Site Investigation Work Plan

Former Heimes Garage
3418 – 66th Street
Kenosha, WI

August 19, 2019

Prepared By:

Midwest Environmental Consulting
Burlington • Wisconsin

Midwest Environmental Consulting
Burlington · Wisconsin
Phone (262) 237-4351
MWEnviroCon@gmail.com

August 19, 2019

Ms. Jennifer Dorman
Wisconsin Department of Natural Resources
2300 N. Martin Luther King Dr.
Milwaukee, WI 53212

RE: Site Investigation Work Plan
Heimes Garage - Former
3418 – 66th Street
Kenosha, WI
BRRTS#: 03-30-409382
PECFA#: 53142-3443-18
FID#: 230058620

Dear Ms. Dorman:

Please find enclosed the Site Investigation Work Plan (SIWP) for the above-referenced site. Midwest Environmental Consulting is not requesting that the Department review the SIWP or take other action at this time.

Please let me know if you have any questions.

Sincerely,
MIDWEST ENVIRONMENTAL CONSULTING

Sean Cranley, P.G.
Principal Hydrogeologist
(262) 237-4351

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Kenosha, Wisconsin

1.0 INTRODUCTION

Midwest Environmental Consulting (MEC) is pleased to submit this Site Investigation Work Plan (SIWP) for the Former Heimes Garage site located in Kenosha, Wisconsin. Midwest has been retained by Mr. Michael Zacker of Talman Ventures, LLC to conduct a site investigation at the property related to the presence of petroleum soil contamination associated with two underground storage tanks (USTs) and seven aboveground storage tanks (ASTs) formerly located at the site. The SIWP has been prepared by MEC to summarize existing environmental site data for Heimes Garage and surrounding sites and to outline a strategy for completing the environmental site investigation. The site has been assigned the following identification numbers:

- BRRTS #: 03-30-409382
- PECFA #:53142-3443-18
- FID #: 230058620

The purpose of the site investigation is to define the source, nature, degree and distribution/extent of subsurface petroleum contamination, as well as to determine potential contaminant exposure and migration pathways and develop appropriate response actions. The contamination was discovered as the result of Phase II Environmental Site Assessment (ESA) activities performed at the site in 2002. The results of the previous Phase II ESA are discussed in the sections that follow. In addition, Wisconsin Department of Natural Resources (WDNR) files and other materials for sites deemed to have a potential to impact the Heimes Garage site were reviewed and the findings summarized herein. One apparently upgradient contaminated site (former Industrial Pumping, Inc.) has been identified as having the potential to impact the Heimes Garage site through contaminant migration. Based on the available information regarding the site and surrounding area, a sampling plan to initiate the investigation at the site has been developed and is presented below.

The data generated by the site investigation activities outlined herein will be evaluated to determine if site conditions warrant a request for closure or if additional investigation and/or remediation activities are necessary. If closure appears to be warranted, Midwest will prepare a Site Investigation Report and Closure Request Package for submittal to the WDNR, documenting the investigation activities and results, and requesting site closure. Should additional investigation and/or remediation activities be necessary, MEC will develop and implement an appropriate scope of services. Additional activities, which may be necessary include, but are not limited to, further definition of the extent of contamination, groundwater flow characterization, assessment of the potential for vapor intrusion, implementation of natural attenuation groundwater monitoring and/or remediation soil excavation.

2.0 GENERAL SITE INFORMATION

2.1 Site Location

The Heimes Garage site is located in the SW ¼, NW ¼, Sec. 1, T 1N R 22E in Kenosha County, Wisconsin (United States Geological Survey [USGS] 1958, 1971). The site is located at 3418 - 66th Street in Kenosha, Wisconsin. The site location is illustrated on Figure 1.

2.2 Site Description

The property is 0.43 acres in size and is occupied by two single story buildings. The southern-most building is a concrete slab-on-grade garage of concrete block construction and houses one 20-foot by 40-foot room with two pedestrian doors and two overhead vehicle access doors. The building has a concrete floor and a wood frame roof.

The northern building has a concrete slab-on-grade foundation and is of concrete block and brick construction. The building houses a small work shop/office area and residence. A recessed truck ramp is present on the south side that accesses a former loading dock which was once served by a larger door. The dock is now a raised walkway which services the front door of the building.

The western approximately 1/3 of the northern building is a small workshop. The residential portion of the building contains a kitchen, utility room, living room, bedroom and bathroom.

The site is bordered by a former railroad switching yard and site of a former bulk petroleum facility to the north, the Kenosha Steel Castings (formerly Arneson Foundry) property to the east, 66th Street to the south, and Interstate Cryogenics (formerly Industrial Pumping) to the west. The Yutka Storage site, for which MEC is also currently conducting and environmental site investigation is located to the south, across 66th street. The surrounding land use is a mixture of heavy industry, light industry, commercial, transportation and residential use.

The site surface is paved with concrete in the area between the two on-site buildings toward the eastern portion of the property. The remainder of the site is primarily gravel paved with some grassed areas. The site configuration is illustrated on Figure 2.

2.3 Site History & Preliminary Site Characterization

Midwest reviewed several reports that provided documentation of environmental activities and conditions at the site as discussed below.

CRI Phase I ESA – Heimes Garage 3418 66th Street: Midwest reviewed a Phase I Environmental Site Assessment (ESA) Report for the Heimes Garage site prepared by ChemReport, Inc. (CRI) in June 2006. The CRI Phase I ESA revealed that two USTs, were removed from subject property. The 500-gallon diesel and 500-gallon gasoline tanks were listed by the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP) has having been removed in December 1998.

The property was used historically for the bulk storage and distribution of petroleum and seven ASTs were located on the western portion of the property. Based on aerial photographs, the ASTs were present on site in 1937 and were still there in 1970. The ASTs were removed prior to the 1975 photograph. The potential for historical releases of petroleum from the AST systems as well as during the delivery and transference of petroleum offsite constituted a recognized environmental condition (REC). The Heimes former AST configuration is illustrated on Figure 3. Selected aerial photographs are provided in Appendix A.

ChemReport conducted an interview with Mr. Jerry Heimes, the son of the owner at the time, Earl Heimes and nephew of the deceased former owner and operator of the Heimes Garage site, Richard Heimes.

Mr. Jerry Heimes stated that in the early 1980's his uncle purchased the property from the Willkomm Oil Company which operated a Mobil Oil storage and distribution facility on site. Subsequently, several buildings were torn down including a shed on the north end of the property and a building in the northwest corner of the property, which were used to store 55-gallon drums of oil. A small shed which controlled the AST system along with a truck scale were also removed. The ASTs were removed and Mr. Richard Heimes reportedly worked with the WDNR to remove contaminated soil from beneath the ASTs, which was replaced with gravel. Mr. Heimes stated that his uncle complied with all WDNR requirements, but that the surrounding area is contaminated so there was only so much that could be reasonably done. There was a bulk oil facility (former Industrial Pumping) immediately adjacent to the west side of the site and the former Arneson Foundry historically spread coke on the property adjacent to the east. Note: no records of these Heimes Garage site cleanup activities were identified in the online searches of regulatory databases or review of the WDNR file materials.

Mr. Heimes stated that the two former USTs on site were used to fuel vehicles and equipment for the solid waste hauling, excavating and landscaping business operated by Mr. Richard Heimes. The USTs were located along the central portion of the eastern fence line, just north of the garage building. These USTs were cleaned and removed in 1998, by John Cable, Inc. Contaminated soil was removed and replaced with gravel. To the best of Jerry's knowledge, no further investigation or cleanup activities had occurred with respect to these USTs. Note: The tanks are listed by the Wisconsin Department of Agriculture, trade and Consumer Protection (WDATCP) as "closed/removed as of December 31, 1998" with a facility ID of 639466 and tank IDs of 892996 and 893004. The location of the USTs is illustrated on Figure 4.

According to Mr. Heimes, a historic spill occurred on the adjacent property, then owned by Conoco, during fuel delivery to the site. The spill ran down 66th Street and did not enter the Heimes Garage property. The Kenosha Fire Department responded to the incident and flushed the spill.

MEC File Review – Heimes Garage 3418 66th Street

MEC obtained and reviewed the WDNR file for the Heimes Garage in August 2017 in preparation of the SIWP (MEC October 2017) for the adjacent Yutka storage site. The file contained only a hazardous substance release fax notification form and attachments. The form was submitted to the WDNR by PEP Environmental Services, LLC on February 7, 2003, due to petroleum soil and groundwater contamination identified as a result of a Phase II ESA performed by PEP in December 2002.

The attachments to the notification form included a site map illustrating the site features, as well as the Phase II soil boring and temporary well locations. Also attached were analytical results tables for the soil and groundwater samples. The file did not contain the Phase II ESA Report, the associated soil boring logs or laboratory report. In preparation of this SIWP, MEC contacted Mr. Peter Pavalko of PEP Environmental in an attempt to obtain these documents. However, the company has gone out of business and most of the records are no longer available. Mr. Pavalko was able to locate computer files of the soil and groundwater laboratory results tables and the Phase II ESA Report narrative. Site geology and hydrogeology were described in the report in the following excerpt:

We encountered fill material consisting of silty sand and gravel near the surface. Below the near surface soil, we encountered silty clay above silty sand and sand. The soils can best be described as predominantly sandy and porous. We encountered groundwater consistently between 8 and 10 feet below ground surface (bgs). This layer of groundwater appeared to be substantial enough to halt the vertical migration of contaminants. The contamination appears to be accumulating above the groundwater and, for the most part, does not appear to extend below 12 feet bgs.

The description of soils above is generally consistent with those observed as a result of the environmental site investigation activities conducted by K. Singh & Associates on the Heimes site as part of the investigation of the Industrial Pumping site, adjacent to the west of the Heimes site. However, groundwater appears to be deeper than conditions observed by K. Singh.

As part of the PEP Phase II ESA, a total of six soil borings (B-1 to B-6) were advanced to depths of 12 feet below land surface (bls) and six soil samples were analyzed for gasoline range organics (GRO), diesel range organics (DRO), petroleum volatile organic compounds (PVOCs) and naphthalene. Well screens were temporarily placed in three of the soil borings (B-1, B-5 and B-6) and groundwater samples (WB-1, WB-5 and WB-6) were collected from each well and analyzed for GRO, PVOCs and naphthalene.

PVOCs and/or naphthalene were detected in all six of the soil samples analyzed, with five of the samples exhibiting one or more compounds exceeding groundwater protection residual contaminant levels (RCLs) current as of December 2018. Although current industrial direct contact RCLs were exceeded in two of the samples, all of the soil samples were collected from below the upper four-foot direct contact zone and

are therefore, not applicable. The site is zoned M-2 Heavy Manufacturing. As a consequence, industrial direct contact RCLs apply at the site. GRO and/or DRO exceeded the generic RCLs in place at the time in five of the soil samples, although these RCLs no longer apply.

PVOCs were detected in all three groundwater samples, with one or more current enforcement standards exceeded in two of the samples. The PEP Phase II ESA soil and groundwater sampling locations and results are illustrated on Figures 4 and 5, respectively. The soil and groundwater analytical results are summarized on Tables 1 and 2, respectively.

PEP attributed contamination at the site to the former USTs and to the bulk petroleum facility on the former Industrial Pumping property adjacent to the west of the Heimes site. It appears that PEP was unaware of the bulk petroleum facility previously located on the western portion of the Heimes site as it is not mentioned in the report or discussed as a potential source of the contamination on the western portion of the Heimes site.

3.0 SITE AND LOCAL CHARACTERISTICS

3.1 Site and Local Geology

Logs for the six borings advance onsite for the Phase II ESA conducted in 2002 at the site by PEP Environmental were not available to assess the site geology. Four soil borings (B-11, B-13, B-14 and B-18) were advanced on the Heimes site to depths between 10 and 15 feet below land surface (bls) as part of the site investigation for the adjacent Industrial Pumping site. Borings B-11, B-13 and B-14 were located along the western portion of the Heimes property, where the ASTs were formerly located on site. All three of these borings exhibited 4 to 5 feet of fill material consisting of sand and gravel with some silt. This appears to corroborate Jerry Heimes statement to ChemReport as part of the CRI Phase I ESA process regarding the excavation of contaminated soils from the location of the AST farm and backfilling with gravel. Soil boring B-18, located in the southeastern portion of the Heimes site exhibited about 2 feet of the sand and gravel fill material. This fill material was described as black at borings B-11, B-13 and B-18, with the material at B-11 additionally described as moist with organics.

With the exception of boring B-14 native silty clay was present beneath the fill material. B-14 exhibited a silty sand layer described as loose and yellowish beneath the fill at 5 feet bls with medium to coarse grained sand present from 9 feet to the termination depth of the boring at 15 feet. The silty sand layer at boring B-13 exhibited the presence of some ¼-inch diameter pieces of material, noted as probable foundry slag, indicating that this layer may be fill or disturbed material. Borings B-11, B-13 and B-18 all exhibited a silty sand layer below the silty clay at depths between 5.5 and 9 feet bls and extending to the termination depths of the borings. The Industrial Pumping logs for boring on the Heimes site are provided in Appendix B.

Review of boring logs for the former Industrial Pumping site adjacent to the west revealed 1.5 to 7.0 feet of fill material comprised primarily of foundry sand. Approximately 2 to 6 feet of fill material consisting of foundry sand and clay, sand and gravel is present at the Yutka Storage site to the south, overlying native clay, silt and fine sand. Native soils in the vicinity of the site consists of silty clay, silty sand and fine sand. It appears that historic filling with materials predominated by foundry sand occurred in the general area surrounding the site.

Local topography (within one mile of the site) exhibits low to moderate relief from 620 to 650 feet above mean sea level (MSL) and generally slopes to the east toward Lake Michigan (USGS 1958 and 1971).

Locally, unconsolidated deposits range in thickness between 50 and 100 feet, which is also the anticipated thickness of unconsolidated deposits beneath the site. (Trotta and Cotter, 1973). The local glacial/surficial geology is composed of glacial lake deposits. Glacial lake deposits consist of stratified clay, silt, sand and gravel (Hadley and Pelham 1976). The local bedrock is composed of the following units, from top to bottom (Mudrey, Brown, and Greenburg, 1982):

- Undifferentiated Silurian Age dolomite formations
- Maquoketa Formation Ordivician age shales, dolomites, and dolomitic shales
- Sinnipee Group dolomites with limestones and shales
- Ancell Group sandstones with minor limestones, shales and conglomerates
- Prairie Du Chien Group dolomites with some sandstone and shale
- Cambrian age sandstones with dolomites and shales, and
- Precambrian crystalline rock

3.2 Site and Local Hydrogeology

Gray soil conditions were noted at a depth of 5 feet bls at Boring B-11, advanced onsite as part of the Industrial Pumping site investigation, with MW-7, also installed as part of the Industrial Pumping investigation exhibiting depths to water of approximately 4 feet bls. MW-7 was constructed with a screened interval from 5.0 to 15.0 feet bls and was not purgeable to a dry condition. The well construction and development forms are provided in Appendix C.

Saturated conditions were encountered at approximately 5 to 7 feet below land surface (bls) at the Yutka Storage site located to the south of the site, across 66th Street during Phase II ESA and site investigation activities. Review of boring logs for the former Industrial Pumping site to the west indicated that saturated conditions were encountered between approximately 5 and 8 feet bls.

Groundwater flow was determined to be toward the east-southeast at both the adjacent Industrial Pumping site and the Parrone site, located approximately 700 feet to the southwest of the Heimes site. The greatest potential for significant groundwater flow at the Heimes site is likely associated with the sand/silty sand layer present at depth within all of the Industrial Pumping soil borings advanced on the

Heimes site. It is possible that the overlying silty clay layer may act to inhibit infiltration of water from the site surface and limit contaminant migration to the silty sand layer.

Shallow aquifers are not typically used for water supply purposes, but may act as a conduit for groundwater contaminant migration. Significant groundwater flow in the unconsolidated deposits is typically within higher permeability deposits of sands and silts. Locally, groundwater in unconsolidated deposits is anticipated to flow to the east toward Lake Michigan. Groundwater in the regional bedrock aquifer generally flows eastward to Lake Michigan.

Water supply wells typically draw from the dolomites and sandstones several hundred feet below the surface. Regional groundwater flow is to the east – southeast toward Lake Michigan. Groundwater flow at the Industrial Pumping site adjacent to the west of the subject site is toward the east-southeast. Groundwater flow is potentially influenced by utility trenches nearby that may be intersecting the water table. Consequently, it is anticipated that groundwater flow at the Heimes Garage site will be generally toward the east.

3.3 Local Contaminant Pathways and Receptors

The potential for utilities on, and adjacent to the site, to act as preferred pathways for contaminant migration will be assessed as part of the site investigation. The pond in Lincoln Park on 22nd Avenue, approximately one mile to the east of the site is the nearest potentially affected surface water body. Lake Michigan is located two miles to the east of the site.

It should be noted that 66th Street is paved with gravel as of the date of this work plan as it presumably was at the time of a number of the historic oil spills that occurred there. The gravel pavement provides a porous surface into which petroleum could easily infiltrate. Several feet of permeable fill materials are present at, and in the area surrounding, the site that may provide a pathway for near-surface contamination to migrate both vertically and laterally. In addition, native sands and silts in the area may allow for significant contaminant migration.

Municipal water and sanitary sewer lines are present at the site. The sanitary sewer and municipal water lines traverse the Heimes Garage site, the former Industrial Pumping site, 66th Street and the Yutka Storage site. These subsurface utilities present a potential preferred conduit for contaminant migration. As of the date of this report, the depths of these utility trenches were not available. As a consequence, it is not known if the trenches may intersect the water table, potentially intercepting contaminated groundwater. The nearest storm sewers in the area are located beneath 34th Avenue and 67th Street and are unlikely to intersect with contamination from the Heimes site. The utility locations are illustrated on Figures 6 through 9.

The groundwater flow at the Industrial Pumping site is toward the east-southeast and is potentially influenced by utility trenches beneath 66th Street.

Potable water at the site is supplied by the Kenosha Water Utility. Therefore, the potential for potable water at the site to be impacted by contamination at the site is extremely remote.

3.4 Local Contaminant Sources Assessment

Based on general knowledge of the area surrounding the site, along with a review of the WDNR Bureau of Remediation and Redevelopment Tracking System (BRRTS) database, there are several contaminated sites located in the vicinity of the Heimes site. One site, the former Industrial Pumping property is located adjacent to the west and generally up-gradient hydraulically from the Heimes site. The WDNR RR Sites Map illustrating the locations of sites with known contamination in the surrounding area is provided as Figure 10.

During development of the SIWP (MEC October 2019) for the Yutka Storage site adjacent across 66th Street to the south of the Heimes Garage site, MEC conducted an onsite review of the WDNR files for four sites located in the vicinity of the Heimes site and selected relevant excerpts for copying and further review. In addition, MEC evaluated relevant data from the Yutka Storage site, which is currently under investigation by MEC. The findings of these reviews are discussed below.

The historical site data for the Nardi Electric site (3506 67th Street) and the Parrone site (3604 76th Street) does not appear to indicate a significant potential for contamination migrating to the Heimes site from these off-site sources. The release incident for Nardi Electric actually occurred at the Kenosha Municipal Water Treatment Plant located two miles northeast of the site, along Lake Michigan, not at the Nardi Electric business location at 3506 67th Street. Contamination at the Parrone site is primarily located to the west of 36th Avenue, approximately 700 feet to the southwest of the Heimes Garage site. Groundwater flow at the Parrone site was determined to be toward the east-southeast and not toward the Heimes site. If site investigation data indicates the potential for contaminant migration to the property from these off-site sources, additional investigation of such sources and impacts may be warranted.

It should also be noted that although there is no WDNR file associated with the location, there was a large bulk petroleum facility on the railroad right-of-way (ROW) immediately adjacent to the north of the Heimes site and potentially upgradient. Based on the Sanborn Fire Insurance maps for the area, there appears to have been a pipeline connecting the bulk facility on the railroad ROW to the tank farm on the Heimes site, supplying the Heimes site. There is a potential that petroleum contamination is present associated with the railroad bulk facility is present on the ROW and that it could impact the Heimes site. The 1950 and 1969 Sanborn maps are provided on Figures 11 and 12, respectively.

Aerial photographs show that the bulk facility was present on the railroad ROW in 1937, but was replaced by railroad sidings by the time of the 1963 photograph. The site investigation data will be evaluated for potential impacts to the Heimes site from the former bulk facility on the railroad ROW.

MEC File Review Spill Incidents – 3500 Block 66th Street: MEC reviewed and obtained excerpts of the WDNR file regarding spill incidents that occurred in the 66th Street right-of-way immediately adjacent to the Heimes Garage site and former Industrial Pumping adjacent to west of Heimes.

In February 1988, the Kenosha Fire Department hazardous materials team responded to an oil spill in the 3500 block of 66th Street. The location was listed as the alley (66th Street) adjacent to Industrial Pump, Inc. The source of the spill was variously listed as leaking tanker/leaking storage tanks located at the Industrial Pumping, Inc. facility at 3502 66th Street. The material spilled was listed as both unknown and cutting oil. The volume of the spill was listed as approximately 100 gallons. Sampling and analysis of the spilled material revealed the presence of lead at 590 mg/kg and an absence of the other metals tested. A field test indicated polychlorinated biphenyls (PCBs) were less than 50 ppm.

An April 1988 follow up letter from the WDNR made recommendations regarding security of the oil storage and transfer system at the site and noted the presence of an area of leaked oil where hoses are coupled/uncoupled that required secondary containment.

In August 1990, the Kenosha County Department of Emergency Government responded to another oil spill in the 3500 block of 66th Street, also emanating from the Industrial Pump facility. The spill volume was estimated at 100 gallons and was cleaned up by Industrial Pumping. Sampling and analysis of the spilled material revealed the presence of PCBs and VOCs, including chlorinated VOCs (CVOCs). The material was deemed by the DNR not to constitute a hazardous waste.

In September 1991 an apparent incident occurred involving material leaking from drums located inside a truck at the Industrial Pumping site. The Kenosha County Department of Emergency Government contacted the WDNR with concerns that the material may be hazardous waste, that it should be identified as soon as possible and that it may not be handled properly.

It should be noted that 66th Street is paved with gravel as of the date of this work plan as it presumably was at the time of a number of historic oil the spills that occurred there. The gravel pavement provides a porous surface into which petroleum could easily infiltrate, and then potentially migrate to permeable fill and native materials below.

Municipal water and sanitary sewer lines are present beneath 66th Street in the vicinity of the spills. The sanitary sewer and municipal water lines traverse the Heimes Garage site, the Industrial Pumping site, 66th Street and the Yutka Storage site on the south side of 66th Street. These subsurface utilities present a potential preferred conduit for contaminant migration.

DNR File Review – Industrial Pumping 3502 66th Street:

In May 1992, the WDNR issued a responsible party letter to Mr. Kenneth Smith, the owner of Industrial Pumping, requiring an environmental site investigation and cleanup. Mr. Smith retained K. Singh and Associates as the environmental consultant for the project.

In June 1992, investigation activities began and were continued through July 1997. Eighteen soil borings (B-1 to B-18) were advanced on and adjacent to the Industrial Pumping site, seven of which were completed as groundwater monitoring wells (MW-1 to MW-7).

Soil samples collected from the borings were analyzed for some combination of the following; GRO, DRO, VOCs/PVOCs, total recoverable petroleum hydrocarbons (TRPH) and the eight Resource Conservation and Recovery Act (RCRA) metals. Groundwater samples collected from the wells were analyzed for some combination of the following; GRO, DRO, VOCs/PVOCs, polynuclear aromatic hydrocarbons (PAHs), PCBs and the eight RCRA metals during several rounds of sampling.

Soil and groundwater contamination was identified both onsite and offsite to the east on the Heimes Garage property. Based on the contaminant distribution, it appears likely that contamination was also present beneath 66th Street, however this was not investigated. The AST system configuration, soil boring and monitoring well locations, along with the distribution of soil and groundwater contamination and geologic cross-sections are illustrated on Figures 13 through 19.

Numerous soil samples were collected immediately adjacent to the Heimes western property line on the adjacent Industrial Pumping site. A total of five soil samples were collected from four soil borings (B-2, B-3, B-4 and B-8) located just across the property line from Heimes. Petroleum contamination was detected in all five samples however, three of the samples were collected from within the saturated zone where current RCLs do not apply. Two samples from borings B-4 and B-8, both located in the southeast corner of the Industrial Pumping site, were collected from the 3.5 to 5.0 depth interval and therefore, current RCLs may be applicable. Both samples exhibited trimethylbenzenes that would have exceeded the current groundwater protection RCLs. Soil boring B-4 was completed as groundwater monitoring well MW-4, which exhibited the highest degree of groundwater contamination at the Industrial Pumping site. The locations of all four of these borings were over-excavated during site remediation conducted at Industrial Pumping by K. Singh & Associates. The soil sample results are summarized on Table 3. The boring locations immediately adjacent to the Heimes site are illustrated on Figures 13 through 17.

Six groundwater monitoring wells (MW-1 to MW-6) were installed on the Industrial Pumping site as part of the investigation. Three rounds of groundwater monitoring were conducted for monitoring wells MW-1 to MW-6 from June 1992 through June 1994. Only monitoring well MW-4, located in the southeast corner of the site exhibited groundwater quality standard (GQS) exceedances with contaminant concentrations increasing over time at the well. As a consequence, monitoring well MW-7 was installed by K. Singh on the Heimes site, down-gradient from MW-4. Monitoring well MW-7 was also sampled in June 1994. Similar to MW-4, MW-7 also exhibited benzene exceeding the enforcement standard.

Four soil borings (B-11, B-13, B-14 and B-18) were advanced on the Heimes site to depths between 10 and 15 feet bls as part of the site investigation for the adjacent Industrial Pumping site. Borings B-11, B-13 and B-14 were located along the western portion of the Heimes property, where the ASTs were formerly located on site. All three of these borings exhibited 4 to 5 feet of fill material consisting of sand and gravel with some silt. Soil boring B-18, located in the southeastern portion of the Heimes site exhibited about 2 feet of the sand and gravel fill material. This fill material was described as black at

borings B-11, B-13 and B-18, with the material at B-11 additionally described as moist with organics. The fill materials did not exhibit elevated PID readings.

With the exception of boring B-14 native silty clay was present beneath the fill material. B-14 exhibited a silty sand layer described as loose and yellowish beneath the fill at 5 feet bls with medium to coarse grained sand present from 9 feet to the termination depth of the boring at 15 feet. The silty sand layer at boring B-13 exhibited the presence of some ¼-inch diameter pieces of material, noted as probable foundry slag, indicating that this layer may be fill or disturbed material. Borings B-11, B-13 and B-18 all exhibited a silty sand layer below the silty clay at depths between 5.5 and 9 feet bls and extending to the termination depths of the borings.

Samples from the silty sand layer within the saturated zone in borings B-11 and B-14 exhibited the only PID readings above background levels at 4 ppm and 15 ppm, respectively. This would appear to indicate that the contamination is related to groundwater transport from upgradient, rather than vertical migration from above, or that contaminated soils at the surface were removed subsequent to removal of the ASTs at the Hiemes site by the former owner Earl Heimes as indicated by his nephew Jerry Heimes during an interview in preparation of the ChemReport Phase I ESA Report for the Heimes site in 2006.

Gray soil conditions were noted at a depth of 5 feet bls at Boring B-11, advanced onsite as part of the Industrial Pumping site investigation, with MW-7, also installed as part of the Industrial Pumping investigation exhibiting depths to water of approximately 4 feet bls. MW-7 was constructed with a screened interval from 5.0 to 15.0 feet bls and was not purgeable to a dry condition. Boring logs and the monitoring well construction detail for the above borings are provided in Appendix C.

The soil sample from B-11 was analyzed for DRO and TRPH. Soil samples collected from borings B-13, B-14 and B-18 were analyzed for GRO, DRO, VOCs, PAHs, PCBs and RCRA metals. No PCBs were detected in any of the samples. The only PAH constituent detected was a low-level detection of naphthalene. None of the metals concentrations exceeded current background threshold values. No chlorinated VOCs (CVOCs) were detected with the exception of chlorobenzene at borings B-14 and B-18.

Petroleum related contamination was present in all five of the soil samples analyzed. However, all of the soil samples appear to have been collected within the saturated zone and below the four-foot bls direct contact exposure zone. As a consequence, current RCLs cannot be applied to these samples. The contaminant levels were generally low level, with only benzene (B-13) and Chlorobenzene (B-14 and B-18) exceeding current groundwater protections RCLs, which as discussed above are not applicable to the saturated zone. The analytical results for the soil samples collected on the Heimes site as part of the Industrial Pumping site investigation are summarized on Table 4 and Figure 20, which also depicts the boring locations.

Monitoring well MW-7 was installed by K. Singh on the Heimes site, down-gradient from MW-4, which was the only well on the Industrial Pumping site that exhibited GQS exceedances. MW-7 was sampled seven times from July 1992 to February 1997. The samples were variously analyzed during those sampling events for a combination of the following; GRO, DRO, VOCs/PVOCs, PAHs, PCBs and one or

more RCRA metals. Results for MW-7 revealed the presence of petroleum groundwater contamination but no CVOCs, PAHs, PCBs or RCRA metals, with the exception of dissolved cadmium during the July 1992 sampling round and arsenic during the August 1994 sampling round. Both the cadmium and the arsenic concentrations exceeded the respective preventive action limits PAL, however there is no indication if the arsenic sample was filtered to represent a dissolved concentration and therefore, the PAL may not be applicable.

Benzene exceeding the enforcement standard (ES) and methyl-tert-butyl-ether (MTBE) exceeding the PAL were the only petroleum related compounds exceeding GQSs at MW-7. Sampling rounds conducted subsequent to the March 1995 contaminated soil excavation at the Industrial pumping site exhibited decreasing benzene concentrations and stable to decreasing MTBE concentrations with both compounds being below ESs, but above PALs during the last sample round. The groundwater sample results for MW-7 are summarized on Table 5.

A WDNR hazardous waste field inspection of the Industrial Pumping facility was conducted in March 1994. Approximately 75 drums of waste oil and PCBs were observed on site. Waste profiles were submitted to Chemical Waste Management based on samples collected in September 1993, prior to clean out and removal of the Industrial Pumping oil processing facility. The estimated volume was 50 drums each of oily liquids and oily solids. The oily solids were indicated to have a PCB concentration of 533 ppm. The copies were faxed to the DNR Waste Management Bureau, noting that as of April 1994, the materials had not been removed.

In March 1995, K. Singh directed the excavation and disposal of 5,338 tons of contaminated soil from the Industrial Pumping site and from the northwest portion of the Heimes Garage site onto which the excavation was extended based on elevated PID readings and strong gasoline odors. In addition, 24,000 gallons of contaminated groundwater were pumped out of the excavation and transported offsite for treatment/disposal. Approximately 300 cubic yards of contaminated soil was excavated to a depth of about nine feet from the northwestern portion of the Heimes Garage site as part of the Industrial Pumping cleanup. The area of excavation is illustrated on Figure 21.

Note: Although only minor detections of CVOCs were identified during the Industrial Pumping investigation and cleanup, one of the soil stockpile samples collected during the remedial soil excavation (SP#2) exhibited a significant tetrachloroethene (PCE) concentration of 1430 ug/kg, three orders of magnitude higher than the current groundwater protection RCL.

With the exception of that portion of the excavation that extended onto the Heimes site, the southern and eastern extents of the excavation were located at the southern and eastern property lines of the industrial pumping property. Forty-two soil samples were collected from the final limits (base and walls) of the excavation. Twelve of these soil samples were collected immediately adjacent to the western Heimes property line. Two of the samples were collected on the Heimes property where the excavation extended onto the northwest corner of the site. The samples were analyzed for some combination of the following analytes: GRO, DRO, PAHs, PVOCs plus 1,2-Dichlorothane and lead.

PAHs were analyzed in only one sample and were not detected. None of the lead concentrations exceeded the current backgound threshold value or RCLs. All but three of the samples exhibited the presence of petroleum contamination. The seven samples collected from the base of the excavation at depths ranging from 8 to 10 feet bls were all below the zone of saturation and therefore, current RCLs are not applicable. The wall samples, collected at depths ranging from 4 to 5.5 feet bls appear to be within the unsaturated zone and therefore, current groundwater protection RCLs would be applicable. However, none of these wall samples exhibited concentrations exceeding of groundwater protection RCLs.

Two wall samples (A-4W and A-3W) collected near the southeast corner of the excavation and at the adjacent property lines exhibited DRO concentrations exceeding the generic RCL in place at that time, indicating additional offsite contamination to the south (66th Street right-of-way) and east (Heimes Garage). Wall sample F-2W collected on the northwest portion on the Heimes site exhibited GRO and DRO concentrations exceeding the generic RCLs in place at the time. The laboratory results for the excavation soil samples collected on, or immediately adjacent to, the Heimes site are summarized on Table 6. The excavation soil sample locations are illustrated on Figure 21.

K. Singh excavated three test pits to depths of six feet on the Heimes site in March 1995. Soil samples were collected from each of the test pits and field screened for the presence of volatile organic vapors with a PID. PID readings ranged for no detection to 195 ppm. No soil samples from the test pits were submitted for laboratory analysis. K. Singh concluded that apparent contamination in the test pits was higher than the soil samples collected from the eastern wall of the remedial soil excavation at the property line between the two sites and that therefore, contamination at the test pit locations originated from sources on the Heimes site and not from Interstate Pumping. As a consequence, Singh halted further excavation to the east on the Heimes site, which had previously been planned. In an April 1995 letter to the WDNR, Singh and Associates cited the test pit results and attributed the contamination on the Heimes Garage property to bulk petroleum aboveground storage tanks formerly located at the Heimes site. The test pit locations are illustrated on Figure 21.

In 1995, subsequent to the remedial soil excavation, additional wells (MW-1R, MW-2R and MW4R to MW-6R) were installed beyond the limits of excavation to replace monitoring wells MW-1, MW-2 and MW-4 to MW-6 which were removed or destroyed as a result of the excavation. The replacement wells were all located on the Industrial Pumping property. MW-3, also destroyed during the excavation was not replaced. The replacement wells and MW-7, located on the Heimes property, were sampled twice between July/August 1995 and January 1996, with the exception of MW-1R and MW-2R which could not be located during the January 1996 sampling event. All results were below method detection limits (MDLs) with the exception of MW-7, located on the Heimes property, which exhibited benzene concentrations exceeding the preventive action limit, but no longer exceeding the enforcement standard.

In June 1996, K. Singh requested case closure, which was denied by the WDNR in September 1996, citing groundwater contamination at MW-7, located on the Heimes property and the need to provide documentation of a separate contaminant source on that property. Singh subsequently provided a map obtained from the Kenosha Fire Department (Figure 3) documenting the former presence of petroleum bulk ASTs on the Heimes property, conducted additional sampling of MW-7 yielding an absence of

enforcement standard exceedances and again requested closure in February 1997. The WDNR granted closure in May 1997, conditioned on documentation of the proper abandonment of all groundwater monitoring wells at the site being provided. In February 2007, Singh provided the well abandonment documentation to the WDNR, resulting in final case closure. By accepting K. Singh's argument for a second source of petroleum contamination from the former Heimes ASTs and granting closure to the Industrial Pumping site, the WDNR essentially acknowledged that a petroleum release had occurred from the bulk petroleum storage system on the Heimes property.

Based on MEC's review of the WDNR files, multiple releases of petroleum from the Industrial Pumping site occurred in, and immediately adjacent to, 66th Street. However, investigation of soil and groundwater contamination within the right-of-way, including underground utilities which may have provided preferred contaminant migration pathways was never conducted during the Industrial Pumping site investigation. As discussed below, site investigation activities for the adjacent Yutka Storage site have identified petroleum and non-petroleum soil and groundwater contamination within the 66th Street ROW, with CVOCs exceeding both soil RCLs and groundwater quality standards. The CVOC contamination has the potential to impact the Heimes site.

CRI Phase I ESA - Yutka Storage: Midwest reviewed a Phase I ESA Report for the Yutka Storage site prepared by ChemReport, Inc. (CRI) in September 2006. The CRI Phase I ESA revealed that the site was owned by several oil companies from 1925 to 1960. The property was part of a larger petroleum bulk storage facility from 1925 to 1960 that included properties (Heimes and Industrial Pumping) to the north of 66th Street and adjacent to the Union Pacific Railroad right-of-way.

Sanborn Fire Insurance Maps were reviewed as part of the Phase I ESA. The 1918 to 1950 map showed that the site was not occupied by any buildings or structures. No fuel tanks were identified on the Yutka site. However, petroleum bulk storage tanks were present on two properties located directly north of the Yutka site, across 66th Street. Similarly, the 1974 and 1987 aerial photographs reviewed showed the Yutka site to be a concrete paved lot devoid of structures with a few vehicles present. Aboveground storage tanks were present on the two properties (Heimes and Industrial Pumping) located across 66th Street to the north of the site, which were once part of the same larger facility. The 1950 and 1969 Sanborn Fire Insurance Maps are provided in Figures 11 and 12, respectively.

An interview with Mr. Mike Thomey revealed that he purchased the Yutka property in 1998 from Mr. Bud Wright of Wright Pallet Company, located on the property adjacent to the south. Mr. Thomey sold the property to Mr. Yutka circa 2006. Mr. Wright used the property for material storage for his wood pallet business. Mr. Thomey used the property for car and boat storage. From about 1970 to 1980, Nardi Electric leased the property for parking trucks. During the 1950s and 1960s, the property was used by a cement finisher for parking cement trucks. Note: The entire property was paved with concrete during this time as documented by the 1963 aerial photograph.

At the time of the Phase I ESA, Mr. Yutka used the property for the storage of fencing materials and leased a portion of the site to a lawn service company for vehicle and equipment storage. Mr. Thomey stated that to the best of his knowledge, no storage tanks had ever been present on the site, that no spills

had occurred and that there was no improper waste disposal.

Based on the REC related to the site being part of a petroleum bulk storage and distribution facility, the performance of a Phase II ESA was recommended. However, no specific potential contaminant source, such as storage tanks, was identified at the Yutka site.

CRI Phase II ESA - Yutka Storage: Midwest reviewed a Phase II ESA Report for the Yutka Storage site completed by CRI in October 2006. The Phase II ESA consisted of four direct-push soil borings (GP-1 through GP-4), advanced to depths of four feet bls. Four inches of concrete pavement was present at all of the boring locations. Soils observed consisted of two to four feet of foundry sand and sand and gravel fill material overlying clay fill material to the termination depth of the borings.

One soil sample was collected from each boring and analyzed for GRO and DRO. None of the GRO results exceeded the 100 mg/kg generic RCL that was in place at that time. Soil sample GP-1 (2.0'-4.0') exhibited the only exceedance of the 100 mg/kg generic RCL applicable at that time for DRO with a concentration of 120 mg/kg.

Key Phase I & II ESAs – Yutka Storage: A Phase I ESA was completed for the Yutka Storage site by Key Engineering Group in June 2016. One REC was identified for the site, the presence of low levels of GRO compounds in shallow soil identified by the CRI Phase II ESA.

Due to the identified REC, Key completed a Phase II ESA in September 2016. Four direct-push soil borings (GP-1 through GP-4) were advanced near the CRI boring locations to depths of four feet bls. Three to five inches of concrete was present on the site at all four boring locations. Soils observed were described as black silt and fine sand with some gravel (foundry sand). Native silty clay was present in the bottom four inches of the core retrieved from boring GP-4.

One soil sample was collected from each boring and analyzed for VOCs and PAHs. VOCs were only detected in the soil sample collected from GP-1. The three VOC constituents detected were all PVOCs. Only benzene, with a concentration (41 ug/l) above the groundwater protection RCL, exceeded an RCL.

PAHs were present in all the soil samples, with the exception of that collected from GP-4. In each of the three samples where PAHs were present, the same four PAH constituents exceeded direct contact and groundwater protection RCLs.

MEC Additional Phase II Assessment Activities – Yutka Storage:

On October 27, 2016 Midwest conducted additional soil and groundwater assessment activities at the Yutka site. Two direct-push soil borings (DP-1 and DP-2) were advanced at the site to depths of eight feet bls.

Soils observed consisted of foundry sand fill material extending to depths ranging from two to six feet. Three feet of fill material consisting of green clay with sand and gravel was present beneath the foundry

sand at soil boring DP-1. Native soils were encountered at depths of five and six feet in borings DP-1 and DP-2, respectively. Native soil at DP-1 consisted of silt, whereas clay overlying fine sand was observed at boring DP-2. Saturated conditions were encountered at seven and five feet bls in borings DP-1 and DP-2, respectively. Based on field observations, one soil sample was collected from each soil boring and analyzed for PVOCs and PAHs.

Midwest installed temporary groundwater sampling points with five-foot screened intervals in both of the direct-push soil borings to facilitate collection of groundwater grab samples. The temporary points immediately yielded abundant water and two groundwater samples (DP-1W and DP-2W) were collected from the boring locations. The groundwater samples were analyzed for PVOCs.

Neither PVOCs nor PAHs were present above method detection limits (MDLs) in either of the two soil samples. Groundwater sample DP-1W did not exhibit the presence of PVOCs above MDLs. Groundwater sample DP-2W exhibited the presence of four PVOC constituents. Only benzene exceeded a groundwater quality standard. At 8.1 ug/l, benzene exceeded the enforcement standard (ES) in sample DP-2W.

MEC Environmental Site Investigation Activities – Yutka Storage:

As of the date of this SIWP, MEC is conducting an environmental site investigation at the Yutka Storage site. The investigation included advancing four direct-push soil borings (HP-1 to HP-4), in December 2017, within the 66th Street right-of-way adjacent to the Yutka, Heimes and Industrial Pumping sites to facilitate the collection and analysis of soil and groundwater grab samples. The soil boring locations within the 66th Street right-of-way adjacent to the Heimes site are illustrated are illustrated on Figure 22.

One soil sample was collected from each of the soil borings within the 66th Street ROW and analyzed for VOCs and PAHs. The soil collected from boring HP-1 exhibited detections of all the PAH compounds analyzed, but at concentrations below RCLs. One VOC, tetrachloroethene (PCE), was detected in the soil sample from HP-1. The PCE concentration exceeded the groundwater protection RCL. Soil boring HP-1 was located immediately adjacent to the southern property line of the former Industrial Pump site, which is likely the source of the soil contamination. The Yutka site 66th Street ROW soil sample results are summarized on Table 7.

The three remaining soil borings in the 66th Street ROW were advanced further to the east of HP-1, to the south of the Heimes Garage and Kenosha Steel Castings property lines. One PAH compound and no VOCs were detected in the three remaining soil samples collected within the 66th Street ROW, with no RCLs exceeded.

Groundwater grab samples were collected from all four of the borings advanced within the 66th Street ROW and analyzed for VOCs. VOCs were detected in the samples from HP-1, HP-2 and HP-3. CVOCs were detected in both HP-1W and HP-3W, with vinyl chloride exceeding the enforcement standard in sample HP-3W. The CVOCs detected are all breakdown products of PCE, which was present in the soil sample from boring HP-1. Methyl-tert-butyl-ether (MTBE), present in samples HP-2W and HP-3W, was

the only petroleum related VOC detected. The Yutka site 66th Street ROW groundwater sample results are summarized on Table 8.

Due to a laboratory error, the groundwater samples discussed above were left unrefrigerated for several days, requiring that the analytical results be flagged. As a consequence, four soil borings (HP-1R to HP-4R) were advanced in the same locations as HP-1 to HP-4 in January 2018, to collect additional groundwater samples for VOC analysis.

The results were similar to those from the first set of groundwater samples, with MTBE in three of the samples being the only petroleum related compound detected. CVOCs were detected in all four of the groundwater samples, with vinyl chloride exceeding the enforcement standard in samples HP-3WR and HP-4WR. Once again, the CVOCs present were all breakdown products of PCE, detect in the soil sample from boring HP-1 located adjacent to the Industrial Pumping site. The Yutka groundwater sampling locations within the 66th Street right-of-way are illustrated on Figure 23.

There is a potential for contamination within the 66th Street ROW to impact the Heimes Garage site. Based on the apparent side-gradient location of the Yutka Storage site and generally low-level contamination identified on that site by the site investigation thus far, it is considered unlikely that the Heimes site will be impacted by contamination from the Yutka site.

The Yutka Storage site investigation observations tend to confirm the prevalence of historical filling in the general area around the Heimes site, predominated by foundry sand fill.

4.0 SOIL INVESTIGATION

The purpose of the soil investigation is to define the source, nature, degree, and distribution/extent of contamination in soils at, and in the vicinity of, the site. In addition, subsurface materials will be characterized to facilitate evaluation of contaminant exposure pathways and to allow development of an appropriate response to contamination at the site. The investigative activities will be conducted in accordance with MEC standard operating procedures (SOPs), which are available upon request.

4.1 Investigative Strategy

Midwest will use direct-push soil boring and sampling techniques to facilitate rapid and cost-effective definition of the magnitude and extent of soil contamination. Initially, nine soil borings will be conducted at the locations illustrated on Figure 24. The locations selected are based on currently available site information and are designed to collect data pertaining to the vertical and horizontal extent of soil contamination at the site, as well as facilitate the design of a potential groundwater monitoring well network.

4.2 Field Activities

Soil investigation activities are anticipated to include the following:

- Performance of nine soil borings to estimated depths of 10 to 15 feet bls, for the purpose of defining the horizontal and vertical extents of contamination (proposed locations are illustrated in Figure 24. Additional soil borings may be necessary based on field observations to meet NR 716 requirements.

- Collection of soil samples at five-foot intervals to the termination depth of the borings for visual observation and characterization of the soil type and screening of soil samples for the presence of volatile organic vapors with a PID.

- Collection and storage of soil cuttings for proper disposal.

- Preparation of boring logs indicating sample interval depths, observations, locations of various strata, saturation conditions, and other geologic information.

- Collection of one or more soil samples from each soil boring location for laboratory analysis to facilitate definition of the degree and extent (vertical and horizontal) of soil contamination and allow evaluation of contaminant exposure pathways. Additional soil samples may be selected for laboratory analysis based on field observations to meet NR 716 requirements.

4.3 Soil Sample Laboratory Analysis

An estimated nine to twelve soil samples will be selected from the soil borings in order to provide definition of the degree of contamination and the vertical and horizontal extent of contamination. The samples will be submitted to a state-certified laboratory to be analyzed for PVOCs and naphthalene.

A trip blank to be analyzed for VOCs will accompany the sample containers into the field and back to the laboratory to identify potential cross-contamination of the samples.

5.0 GROUNDWATER INVESTIGATION

The purpose of the groundwater investigation is to define the source, nature, degree and distribution/extent of groundwater contamination at, and in the vicinity of, the site as well as facilitate evaluation of contaminant exposure pathways. In addition, hydrogeologic conditions will be characterized to allow development of an appropriate response to contamination at the site. The investigative activities will be conducted in accordance with MEC SOPs, which are available upon request.

5.1 Investigative Strategy

MEC will use direct-push boring and sampling techniques including temporary groundwater sampling points to facilitate rapid and cost-effective definition of the magnitude and extent of groundwater contamination. Initially, nine groundwater sampling attempts will be conducted at the locations illustrated on Figure 24. The locations selected are based on currently available site information and are designed to collect data pertaining to the degree and horizontal extent of groundwater contamination at, and in the vicinity of, the site, as well as facilitate the design of a potential groundwater monitoring well network.

5.2 Field Activities

The groundwater investigation activities are anticipated to include the following:

- Installation of approximately nine temporary groundwater sampling points to estimated depths of 10 to 15 feet bls. Additional monitoring wells may be necessary based on field observations to meet NR 716 requirements.

- Collection of groundwater samples from the temporary groundwater sampling points for laboratory analysis.

5.3 Groundwater Sample Laboratory Analysis

Groundwater samples will be collected and submitted to a state-certified laboratory to be analyzed for VOCs. Based on the initial sampling results, analysis of samples for additional parameters, such as PAHs will be contemplated for subsequent groundwater sampling events at NR 141 compliant groundwater monitoring wells, if warranted.

A trip blank to be analyzed for VOCs will accompany the sample containers into the field and back to the laboratory to identify potential cross-contamination of the samples.

6.0 SITE INVESTIGATION SCHEDULE

MEC will implement the field sampling activities shortly after submittal of this SIWP. The site investigation activities at the site are anticipated to proceed according to the following schedule:

	Months Following SIWP Submittal
➢ Initial soil and groundwater investigation activities completed:	1
➢ Initial soil and groundwater investigation data received:	2
➢ Data evaluation and determination of subsequent activities:	3

These time frames are approximate and may deviate due to circumstances such as MEC internal scheduling, subcontractor coordination, field results, and changes to the scope of service as may be required based on site conditions encountered in the field.

7.0 CERTIFICATION

This Site Investigation Work Plan has been prepared in accordance with generally accepted engineering and hydrogeologic principles and practices of this time and location.

The recommended scope of services presented herein has been developed from consideration of the project characteristics and interpretation of available information. Because only limited information is available, MEC reserves the right to modify actual site activities based on subsequent findings.

The locations of the soil borings and monitoring wells have been selected to delineate the extent of contamination. If the contamination is found to be more extensive than anticipated, appropriate modifications to the Site Investigation Work Plan may be necessary.

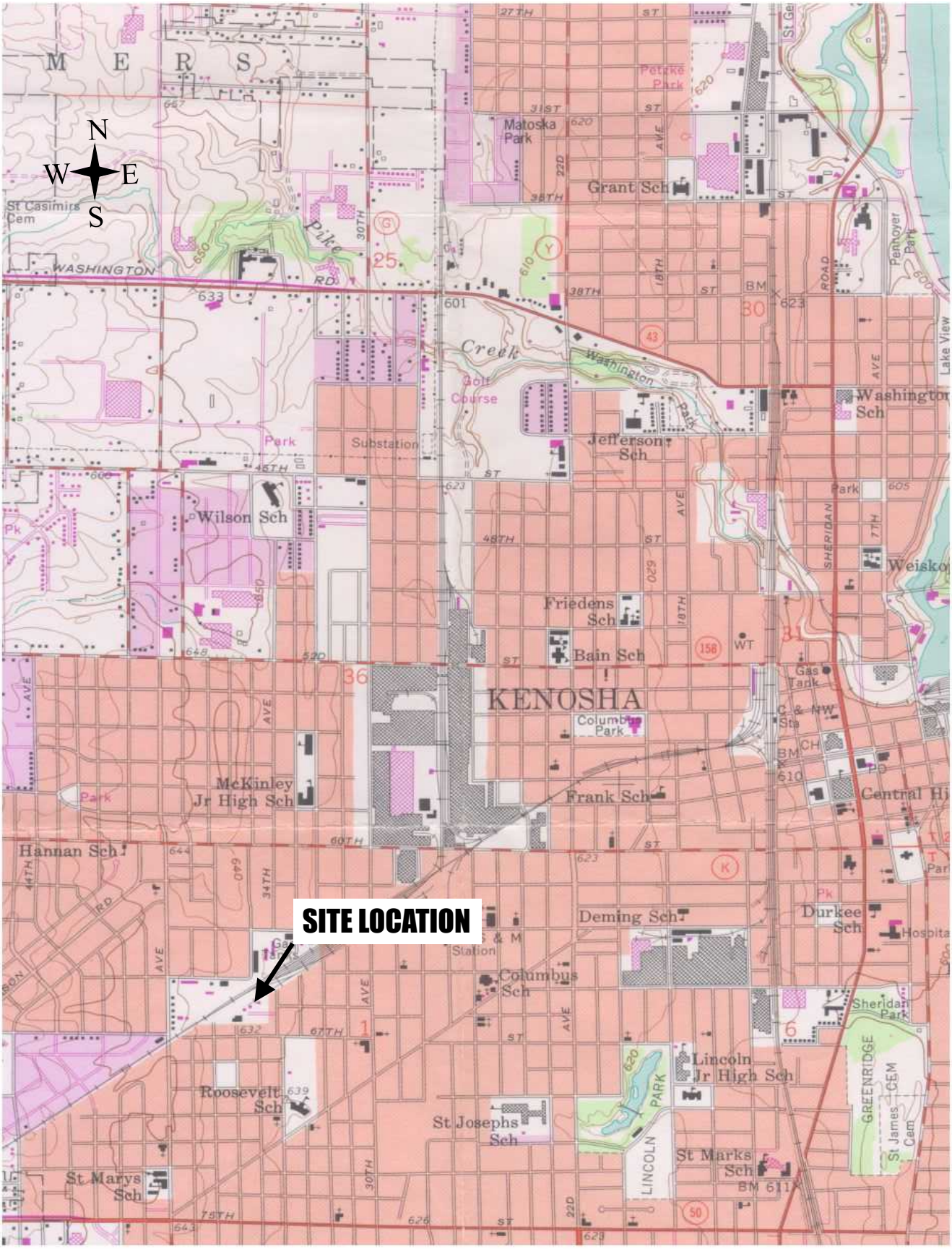
This Site Investigation Work Plan was prepared by Midwest Environmental Consulting.

I, Sean Cranley, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, am registered in accordance with the requirements of ch. GHSS 3, Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in Chapters NR 700 to 726, Wis. Adm. Code.

Sean Cranley, P.G.
Principal Hydrogeologist

August 19, 2019
Date

FIGURES



Site Location Map

Date Approved:	Figure
Date Drawn: 8/14/19	1
Scale: 8/14/19	
Drawn By: Not Scaled	1 of 24
S. Cranley	

Project Title and Address

FIGURE 1
SITE LOCATION MAP

Former Heimes Garage
3418 66th Street
Kenosha, WI 53140

MEC LLC
Midwest Environmental Consulting, LLC

2015

KENOSHA COUNTY INTERACTIVE MAPPING

FIGURE 2

HEIMES GARAGE SITE CONFIGURATION

Heimes Garage SIWP
34218 – 66th Street
Kenosha, WI

0' 40'
1 inch = 40 feet
Date Printed: 3/12/2017

FIGURE 3

HEIMES GARAGE
FORMER AST SYSTEM CONFIGURATION

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

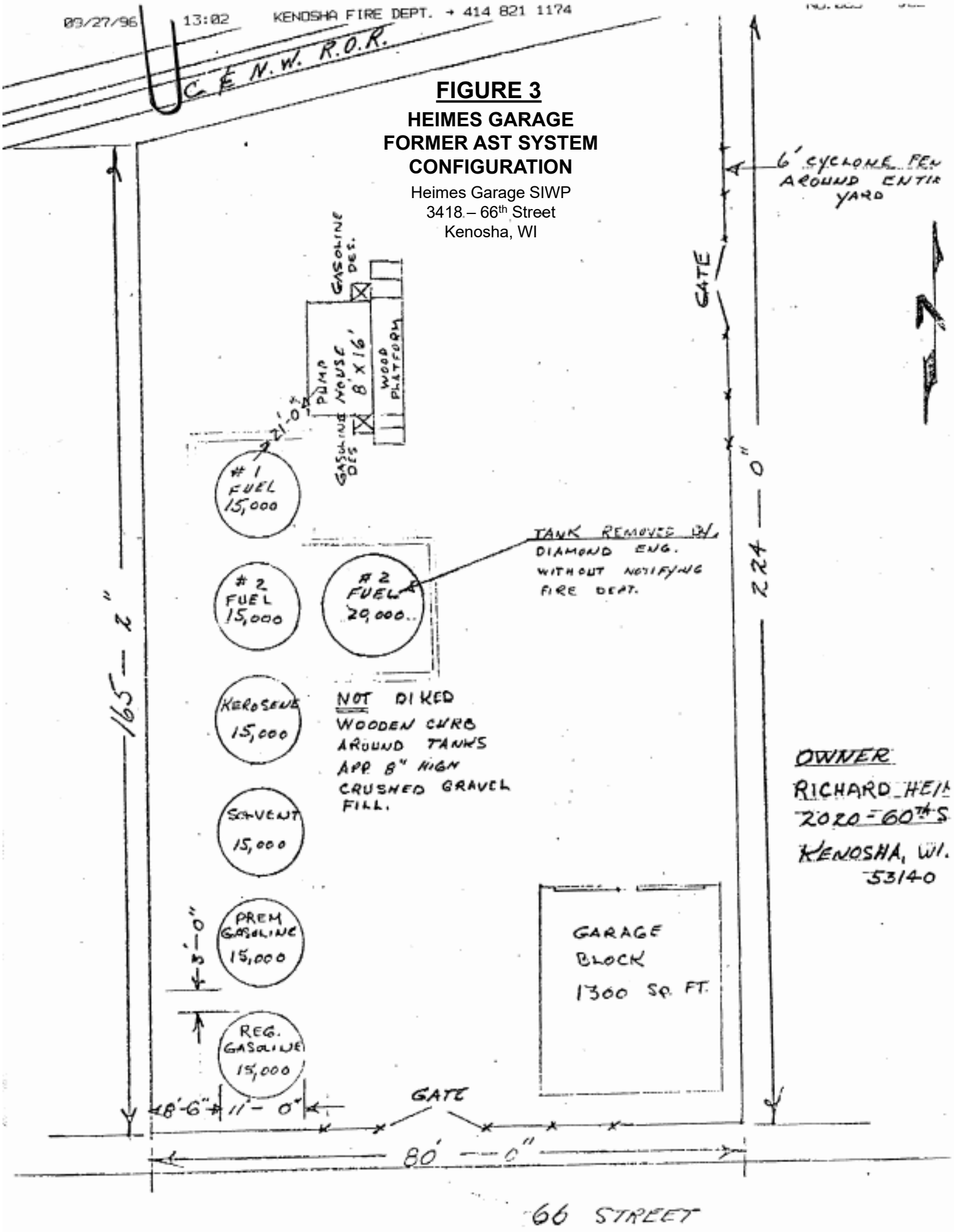


Figure _ Site Features and Soil Boring Locations

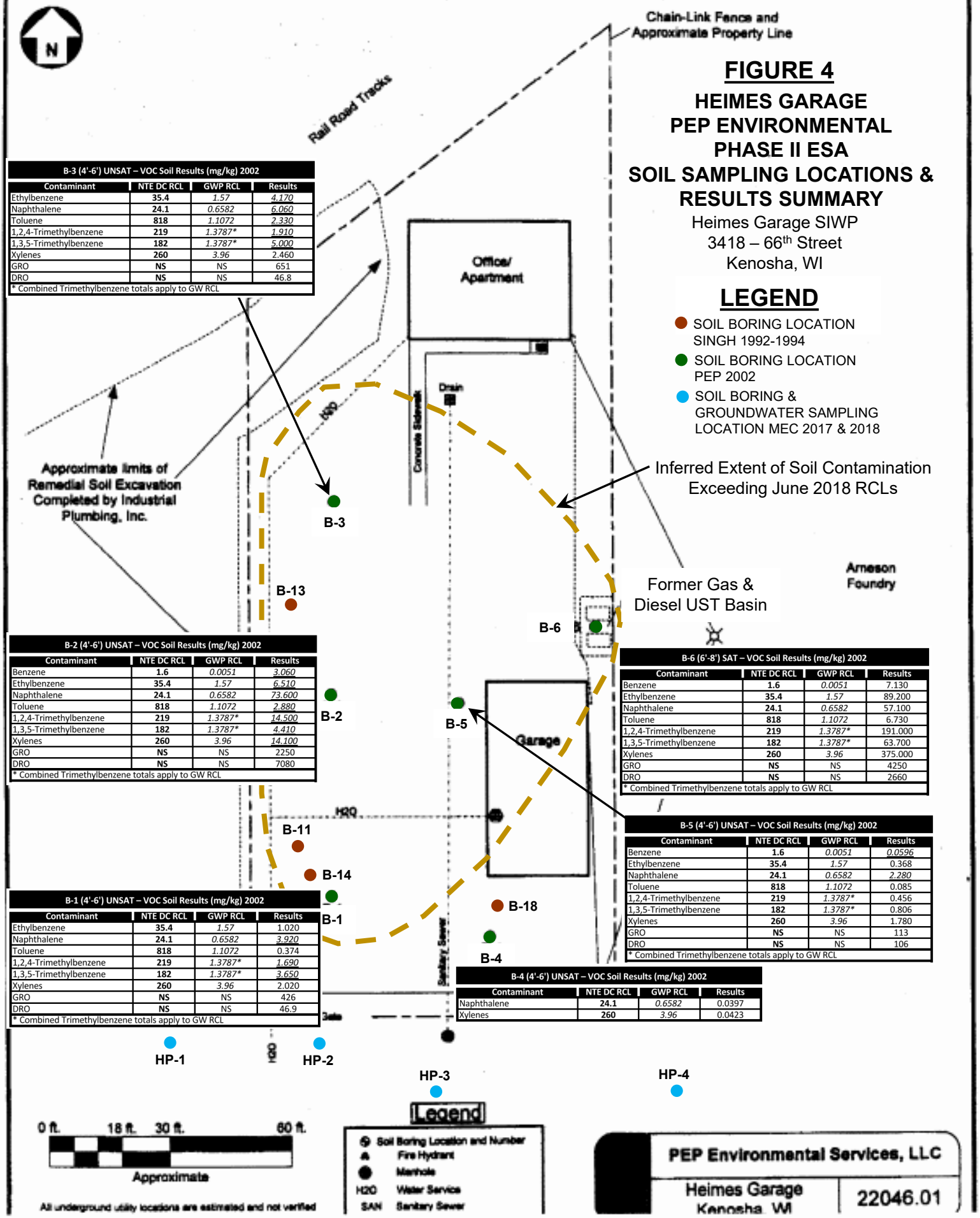


FIGURE 4

HEIMES GARAGE
PEP ENVIRONMENTAL
PHASE II ESA
SOIL SAMPLING LOCATIONS & RESULTS SUMMARY

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

LEGEND

- SOIL BORING LOCATION SINGH 1992-1994
- SOIL BORING LOCATION PEP 2002
- SOIL BORING & GROUNDWATER SAMPLING LOCATION MEC 2017 & 2018

B-3 (4'-6') UNSAT – VOC Soil Results (mg/kg) 2002

Contaminant	NTE DC RCL	GWP RCL	Results
Ethylbenzene	**35.4**	*1.57*	*4.170*
Naphthalene	**24.1**	*0.6582*	*6.060*
Toluene	**818**	*1.1072*	*2.330*
1,2,4-Trimethylbenzene	**219**	*1.3787**	*1.910*
1,3,5-Trimethylbenzene	**182**	*1.3787**	*5.000*
Xylenes	**260**	*3.96*	2.460
GRO	**NS**	NS	651
DRO	**NS**	NS	46.8

* Combined Trimethylbenzene totals apply to GW RCL

B-2 (4'-6') UNSAT – VOC Soil Results (mg/kg) 2002

Contaminant	NTE DC RCL	GWP RCL	Results
Benzene	**1.6**	*0.0051*	*3.060*
Ethylbenzene	**35.4**	*1.57*	*6.510*
Naphthalene	**24.1**	*0.6582*	*73.600*
Toluene	**818**	*1.1072*	*2.880*
1,2,4-Trimethylbenzene	**219**	*1.3787**	*14.500*
1,3,5-Trimethylbenzene	**182**	*1.3787**	*4.410*
Xylenes	**260**	*3.96*	*14.100*
GRO	**NS**	NS	2250
DRO	**NS**	NS	7080

* Combined Trimethylbenzene totals apply to GW RCL

B-6 (6'-8') SAT – VOC Soil Results (mg/kg) 2002

Contaminant	NTE DC RCL	GWP RCL	Results
Benzene	**1.6**	*0.0051*	7.130
Ethylbenzene	**35.4**	*1.57*	89.200
Naphthalene	**24.1**	*0.6582*	57.100
Toluene	**818**	*1.1072*	6.730
1,2,4-Trimethylbenzene	**219**	*1.3787**	191.000
1,3,5-Trimethylbenzene	**182**	*1.3787**	63.700
Xylenes	**260**	*3.96*	375.000
GRO	**NS**	NS	4250
DRO	**NS**	NS	2660

* Combined Trimethylbenzene totals apply to GW RCL

B-5 (4'-6') UNSAT – VOC Soil Results (mg/kg) 2002

Contaminant	NTE DC RCL	GWP RCL	Results
Benzene	**1.6**	*0.0051*	*0.0596*
Ethylbenzene	**35.4**	*1.57*	0.368
Naphthalene	**24.1**	*0.6582*	*2.280*
Toluene	**818**	*1.1072*	0.085
1,2,4-Trimethylbenzene	**219**	*1.3787**	0.456
1,3,5-Trimethylbenzene	**182**	*1.3787**	0.806
Xylenes	**260**	*3.96*	1.780
GRO	**NS**	NS	113
DRO	**NS**	NS	106

* Combined Trimethylbenzene totals apply to GW RCL

B-1 (4'-6') UNSAT – VOC Soil Results (mg/kg) 2002

Contaminant	NTE DC RCL	GWP RCL	Results
Ethylbenzene	**35.4**	*1.57*	1.020
Naphthalene	**24.1**	*0.6582*	*3.920*
Toluene	**818**	*1.1072*	0.374
1,2,4-Trimethylbenzene	**219**	*1.3787**	*1.690*
1,3,5-Trimethylbenzene	**182**	*1.3787**	*3.650*
Xylenes	**260**	*3.96*	2.020
GRO	**NS**	NS	426
DRO	**NS**	NS	46.9

* Combined Trimethylbenzene totals apply to GW RCL

B-4 (4'-6') UNSAT – VOC Soil Results (mg/kg) 2002

Contaminant	NTE DC RCL	GWP RCL	Results
Naphthalene	**24.1**	*0.6582*	0.0397
Xylenes	**260**	*3.96*	0.0423

PEP Environmental Services, LLC
Heimes Garage Kenosha WI
22046.01

Figure _ Site Features and Soil Boring Locations

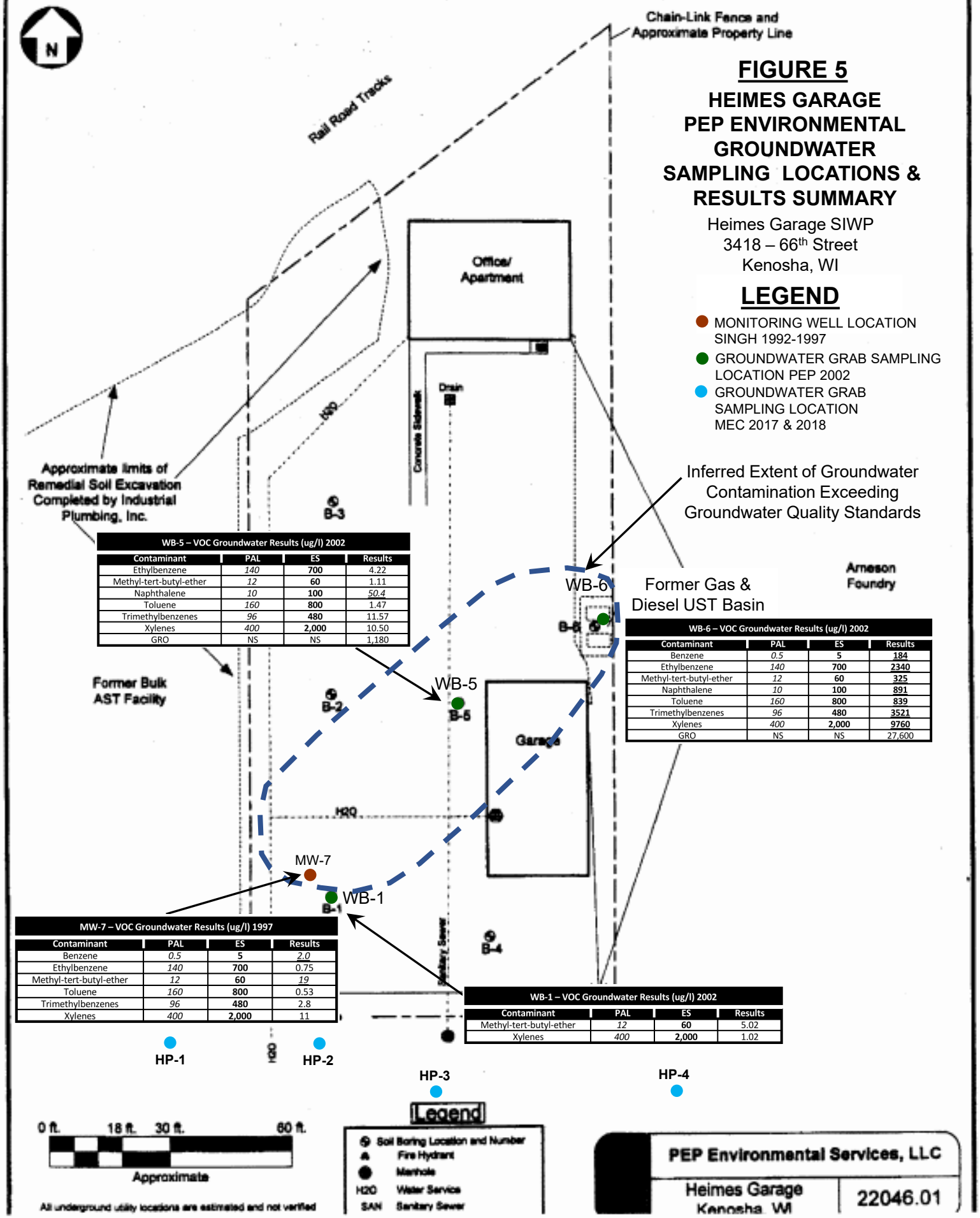


FIGURE 5

HEIMES GARAGE PEP ENVIRONMENTAL GROUNDWATER SAMPLING LOCATIONS & RESULTS SUMMARY

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

LEGEND

- MONITORING WELL LOCATION SINGH 1992-1997
- GROUNDWATER GRAB SAMPLING LOCATION PEP 2002
- GROUNDWATER GRAB SAMPLING LOCATION MEC 2017 & 2018

WB-5 – VOC Groundwater Results (ug/l) 2002

Contaminant	PAL	ES	Results
Ethylbenzene	*140*	**700**	4.22
Methyl-tert-butyl-ether	*12*	**60**	1.11
Naphthalene	*10*	**100**	*50.4*
Toluene	*160*	**800**	1.47
Trimethylbenzenes	*96*	**480**	11.57
Xylenes	*400*	**2,000**	10.50
GRO	NS	NS	1,180

WB-6 – VOC Groundwater Results (ug/l) 2002

Contaminant	PAL	ES	Results
Benzene	*0.5*	**5**	**184**
Ethylbenzene	*140*	**700**	**2340**
Methyl-tert-butyl-ether	*12*	**60**	**325**
Naphthalene	*10*	**100**	**891**
Toluene	*160*	**800**	**839**
Trimethylbenzenes	*96*	**480**	**3521**
Xylenes	*400*	**2,000**	**9760**
GRO	NS	NS	27,600

MW-7 – VOC Groundwater Results (ug/l) 1997

Contaminant	PAL	ES	Results
Benzene	*0.5*	**5**	*2.0*
Ethylbenzene	*140*	**700**	0.75
Methyl-tert-butyl-ether	*12*	**60**	*19*
Toluene	*160*	**800**	0.53
Trimethylbenzenes	*96*	**480**	2.8
Xylenes	*400*	**2,000**	11

WB-1 – VOC Groundwater Results (ug/l) 2002

Contaminant	PAL	ES	Results
Methyl-tert-butyl-ether	*12*	**60**	5.02
Xylenes	*400*	**2,000**	1.02

PEP Environmental Services, LLC

Heimes Garage Kenosha WI | 22046.01

FIGURE 6
SANITARY SEWER LOCATIONS
Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

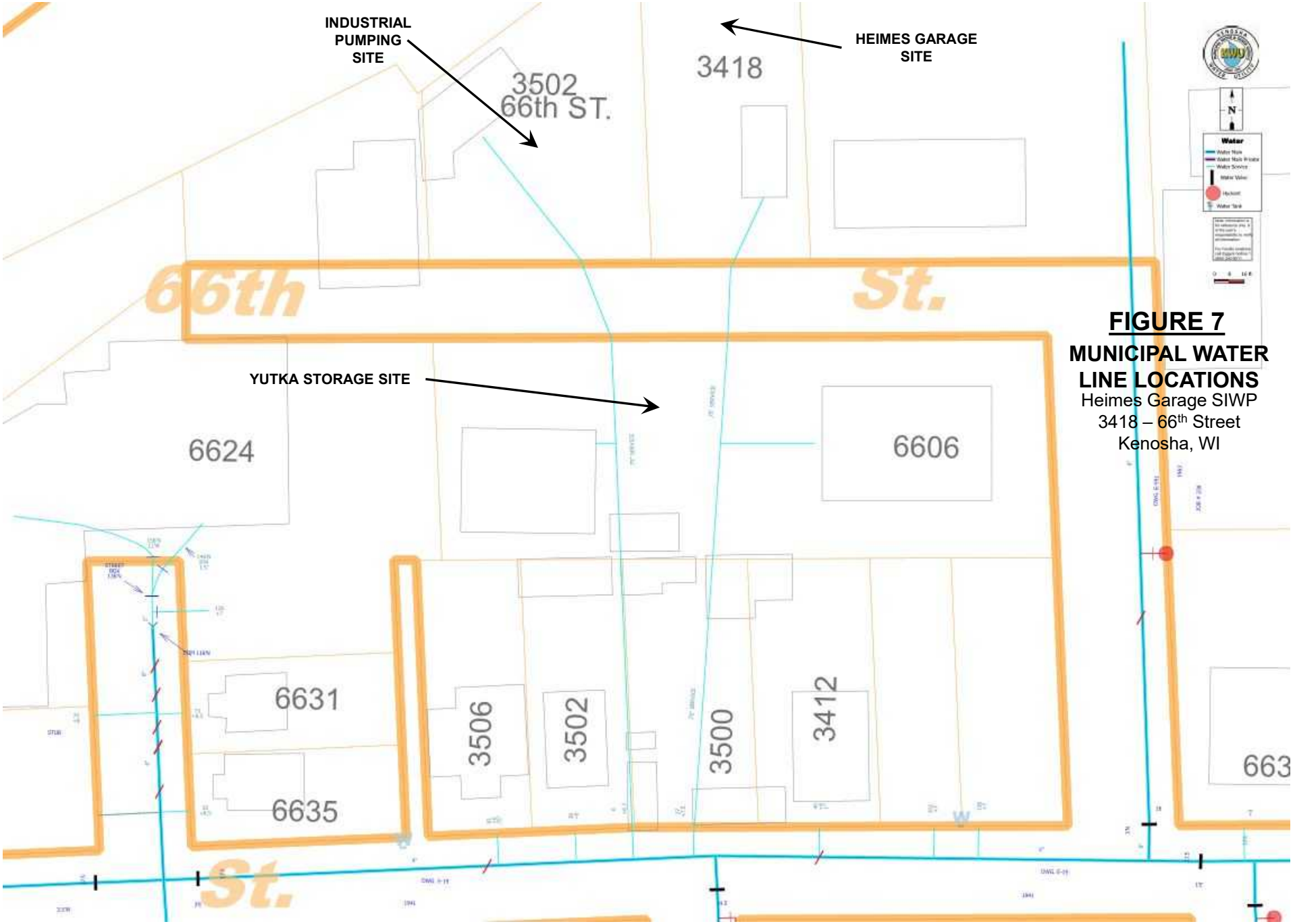


FIGURE 7

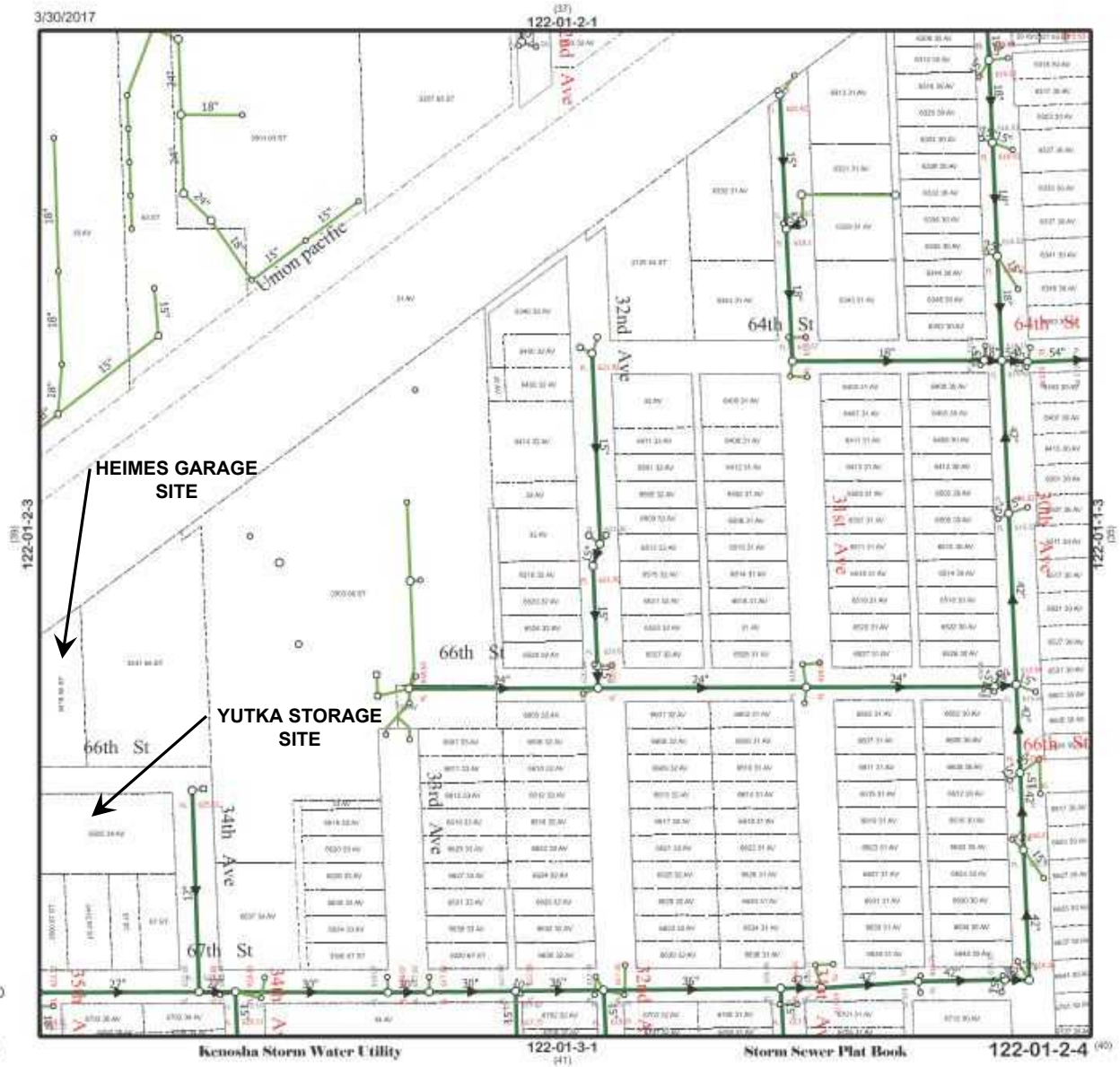
MUNICIPAL WATER LINE LOCATIONS

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

FIGURE 8

STORM SEWER LOCATIONS EAST

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI



N

0 25 50 100 150
Feet

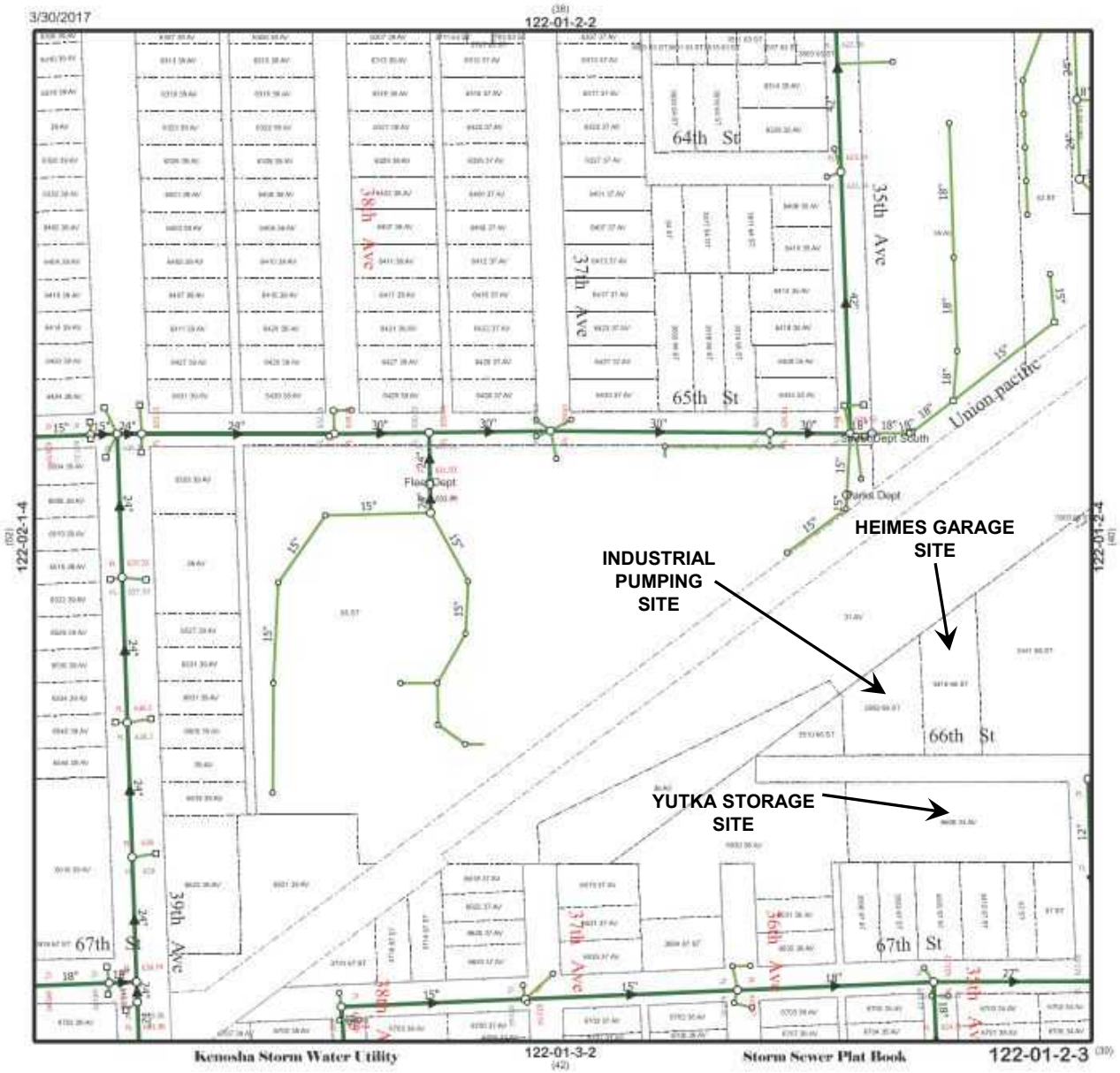
1 inch = 150 feet

Return to Index

FIGURE 9

STORM SEWER LOCATIONS WEST

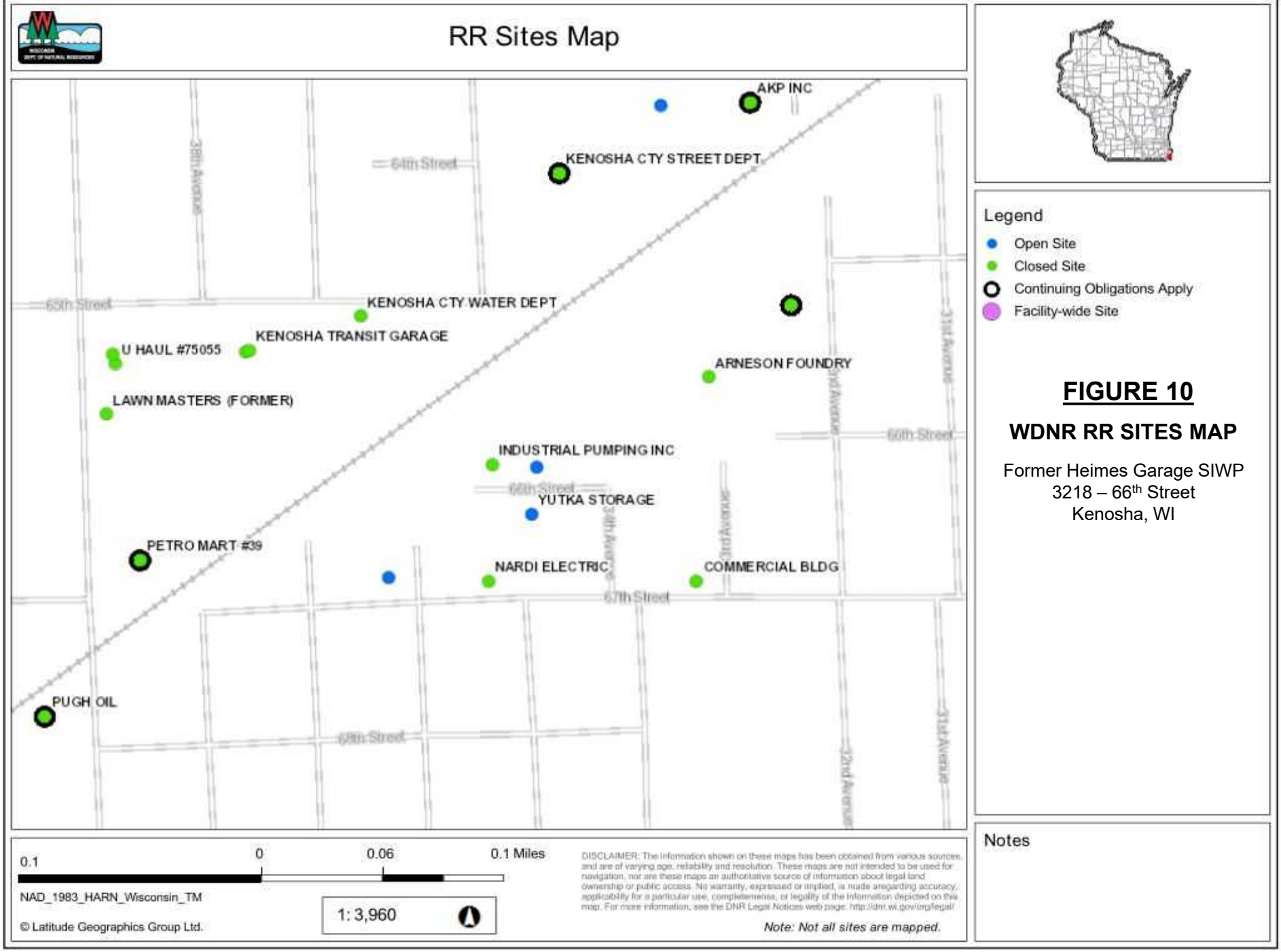
Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI



N

0 25 50 100 150
Feet
1 inch = 150 feet

Return to Index


RR Sites Map
AKP INC
KENOSHA CTY STREET DEPT
64th Street
38th Avenue
65th Street
KENOSHA CTY WATER DEPT
KENOSHA TRANSIT GARAGE
U HAUL #75055
ARNESON FOUNDRY
LAWN MASTERS (FORMER)
31st Avenue
3rd Avenue
66th Street
INDUSTRIAL PUMPING INC
68th Street
YUTKA STORAGE
PETRO MART #39
NARDI ELECTRIC
COMMERCIAL BLDG
67th Street
PUGH OIL
69th Street
2nd Avenue
0.1
0
0.06
0.1 Miles
NAD_1983_HARN_Wisconsin_TM
1: 3,960
© Latitude Geographics Group Ltd.
DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made aregarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: http://dnr.wi.gov/org/legal/
Note: Not all sites are mapped.
Legend
Open Site
Closed Site
Continuing Obligations Apply
Facility-wide Site
FIGURE 10
WDNR RR SITES MAP
Former Heimes Garage SIWP
3218 – 66th Street
Kenosha, WI
Notes

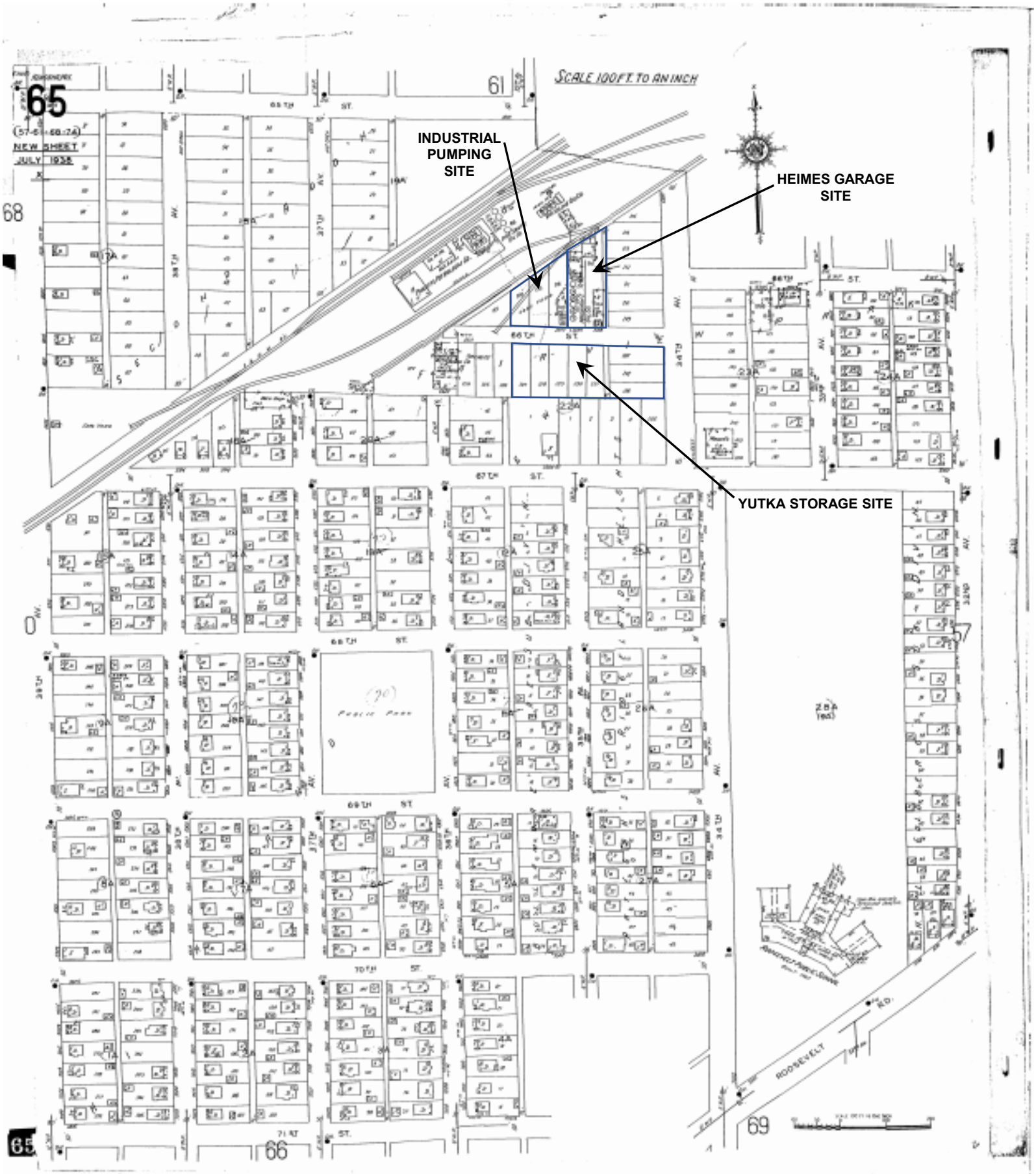


FIGURE 11

SANBORN FIRE INSURANCE MAP - 1950

1950

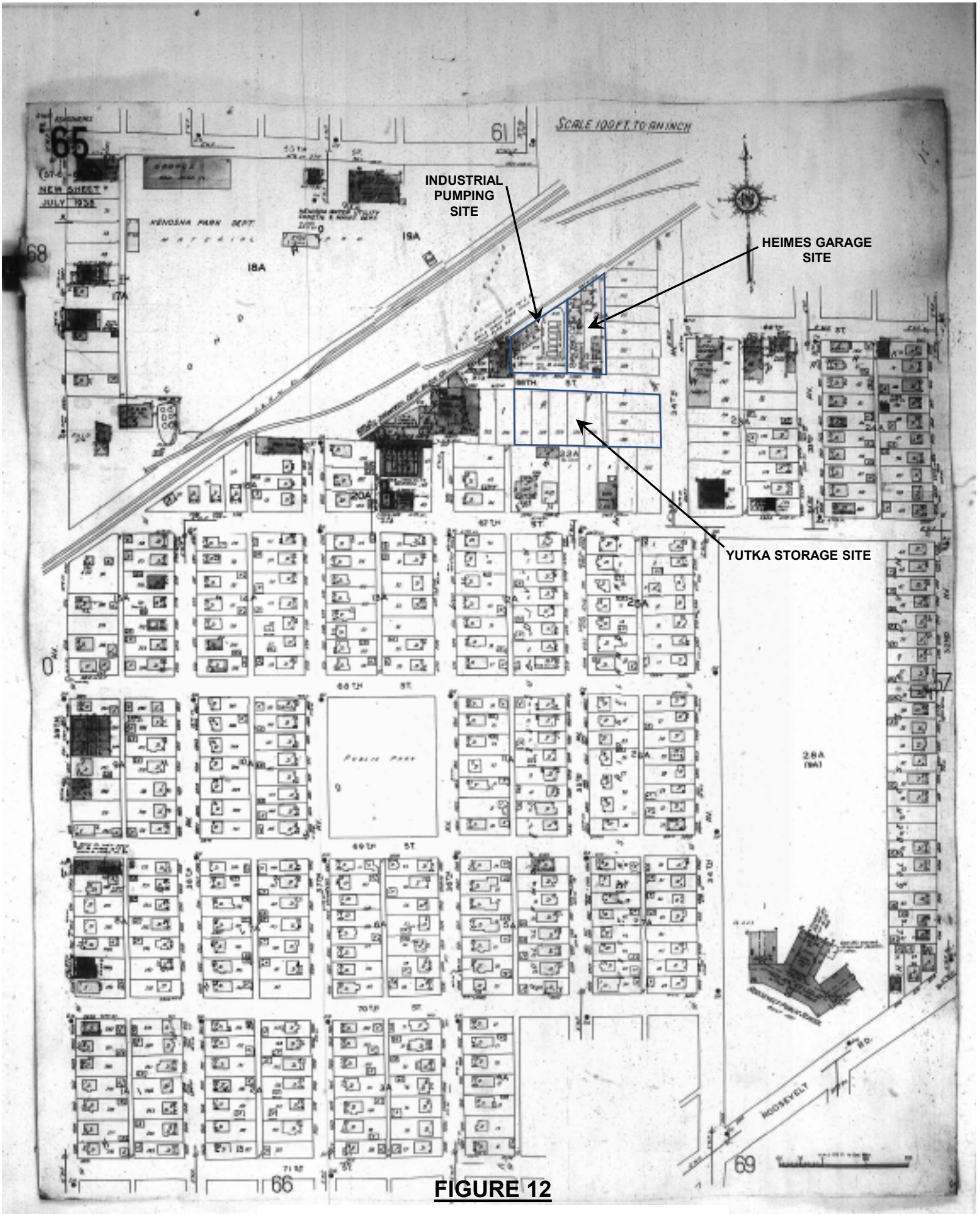


FIGURE 12

SANBORN FIRE INSURANCE MAP - 1969

1969

#1	Coolant	15,000
#2	Waste Oil	11,000
#3	Waste Oil	11,000
#4	Waste Oil	11,000
#5	#4 Fuel Oil	11,000
#6	Waste Oil	11,000
#7	Waste Oil	5,000
#8	Waste Oil	5,000
#9	Coolant	7,000
#10	Waste Oil	7,000
#11	Waste Oil	2,000
#12	Waste Oil	2,000
#13	Empty	2,000
#14	Empty	2,000
#15	Waste Oil	4,000

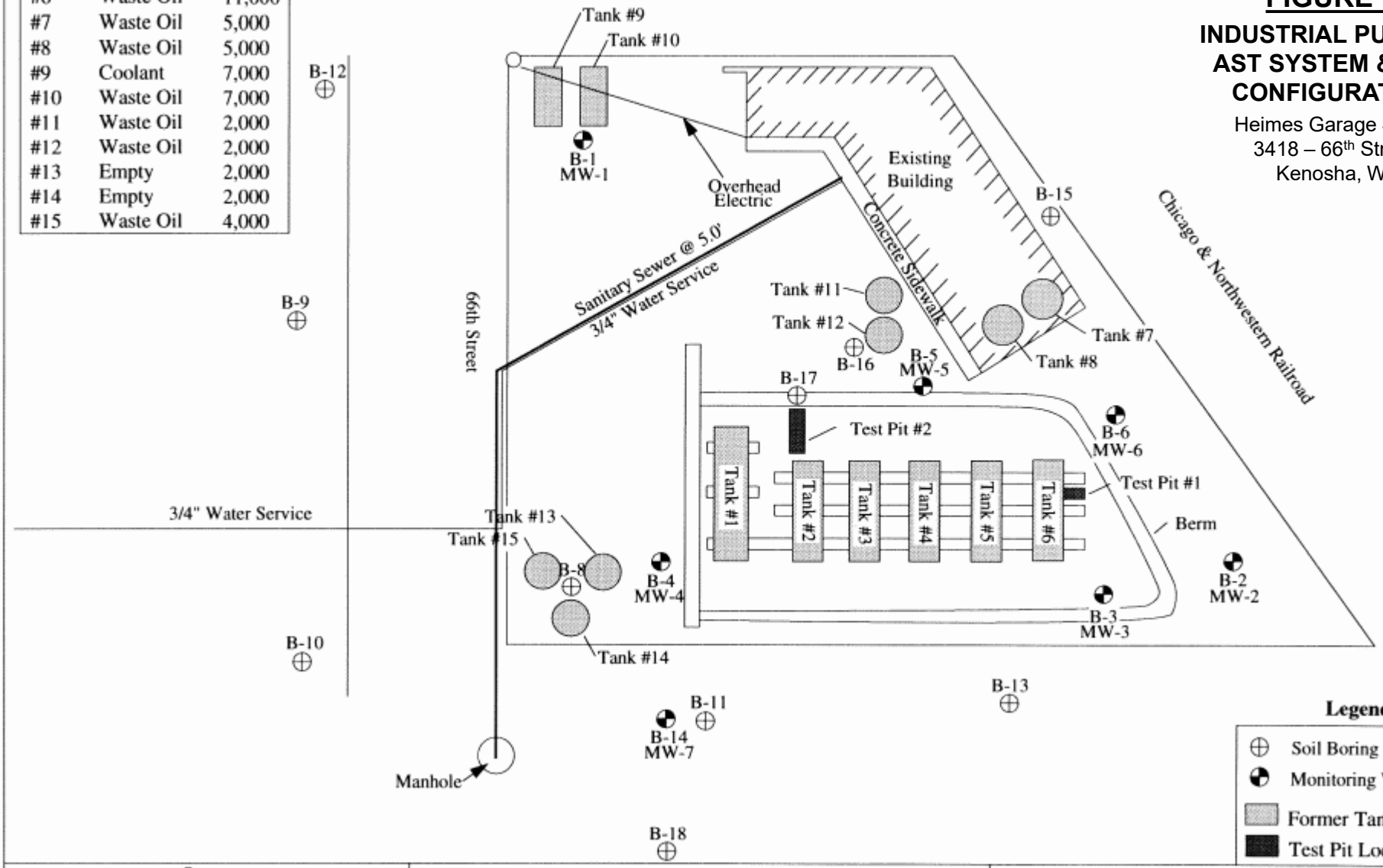


FIGURE 13

INDUSTRIAL PUMPING AST SYSTEM & SITE CONFIGURATION

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

Owner: **Industrial Pumping, Inc.**	Engineer: **K. SINGH & ASSOCIATES, INC.** Engineers & Environmental Management Consultants 1135 Legion Drive Elm Grove, WI (414) 821-1171	Figure 2. Facility Layout Map	
Project Location: 3502 66th Street, Kenosha, Wisconsin		Date: 06/07/95	Drawn By: VLS
		0' 15' 30'	Checked By: DKS
		Project No.: 3000	Sheet No.: 1 OF 1

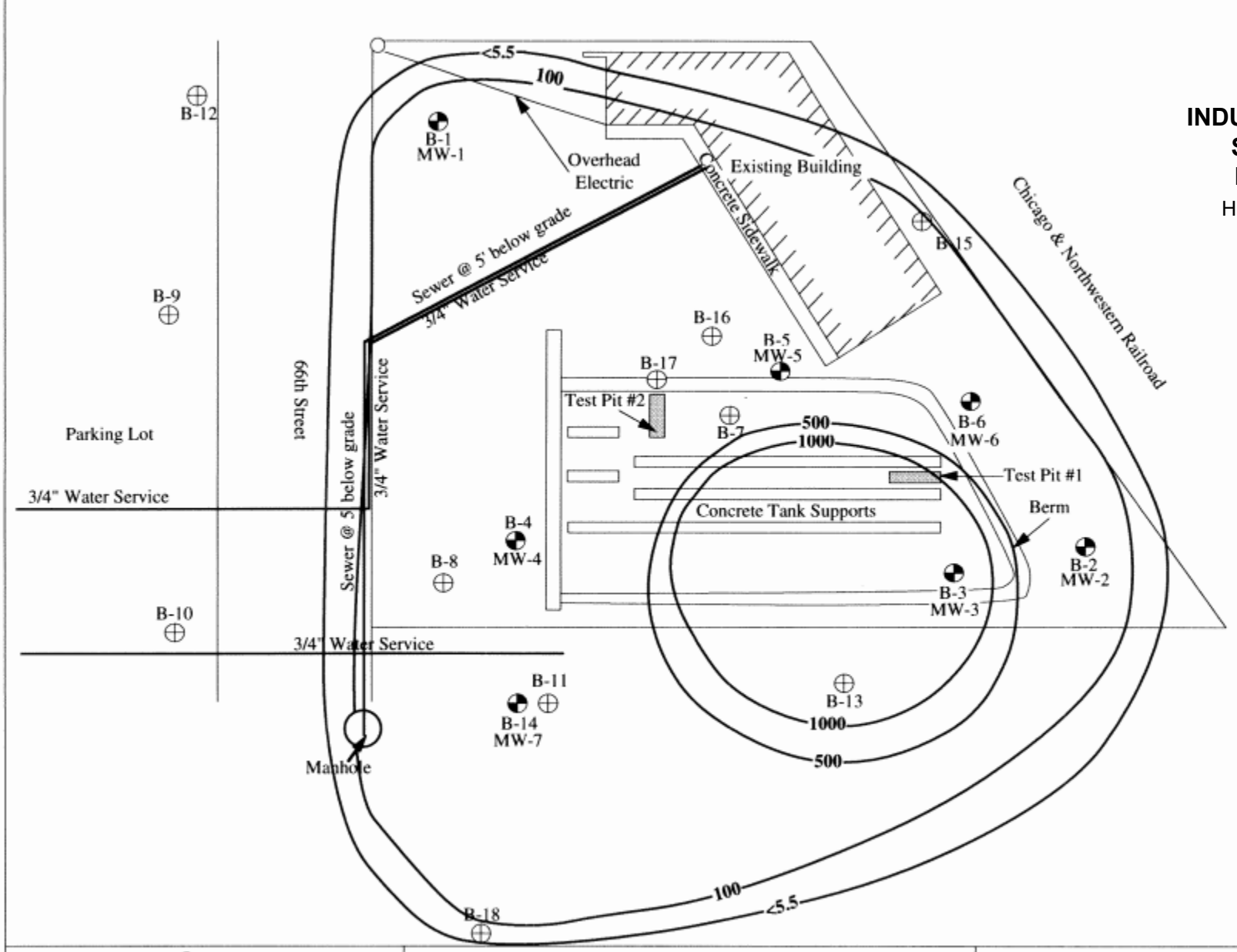


FIGURE 14

INDUSTRIAL PUMPING SOIL BENZENE DISTRIBUTION

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

Owner **Industrial Pumping, Inc.**	Engineer **K. SINGH & ASSOCIATES, INC.** Engineers & Environmental Management Consultants 1135 Legion Drive Elm Grove, WI (414) 821-1171	Figure 5. Contour Map of Benzene Concentration In Soil
Project Location 3502 66th Street, Kenosha, Wisconsin		Date: August 16, 1994 | Drawn By: M.J.P. | Project No.: 3000 0' 15' 30' | Checked By: R.B.S. | Sheet No.: 1 Of 1

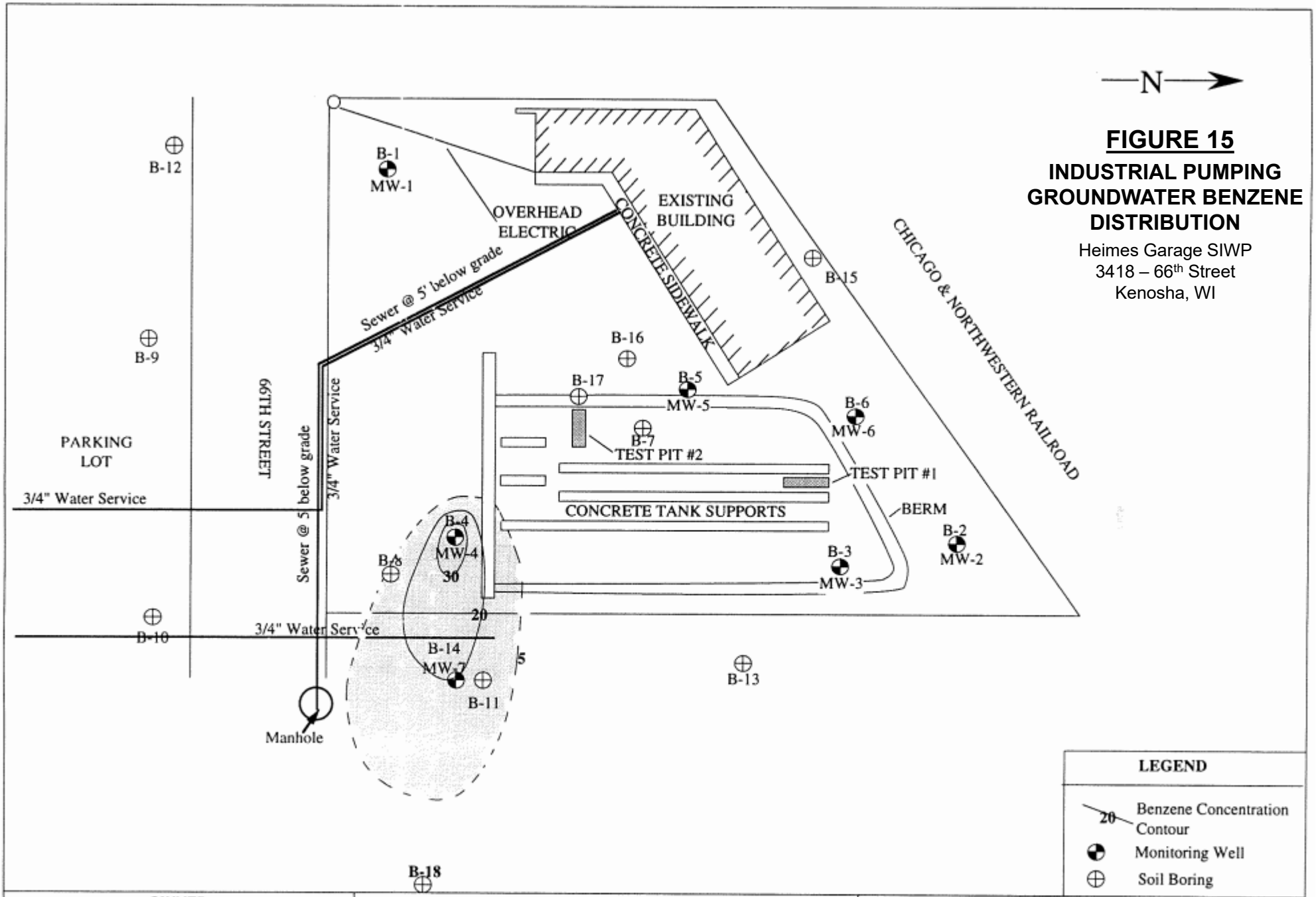


FIGURE 15

INDUSTRIAL PUMPING GROUNDWATER BENZENE DISTRIBUTION

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

OWNER **INDUSTRIAL PUMPING, INC.** Project Location 3502 66th Street, Kenosha, Wisconsin	ENGINEER **K. SINGH & ASSOCIATES, INC.** Engineers & Environmental Management Consultants 135 Legion Drive Elm Grove, WI (414) 821-1171

Figure 5. Countour Map Showing Benzene Concentrations in Water

DATE	DRAWN BY	PROJECT NO.
August 17, 1994	M.J.P.	3000
0' 15' 30'	CHECKED BY	SHEET NO.
	R.B.S.	1 OF 1

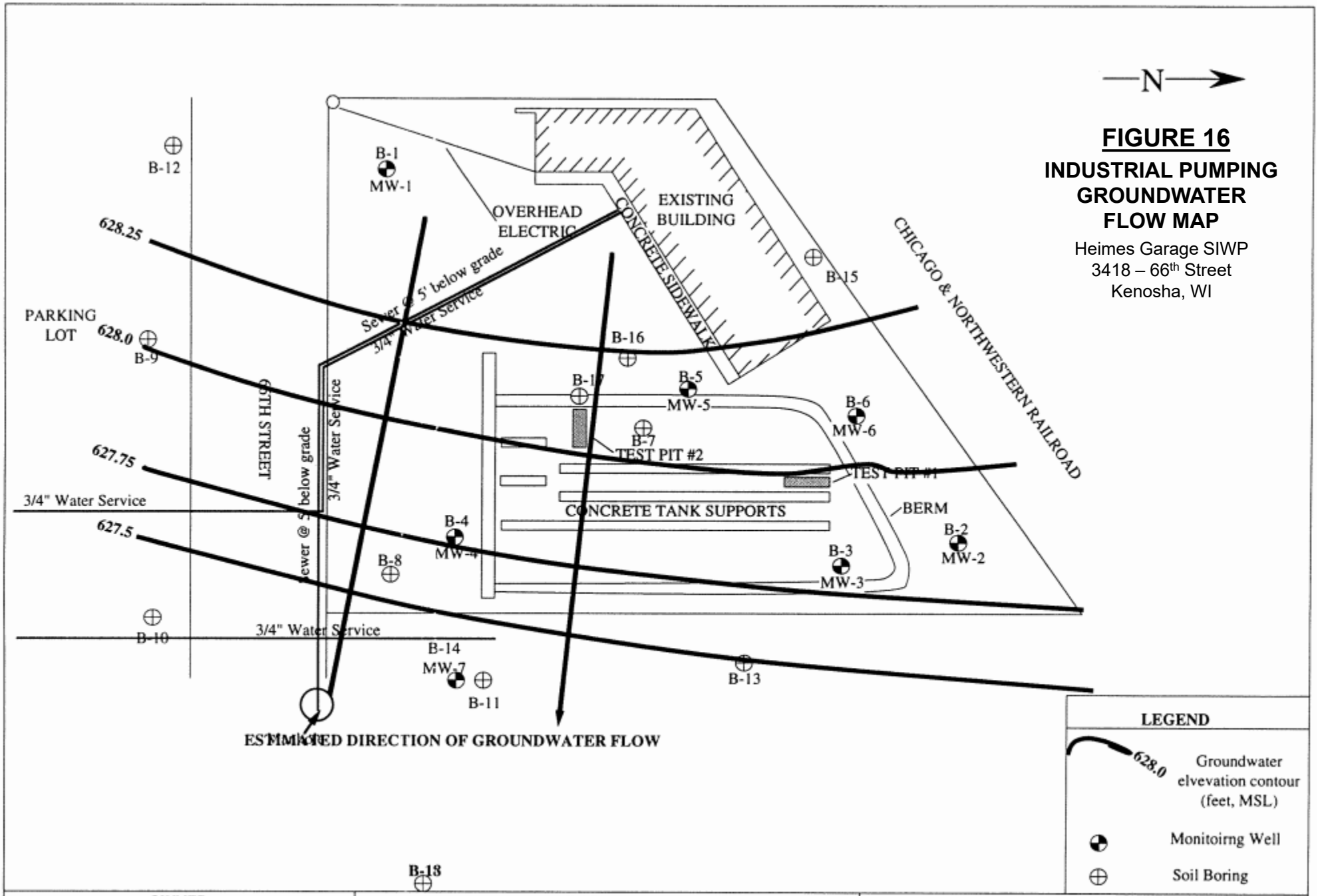


FIGURE 16

INDUSTRIAL PUMPING GROUNDWATER FLOW MAP

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

OWNER **INDUSTRIAL PUMPING, INC.** Project Location 3502 66th Street, Kenosha, Wisconsin	ENGINEER **K. SINGH & ASSOCIATES, INC.** Engineers & Environmental Management Consultants 1135 Legion Drive Elm Grove, WI (414) 821-1171	Figure 2. Groundwater Elevation Contour Map DATE August 17, 1994 0' 15' 30'	DRAWN BY: M.J.P. CHECKED BY: PNS PROJECT NO.: 3000 SHEET NO.: 1 OF 1

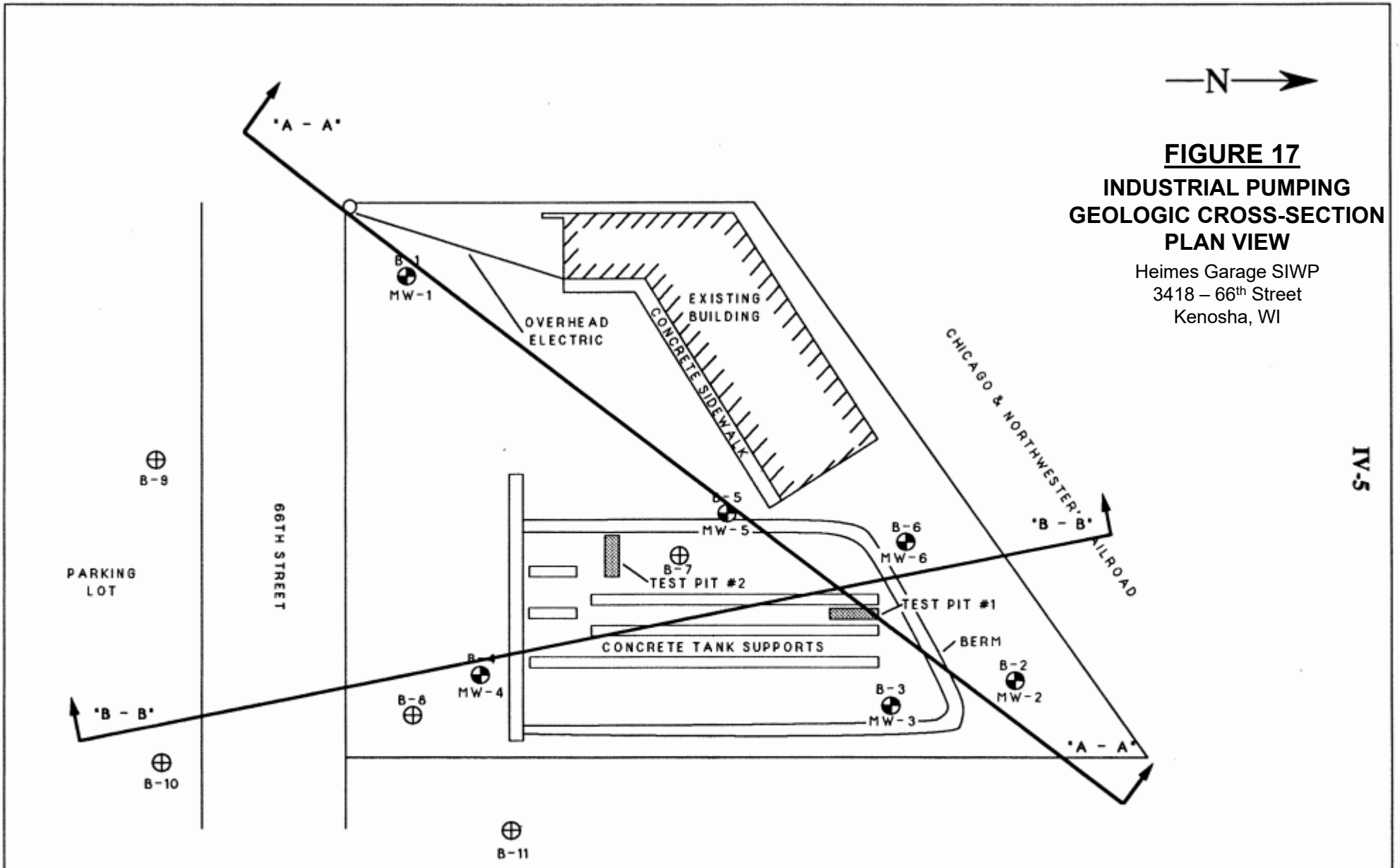


FIGURE 17

INDUSTRIAL PUMPING
GEOLOGIC CROSS-SECTION
PLAN VIEW

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

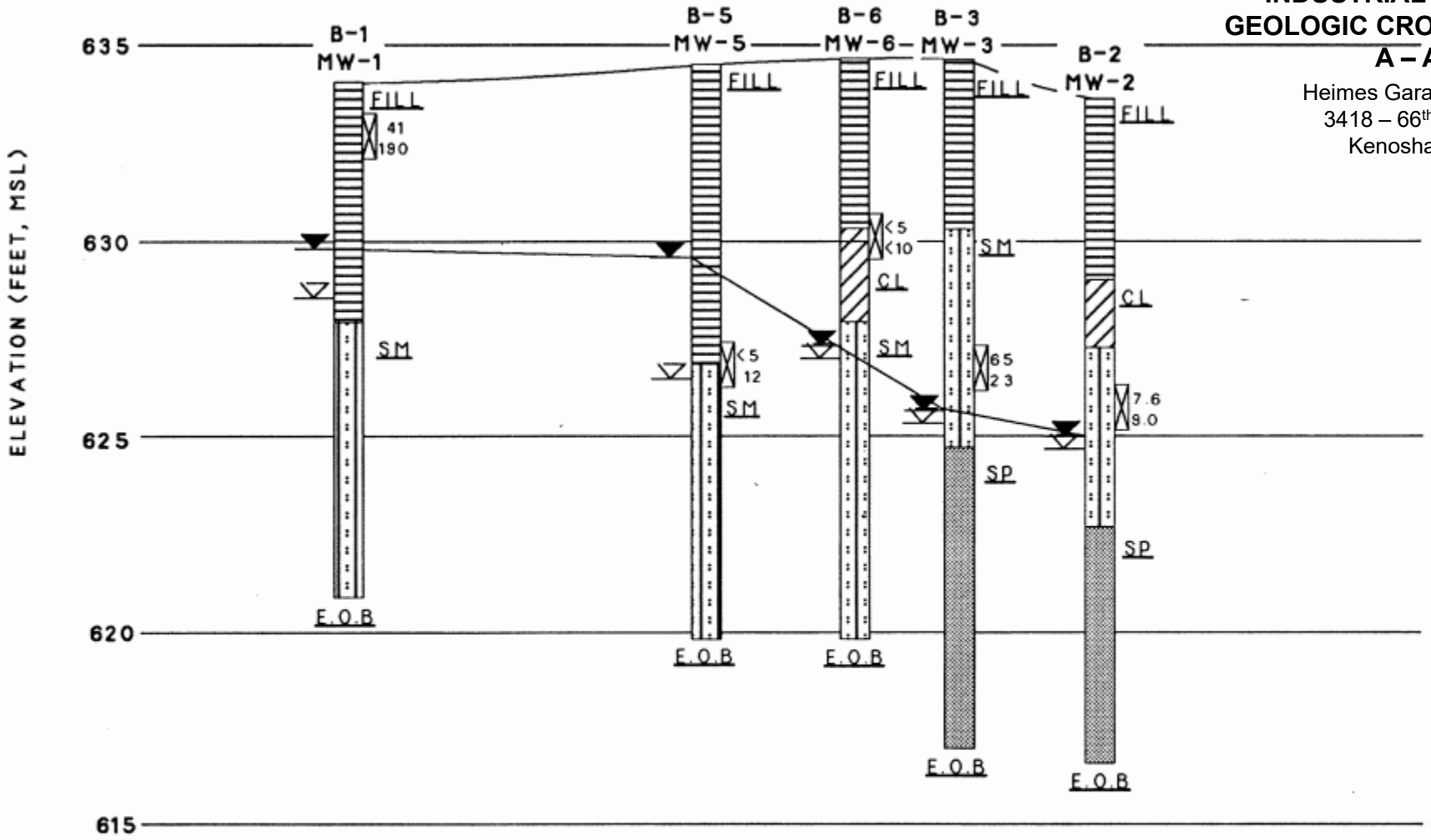
IV-5

OWNER	ENGINEER	Figure 4. Plan of Geologic Sections		
INDUSTRIAL PUMPING, INC.	K. SINGH & ASSOCIATES, INC.	DATE 11-11-92	DRAWN BY VLS	PROJECT NO. 3000
Project Location 3502 66th Street, Kenosha, Wisconsin	Engineers & Environmental Management Consultants 1135 Legion Drive Elm Grove, WI (414) 821-1171	0' 15' 30'	CHECKED BY PNS	SHEET NO. 1 OF 1

FIGURE 18

INDUSTRIAL PUMPING
GEOLOGIC CROSS-SECTION
A – A'

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI



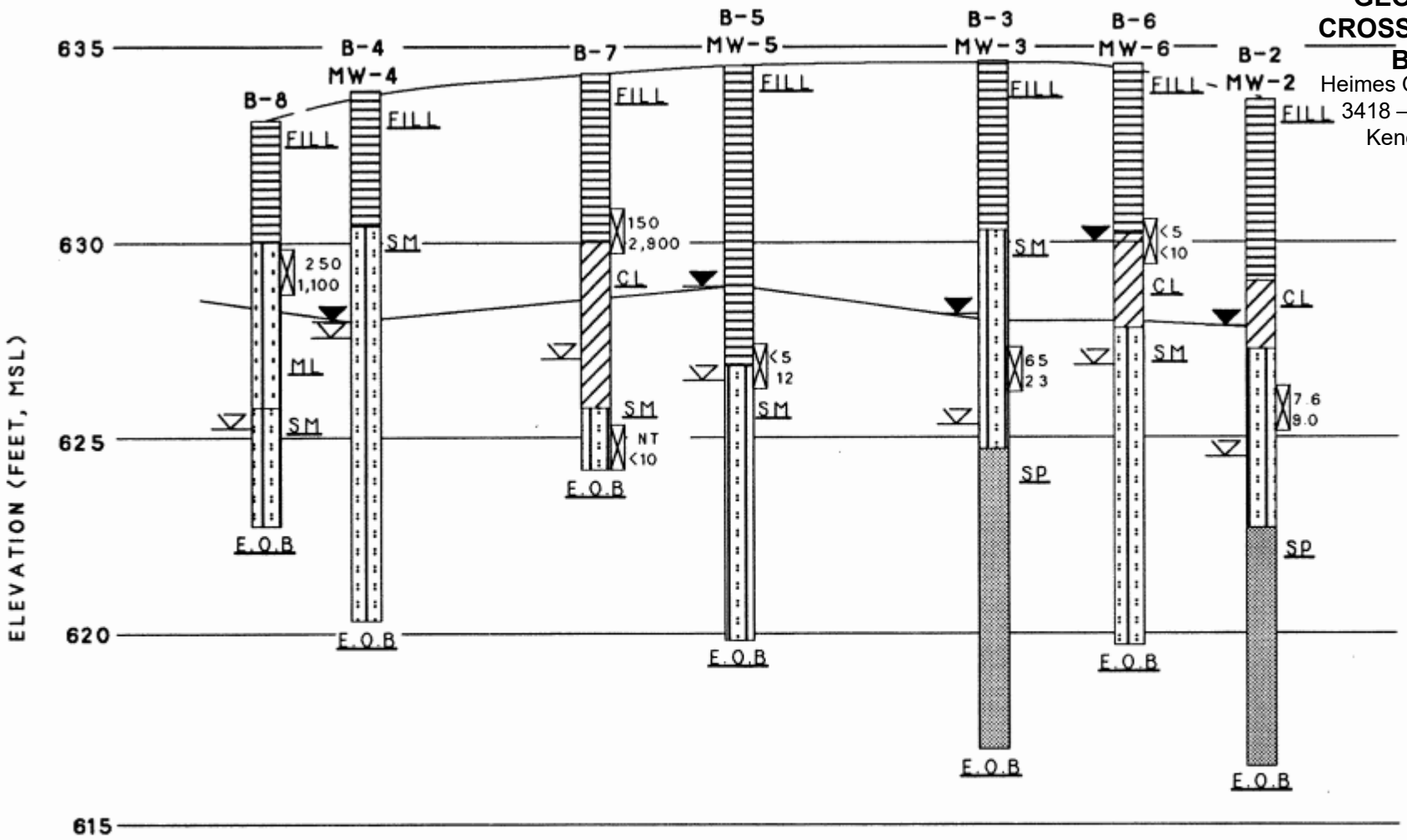
LEGEND	
SM	Silty Sand
SC	Clayey Sand
ML	Clayey Silt
CL	Silty Clay
E.O.B.	End of Boring
	Depth to Water in Soil Boring
	Depth to Water in Monitoring Well

OWNER	ENGINEER	Figure 5. Geologic Section "A - A"		
INDUSTRIAL PUMPING, INC. 3502 66th Street Kenosha, Wisconsin 53142	K. SINGH & ASSOCIATES, INC. Engineers & Environmental Management Consultants 1135 Legion Drive Elm Grove, WI (414) 821-1171	DATE 09-29-92	DRAWN BY VLS	PROJECT NO. 3000
		0' 10' 20'	CHECKED BY PNS	SHEET NO. 1 OF 1

FIGURE 19

INDUSTRIAL PUMPING GEOLOGIC CROSS-SECTION B – B'

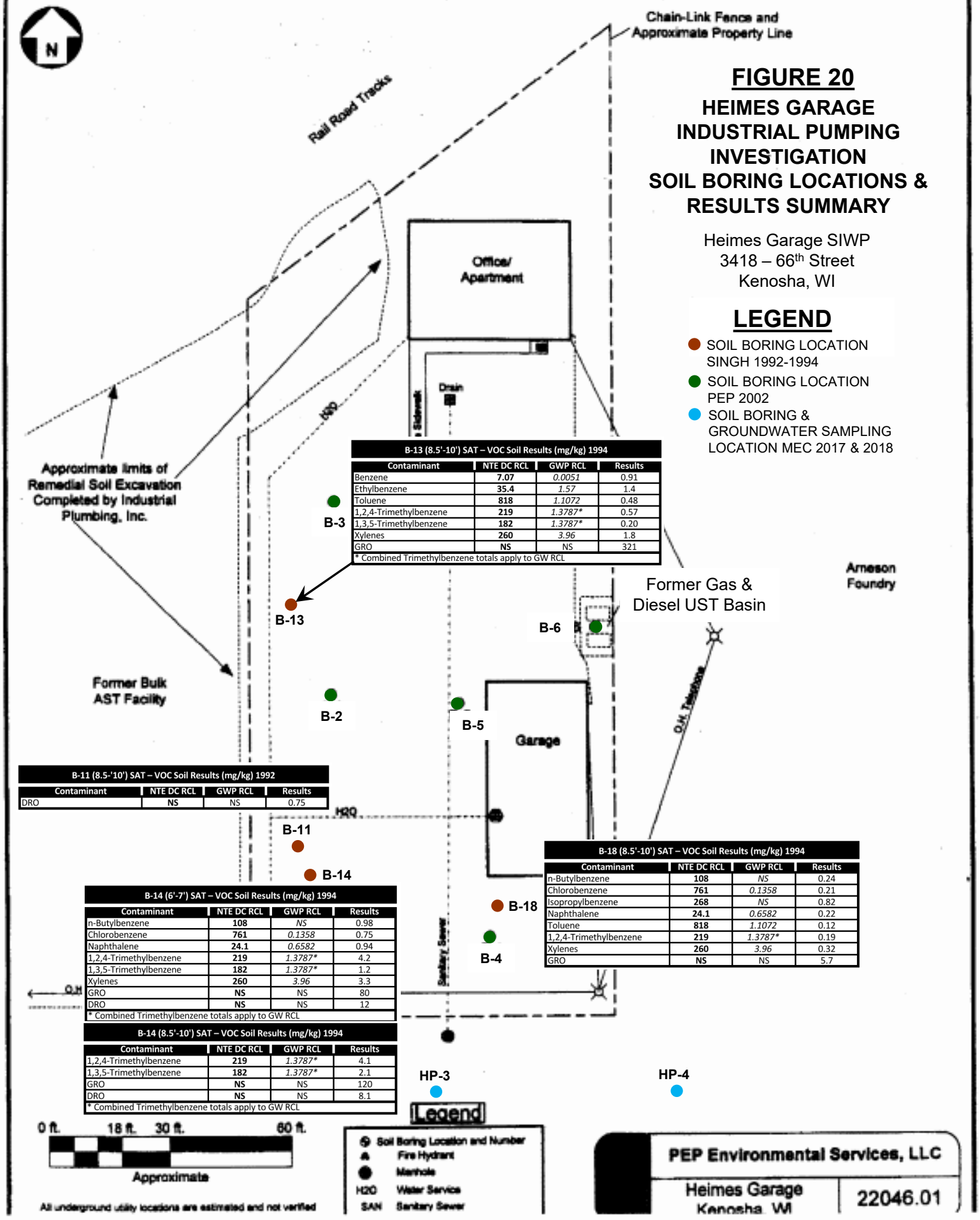
Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

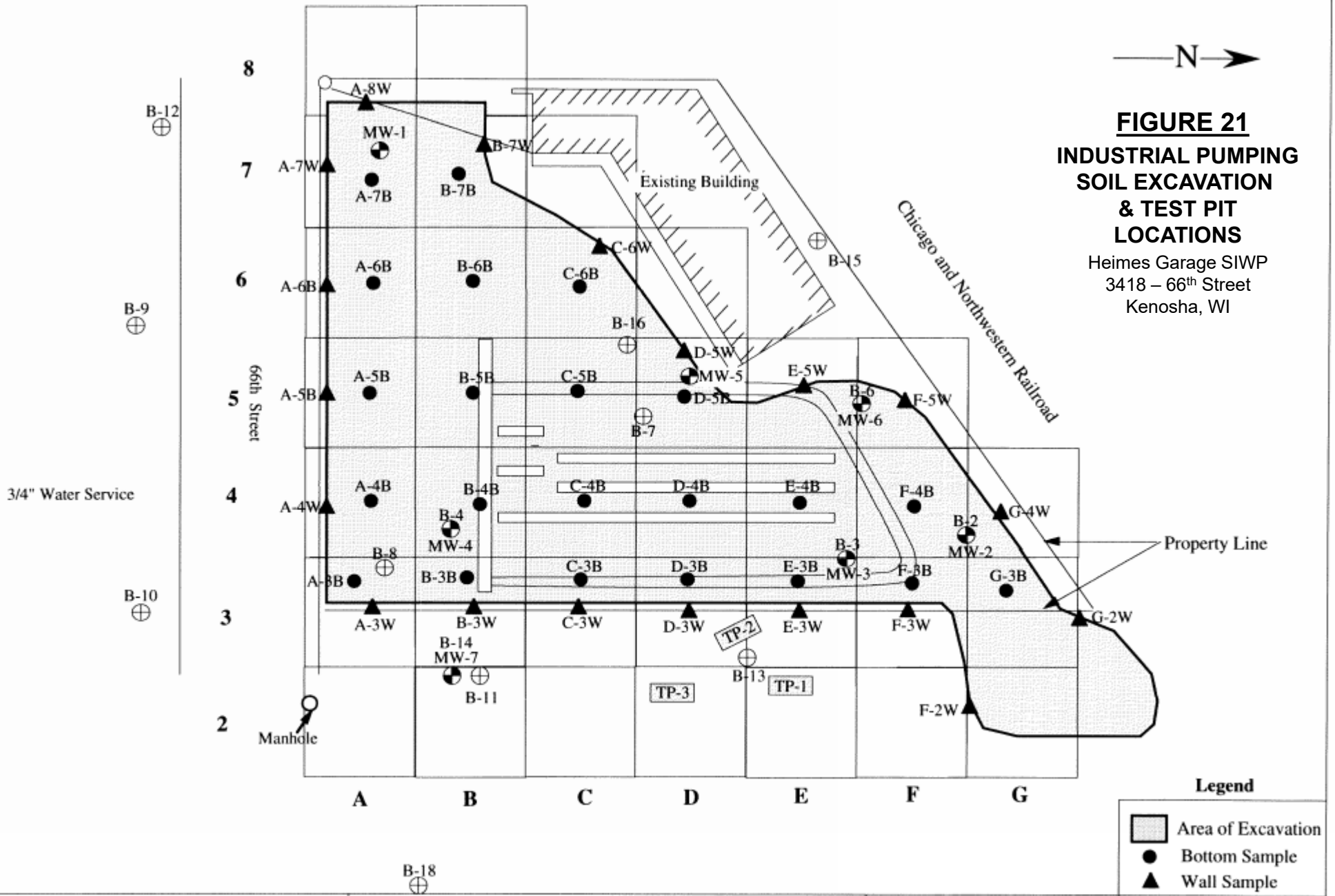


LEGEND
SM Silty Sand
SC Clayey Sand
ML Clayey Silt
CL Silty Clay
E.O.B. End of Boring
▽ Depth to Water in Soil Boring
▼ Depth to Water in Monitoring Well

OWNER	ENGINEER	Figure 6. Geologic Section "B - B"	
INDUSTRIAL PUMPING, INC. 3502 66th Street Kenosha, Wisconsin 53142	K. SINGH & ASSOCIATES, INC. Engineers & Environmental Management Consultants 1135 Legion Drive Elm Grove, WI (414) 821-1171	DATE 10-06-92	DRAWN BY VLS / PROJECT NO. 3000
		0' 10' 20'	CHECKED BY PNS / SHEET NO. 1 OF 1

Figure _ Site Features and Soil Boring Locations





Owner **Industrial Pumping, Inc.** Project Location 3502 66th Street, Kenosha, Wisconsin	Engineer **K. SINGH & ASSOCIATES, INC.** Engineers & Environmental Management Consultants 1135 Legion Drive Elm Grove, WI (414) 821-1171	Figure 7. Area of Excavation & Sampling Map Date: March 23, 1995 (0' 15' 30') Drawn By: T.L.O. Checked By: D.K.S. Project No. 3000 Sheet No. 1 of 1

Figure _ Site Features and Soil Boring Locations

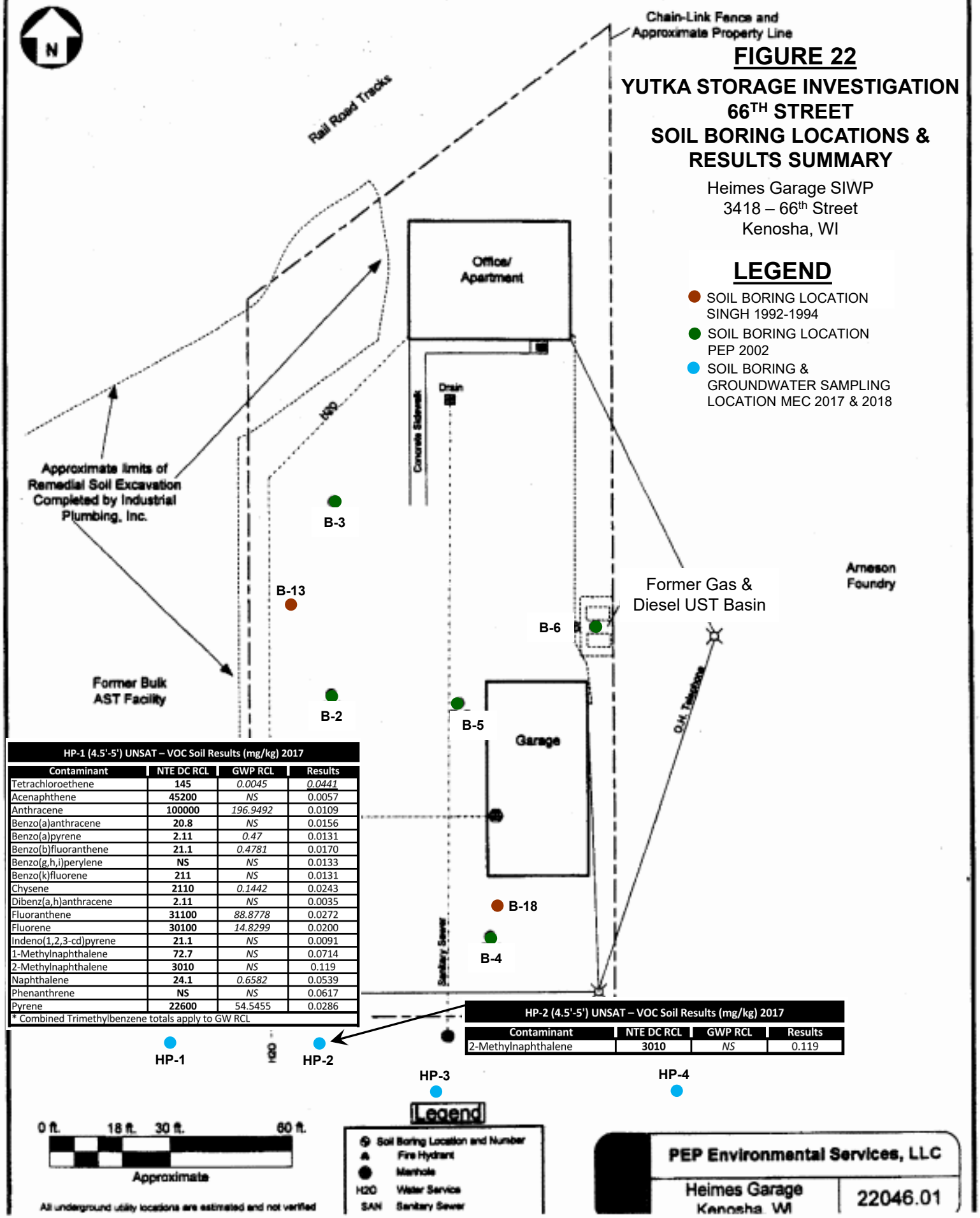


FIGURE 22

YUTKA STORAGE INVESTIGATION
66TH STREET
SOIL BORING LOCATIONS & RESULTS SUMMARY

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

LEGEND

- SOIL BORING LOCATION SINGH 1992-1994
- SOIL BORING LOCATION PEP 2002
- SOIL BORING & GROUNDWATER SAMPLING LOCATION MEC 2017 & 2018

HP-1 (4.5'-5') UNSAT – VOC Soil Results (mg/kg) 2017

Contaminant	NTE DC RCL	GWP RCL	Results
Tetrachloroethene	145	*0.0045*	*0.0441*
Acenaphthene	45200	*NS*	0.0057
Anthracene	100000	*196.9492*	0.0109
Benzo(a)anthracene	20.8	*NS*	0.0156
Benzo(a)pyrene	2.11	*0.47*	0.0131
Benzo(b)fluoranthene	21.1	*0.4781*	0.0170
Benzo(g,h,i)perylene	NS	*NS*	0.0133
Benzo(k)fluorene	211	*NS*	0.0131
Chysene	2110	*0.1442*	0.0243
Dibenz(a,h)anthracene	2.11	*NS*	0.0035
Fluoranthene	31100	*88.8778*	0.0272
Fluorene	30100	*14.8299*	0.0200
Indeno(1,2,3-cd)pyrene	21.1	*NS*	0.0091
1-Methylnaphthalene	72.7	*NS*	0.0714
2-Methylnaphthalene	3010	*NS*	0.119
Naphthalene	24.1	*0.6582*	0.0539
Phenanthrene	NS	*NS*	0.0617
Pyrene	22600	54.5455	0.0286

* Combined Trimethylbenzene totals apply to GW RCL

HP-2 (4.5'-5') UNSAT – VOC Soil Results (mg/kg) 2017

Contaminant	NTE DC RCL	GWP RCL	Results
2-Methylnaphthalene	3010	*NS*	0.119

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Figure _ Site Features and Soil Boring Locations

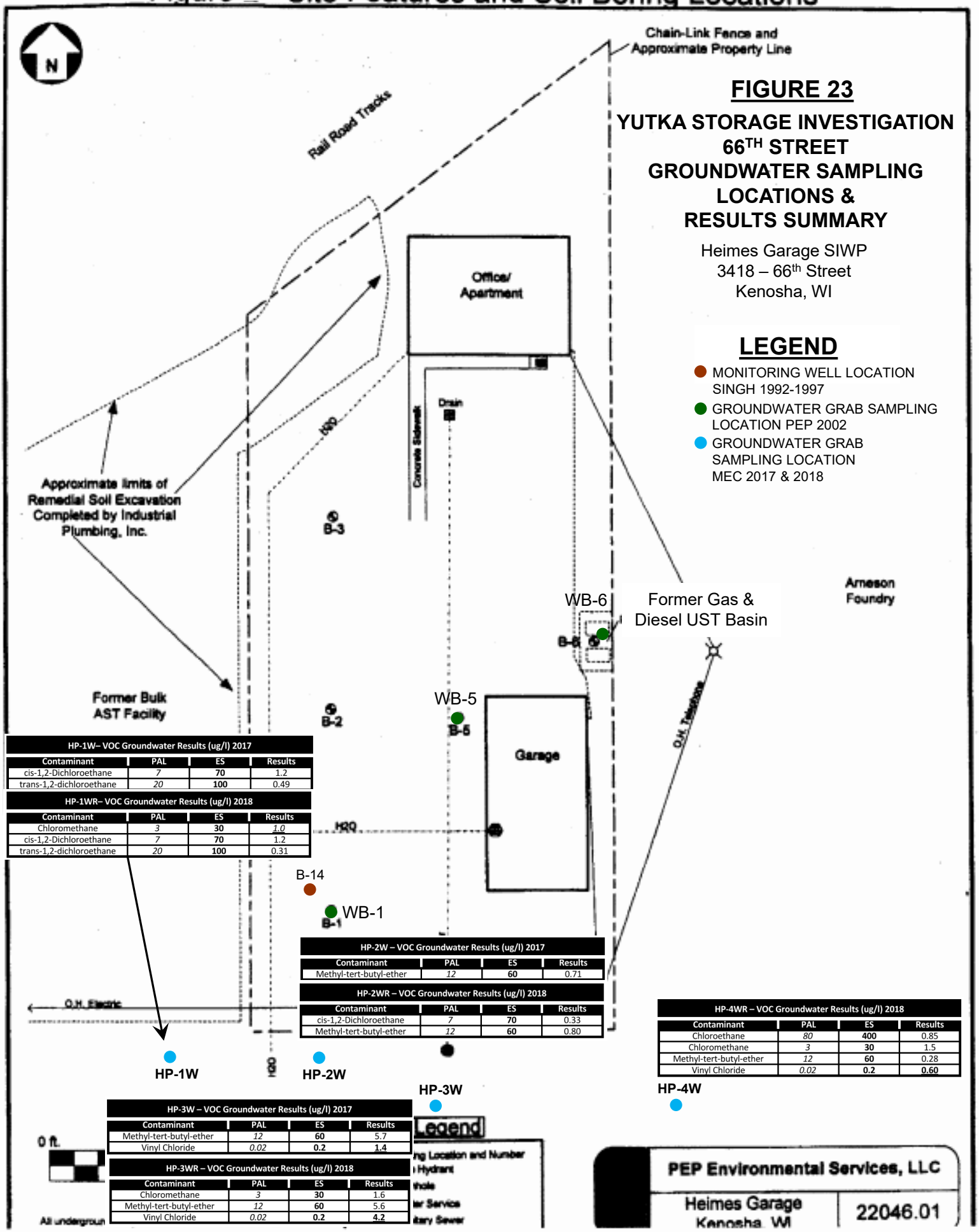


FIGURE 23

YUTKA STORAGE INVESTIGATION 66TH STREET GROUNDWATER SAMPLING LOCATIONS & RESULTS SUMMARY

Heimes Garage SIWP
3418 – 66th Street
Kenosha, WI

LEGEND

- MONITORING WELL LOCATION SINGH 1992-1997
- GROUNDWATER GRAB SAMPLING LOCATION PEP 2002
- GROUNDWATER GRAB SAMPLING LOCATION MEC 2017 & 2018

HP-1W– VOC Groundwater Results (ug/l) 2017

Contaminant	PAL	ES	Results
cis-1,2-Dichloroethane	*7*	**70**	1.2
trans-1,2-dichloroethane	*20*	**100**	0.49

HP-1WR– VOC Groundwater Results (ug/l) 2018

Contaminant	PAL	ES	Results
Chloromethane	*3*	**30**	*1.0*
cis-1,2-Dichloroethane	*7*	**70**	1.2
trans-1,2-dichloroethane	*20*	**100**	0.31

HP-2W – VOC Groundwater Results (ug/l) 2017

Contaminant	PAL	ES	Results
Methyl-tert-butyl-ether	*12*	**60**	0.71

HP-2WR – VOC Groundwater Results (ug/l) 2018

Contaminant	PAL	ES	Results
cis-1,2-Dichloroethane	*7*	**70**	0.33
Methyl-tert-butyl-ether	*12*	**60**	0.80

HP-4WR – VOC Groundwater Results (ug/l) 2018

Contaminant	PAL	ES	Results
Chloroethane	*80*	**400**	0.85
Chloromethane	*3*	**30**	1.5
Methyl-tert-butyl-ether	*12*	**60**	0.28
Vinyl Chloride	*0.02*	**0.2**	**0.60**

HP-3W – VOC Groundwater Results (ug/l) 2017

Contaminant	PAL	ES	Results
Methyl-tert-butyl-ether	*12*	**60**	5.7
Vinyl Chloride	*0.02*	**0.2**	**1.4**

HP-3WR – VOC Groundwater Results (ug/l) 2018

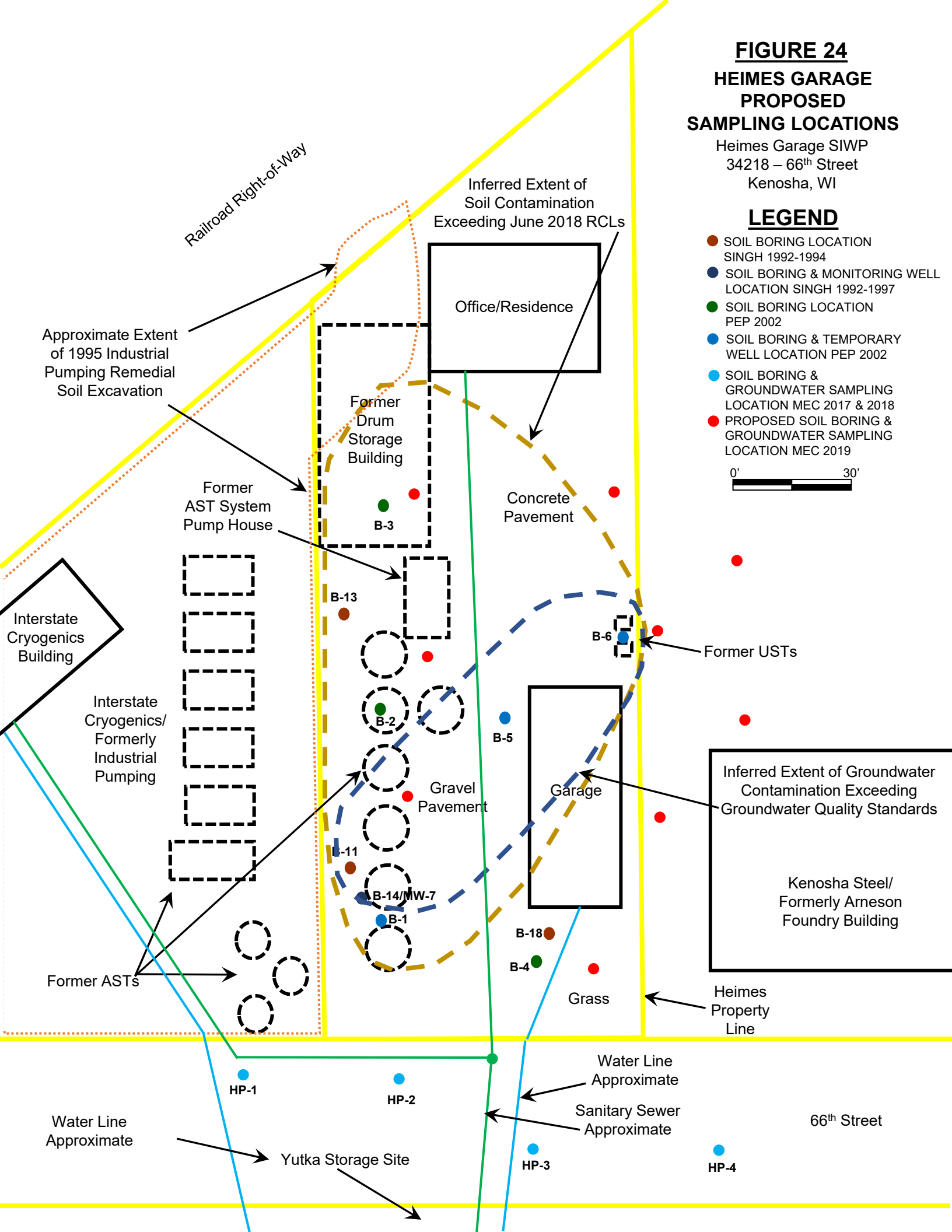
Contaminant	PAL	ES	Results
Chloromethane	*3*	**30**	1.6
Methyl-tert-butyl-ether	*12*	**60**	5.6
Vinyl Chloride	*0.02*	**0.2**	**4.2**

PEP Environmental Services, LLC
Heimes Garage Kenosha WI
22046.01

FIGURE 24

HEIMES GARAGE PROPOSED SAMPLING LOCATIONS

Heimes Garage SIWP
34218 – 66th Street
Kenosha, WI



LEGEND

- SOIL BORING LOCATION SINGH 1992-1994
- SOIL BORING & MONITORING WELL LOCATION SINGH 1992-1997
- SOIL BORING LOCATION PEP 2002
- SOIL BORING & TEMPORARY WELL LOCATION PEP 2002
- SOIL BORING & GROUNDWATER SAMPLING LOCATION MEC 2017 & 2018
- PROPOSED SOIL BORING & GROUNDWATER SAMPLING LOCATION MEC 2019

0' 30'

TABLES

TABLE 1 (Page 1 of 1)
Heimes PEP Environmental Phase II Soil Sample Analytical Results Summary
Heimes Garage
PEP Environmental - December 2002

Sampling Location	B-1	B-2	B-3	B-4	B-5	B-6		NR 720 RCLs	
Sample Depth (ft-bls)	4-6	4-6	4-6	4-6	4-6	6-8			
Saturation Depth (ft-bls)	6	6	6	6	6	6			
Saturated/Unsaturated	Unsat	Unsat	Unsat	Unsat	Unsat	Sat			
Collection Date	12/9/02	12/9/02	12/9/02	12/9/02	12/9/02	12/9/02	Industrial Direct Contact	Non-Industrial Direct Contact	Groundwater Protection
Parameter									
VOCs (mg/kg)							mg/kg	mg/kg	mg/kg
Benzene	<0.025	*3.060*	<0.025	<0.025	*0.0596*	7.130	7.07	1.6	0.0051
Ethylbenzene	1.020	*6.510*	*4.170*	<0.025	0.368	89.200	35.4	8.02	1.57
Naphthalene	*3.920*	*73.600*	*6.060*	0.0397	*2.280*	57.100	24.1	5.52	0.6582
Toluene	0.374	*2.880*	*2.330*	<0.025	0.085	6.730	818	818	1.1072
1,2,4-Trimethylbenzene	*1.690*	*14.500*	*1.910*	<0.025	0.456	191.000	219	219	1.3787 (1)
1,3,5-Trimethylbenzene	*3.650*	*4.410*	*5.000*	<0.025	0.806	63.700	182	182	1.3787 (1)
Xylenes	2.020	*14.100*	2.460	0.0423	1.780	375.000	260	260	3.96
GRO/DRO (mg/kg)							mg/kg	mg/kg	mg/kg
GRO	426	2250	651	<6.14	113	4250	NS	NS	NS
DRO	46.9	7080	46.8	<6.14	106	2660	NS	NS	NS

Notes:

Table includes detected analytes only.

Italicized Type indicates a contaminant concentration above the groundwater protection RCL, which may result in exceedance of groundwater quality standards.

Bold Type indicates contaminant a concentration exceeding the industrial direct contact exposure RCL in the upper four feet of the subsurface, which may pose a risk to human health through direct contact exposure. The property is zoned M-2 Heavy Manufacturing.

(1) The groundwater protection RCL applies to combined trimethylbenzenes.

RCL = Residual Contaminant Level

VOCs = Volatile Organic Compounds

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

NA = Not Analyzed

NS = No Standard

TABLE 2 (Page 1 of 1)
Heimes PEP Environmental Phase II Groundwater Sample Analytical Results Summary
Heimes Garage
PEP Environmental - December 2002

Sampling Location Collection Date	B-1 (WB-1) 12/9/02	B-5 (WB-5) 12/9/02	B-6 (WB-6) 12/9/02	Groundwater Quality Standards Enforcement Standards	 Preventive Action Limits
Parameter **PVOCs, Napthalene (ug/l)**				ug/l	ug/l
Benzene	<0.50	<0.50	**184**	5	0.5
Ethylbenzene	<0.50	4.22	**2,340**	700	140
Methyl-tert-butyl-ether	5.02	1.11	**325**	60	12
Naphthalene	<2	*50.4*	**891**	100	10
Toluene	<0.50	1.47	**839**	800	160
1,2,4-Trimethylbenzene	<1	6.84	**2,620**	480 (1)	96 (1)
1,3,5-Trimethylbenzene	<1	4.73	**901**	480 (1)	96 (1)
Xylenes	1.02	10.50	**9,760**	2,000	400
GRO (ug/l)				ug/l	ug/l
GRO	<50	1,180	27,600	NS	NS

Notes:
Table includes detected analytes only.
Italicized Type indicates a contaminant concentration exceeding the preventive action limit.
Bold Type indicates contaminant a concentration exceeding the enforcement standard
(1) The groundwater quality standards apply to combined trimethylbenzenes.
PVOCs = Petroleum Volatile Organic Compounds
GRO = Gasoline Range Organics
NS = No Standard

TABLE 3 (Page 1 of 1)
Industrial Pumping Investigative Soil Sample Analytical Results Summary
Locations Adjacent to Heimes Site
K. Singh & Associates 1992

Sampling Location	B-2	B-3	B-4	B-4	B-8		NR 720 RCLs	
Sample Depth (ft-bls)	6-7.5	6-7.5	3.5-5	8.5-10	3.5-5			
Saturation Depth (ft-bls)	6	6	6	6	6			
Saturated/Unsaturated	Sat	Sat	Unsat	Sat	Unsat			
Collection Date	6/17/92	6/17/92	6/17/92	6/17/92	6/17/92	Industrial Direct Contact	Non-Industrial Direct Contact	Groundwater Protection
Parameter								
VOCs (mg/kg)						mg/kg	mg/kg	mg/kg
Benzene	<0.058	0.890	<0.050	NA	<0.050	7.07	1.6	0.0051
n-Butylbenzene	NA	NA	NA	NA	NA	108	108	NS
Chlorobenzene	NA	NA	NA	NA	NA	761	370	0.1358
Ethylbenzene	<0.058	0.760	0.100	NA	0.980	35.4	8.02	1.57
Methyl-tert-butyl-ether	<0.058	1.000	<0.050	NA	<0.050	282	63.8	0.027
Isopropylbenzene	NA	NA	NA	NA	NA	268	268	NS
Naphthalene	NA	NA	NA	NA	NA	24.1	5.52	0.6582
Toluene	0.100	4.400	<0.050	NA	<0.050	818	818	1.1072
1,2,4-Trimethylbenzene	0.079	1.400	*1.900*	NA	*4.300*	219	219	1.3787
1,3,5-Trimethylbenzene	<0.058	0.790	*0.800*	NA	*3.400*	182	182	1.3787
Xylenes	0.130	5.300	0.130	NA	1.100	260	260	3.96
GRO/DRO (mg/kg)						mg/kg	mg/kg	mg/kg
GRO	7.6	65	66	NA	250	NS	NS	NS
DRO	90	23	970	26	1100	NS	NS	NS
PAHs (ug/kg)						ug/kg	ug/kg	ug/kg
Naphthalene	NA	NA	NA	NA	NA	24.1	5.52	0.6582
PCBs (mg/kg)						mg/kg	mg/kg	mg/kg
PCBs	NA	NA	NA	NA	NA	NS (2)	NS (2)	NS (2)
RCRA Metals (mg/kg)						mg/kg	mg/kg	mg/kg	mg/kg
Arsenic	NA	NA	NA	NA	NA	3	0.677	0.584	8
Barium	NA	NA	NA	NA	NA	100,000	15,300	164.8	364
Chromium	NA	NA	NA	NA	NA	100,000	100,000	360,000	44
Lead	10	4.5	5.3	NA	4.7	800	400	27	52
Selenium	NA	NA	NA	NA	NA	5,840	391	0.52	NA

Notes:

Table includes detected analytes only.

Italicized Type indicates a contaminant concentration above the groundwater protection RCL, which may result in exceedance of groundwater quality standards.

Bold Type indicates contaminant a concentration exceeding the industrial direct contact exposure RCL in the upper four feet of the subsurface, which may pose a risk to human health through direct contact exposure. The property is zoned M-2 Heavy Manufacturing.

(1) The groundwater protection RCL applies to combined trimethylbenzenes.

(2) RCLs apply to individual PCB compounds

RCL = Residual Contaminant Level

VOCs = Volatile Organic Compounds

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

PCBs = Polychlorinated Biphenyls

PAHs = Polynuclear Organic Hydrocarbons

RCRA = Resource Conservation and Recovery Act

NA = Not Analyzed

NS = No Standard

TABLE 4 (Page 1 of 1)
Industrial Pumping Investigative Soil Sample Analytical Results Summary
Locations on Heimes Site
K. Singh & Associates 1992 - 1994

Sampling Location	B-11	B-13	B-14	B-14	B-18			
Sample Depth (ft-bls)	8.5-10	8.5-10	6-7	8.5-10	8.5-10			
Saturation Depth (ft-bls)	6	6	6	6	6			
Saturated/Unsaturated	Sat	Sat	Sat	Sat	Sat			
Collection Date	10/29/92	7/22/94	7/22/94	7/22/94	7/25/94	Industrial Direct Contact	NR 720 RCLs Non-Industrial Direct Contact	Groundwater Protection
Parameter								
VOCs (mg/kg)						mg/kg	mg/kg	mg/kg
Benzene	NA	0.91	<0.50	<1.1	<0.10	7.07	1.6	0.0051
n-Butylbenzene	NA	<0.20	0.98	<1.1	0.24	108	108	NS
Chlorobenzene	NA	<0.20	0.75	<1.1	0.21	761	370	0.1358
Ethylbenzene	NA	1.4	<0.50	<1.1	<0.025	35.4	8.02	1.57
Isopropylbenzene	NA	<0.20	<0.50	<1.1	0.82	268	268	NS
Naphthalene	NA	<0.20	0.94	<1.1	0.22	24.1	5.52	0.6582
Toluene	NA	0.48	<0.50	<1.1	0.12	818	818	1.1072
1,2,4-Trimethylbenzene	NA	0.57	4.2	4.1	0.19	219	219	1.3787
1,3,5-Trimethylbenzene	NA	0.20	1.2	2.1	<0.10	182	182	1.3787
Xylenes	NA	1.8	3.3	5.4	0.32	260	260	3.96
GRO/DRO (mg/kg)						mg/kg	mg/kg	mg/kg
GRO	NA	21	80	120	5.7	NS	NS	NS
DRO	0.75	<5.0	12	8.1	<5.0	NS	NS	NS
PAHs (ug/kg)						ug/kg	ug/kg	ug/kg
Naphthalene	NA	<40	0.130	<40	<40	24.1	5.52	0.6582
PCBs (mg/kg)						mg/kg	mg/kg	mg/kg
PCBs	NA	ND	ND	ND	ND	NS (2)	NS (2)	NS (2)
RCRA Metals (mg/kg)						mg/kg	mg/kg	mg/kg	mg/kg
Arsenic	NA	6.6	2.4	5.4	2.6	3	0.677	0.584	8
Barium	NA	31	24	44	23	100,000	15,300	164.8	364
Chromium	NA	4.4	5.5	9.9	7.0	100,000	100,000	360,000	44
Lead	NA	8.0	7.6	7.0	7.6	800	400	27	52
Selenium	NA	0.58	0.67	0.69	0.62	5,840	391	0.52	NA

Notes:

Table includes detected analytes only.

Italicized Type indicates a contaminant concentration above the groundwater protection RCL, which may result in exceedance of groundwater quality standards.

Bold Type indicates contaminant a concentration exceeding the industrial direct contact exposure RCL in the upper four feet of the subsurface, which may pose a risk to human health through direct contact exposure. The property is zoned M-2 Heavy Manufacturing.

(1) The groundwater protection RCL applies to combined trimethylbenzenes.

(2) RCLs apply to individual PCB compounds

RCL = Residual Contaminant Level

VOCs = Volatile Organic Compounds

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

PCBs = Polychlorinated Biphenyls

PAHs = Polynuclear Organic Hydrocarbons

RCRA = Resource Conservation and Recovery Act

NA = Not Analyzed

NS = No Standard

TABLE 5 (Page 1 of 1)
Industrial Pumping Investigative Groundwater Sample Analytical Results Summary
Location MW-7 on Heimes Site
K. Singh & Associates July 1992 through February 1997

Sampling Location	MW-7							Groundwater Quality Standards	
Collection Date	7/1/92	7/26/94	8/2/95	1/25/96	5/24/96	10/2/96	2/19/97	Enforcement Standards	Preventive Action Limits
Parameter									
VOCs (ug/l)								ug/l	ug/
Benzene	<0.04	**20**	**19**	*4.3*	*4.4*	*1.1*	*2.0*	5	0.5
n-Butylbenzene	<0.20	1.1	NA	NA	NA	NA	NA	NS	NS
Ethylbenzene	0.2	<1.0	<0.50	<1.0	<0.50	<0.50	0.75	700	140
Isopropylbenzene	<0.20	1.5	NA	NA	NA	NA	NA	NS	NS
Methyl-tert-butyl-ether	<0.02	2.6	<5.0	2.3	*44*	*40*	*19*	60	12
Naphthalene	<0.02	<1.0	NA	NA	NA	NA	NA	100	10
Toluene	1.2	<1.0	<0.50	<1.0	<0.50	<0.50	<0.50	800	160
1,2,4-Trimethylbenzene	<0.2	6.4	<1.0	<1.0	1.1	<1.0	2.8	480 (1)	96 (1)
1,3,5-Trimethylbenzene	<0.2	2.0	<1.0	<1.0	<1.0	<1.0	<1.0	480 (1)	96 (1)
Xylenes	<0.4	5.0	<0.50	<3.0	1.6	<0.50	11	2,000	400
GRO/DRO (ug/l)								ug/l	ug/
GRO	<0.1	160	69	<50	<50	84	150	NS	NS
DRO	<0.1	0.14	<100	340	<100	NA	NA	NS	NS
PAHs (ug/l)								ug/l	ug/
PAHs	ND	ND	ND	NA	NA	NA	NA	NS (2)	NS (2)
PCBs (ug/l)								ug/l	ug/
PCBs	ND	ND	NA	NA	NA	NA	NA	NS (2)	NS (2)
Dissolved RCRA Metals (ug/l)								ug/l	ug/
Arsenic	NA	3.1	NA	NA	NA	NA	NA	1	10
Cadmium	4	<0.5	<0.5	NA	NA	NA	NA	0.5	5

Notes:
Table includes detected analytes only.
Italicized Type indicates a contaminant concentration exceeding the preventive action limit.
Bold Type indicates contaminant a concentration exceeding the enforcement standard
(1) The groundwater quality standards apply to combined trimethylbenzenes.
(2) The groundwater quality standards apply to individual compounds
VOCs = Volatile Organic Compounds
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
PAHs = Polynuclear Aromatic Hydrocarbons
PCBs = Polychlorinated Biphenyls
RCRA = Resource Conservation and Recovery Act
NS = No Standard
NA = Not Analyzed

TABLE 6 (Page 1 of 3)
Industrial Pumping Excavation Soil Sample analytical Results Summary
On & Adjacent to Heimes Site
K. Singh - March 1995

Sampling Location	A-3B	A-3W	B-3B	B-3W	C-3B		NR 720 RCLs	
Sample Depth (ft-bls)	9.5	5.5	10.0	5.0	8.0			
Saturation Depth (ft-bls)	6	6	6	6	6			
Saturated/Unsaturated	Sat	Unsat	Sat	Unsat	Sat			
Collection Date	3/15/95	3/17/95	3/14/95	3/17/95	3/9/95	Industrial Direct Contact	Non-Industrial Direct Contact	Groundwater Protection
Parameter								
VOCs (mg/kg)						mg/kg	mg/kg	mg/kg
Benzene	<0.005	<0.0083	<0.005	<0.0055	<0.005	7.07	1.6	0.0051
Ethylbenzene	<0.005	<0.029	<0.005	0.150	<0.005	35.4	8.02	1.57
Methyl-tert-butyl-ether	<0.005	<0.029	<0.005	<0.025	<0.005	282	63.8	0.027
Toluene	<0.005	<0.029	<0.005	0.074	<0.005	818	818	1.1072
1,2,4-Trimethylbenzene	<0.005	<0.029	<0.005	0.160	<0.005	219	219	1.3787 (1)
1,3,5-Trimethylbenzene	<0.005	<0.029	<0.005	0.044	<0.005	182	182	1.3787 (1)
Xylenes	<0.015	<0.040	<0.015	0.380	<0.015	260	260	3.96
1,2-Dichloroethane	NA	<0.015	NA	NA	NA	2.87	0.652	0.0028
GRO/DRO (mg/kg)						mg/kg	mg/kg	mg/kg
GRO	NA	9.4	NA	NA	<5.0	NS	NS	NS
DRO	38	162	6.2	42	<5.0	NS	NS	NS
PAHs (ug/kg)						ug/kg	ug/kg	ug/kg
Naphthalene	ND	NA	NA	NA	NA	NS	NS	NS
PCBs (mg/kg)						mg/kg	mg/kg	mg/kg
PCBs	NA	NA	NA	NA	NA	NS (2)	NS (2)	NS (2)
RCRA Metals (mg/kg)						mg/kg	mg/kg	mg/kg	mg/kg
Arsenic	NA	NA	NA	NA	NA	3	0.677	0.584	8
Barium	NA	NA	NA	NA	NA	100,000	15,300	164.8	364
Chromium	NA	NA	NA	NA	NA	100,000	100,000	360,000	44
Lead	NA	7.6	NA	NA	7.7	800	400	27	52
Selenium	NA	NA	NA	NA	NA	5,840	391	0.52	NA

Notes:
Table includes detected analytes only.
Italicized Type indicates a contaminant concentration above the groundwater protection RCL, which may result in exceedance of groundwater quality standards.
Bold Type indicates contaminant a concentration exceeding the industrial direct contact exposure RCL in the upper four feet of the subsurface, which may pose a risk to human health through direct contact exposure. The property is zoned M-2 Heavy Manufacturing.
(1) The groundwater protection RCL applies to combined trimethylbenzenes.
RCL = Residual Contaminant Level
VOCs = Volatile Organic Compounds
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
NA = Not Analyzed
NS = No Standard

TABLE 6 (Page 2 of 3)
Industrial Pumping Excavation Soil Sample Analytical Results Summary
On & Adjacent to Heimes Site
K. Singh - March 1995

Sampling Location	C-3W	D-3B	D-3W	E-3B	E-3W		NR 720 RCLs	
Sample Depth (ft-bls)	5.0	8.0	5.0	8.0	5.0			
Saturation Depth (ft-bls)	6	6	6	6	6			
Saturated/Unsaturated	Unsat	Sat	Unsat	Sat	Unsat			
Collection Date	3/17/95	3/9/95	3/9/95	3/8/95	3/8/95	Industrial Direct Contact	Non-Industrial Direct Contact	Groundwater Protection
Parameter								
VOCs (mg/kg)						mg/kg	mg/kg	mg/kg
Benzene	<0.0085	<0.005	<0.005	0.890	<0.005	7.07	1.6	0.0051
Ethylbenzene	<0.030	<0.005	<0.005	<0.005	<0.005	35.4	8.02	1.57
Methyl-tert-butyl-ether	<0.030	<0.005	<0.005	<0.005	<0.005	282	63.8	0.027
Toluene	<0.030	<0.005	<0.005	<0.005	<0.005	818	818	1.1072
1,2,4-Trimethylbenzene	<0.030	<0.005	<0.005	<0.005	<0.005	219	219	1.3787 (1)
1,3,5-Trimethylbenzene	<0.030	<0.005	<0.005	<0.005	<0.005	182	182	1.3787 (1)
Xylenes	0.380	<0.015	<0.015	<0.015	<0.015	260	260	3.96
1,2-Dichloroethane	NA	NA	<0.005	23	NA	2.87	0.652	0.0028
GRO/DRO (mg/kg)						mg/kg	mg/kg	mg/kg
GRO	<5.9	NA	<5.0	<5.0	NA	NS	NS	NS
DRO	21	22	<5.0	<5.0	<5.0	NS	NS	NS
PAHs (ug/kg)						ug/kg	ug/kg	ug/kg
Naphthalene	NA	NA	NA	ND	NA	NS	NS	NS
PCBs (mg/kg)						mg/kg	mg/kg	mg/kg
PCBs	NA	NA	NA	NA	NA	NS (2)	NS (2)	NS (2)
RCRA Metals (mg/kg)						mg/kg	mg/kg	mg/kg	mg/kg
Arsenic	NA	NA	NA	NA	NA	3	0.677	0.584	8
Barium	NA	NA	NA	NA	NA	100,000	15,300	164.8	364
Chromium	NA	NA	NA	NA	NA	100,000	100,000	360,000	44
Lead	10	NA	7.8	8.6	NA	800	400	27	52
Selenium	NA	NA	NA	NA	NA	5,840	391	0.52	NA

Notes:
Table includes detected analytes only.
Italicized Type indicates a contaminant concentration above the groundwater protection RCL, which may result in exceedance of groundwater quality standards.
Bold Type indicates contaminant a concentration exceeding the industrial direct contact exposure RCL in the upper four feet of the subsurface, which may pose a risk to human health through direct contact exposure. The property is zoned M-2 Heavy Manufacturing.
(1) The groundwater protection RCL applies to combined trimethylbenzenes.
RCL = Residual Contaminant Level
VOCs = Volatile Organic Compounds
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
NA = Not Analyzed
NS = No Standard

TABLE 6 (Page 3 of 3)
Industrial Pumping Excavation Soil Sample Analytical Results Summary
On & Adjacent to Heimes Site
K. Singh - March 1995

Sampling Location	F-2W	F-3B	F-3W	G-2W	G-3B			
Sample Depth (ft-bls)	5.0	9.0	5.0	4.0	9.0			
Saturation Depth (ft-bls)	6	6	6	6	6			
Saturated/Unsaturated	Unsat	Sat	Unsat	Unsat	Sat			
Collection Date	3/16/95	3/15/95	3/17/95	3/15/95	3/15/95	Industrial Direct Contact	NR 720 RCLs Non-Industrial Direct Contact	Groundwater Protection
Parameter								
VOCs (mg/kg)						mg/kg	mg/kg	mg/kg
Benzene	<0.005	<0.005	<0.0095	<0.005	<0.005	7.07	1.6	0.0051
Ethylbenzene	0.150	<0.005	<0.025	<0.005	<0.005	35.4	8.02	1.57
Methyl-tert-butyl-ether	<0.015	<0.005	<0.025	<0.005	<0.005	282	63.8	0.027
Toluene	<0.015	<0.005	<0.025	<0.005	<0.005	818	818	1.1072
1,2,4-Trimethylbenzene	0.096	<0.005	<0.025	<0.005	<0.005	219	219	1.3787 (1)
1,3,5-Trimethylbenzene	0.500	<0.005	<0.025	<0.005	<0.005	182	182	1.3787 (1)
Xylenes	<0.045	<0.015	<0.035	<0.015	<0.015	260	260	3.96
1,2-Dichloroethane	<0.005	NA	<0.013	NA	<0.005	2.87	0.652	0.0028
GRO/DRO (mg/kg)						mg/kg	mg/kg	mg/kg
GRO	150	NA	<6.6	NA	<5.0	NS	NS	NS
DRO	120	10	47	5.8	10	NS	NS	NS
PAHs (ug/kg)						ug/kg	ug/kg	ug/kg
Naphthalene	NA	NA	NA	NA	NA	NS	NS	NS
PCBs (mg/kg)						mg/kg	mg/kg	mg/kg
PCBs	NA	NA	NA	NA	NA	NS (2)	NS (2)	NS (2)
RCRA Metals (mg/kg)						mg/kg	mg/kg	mg/kg	mg/kg
Arsenic	NA	NA	NA	NA	NA	3	0.677	0.584	8
Barium	NA	NA	NA	NA	NA	100,000	15,300	164.8	364
Chromium	NA	NA	NA	NA	NA	100,000	100,000	360,000	44
Lead	12	NA	13	NA	6.3	800	400	27	52
Selenium	NA	NA	NA	NA	NA	5,840	391	0.52	NA

Notes:
Table includes detected analytes only.
Italicized Type indicates a contaminant concentration above the groundwater protection RCL, which may result in exceedance of groundwater quality standards.
Bold Type indicates contaminant a concentration exceeding the industrial direct contact exposure RCL in the upper four feet of the subsurface, which may pose a risk to human health through direct contact exposure. The property is zoned M-2 Heavy Manufacturing.
(1) The groundwater protection RCL applies to combined trimethylbenzenes.
RCL = Residual Contaminant Level
VOCs = Volatile Organic Compounds
GRO = Gasoline Range Organics
DRO = Diesel Range Organics
NA = Not Analyzed
NS = No Standard

Table 7 (Page 1 of 1)
Yutka Storage Investigative Soil Sample Analytical Results Summary
66th Street Right-of-Way
MEC 2017

Parameters	SAMPLE DATA				RESIDUAL CONTAMINANT LEVELS		
	MEC Site Investigation						
	HP-1 (4.5'-5')	HP-2 (4.5'-5')	HP-3 (4'-4.5')	HP-4 (5'-5.5')	NTE I DC	NTE NI DC	GWP
	12/22/17	12/22/17	12/22/17	12/22/17			
Saturation Depth (ft/bls)	6.75	6.5	6.0	6.0			
Saturated / Unsaturated	Unsat	Unsat	Unsat	Unsat			
Soil / Material Type	Clay	Clay	Clay	Clay			
PID FIELD SCREENING (ppm)	0	0	0	0			
PAHs (mg/kg)					mg/kg	mg/kg	mg/kg
Acenaphthene	0.0057	<0.0048	<0.0055	<0.0052	45,200	3,590	NS
Anthracene	0.0109	<0.0070	<0.0080	<0.0077	100,000	17,900	196.9492
Benzo(a)anthracene	0.0156	<0.0039	<0.0045	<0.0042	20.8	1.14	NS
Benzo(a)pyrene	0.0131	<0.0031	<0.0035	<0.0034	2.110	0.115	0.47
Benzo(b)fluoranthene	0.0170	<0.0035	<0.0040	<0.0038	21.1	1.15	0.4781
Benzo(g,h,i)perylene	0.0133	<0.0025	<0.0029	<0.0027	NS	NS	NS
Benzo(k)fluoranthene	0.0131	<0.0031	<0.0035	<0.0034	211	11.5	NS
Chrysene	0.0243	<0.0041	<0.0047	<0.0045	2,110	115	0.1442
Dibenz(a,h)anthracene	0.0035	<0.0027	<0.0031	<0.0030	2.11	0.115	NS
Fluoranthene	0.0272	<0.0064	<0.0073	<0.0070	30,100	2,390	88.8778
Fluorene	0.0200	<0.0051	<0.0058	<0.0055	30,100	2,390	14.8299
Indeno(1,2,3-cd)pyrene	0.0091	<0.0027	<0.0031	<0.0029	21.1	1.15	NS
1-Methylnaphthalene	0.0714	<0.0049	<0.0057	<0.0054	72.7	17.6	NS
2-Methylnaphthalene	0.119	0.0064	<0.0070	<0.0067	3,010	239	NS
Naphthalene	0.0539	<0.0103	<0.0118	<0.0113	24.1	5.52	0.6582
Phenanthrene	0.0617	<0.0143	<0.0164	<0.0156	NS	NS	NS
Pyrene	0.0286	<0.0055	<0.0063	<0.0060	22,600	1,790	54.5455
VOCs / PVOCs (mg/kg)					mg/kg	mg/kg	mg/kg
Benzene	<0.025	<0.025	<0.025	<0.025	7.07	1.6	0.0051
Ethylbenzene	<0.025	<0.025	<0.025	<0.025	35.4	8.02	1.57
Naphthalene	<0.040	<0.040	<0.040	<0.040	26	5.15	0.6582
Tetrachloroethene	*0.0441* ▼	<0.025	<0.025	<0.025	145	33	0.0045
Toluene	<0.025	<0.025	<0.025	<0.025	818	818	1.1072
Trichloroethene	<0.025	<0.025	<0.025	<0.025	8.81	1.26	0.0036
GRO / DRO mg/kg							
GRO	NA	NA	NA	NA	NS	NS	NS
DRO	NA	NA	NA	NA	NS	NS	NS

Notes:

Table includes detected analytes only, which are right justified in the columns.
depth interval between 1 and 3 feet below land surface (bls).

- **Bold type** indicates concentration within the upper 4 feet of the subsurface exceeds the non-industrial direct contact RCL and, if applicable, the background level, thus constituting a soil standard exceedance.

▼ *Italic type* indicates a concentration exceeds the groundwater protection RCL and, if applicable the background level, thus constituting a soil standard exceedance.

PID - Photoionization Detector
NTE I DC - Not To Exceed Industrial Direct Contact
NTE NI DC - Not To Exceed Non-Industrial Direct Contact
GWP - Groundwater Protection
PAHs - Polynuclear Aromatic Hydrocarbons
VOCs / PVOCs - Volatile Organic Compounds / Petroleum Volatile Organic Compounds
GRO - Gasoline Range Organics
DRO - Diesel Range Organics
NS - No Standard
NA - Not Analyzed

Table 8 (Page 1 of 2)
Yutka Storage Investigative Groundwater Sample Analytical Results Summary
66th Street Right-of-Way
MEC 2017 - 2018

Parameters	Sample ID, Collection Date, Results				Groundwater Quality Standards	
	HP-1W 12/22/17	HP-2W 12/22/17	HP-3W 12/22/17	HP-4W 12/22/17	PAL	ES
VOCs / PVOCs (ug/l)					ug/l	ug/l
Benzene	<0.50	<0.50	<0.50	<0.50	0.5	5
Chloromethane	<0.50	<0.50	<0.50	<0.50	3	30
cis-1,2-Dichloroethene	1.2	<0.26	<0.26	<0.26	7	70
trans-1,2-Dichloroethene	0.49	<0.26	<0.26	<0.26	20	100
Ethylbenzene	<0.50	<0.50	<0.50	<0.50	140	700
Isopropylbenzene (Cumene)	<0.14	<0.14	<0.14	<0.14	NS	NS
p-Isopropyltoluene	<0.50	<0.50	<0.50	<0.50	NS	NS
Methyl-tert-butyl-ether	<0.17	0.71	5.7	<0.17	12	60
Naphthalene	<2.5	<2.5	<2.5	<2.5	10	100
n-Propylbenzene	<0.50	<0.50	<0.50	<0.50	NS	NS
Toluene	<0.50	<0.50	<0.50	<0.50	160	800
1,2,4-Trimethylbenzene	<2.2	<2.2	<2.2	<2.2	96 (1)	480 (1)
1,3,5-Trimethylbenzene	<0.50	<0.50	<0.50	<0.50	96 (1)	480 (1)
Trichloroethene	<0.33	<0.33	<0.33	<0.33	0.5	5
Vinyl Chloride	<0.18	<0.18	**1.4** ▼	<0.18	0.02	0.2
Xylenes	<1.5	<1.5	<1.5	<1.5	400	2000

Notes:

Table includes detected analytes only, which are right justified in the columns.

- *Italic type* indicates concentration exceeds PAL.

▼ **Bold type** indicates concentration exceeds ES.

VOCs - Volatile Organic Compounds
PVOCs - Petroleum Volatile Organic Compounds
PAL - NR 140 Preventive Action Limit
ES - NR 140 Enforcement Standard
NS - No Standard

Table 8 (Page 2 of 2)
Yutka Storage Investigative Groundwater Sample Analytical Results Summary
66th Street Right-of-Way
MEC 2017 - 2018

Parameters					Groundwater Quality Standards	
	HP-1WR	HP-2WR	HP-3WR	HP-4WR	PAL	ES
	1/19/18	1/19/18	1/19/18	1/19/18		
VOCs / PVOCs (ug/l)					ug/l	ug/l
Benzene	<0.50	<0.50	<0.50	<0.50	0.5	5
Chloroethane	<0.37	<0.37	<0.37	0.85	80	400
Chloromethane	1.0	<0.50	1.6	1.5	3	30
cis-1,2-Dichloroethene	1.2	0.33	<0.26	<0.26	7	70
trans-1,2-Dichloroethene	0.31	<0.26	<0.26	<0.26	20	100
Ethylbenzene	<0.50	<0.50	<0.50	<0.50	140	700
Isopropylbenzene (Cumene)	<0.14	<0.14	<0.14	<0.14	NS	NS
p-Isopropyltoluene	<0.50	<0.50	<0.50	<0.50	NS	NS
Methyl-tert-butyl-ether	<0.17	0.80	5.6	0.28	12	60
Naphthalene	<2.5	<2.5	<2.5	<2.5	10	100
n-Propylbenzene	<0.50	<0.50	<0.50	<0.50	NS	NS
Toluene	<0.50	<0.50	<0.50	<0.50	160	800
1,2,4-Trimethylbenzene	<2.2	<2.2	<2.2	<2.2	96 (1)	480 (1)
1,3,5-Trimethylbenzene	<0.50	<0.50	<0.50	<0.50	96 (1)	480 (1)
Trichloroethene	<0.33	<0.33	<0.33	<0.33	0.5	5
Vinyl Chloride	<0.18	<0.18	**4.2** ▼	**0.60** ▼	0.02	0.2
Xylenes	<1.5	<1.5	<1.5	<1.5	400	2000

Notes:

Table includes detected analytes only, which are right justified in the columns.

- *Italic type* indicates concentration exceeds PAL.

▼ **Bold type** indicates concentration exceeds ES.

VOCs - Volatile Organic Compounds
PVOCs - Petroleum Volatile Organic Compounds
PAL - NR 140 Preventive Action Limit
ES - NR 140 Enforcement Standard
NS - No Standard

APPENDIX A
Selected Aerial Photographs

1937

KENOSHA COUNTY
INTERACTIVE MAPPING

N
S

1 inch = 40 feet
Date Printed: 3/12/2017

1963

KENOSHA COUNTY
INTERACTIVE MAPPING

N
S

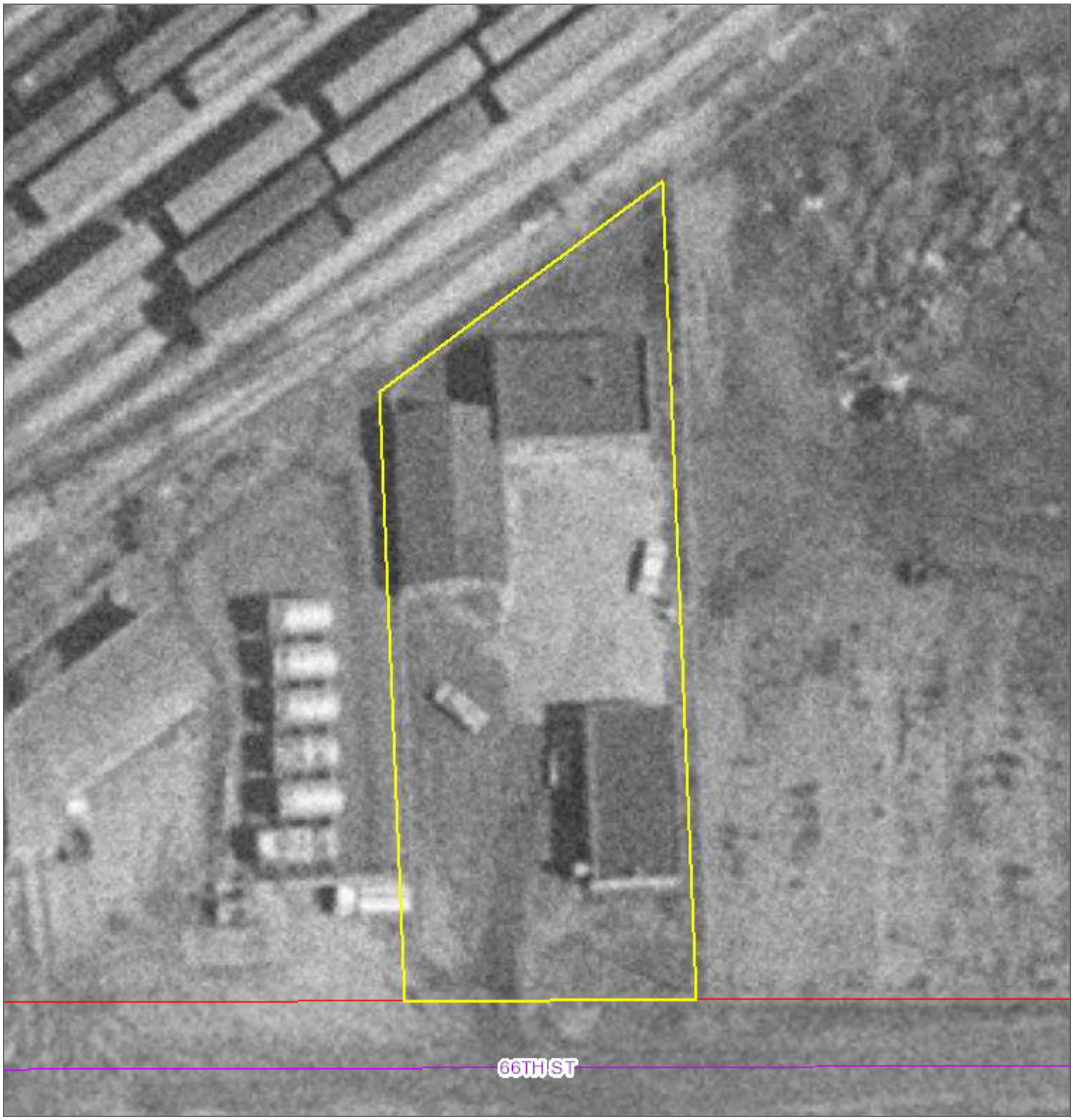
1 inch = 40 feet
Date Printed: 8/19/2019

1975

KENOSHA COUNTY
INTERACTIVE MAPPING

N
S

1 inch = 40 feet
Date Printed: 3/12/2017



1995

KENOSHA COUNTY
INTERACTIVE MAPPING

N
S

1 inch = 40 feet
Date Printed: 8/19/2019

2015

KENOSHA COUNTY
INTERACTIVE MAPPING

N
S

1 inch = 40 feet
Date Printed: 3/12/2017

APPENDIX B
Industrial Pumping Logs for Soil Borings Advanced on Heimes Garage Site

LOG OF TEST BORING

Project Industrial Pumping, Inc

Location 3502 66th Street, Kenosha, WI

Soil Testing Firm Wisconsin Testing Laboratories, Menomonee Falls, WI

Boring No. B-11

Surface Elevation

Project No 3000

Sheet 1 of 1

SAMPLE						VISUAL CLASSIFICATION AND REMARKS	SOIL PROPERTIES				
RECOVERY			MOISTURE				HNU (ppm.)	TRPH (ppb)	GRO (ppm.)	DRO (ppm.)	LEAD (ppm.)
No	Type	↓	↓	N	Depth						
1	SS	9"	M	9	2.5	FILL-mixture of sand, gravel and silt, black, moist, organics noted	BK				
2	SS	12"	M	5	5.0	4.0' SILTY CLAY(CL)-medium ,brown, moist	BK				
3	SS	9"	M	5	7.5	6.5' SILTY CLAY(CL)-medium, grey, moist, fine grained sand noted	BK				
4	SS	12"	M	17	10.0	8.0' SILTY SAND(SM)-medium dense, grey, moist, medium to coarse grained sand 10.0'	4		–	0.75	–
						End of boring @ 10.0'					

WATER LEVEL OBSERVATIONS

While Drilling Dry upon completion

Depth to Water

GENERAL NOTES

Start 10/29/92 Complete 10/29/92

Crew Chief Kevin Rig CME-55

Drilling Method 3 1/4 HSA, ASTM, D1452 &D1586

K. SINGH & ASSOCIATES, INC.

LOG OF TEST BORING

Project Industrial Pumping, Inc.

Location 3502 S. 66th Street, Kenosha, WI

Soil Testing Firm Moraine Stellar , Inc.

Boring No. B-13

Surface Elevation 632.21'

Project No 3000

Sheet 1 of 1

SAMPLE						VISUAL CLASSIFICATION AND REMARKS	SOIL PROPERTIES			
RECOVERY			MOISTURE				HNU	BETX	TPH (GRO)	Lead
No	Type			N	Depth		(ppm)	(ppm)	(ppm)	(ppm)
1	SS	20"	D	6	2.5	Fill- Mixture of sand, silt, and gravel, black	BK			
2	SS	6"	M	4	5.0	4.0'	BK			
3	SS	6"	M	3	7.5	SILTY CLAY (CL) -loose, dark brown, trace sand-some 1/4" diam. pieces of material (probably foundry slag) noted	BK			
4	SS	12"	W	11	10.0	9.0'	BK	4.59	21	8
5	SS	20"	W	11	12.5	SILTY SAND (SM) - Medium dense, light brown, fine to coase grained	BK			
6	SS	20"	W	15	15.0		BK			
						E.O.B. 15.0'				
						Borehole abandoned in accordance with NR 141				

WATER LEVEL OBSERVATIONS

While Drilling 9.0

Depth to Water

GENERAL NOTES

Start 7/22/94 Complete 7/22/94

Crew Chief Steve Azarian Rig SIMCO

Drilling Method HSA, ASTM, D1452 & D1586

K. SINGH & ASSOCIATES, INC.

LOG OF TEST BORING

Project Industrial Pumping

Location 3502 66th Street, Kenosha, WI

Soil Testing Firm Moraine Stellar, Inc.

Boring No. B-14/ MW -7

Surface Elevation 632.18'

Project No 3000

Sheet 1 of 1

SAMPLE						VISUAL CLASSIFICATION AND REMARKS	SOIL PROPERTIES			
RECOVERY			MOISTURE				HNU	BETX	TPH (GRO)	Lead
No	Type			N	Depth		(ppm)	(ppm)	(ppm)	(ppm)
1	SS	16"	D	8	2.5	FILL- Sand,coarse grained top 4" sand and gravel	BK			
2	SS	6"	D	6	5.0	5.0'	BK			
3	SS		M	4	7.5	SILTY SAND (SM) - Very loose, yellowish brown, Petroleum odor noted	15	3.3	80	7.6
4	SS		W	10	10.0	9.0'	BK	5.4	120	7
5	SS		W	9	12.5	SAND (SP) - Loose to medium dense, Brown, medium to coarse grained.	BK			
6	SS		W	9	15.0		BK			
						E.O.B. 15.0'				

WATER LEVEL OBSERVATIONS

While Drilling 9.0'

Depth to Water

GENERAL NOTES

Start 7/22/94 Complete 7/22/94

Crew Chief Steve Azarian Rig SIMCO

Drilling Method HSA, ASTM, D1452 & D1586

K. SINGH & ASSOCIATES, INC.

LOG OF TEST BORING

Project Industrial Pumping

Location 3502 S. 66th Street, Kenosha ,WI

Soil Testing Firm Moraine Stellar

Boring No. B-18

Surface Elevation

Project No 3000

Sheet 1 of 1

SAMPLE						VISUAL CLASSIFICATION AND REMARKS	SOIL PROPERTIES			
RECOVERY			MOISTURE				HNU	BETX	TPH (GRO)	Lead
No	Type	↓	↓	N	Depth		(ppm)	(ppm)	(ppm)	(ppm)
1	SS	16"	D		2.5	FILL- Mixture of sand, silt, gravel, black.	BK			
						2.0'				
2	SS	6"	M		5.0	SILTY CLAY (CL) - Very loose, brown, trace sand.	BK			
						6.0'				
3	SS	10"	M		7.5	SILTY SAND (SM) -Loose, Brown, trace gravel.	BK			
4	SS		M		10.0		BK	0.44	5.7	7.6

WATER LEVEL OBSERVATIONS

While Drilling 8.5'

Depth to Water

GENERAL NOTES

Start 7/25/94 Complete 7/25/94

Crew Chief Steve Azarian Rig Simco

Drilling Method HSA, ASTM, D1452 & D1586

K. SINGH & ASSOCIATES, INC.

APPENDIX C
Industrial Pumping Monitoring Well MW-7 Construction and Development Forms

State of Wisconsin
Department of Natural Resources

MONITORING WELL CONSTRUCTION
Form 4400-113A 8-89

Facility/Project Name

Facility License, Permit or Monitoring Number

Grid Location ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.

Well Name MW-7

Wis. Unique Well Number | DNR Well Number

Type of Well: Water Table Observation Well ☐ 11; Piezometer ☐ 12

Section Location: SW 1/4 of N 1/4 of Section 1, T 1 N, R 2 ☒ E ☐ W

Date Well Installed 07/22/94

Distance Well Is From Waste/Source Boundary ____ ft.

Location of Well Relative to Waste/Source: ☐ Upgradient ☐ Sidegradient ☐ Downgradient ☐ Not Known

Well Installed By: (Person's Name and Firm) Mark Peters, K. Singh & Assoc.

Is Well A Point of Enforcement Std. Application? ☐ Yes ☐ No

A. Protective pipe, top elevation 2___.__ ft. MSL

B. Well casing, top elevation 2___.__ ft. MSL

C. Land surface elevation 2___.2 ft. MSL

D. Surface seal, bottom ____.__ ft. MSL or 1.0 ft.

12. USCS classification of soil near screen:
☐ GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP
☐ SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH
☐ Bedrock

13. Sieve analysis attached? ☐ Yes ☐ No

14. Drilling method used: Rotary ☐ 50; Hollow Stem Auger ☐ 41; Other ☐ ____

15. Drilling fluid used: Water ☐ 02; Air ☐ 01; Drilling Mud ☐ 03; None ☐ 99

16. Drilling additives used? ☐ Yes ☐ No

Describe ____

17. Source of water (attach analysis): ____

E. Bentonite seal, top ____.__ ft. MSL or 2.0 ft.

F. Fine sand, top ____.__ ft. MSL or 3.5 ft.

G. Filter pack, top ____.__ ft. MSL or 4.0 ft.

H. Well screen, top ____.__ ft. MSL or 5.0 ft.

I. Well screen, bottom ____.__ ft. MSL or 15.0 ft.

J. Filter pack, bottom ____.__ ft. MSL or 15.2 ft.

K. Borehole, bottom ____.__ ft. MSL or 15.2 ft.

L. Borehole, diameter ____ in.

M. O.D. well casing ____ in.

N. I.D. well casing ____ in.

1. Cap and lock? ☒ Yes ☐ No

2. Protective cover pipe:
a. Inside diameter: ____ in.
b. Length: 1.2 ft.
c. Material: Steel ☒ 04; Other ☐ ____
d. Additional protection? ☐ Yes ☐ No
If yes, describe: ____

3. Surface seal: Bentonite ☐ 30; Concrete ☒ 01; Other ☐ ____

4. Material between well casing and protective pipe: Bentonite ☒ 30; Annular space seal ☐; Other ☐ ____

5. Annular space seal: Granular Bentonite ☐ 33
____ Lbs/gal mud weight ... Bentonite-sand slurry ☐ 35
____ Lbs/gal mud weight ..... Bentonite slurry ☐ 31
____ % Bentonite .... Bentonite-cement grout ☐ 50
____ Ft^3 volume added for any of the above
How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☐ 08

6. Bentonite seal: Bentonite granules ☒ 33
☐ 1/4 in. ☐ 3/8 in. ☐ 1/2 in. Bentonite pellets ☐ 32
____ Other ☐ ____

7. Fine sand material: Manufacturer, product name and mesh size ____
Volume added ____ ft^3

8. Filter pack material: Manufacturer, product name and mesh size ____
Volume added ____ ft^3

9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐ ____

10. Screen material: ____
Screen type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐ ____
Manufacturer ____
Slot size: 0.___ in.
Slotted length: ___.__ ft.

11. Backfill material (below filter pack): None ☒; Other ☐ ____

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Mark E Peters | Firm K. Singh & Assoc., Inc.

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.

NOTE: Shaded areas are for DNR use only. See instructions for more information.

State of Wisconsin
Department of Natural Resources

MONITORING WELL DEVELOPMENT

Form 4400-113B 8-89

Facility/Project Name

Well Name MW-1

License, Permit or Monitoring Number

Wis. Unique Well Number

DNR Well Number

1. Can this well be purged dry? ☐ Yes ☒ No

2. Well development method

surged with bailer and bailed	☒	4 1
surged with bailer and pumped	☐	6 1
surged with block and bailed	☐	4 2
surged with block and pumped	☐	6 2
surged with block, bailed and pumped	☐	7 0
compressed air	☐	2 0
bailed only	☐	1 0
pumped only	☐	5 1
pumped slowly	☐	5 0
Other _____	☐	

3. Time spent developing well ____ min.

4. Depth of well (from top of well casisng) 14.6 ft.

5. Inside diameter of well ____ in.

6. Volume of water in filter pack and well casing ____ gal.

7. Volume of water removed from well 26.2 gal.

8. Volume of water added (if any) 500.0 gal.

9. Source of water added _____

10. Analysis performed on water added? ☐ Yes ☐ No
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	4.49 ft.	6.6 ft.
Date	07/16/99 (m m d d y y)	07/26/99 (m m d d y y)
Time	12:05 ☐ a.m. ☒ p.m.	1:00 ☐ a.m. ☒ p.m.
12. Sediment in well bottom	1. inches	____ inches
13. Water clarity	Clear ☐ 10 Turbid ☒ 15 (Describe)	Clear ☒ 20 Turbid ☐ 25 (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids	____ mg/l	____ mg/l
15. COD	____ mg/l	____ mg/l

Additional comments on development:

Well developed by: Person's Name and Firm

Name: Matt Kent

Firm: [illegible]

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: _____

Firm: [illegible]

NOTE: Shaded areas are for DNR use only. See instructions for more information.