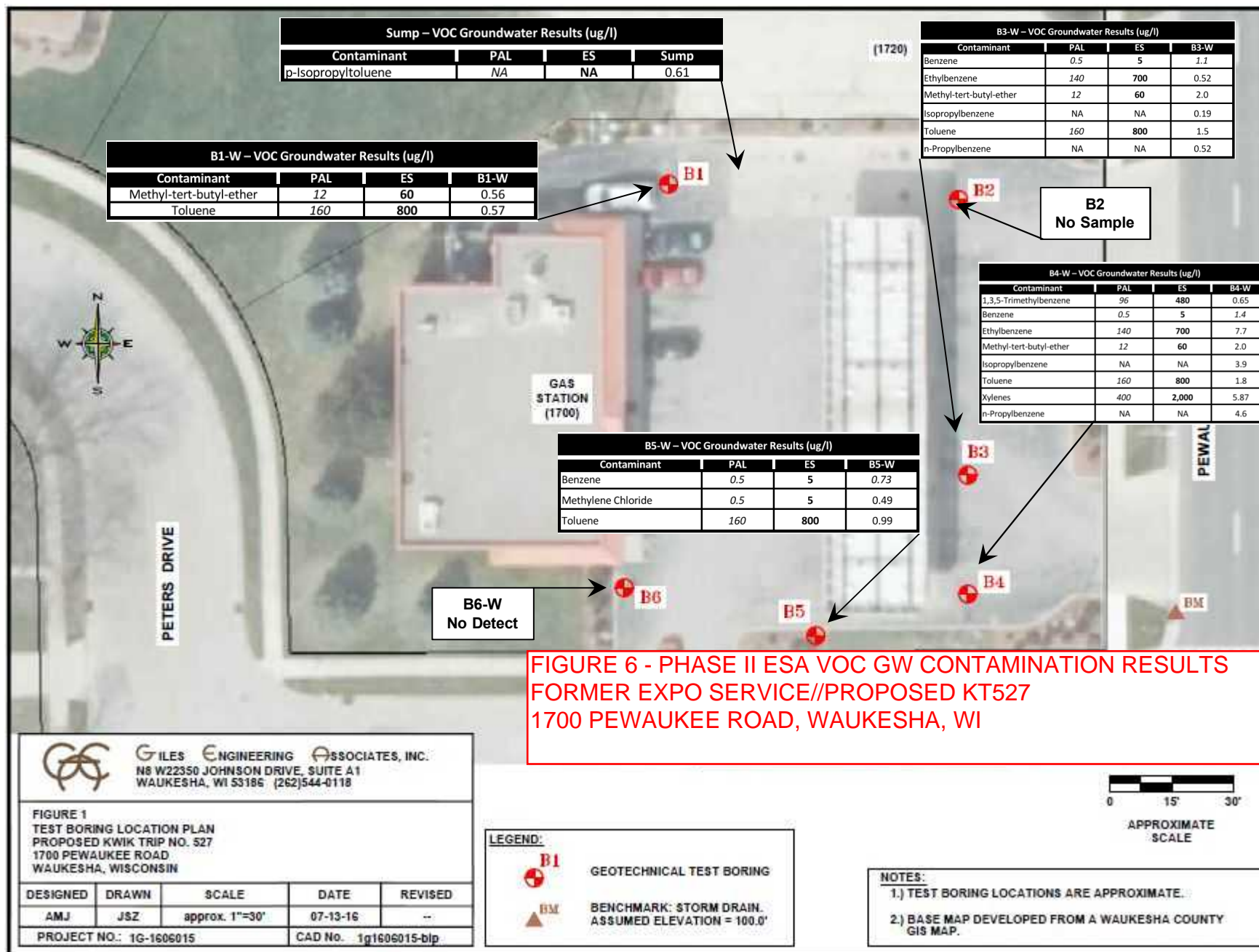
PROJECT NO.: 1G-1606015      CAD No. 1g1606015-blp

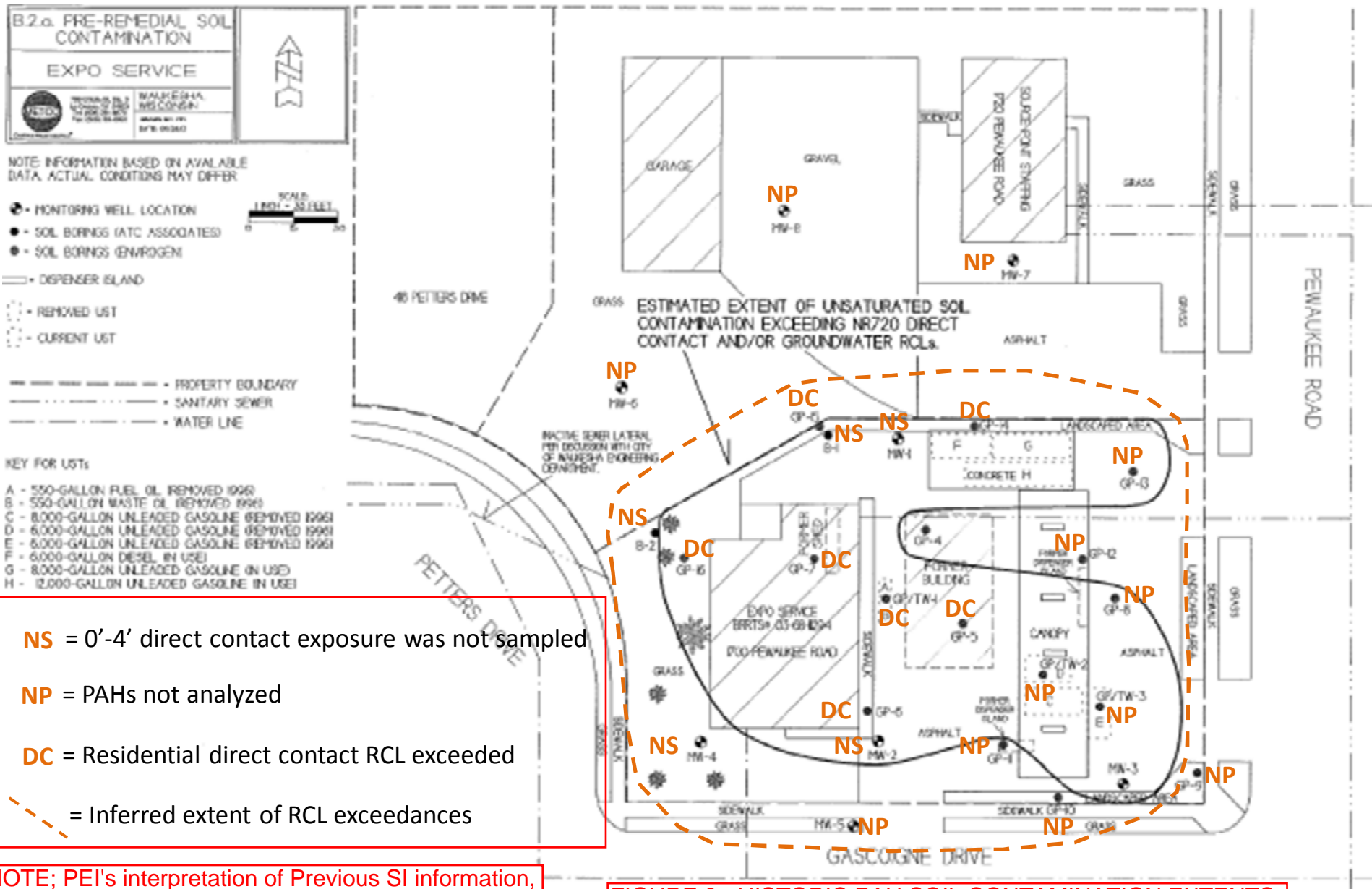
**NOTES:**

1.) TEST BORING LOCATIONS ARE APPROXIMATE.

2.) BASE MAP DEVELOPED FROM A WAUKESHA COUNTY GIS MAP.

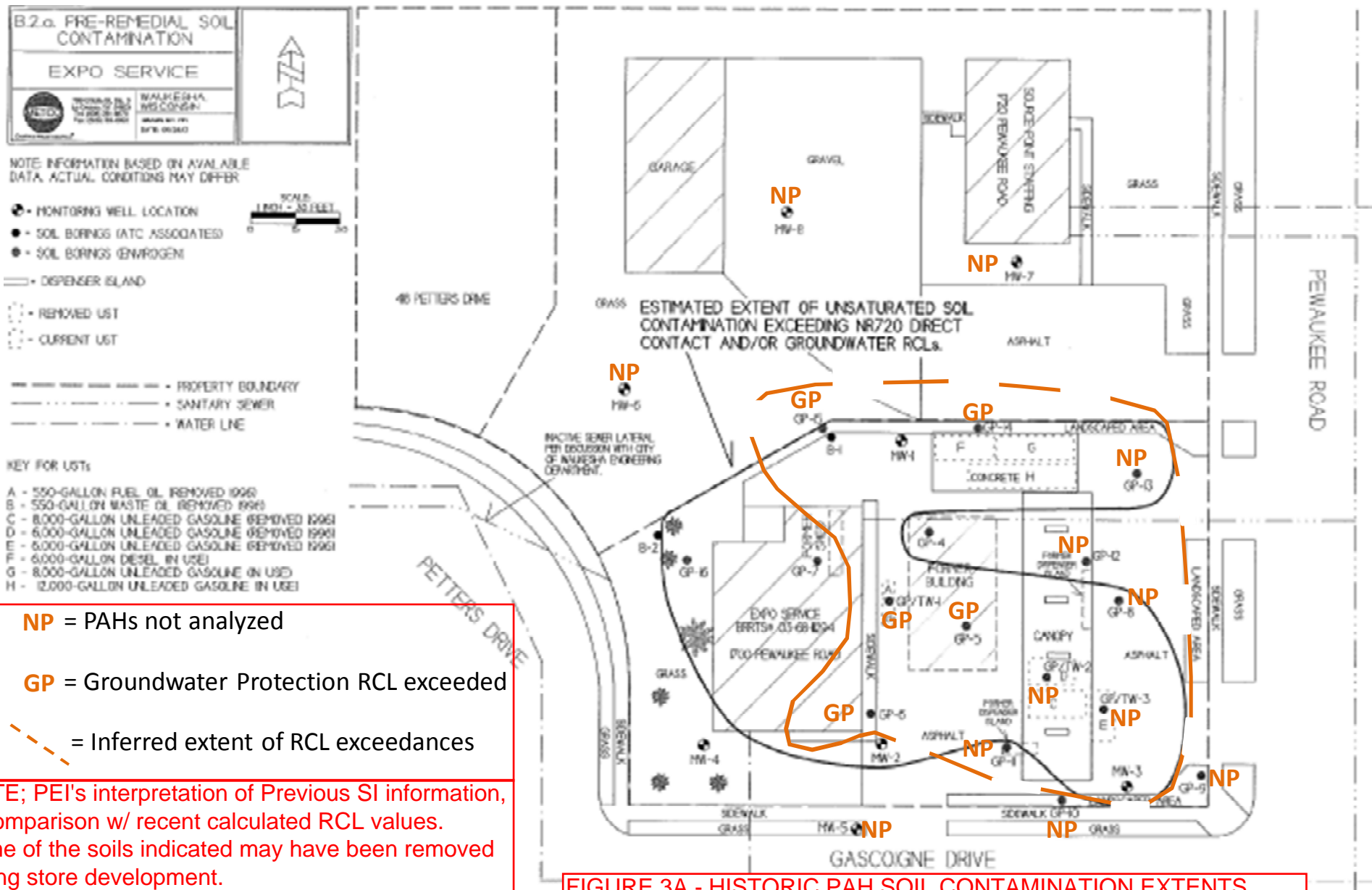
APPROXIMATE SCALE



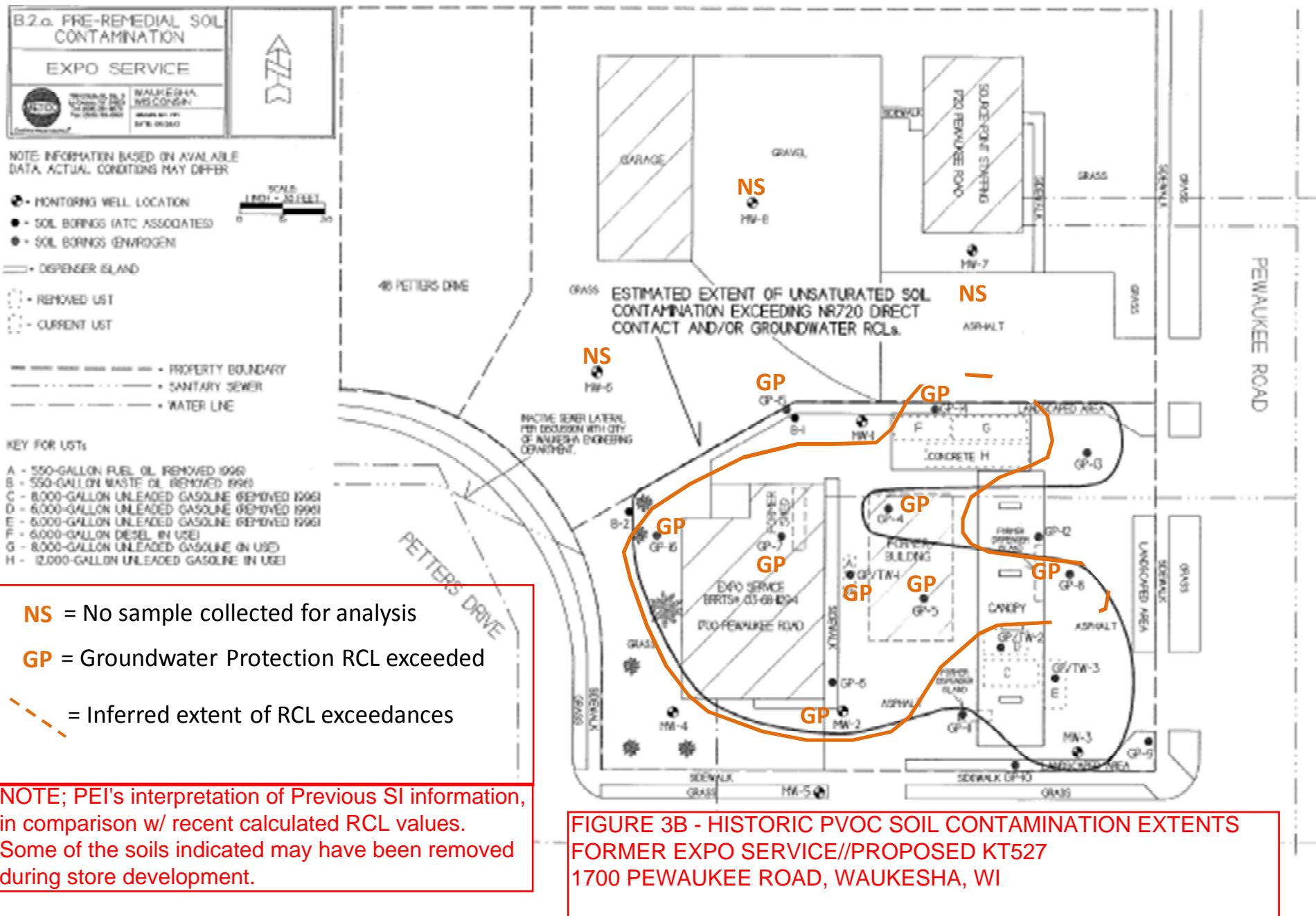


**FIGURE 3 - HISTORIC PAH SOIL CONTAMINATION EXTENTS  
FORMER EXPO SERVICE/PROPOSED KT527  
1700 PEWAUKEE ROAD, WAUKESHA, WI**

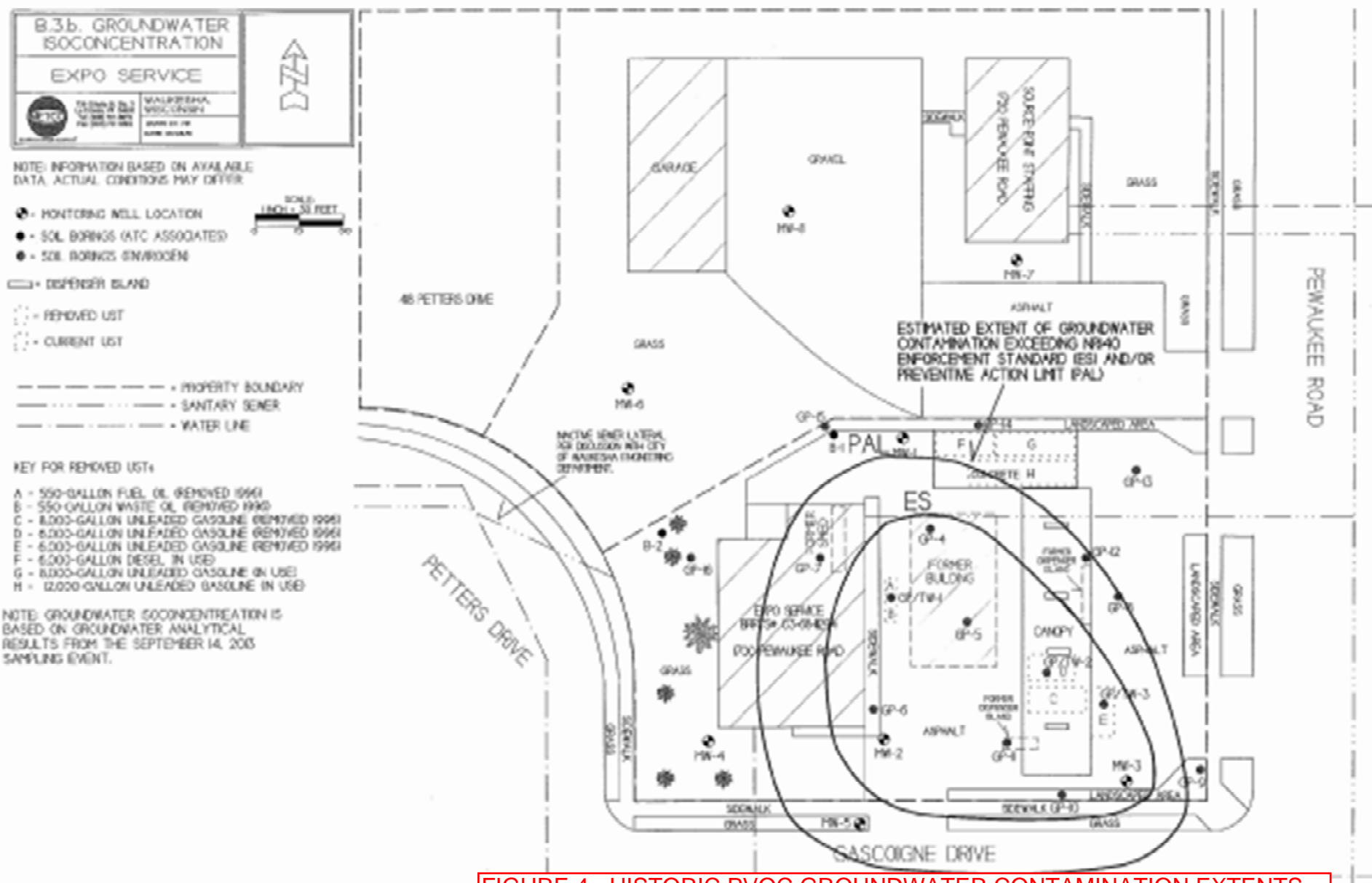
## Soil PAH Direct Contact RCL Exceedance Distribution



## Soil PAH Groundwater Protection RCL Exceedance Distribution



## Soil PVOC Groundwater Protection RCL Exceedance Distribution



**FIGURE 4 - HISTORIC PVOC GROUNDWATER CONTAMINATION EXTENTS  
FORMER EXPO SERVICE//PROPOSED KT527  
1700 PEWAUKEE ROAD, WAUKESHA, WI**

## PVOC Groundwater Quality Standard Exceedance Distribution

