

## Feeney, John M - DNR

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**From:** Valentin, Pablo <valentin.pablo@epa.gov>  
**Sent:** Thursday, July 25, 2013 3:15 PM  
**To:** Culp, Melanie; Nagle, Richard; Feeney, John M - DNR  
**Cc:** Frey, Rebecca  
**Subject:** Draft WPSC Campmarina Upland OU (OU 1) ROD FIGURES  
**Attachments:** WPSC Campmarina OU 1 ROD Figures.pdf

All:

Please find attached the PDF file with the figures for the above referenced document.

Thanks,  
Pablo

## Feeney, John M - DNR

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**From:** Valentin, Pablo <valentin.pablo@epa.gov>  
**Sent:** Thursday, July 25, 2013 3:13 PM  
**To:** Culp, Melanie; Nagle, Richard; Feeney, John M - DNR  
**Cc:** Frey, Rebecca  
**Subject:** Draft WPSC Campmarina Upland OU (OU 1) ROD for your review  
**Attachments:** Camp Marina OU 1 RECORD of DECISION 072513-bf.docx; WPSC Campmarina OU 1 ROD Appendix 1.pdf; WPSC Campmarina OU 1 ROD Appendix 2.pdf

All:

Please find attached to this message the draft WPSC Campmarina Upland OU ROD for your review. I have included as well the ROD appendixes 1 and 2 in PDF format with this message. The Figures and Tables for the Draft ROD will be sent in separate email messages in PDF format as well. Please review the document and provide comments to me no later than August 26, 2013.

If you have questions, please feel free to contact me at 312-353-2886 or via email at [valentin.pablo@epa.gov](mailto:valentin.pablo@epa.gov).

Thanks,  
Pablo



RECORD of DECISION  
WPSC Campmarina MGP  
Superfund Alternative Site  
Upland Operable Unit (OU #1)  
**August 2013**

## Table of Contents

<b>List of Acronyms</b> .....	iv
<b>I. Declaration</b> .....	1
Site Name and Location.....	1
Statement of Basis and Purpose.....	1
Description of the Selected Remedy.....	1
Statutory Determination.....	2
Authorizing Signature.....	3
<b>II. Decision Summary</b> .....	4
Site Name, Location, and Description .....	4
Site History and Enforcement Activities .....	5
Site History.....	5
EPA Involvement.....	6
Community Participation .....	7
Scope & Role of Operable Unit or Response Action.....	7
Site Characteristics .....	8
Geologic/Hydrogeologic Setting.....	8
Investigation Results.....	9
Site Contaminants of Concern.....	15
Upland OU Remediation.....	16
Remedial Action Objectives of State-issued ROD.....	17
Current and Potential Future Site and Resource Uses.....	18
Site Risks Prior to Remediation Activities .....	18
Evaluation of WDNR’s Upland OU Remedy Performance.....	19
Institutional Controls.....	21
Summary of Rationale for Decision.....	22
Documentation of Significant Changes .....	23

**III. Responsiveness Summary..... 24**

**Figures**

- Figure 1 – Site Location
- Figure 2 – Former MGP Structures Layout
- Figure 3 – Test Pits Sample Locations
- Figure 4 – CS Soil Sample Locations
- Figure 5 – PAH Soil Impacts Locations
- Figure 6 – BTEX/Benzene in Groundwater
- Figure 7 – PAH/Naphthalene in Groundwater
- Figure 8 – Cyanide in Groundwater
- Figure 9 – Layout of WDNR’s Remedy Features
- Figure 10 - Water Table Elevation Contours 2010
- Figure 11 - Potentiometric Surface Contours 2010
- Figure 12 - Groundwater Elevations vs. Sheboygan River Water Elevations
- Figure 13 - Groundwater Analytical Summary 2002-2010

**Tables**

- Table 1 – Phase I Soil analytical Summary
- Table 2 – Phase I Groundwater Analytical Summary
- Table 3 – Phase II Soil Analytical Summary
- Table 4 – Phase II Groundwater Analytical Summary
- Table 5 – Groundwater Analytical Data 2002 through 2012 for BTEX and PAHs
- Table 6 – Groundwater Analytical Data 2002 through 2012 for Inorganics and RNA
- Table 7 - Groundwater Elevation Data

**Appendices**

- Appendix 1 – WDNR’s Biosparge Shutdown and ICs Letter
- Appendix 2 – Administrative Record Index

## List of Acronyms

AOC	Administrative Order by Consent
bgs	Below ground surface
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	Code of Federal Regulations
COCs	Contaminants of Concern
DRO	Diesel Range Organics
EPA	U.S. Environmental Protection Agency
ES	Enforcement Standard
FS	Feasibility Study
IBS	Integrays Business Support
IR	Infrared Spectroscopy
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
MGP	Manufactured Gas Plant
NAPL	Non-Aqueous Phase Liquid
NCP	National Contingency Plan
OU	Operable Unit
PAH	Polycyclic Aromatic Hydrocarbon
PAL	Preventive Action Limit
PCBs	Polychlorinated Biphenyls
PID	Photoionization Detector
ppm	Parts Per Million
RAOs	Remedial Action Objectives
RI	Remedial Investigation
RI/FS	Remedial Investigation and Feasibility Study
ROD	Record of Decision
TCRA	Time-Critical Removal Action
µg/kg	Micrograms per Kilogram
µg/L	Micrograms per Liter
VOCs	Volatile Organic Compounds
WDNR	Wisconsin Department of Natural Resources
WPSC	Wisconsin Public Service Corporation

**Record of Decision (ROD), Upland Operable Unit (OU 1)**  
Wisconsin Public Service Corporation (WPSC) Campmarina  
Manufactured Gas Plant (MGP) Superfund Alternative Site  
Sheboygan, Wisconsin

**PART I: DECLARATION**

**SITE NAME AND LOCATION**

WPSC Campmarina MGP Superfund Alternative Site  
CERCLIS ID # WIN000510058  
Upland Operable Unit (OU 1)  
Sheboygan, Wisconsin

**STATEMENT OF BASIS AND PURPOSE**

This decision document presents the U.S. Environmental Protection Agency's (EPA's) final remedy decision for the WPSC Campmarina MGP Superfund Alternative Site Upland Operable Unit (OU 1, or Upland OU) in Sheboygan, Wisconsin. The decisions here are based on information in the administrative record for this site. However, occasionally references are made to specific documents in the administrative record where the information is too voluminous to provide here.

The selected remedy is chosen in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 601, *et seq.*, and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. Part 300. The State of Wisconsin has indicated that it intends to concur with the selected remedy. The state concurrence letter will be added to the administrative record upon receipt.

**DESCRIPTION OF THE SELECTED REMEDY**

EPA has decided that **No Further Action**, beyond the remedial work that has been and is being conducted under State authority, is required for the Upland OU of the WPSC Campmarina MGP Site. The remedial work conducted at the Upland OU pursuant to the State's November 2000 ROD, including ongoing operation and maintenance work, is substantially equivalent to what would be required under CERCLA and has achieved all of the remedial action objectives (RAOs) that were established, with the exception that groundwater cleanup standards have not yet been achieved; it is expected to take a long time to achieve groundwater standards at the site. Additionally, the Wisconsin Department of Natural Resources (WDNR) required comprehensive institutional controls to restrict land and/or groundwater use and to protect the remedy components at the Upland OU, and all appropriate institutional controls are now in place. EPA retains the right to require further actions under CERCLA at the Upland OU in the event the State ceases to enforce or the potentially responsible party ceases to conduct the remedial work required by the State's ROD and/or other documents or decisions enforceable by the State.

The WDNR selected a remedy for the Upland OU of the former MPG site in a November 2000 ROD, and the remedy construction work was implemented in 2000 and 2001. The most highly-contaminated unsaturated soils were excavated and sent off-site for treatment. The remaining contaminated areas were contained within a fully-encircling sheetpile barrier wall keyed in to the underlying clay aquitard, and low-flow biosparging was employed within the containment area until mid-2013 to promote the natural degradation of shallow groundwater contamination. Natural attenuation will continue now that the biosparge system has ceased operation.

Groundwater monitoring data collected since implementation of the remedy demonstrates that the remedy has achieved all of the RAOs identified in the State's November 2000 ROD, with the exception of achieving groundwater cleanup standards. Excavation of the most highly-contaminated soils and capping/containment of the remaining materials has reduced the potential for human exposure to the MGP residuals, prevented the migration of free-phase residuals to surface water or sediments, prevented contaminants in unsaturated soil from leaching to groundwater below or outside of the containment system, reduced the potential for contaminated groundwater to discharge into the river, and prevented the further migration of contaminated groundwater. The remaining RAO, the achievement of applicable groundwater standards throughout the shallow aquifer, has not yet been achieved. In its November 2000 ROD, WDNR indicated that groundwater at the site is expected to achieve applicable standards through removal and treatment of the most highly-contaminated soils, low-flow biosparging, and subsequently through natural attenuation after the biosparging system ceases operation. The State acknowledged that it is expected to take a very long time to achieve groundwater standards, but that this is reasonable given the continued presence and maintenance of the containment cover, vertical barrier wall and hydraulic control drainage system, along with the lack of current and expected future uses of the shallow groundwater.

Based on the actions that have been taken, EPA believes that the risks associated with contamination at the former MGP have been adequately addressed, and that the Upland OU remedy that has been implemented effectively protects human health and the environment. Therefore, EPA believes that no further action under CERCLA is required at the Upland OU of the WPS Campmarina MGP Site.

### **STATUTORY DETERMINATION**

EPA has determined that **No Further Action**, beyond the remedial work that has been and is being conducted under State authority, is required at the Upland OU of the WPS Campmarina MGP Site. The remedial work conducted at the Upland OU pursuant to WDNR's November 2000 ROD, including ongoing operation and maintenance work, is substantially equivalent to what would be required under CERCLA and has achieved all of the remedial action objectives that had been identified, with the exception of achieving groundwater cleanup standards; it is expected to take a long time to achieve groundwater standards at the site. Additionally, WDNR required comprehensive institutional controls to restrict land and/or groundwater use and to protect the remedy components at the Upland OU, and all appropriate institutional controls are now in place. EPA believes that the risks associated with the contamination at the former MGP have been adequately addressed, and that the Upland OU remedy that has been implemented



effectively protects human health and the environment. Therefore, EPA believes that no further action is required at the Upland OU of the WPSC Campmarina MGP Site.

Since this is a decision for "No Further Action," the statutory requirement of CERCLA Section 121 for conducting five-year reviews is not triggered. However, because this "No Further Action" decision results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, EPA will conduct at least one discretionary five-year review of the site per the requirements of §300.430(f)(4)(ii) of the NCP.

**AUTHORIZING SIGNATURE**

This ROD documents the selected action for the Upland Operable Unit (OU 1) of the WPSC Campmarina MGP Site. This document was developed by EPA. The Director of the Superfund Division, EPA Region 5, has been delegated the authority to approve this document.

\_\_\_\_\_  
Richard C. Karl, Director  
Superfund Division  
EPA Region 5

\_\_\_\_\_  
Date

## **PART II: DECISION SUMMARY**

The Decision Summary provides a description of the site-specific factors and analysis that support the No Further Action decision at the Upland OU of the WPSC Campmarina MGP Site. It includes an overview of the site characteristics and the actions implemented at the site that led to the No Further Action decision.

### **SITE NAME, LOCATION, AND DESCRIPTION**

The WPSC Campmarina MGP Site (CERCLIS ID WIN000510058) is located at 732 North Water Street, Sheboygan, Sheboygan County, Wisconsin. The geographical coordinates of the site are 43.7525140 North latitude and -87.7182090 West longitude. The site consists of two operable units: the Upland OU (OU 1) and the River OU (OU 2). The Upland OU encompasses an area of approximately 2.3 acres adjacent to the Sheboygan River where the former MGP operated (see Figure 1 in Appendix 2). The Upland OU is located approximately 1 mile west of Lake Michigan, and has undergone remediation under state authorities. The River OU is located immediately adjacent to the Upland OU and is approximately 4.5 acres in size (see Figure 1 in Appendix 2). The WPSC Campmarina MGP Site is not listed on the Superfund National Priorities List but is being addressed using the Superfund Alternative Approach.

The County of Sheboygan includes approximately 514 square miles of area, with agricultural land use being the dominant classification. The population of Sheboygan County is approximately 115,507 people (2010 Census), with the majority of people residing in incorporated areas.

The City of Sheboygan encompasses 14.5 square miles. The population base in Sheboygan is 49,288 (2010 Census). The City of Sheboygan has a mixture of agricultural, residential, and industrial land use, with residential use being dominant.

The former MGP site is located on property owned by the City of Sheboygan and known as Campmarina. After 1966, by which time all above-ground MGP-related structures had been dismantled, Campmarina was equipped with parking areas, electrical power and potable water for recreational vehicle use. A docking area was also provided for recreational boat use on the Sheboygan River. After WPSC completed the State-mandated remediation work at the former MGP facility (the Upland OU) in 2001, the City of Sheboygan redeveloped both Campmarina and the adjoining property to the south into a park, a condominium complex, and a river walk.

The Upland OU is now within Riverside Park with landscaped lawn, recreational areas, seating, and sidewalks. The park generally extends from the river on the west to 10<sup>th</sup> Street/North Water Street on the east, and from the extension of Center Avenue on the south to Wisconsin Avenue on the north. The park footprint includes the former MGP property and abandoned right-of-ways for North Water Street, Center Street, and New York Avenue.

An asphalt parking lot is located on the north side of the park, with access from Wisconsin Avenue. A small building constructed adjacent to this parking lot is shared by the Sheboygan Outboard Club and WPSC. WPSC's use is related to the remediation work at the Upland OU,

while the Outboard Club uses it to store equipment. The adjacent parking lot provides access to shoreline boat docks as well as additional docks on Boat Island, an island located in the middle of the Sheboygan River adjacent to the Upland OU. North of the park adjacent to the river is a former toy factory building, which has been rehabilitated into multi-tenant housing.

Alternative Programs School, Jefferson School, Longfellow Elementary School, Sheboygan Area District School, Sheridan Elementary School, and Trinity Lutheran School are all located within one-half mile of the former MGP facility.

## **SITE HISTORY AND ENFORCEMENT ACTIVITIES**

### **Site History**

Two methods of coal gas production were used at the WPSC Campmarina MGP. The coal carbonization method, used from 1872 to 1886, involved heating the coal in an airtight chamber (retort) that produced coke and gases containing a variety of volatilized organic constituents. The process also produced tar, which was sold for roofing, wood treatment, and paving roads. The gas was passed through purifiers to remove impurities such as sulfur, carbon dioxide, cyanide, and ammonia. Dry purifiers contained lime or hydrated iron oxide mixed with wood chips. The gas was then stored in large holders on the property prior to distribution for lighting and heating.

The carbureted water gas process, used from 1886 to 1929, involved passing air and steam over the incandescent coal in a brick-filled vessel to form a combustible gas which was then enriched by injecting a fine mist of oil over the bricks. The gas was then purified and stored in holders prior to distribution. The Campmarina MGP ceased operations in 1929. Former aboveground MGP-related structures were removed between 1950 and 1966. (See Figure 2 in Appendix 2 for former MGP structures layout).

Historical development activities adjacent to (north of) the Upland OU of the site include a property formerly used as a tannery, then as a toy factory. Tannery operations terminated sometime between 1903 and 1940 and the property was sold to Garton Toy Company (Garton). Garton used a portion of the property adjacent to the river, directly north of the former New York Avenue, for paint and lacquer spraying. This building was subsequently demolished. Garton also occupied a building north of Wisconsin Avenue that is now a multi-tenant complex.

Historic Sanborn Fire Insurance maps for the subject property depict the shorelines of the Sheboygan River over time at the MGP site. Between 1891 and 1903, the channel appears to have been straightened by fill that extended approximately 60 feet into the river. Later maps show that the shoreline has not changed substantially since 1903.

In 1990, the City of Sheboygan found a black oily substance in the subsurface near the shoreline of the Sheboygan River when footings for a dock were being constructed. Since portions of the WPSC Campmarina MGP Site are within the boundaries of the larger Sheboygan River and Harbor Superfund site, WDNR considered asking EPA to propose the former MGP site to the NPL. However, instead of that, the WDNR, WPSC, and the City of Sheboygan negotiated an

Environmental Repair Program (ERP) contract that would hold the site investigation and remediation to a standard similar to that of EPA's Superfund program. The ERP contract was signed in 1992. Later that year, WPSC, the successor corporation to the former owner/operator, retained Simon Hydro Search, Inc. to conduct an investigation. Simon Hydro Search found hydrocarbon and cyanide contamination in the soil and groundwater at the site.

In 1996, WPSC retained Natural Resource Technology, Inc. (NRT) to conduct additional investigations. NRT found isolated areas of unsaturated soil contamination that consisted of benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs). NRT also found groundwater impacts across the site, including cyanide contamination in shallow monitoring wells on the southern portion of the site as well as groundwater contamination with MGP-related contaminants in the site's deeper monitoring wells. In 1999, NRT conducted an additional investigation and submitted a remediation feasibility study to WDNR. The WDNR provided conceptual approval to NRT's proposed remedial strategy. The WDNR required WPSC to conduct additional hot-spot soil removal at the site beyond what was proposed in the original remedial strategy. In the spring of 2000, NRT submitted Phase I and Phase II remedial work plans, which were subsequently approved by the WDNR on July 12, 2000. Phase I activities consisted of excavation, grading, thermal treatment, and material management. Phase II activities consisted of installing a vertical sheet pile barrier wall around the soil and groundwater affected area within Campmarina and the Center Avenue right-of-way. Installation of an impervious cap, a biosparging system, and restoration of the site to pre-existing grade were also part of Phase II. WPSC continues to conduct operation and maintenance activities pursuant to the State-mandated remediation work, under WDNR oversight.

## **EPA Involvement**

In 2005, WPSC approached EPA and suggested that seven of its former MGP sites in Wisconsin be investigated and cleaned up under EPA's Superfund Alternative approach. The WPSC Campmarina MGP Site was one of the seven sites, and was the only one that had already undergone cleanup work. On January 26, 2007, EPA entered into an administrative order on consent (AOC) with WPSC, under which WPSC agreed to perform remedial investigation/feasibility study (RI/FS) activities at the WPSC Campmarina MGP Site.

Under the 2007 AOC, WPSC initiated RI/FS activities to address the River OU of the site. Data collected during the RI for the River OU documented the presence of high levels of hazardous substances in soils and sediment at or near the surface, including PAHs in non-aqueous phase liquid (NAPL) form in multiple samples.

As the process to finalize the FS for the River OU was underway, EPA determined that there was a need to address the PAH NAPL contamination as a time-critical removal action (TCRA). EPA made this determination because dredging was scheduled to take place during the summer of 2011 as part of the Sheboygan River and Harbor Superfund site's polychlorinated biphenyl (PCB) cleanup, and the dredging activities planned for the Sheboygan River and Harbor site might cause a release of the NAPL material if not addressed ahead of time. EPA therefore entered into another AOC with WPSC on June 10, 2011, under which WPSC agreed to implement a TCRA to address the PAH contamination in the River OU.

WPSC implemented the TCRA dredging work at the River OU from June 2011 through December 2011. EPA determined that "No Further Action" would be required at the River OU following completion of the TCRA and documented this determination in a ROD dated September 25, 2012.

EPA also evaluated the Upland OU as part of its effort to address the site under the Superfund Alternative Approach. Given that remediation work at the former MGP had already been conducted pursuant to the State's November 2000 ROD by the time EPA became involved with the site, EPA's evaluation focused on the adequacy of the remediation work that had been conducted and whether any additional action under CERCLA needed to be taken. EPA reviewed all available information related to the Upland OU, including but not limited to site characterization data collected prior to the cleanup work, details about the remediation work and how it was implemented, the adequacy of the monitoring program that was put in place, and all environmental monitoring data collected from the site following the cleanup work. That evaluation led to this Record of Decision for the Upland OU.

### **COMMUNITY PARTICIPATION**

Over the past several years, EPA and the WDNR have provided information to the public regarding the cleanup of the WPSC Campmarina MGP Site through public meetings, the Administrative Record file for the site, the site information repository maintained at the Mead Public Library, and announcements published in the Sheboygan Press. Most recently, EPA issued a Proposed Plan for the Upland OU in late June 2013, with a 30-day public comment period that ran from July 8 through August 7, 2013. EPA decided not to schedule a public meeting regarding the proposed plan due to lack of community interest<sup>1</sup>. The fact sheet that accompanied the release of the proposed plan stated that members of the public could request a public meeting by contacting the EPA Community Involvement Coordinator by July 12, 2013. EPA received no requests for a public meeting.

### **SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION**

This action is the final of two remedial decisions for the WPSC Campmarina MGP Site and addresses soil and groundwater for the Upland OU. Contaminated soils and sediments in the River OU were addressed by a time-critical removal action in 2011-2012, and EPA issued a ROD in September 2012 calling for No Further Action for the River OU.

At the Upland OU, a cleanup action was implemented pursuant to a ROD issued by the WDNR in November 2000 that addressed the soil and groundwater contamination at the former MGP facility. EPA has determined that the risks associated with the Upland OU have been properly addressed by that remedy and that the remedy is substantially equivalent to what would be required under CERCLA. Monitoring data have shown that the cleanup actions conducted at the

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<sup>1</sup> When EPA issued the Proposed Plan for the River OU, EPA scheduled a public meeting during the 30-day public comment period, but no one from the community (besides local, state, and federal officials and representatives of the potentially responsible parties) attended.

Upland OU have prevented the off-site migration of contamination from the former MGP facility, and EPA believes that the Upland OU remedy that is in place and being maintained will prevent any recontamination of the River OU. Institutional controls are required as part of the Upland OU state-mandated cleanup to restrict land and groundwater use and to protect the remedy components, and all required ICs have been implemented and are enforceable by the State. WPSC continues to conduct operation and maintenance activities pursuant to the State-mandated cleanup work, under WDNR oversight.

## **SITE CHARACTERISTICS**

### **Geologic/Hydrogeologic Setting**

Near surface geology of Sheboygan County consists of unconsolidated glacial drift comprised of unsorted till as ground and end moraines, outwash as sorted and stratified sand and gravel, and glacial lake deposits as organic materials and stratified clays, silt and sand. Low permeable soils are indicative of the high clayey tills and lake bed deposits which blanket the majority of Sheboygan County. Moderate and high permeable soils are typically associated with the less clayey till, outwash and end moraine. The glacial drift is Pleistocene to Recent in age and ranges in thickness from 50 to 200 feet.

Three aquifer systems exist beneath the site area and are (from shallowest to deepest): the sand and gravel, the Niagara, and the sandstone. A description of these units is presented below.

The sand and gravel aquifer in the site area consists of buried highly permeable glacial sand and gravel. Local glacial sands and gravel may yield significant amounts of water for local use. Thicknesses range from 0 to 300 feet. The top of this aquifer ranges from 0 to 140 feet below ground surface (bgs).

The Niagara aquifer is the principal aquifer overlying the Maquoketa shale and consists of Silurian aged dolomites approximately 300 feet thick. The majority of the aquifer is under artesian conditions due to the overlying confining clayey till. In areas where the clayey till is not present, the aquifer is hydraulically connected with the overlying sand and gravel aquifer. The main source of recharge for the Niagara aquifer is from infiltration through the sand and gravel aquifer or through the overlying glacial outwash and till. Natural discharge occurs into Lake Michigan, nearby rivers and through wells. The Niagara aquifer is used for local domestic wells.

The sandstone aquifer is approximately 600 feet thick beneath Sheboygan County. Local use of the sandstone aquifer for drinking water is low to moderate.

Flow in the shallow groundwater is generally to the west-southwest, mimicking ground surface contours with a general flow direction toward the Sheboygan River. As part of the State-mandated Upland OU remedial action, a Waterloo<sup>®</sup> barrier system was installed to provide a barrier with a hydraulic conductivity of  $1 \times 10^{-7}$  centimeters per second or less. As a result, localized contaminated shallow groundwater at the site does not discharge directly to the Sheboygan River or the deeper Niagara aquifer or the sandstone aquifer. The deeper groundwater flow is also generally west-southwest.

## Investigation Results

In 1992 WPSC, with WDNR oversight, completed a Phase I investigation of the site. The results of the Phase I investigation indicated the presence of MGP residuals and related soil and groundwater impacts. WPSC then conducted a Phase II investigation, with WDNR oversight, to expand on the results of the Phase I investigation and to obtain, compile, and evaluate environmental information regarding the site and surrounding area to enable decision-making regarding long-term management of the site.

### PHASE I INVESTIGATION

The Phase I investigation included the performance of exploratory test pit excavations, surface and subsurface soil sampling, and ground-water sampling on site. The soil samples were screened in the field for the potential presence of volatile organic compounds (VOCs) by the soil headspace method using an HNu photoionization detector (PID). Selected soil and groundwater samples were submitted for laboratory analysis of total, amenable, and weak acid dissociable cyanides, PAHs, phenol, and BTEX. Selected samples were also submitted for analysis of arsenic, nickel, diesel range organics (DRO), and infrared spectroscopy (IR) analysis. Sampling and analytical methodology were performed in conformance with the site Work Plan. The site investigation activities are described in detail below:

#### Test Pit Excavations

A total of 15 test pits (TP-101 through TP-108, TP-108A, and TP-109 through TP-114) were excavated at locations across the site to characterize near surface conditions and evaluate the potential presence of impacted soils close to suspected source areas of contamination. The excavation locations are shown on Figure 3 in Appendix 2 and did not exceed depths of approximately 10 feet. Since none of the former MGP structures remained on site, test pit locations were established in the field, after reviewing historical and existing conditions maps of the site by scaled measurements from remnants of existing structures. The rationale for each of the test pit locations was as follows:

- TP-110, TP-114, TP-111, TP-103, TP-101 and TP-105 were excavated to evaluate soil conditions on the periphery of the site. TP-105 and TP-111 were specifically located along the western border of the property to evaluate the potential presence of impacted soil in response to reports of impacts encountered along the river by the City while constructing a pier foundation.
- TP-109 and TP-112 were excavated in the vicinity of the former MGP facility buildings.
- TP-102, TP-104, TP-108 and TP-113 were located in the vicinity of the former gas holders.
- TP-107 was excavated in the vicinity of the former tar tank location.

- TP-106 was excavated in the vicinity of the former purifier location.

Soil samples were collected at representative depths from the test pits (generally at 2 feet, 5 feet, and at the base of excavation) for field observation, PID field screening, and possible submission for laboratory analysis. Based on field observations and PID readings, samples were submitted for laboratory analysis from the following locations (and depths) to characterize site soil conditions: TP-101 (5 feet), TP-102 (5 feet), TP-103 (7 feet), TP-104 (6.5 feet), TP-106 (5 feet), TP-107 (2 feet), TP-108a (5 feet), TP-109 (1.5 feet and 5 feet), TP-110 (1.5 feet), TP-111 (5 feet), TP-112 (5 feet), TP-113 (5 feet), and TP-114 (5 feet). The sampling depths were selected as being representative of soil conditions at the test pit locations. Each of the samples was submitted for analysis of total, amenable, and weak acid dissociable cyanide, BTEX, PAHs and phenol. In addition, TP-101, TP-102, TP-103, TP-108A, TP-109 (5 feet), TP-110, and TP-113 were submitted for arsenic and nickel analysis. These seven samples were believed to be most impacted based on field observations. TP-103, TP-108A, TP-109 (5 feet), and TP-113 were also submitted for DRO analysis due to field observations of fuel oil-like hydrocarbon odors at those locations.

Samples were submitted for IR analysis in order to evaluate organic constituents observed at these locations: TP-102 (10 feet; fuel oil-like odor), TP-106 (6 feet; creosote-like/fuel oil-like mixture odor), and TP-113 (10 feet; creosote-like odor).

During the test pit excavations, the initial 1 to 2 feet of surficial soil was segregated from deeper soil, which had higher potential to be impacted. Following completion of the excavation, the deeper soils were returned to the excavation first and recompacted to sustain site traffic. The segregated surficial soils were then returned to the excavation and recompacted.

### *Soil Description*

Based on site test pit logs, the site is generally characterized by approximately 0.25 to 1.0 feet of silty sand and gravel or topsoil fill underlain by sand and gravel fill to a depth of up to 9 feet. The subsurface sand and gravel fill (1.0 to 9 feet) in some of the test pit locations was found to contain coal, slag, and cinders. Buried construction debris (bricks, concrete, etc.) was encountered at eight test pit locations (TP-105, TP-106, TP-107, TP-108A, TP-109, TP-110, TP-111, and TP-113). The fill was underlain by silty to clayey alluvial sand. Clayey silt to silty clay materials were encountered to a depth of 10 feet in the southern portion of the site (TP-114) and below a depth of 6 feet to the depth of excavation (7 feet) at TP-110. A strong moth ball-like hydrocarbon odor and elevated PID reading occurred in the vicinity of the former tar tanks at locations TP-108 (27 parts per million (ppm) at 4 feet), TP-107 (28 ppm at 5 feet), TP-113 (28 ppm at 1.5 feet), and TP-09 (36 ppm at 8 feet). Similar odors and PID readings were also noted within the relief holder at the southern portion of the site in TP-113 (110 ppm at 5 feet), and TP-113 (103 ppm at 10 feet). The soil samples exhibited a black coloring (stained). Very slight diesel fuel-like odors and slightly elevated field PID readings (3.5 to 14 ppm) were observed in the northern portion of the site at the following locations: TP-106 (5 feet), TP-104 (6.5 feet), TP-109 (5 feet), TP-103 (7 and 10 feet), and TP-102 (5 and 10 feet). A former gas oil tank existed in this area of the site. In each case, with the exception of TP-103, elevated readings were associated with former on-site structures. No other elevated field PID response or significant



hydrocarbon odor were observed for any of the other test pit samples; all responses were less than or equal to 6.0 ppm benzene equivalents.

### *Laboratory Analytical Results*

Total PAHs were detected in site test pit samples at concentrations ranging from below detection limits to approximately 150 milligrams per kilogram (mg/kg). The State's draft guideline at the time for total PAH concentrations in soils was 100 mg/kg. Soil samples exhibiting total PAH concentrations exceeding the 100 mg/kg guideline value generally occurred in the central portion of the site, consistent with field observations of impacts, at the following locations: TP-107, TP-109 (5 feet), and TP-110. The sample from TP-101 at the northern end of the property exhibited a total PAH concentration of approximately 100 mg/kg. However, no field evidence of impacts was observed at that location. Phenol was detected in two samples: TP-101 (2.7 mg/kg) and TP-106 (13.2 mg/kg).

Low concentrations of BTEX constituents ranging from below detection limits to approximately 2 mg/kg were detected in all samples except TP-109 (5 feet), which exhibited a concentration of 17 mg/kg. Elevated levels of DRO were detected in four samples: TP-103 (3000 mg/kg), TP-108A (110 mg/kg), TP-109 (380 mg/kg at 5 feet), and TP-113 (390 mg/kg). These samples were selected for DRO analysis based on field observations of fuel oil-like and/or creosote-like hydrocarbon odors in the field.

Based on IR analysis of three soil samples – TP-102 (fuel oil-like odor at 10 feet), TP-106 (creosote-like/fuel oil-like mixture odor at 6 feet), and TP-113 (creosote-like odor at 10 feet) – all of the samples contained PAHs typical of "heavy coal tar" and may have contained devolatilized, carburetted water gas tar. Petroleum oil, possibly devolatilized fuel oil, was also observed in the samples. The sample from TP-102 contained heavy aromatic petroleum oil, possibly devolatilized fuel oil, and minor PAHs, consistent with field observations of a fuel oil-like odor. The samples from TP-106 and TP-113 contained mostly PAHs and minor petroleum oil, also consistent with field observations at those locations. The samples from TP-102 and TP-106 were saturated (they were collected at the water table) and are considered to represent ground water conditions at those locations.

Total cyanide concentrations in test pit soil samples ranged from below detection limits to 9.5 mg/kg, well below the State's draft guideline concentration at the time of 100 mg/kg. Similarly, low concentrations of amenable and weak acid dissociable cyanide were detected, ranging from below detection limits to 2.5 mg/kg, and below detection limits to 1.9 mg/kg, respectively.

Arsenic concentrations ranged from 0.5 mg/kg to 3.4 mg/kg, which is within the natural range for soils in Wisconsin (2 to 5 mg/kg, according to the WDNR). Nickel concentrations ranged from 7 to 14 mg/kg, also within the natural range for soils in Wisconsin (10 to 100 mg/kg).

### Surface Soil Sampling

Six surface soil grab samples (CS-101B, CS-101C, CS-101D, CS-102B, CS-102D, and CS-103C) were collected from the top 0 to 3 inches of soil. The sample locations are shown on

Figure 4 in Appendix 1. All samples were submitted for laboratory analysis of total, amenable, and weak acid dissociable cyanide, BTEX, PAHs, and phenol.

### *Soil Description*

Based on site test pit logs, the surface soils across the site were found to consist of well-graded sand and gravel or topsoil. The surface soil samples were field analyzed with a PID and did not exhibit elevated (>10 ppm benzene equivalents) responses; all readings were less than 2 ppm benzene equivalents. No hydrocarbon odors were noted in the surface soil samples.

### *Laboratory Analytical Results*

A summary of analytical results for surface soil samples is shown on Table 1. Low levels of total PAHs were detected in samples CS-101B (0.112 mg/kg) and CS-103C (0.065 mg/kg), well below the State's draft guideline at the time of 100 mg/kg. No phenol, BTEX, total amenable cyanide, or weak acid dissociable cyanide compounds were detected in the samples.

### Groundwater Sampling

Groundwater grab samples were obtained from three test pit locations to characterize groundwater conditions across the site: TP-101 (10 feet), TP-107 (5.5 feet), and TP-110 (5.5 feet). Samples from TP-101 and TP-110 appeared to be clean based on field observations. The sample from TP-107 was visibly impacted. The samples were submitted for analysis of total, amenable, and weak acid dissociable cyanide (field filtered), arsenic (field filtered), nickel (field filtered), BTEX, PAHs, and phenol. TP-107 was also analyzed for DRO, as a fuel oil-like odor was observed at that location.

### *Analytical Results*

A summary of analytical results for site groundwater samples is shown in Table 2 in Appendix 2. Naphthalene was detected in TP-107 at 780 micrograms per liter ( $\mu\text{g/L}$ ), above the State's NR 140 Enforcement Standard (ES) of 40  $\mu\text{g/L}$ . Low levels of PAHs were also detected in TP-101, including anthracene (0.6  $\mu\text{g/L}$ ), fluoranthene (0.7  $\mu\text{g/L}$ ), and phenanthrene (2  $\mu\text{g/L}$ ), which had no State standards. Phenol was detected in TP-107 at 0.026 milligrams per liter (mg/L), below the NR 140 preventive action limit (PAL) of 1.2 mg/L. Benzene was detected above the ES of 5  $\mu\text{g/L}$  in TP-107 (1700  $\mu\text{g/L}$ ), and above the PAL of 0.5  $\mu\text{g/L}$  (but below the ES) in TP-110 (2.6  $\mu\text{g/L}$ ). The groundwater sample at TP-107 exceeded the PAL for ethylbenzene (380  $\mu\text{g/L}$  compared to PAL of 140  $\mu\text{g/L}$ ), toluene (170  $\mu\text{g/L}$  compared to PAL of 68.6  $\mu\text{g/L}$ ), and xylenes (280  $\mu\text{g/L}$  compared to PAL of 124  $\mu\text{g/L}$ ), but was below the ES for those constituents. DRO was also detected in the sample at 5 mg/L.

Total cyanide (field filtered) was detected above the ES (0.2 mg/L) in all three groundwater samples: TP-101 (0.37 mg/L), TP-107 (0.30 mg/L), and TP-110 (0.23 mg/L). Amenable cyanide (field filtered) concentrations ranged from 0.028 to 0.18 mg/L. Weak acid dissociable cyanide (field filtered) concentrations ranged from 0.057 to 0.15 mg/L. Arsenic (field filtered) was detected at or just above the PAL (0.005 mg/L) but below the ES (0.05 mg/L) in the groundwater

samples, as follows: TP-101 (0.006 mg/L), TP-107 (0.005 mg/L), and TP-110 (0.019 mg/L). Nickel (field filtered) was not detected in the samples.

## PHASE II INVESTIGATION

The Phase II investigation focused on delineating the extent of groundwater and soil impacts on the site, defining source areas not previously investigated, evaluating potential MGP residuals in the soil, and determining aquifer properties. The Phase II investigation consisted of the following tasks: soil boring installation and sampling, monitoring well and piezometer installation and sampling, and aquifer characterization.

### Soil Sampling Results

One soil sample was collected from the vadose zone at each monitoring well location and also from SB-701 and submitted for laboratory analyses. Selection of the samples was based on visual and odor observations and PID headspace response. Soil analytical results are summarized in Table 3. Total BTEX/benzene and total PAH/naphthalene impacts were found to be sporadically present across the site. Total BTEX/benzene impacts in soil were limited to two areas of the site. Soil analyzed from MW-703 contained 13 micrograms per kilogram ( $\mu\text{g}/\text{kg}$ ) benzene. Surrounding sampling locations did not contain BTEX compounds. Benzene was also detected in TP-106, TP-107, and TP-109.

Total PAH impacts greater than 100 mg/kg were detected in soil samples collected from TP-101, TP-107, TP-109, TP-110, and MW-701 (see Figure 5). Total PAH concentrations were approximately 200 mg/kg at location MW-701 and were between 100 and 150 mg/kg at the other 4 locations. The remaining collected soil samples exhibited total PAH levels of less than 50 mg/kg.

Total BTEX/benzene and total PAH/naphthalene distribution in soil indicated that the largest impacted area was near the former MGP operations on the west side of the site adjacent to the tar tanks and purifier. A smaller isolated area of impacts was located just west of the large gas holder.

Phenol was detected in all soil samples at concentrations ranging from 0.55 mg/kg (MW-704) to 83 mg/kg (MW-707). Phenol concentrations exceeded 1.0 mg/kg at only three locations. Phenol was previously detected at low levels in two of the thirteen test pit samples.

### Groundwater Sampling Results

Two rounds of groundwater samples were collected from the site monitoring wells as part of the Phase II investigation in August and September 1995. Analytical results are summarized in Table 4. In general, the results of both sampling rounds were consistent. Second round samples collected from well MW-706 showed a significant decrease in total PAHs. For the remaining wells, results of both sampling events were within the same order of magnitude suggesting that groundwater concentration changes were not significant.

### *VOCs and PAHs*

Tar collected from MW-706 was analyzed for gas chromatography/ photoionization detection fingerprinting. The analytical data for the sample presented a very good visual match to an MGP tar reference.

VOC and PAH groundwater impacts exceeding Wisconsin's Chapter NR 140 ESs were present in six of the seven monitoring well samples. No BTEX or PAHs were detected in the samples collected from side-gradient well MW-705, located in the northern portion of the site. Total BTEX/benzene results and total PAH/naphthalene results from the September 1995 sampling event are shown on Figures 6 and 7, respectively. Areas in which shallow groundwater concentrations exceeded Chapter NR 140 ESs extended over the entire site with the exception of the northernmost portion of the site. Benzene concentrations in the water table wells ranged from 340 µg/L to 34,000 µg/L, benzo(a)pyrene concentrations ranged from 0.66 µg/L to 83,000 µg/L, and naphthalene concentrations ranged from 220 µg/L to 1,900,000 µg/L.

The most highly-impacted groundwater was located in the center of the site at locations MW-01, MW-702, and MW-706. This is the center of the former MGP operation, near the tar tanks, purifier, the smallest of the three gas holders, and one of the plant buildings. Groundwater quality was less impacted to the north and south of this area. Groundwater at location MW-703 exhibited benzene and naphthalene impacts about two orders of magnitude above the NR 140 ESs. These concentrations decreased significantly, to below detection limits, between this location and MW-705, located a distance of 100 feet north of MW-703.

In addition, groundwater improved significantly in a vertical direction between wells MW-701R, which is located in the shallow groundwater unit, and PZ-701, which is deeper and located immediately above the clay aquitard. The groundwater samples from the piezometer PZ-701 contained benzene concentrations exceeding Chapter NR 140 ES in August 1995 but were more than three orders of magnitude less than results from MW-701. Benzo(a)pyrene was detected in the piezometer in August but was below the detection limit in September. Naphthalene, detected at high levels in MW-701, was not detected in PZ-701.

### *Cyanide*

A total dissolved cyanide concentration slightly above the Chapter NR 140 ES of 0.2 mg/L was detected in at least one of the samples collected from wells MW-702, MW-704, and MW-707. The area of cyanide impacts in groundwater extended from approximately the center of the investigation area to the southern extent of the site (see Figure 8). The samples from MW-706, which exhibited the highest concentrations of BTEX and PAHs, contained no cyanide. No cyanide was detected in northern well MW-705.

### *RCRA Metals*

During August 1995, groundwater samples were analyzed for seven RCRA metals (arsenic, barium, cadmium, chromium, lead, selenium, and silver). No metal concentrations exceeded the Chapter NR 140 ESs. Results for the remaining samples indicated barium was present in all

monitoring wells at concentrations below the Chapter NR 140 PALs. Cadmium, chromium, selenium, and silver were not detected in any samples. Though arsenic, barium, and lead were detected in groundwater, the levels of impacts were not significant compared to the NR 140 standards and the concentrations of BTEX and PAHs. Therefore, based on these results, no groundwater samples were submitted for metals analysis during September 1995 and none of the collected soil samples were submitted for laboratory analysis of metals.

### Aquifer Characterization

On August 15, 1995, five of the monitoring wells (MW-701, MW-702, MW-703, MW-705, and MW-707) were tested to characterize the hydraulic properties of the unconsolidated deposits. Monitoring well MW-706 was not tested due to the presence of tar which would adversely affect the operation and integrity of the monitoring equipment. Piezometer PZ-701 was not tested due to slow recovery (greater than 24 hours). The tests were performed using baildown recovery methods. Before starting the tests, the water level elevation in each well was measured. A pressure transducer, connected to a data logger, and a disposable bailer were then inserted into the well. Following recovery of the water level to within 0.02 feet of the original water level the bailer was quickly removed and the rate of the water level recovery was measured and recorded by the pressure transducer and data logger. The baildown recovery data was analyzed using the Bouwer-Rice (Bouwer and Rice, 1976) method.

Tar was encountered in six of the ten soil borings and two of the seven monitoring well borings installed during this investigation. The tar was present at or below the water table predominately in the southern and west-central portions of the site. During sampling of monitoring well boreholes and soil borings, sampling was extended a minimum of two feet below the vertical extent of the tar encountered.

Depth to groundwater ranged from 3.6 to 7.9 feet BLS in the shallow wells and between 13.6 and 16.6 feet BLS in piezometer PZ-701. Groundwater elevations generally decreased across the site from August to September and generally increased from September to October 1995. Groundwater flow is generally to the west-southwest, toward the Sheboygan River. Horizontal groundwater gradients were calculated based on water table groundwater contour lines and direction of flow. The calculated groundwater gradients ranged between 0.048 ft/ft in August and 0.063 ft/ft in October. Downward vertical hydraulic gradients were exhibited at the MW-701/PZ-701 well nest. Gradients ranged from 0.33 ft/ft in August to 0.46 ft/ft in September.

### **Site Contaminants of Concern**

The primary contaminants of concern (COCs) are associated with MGP residuals and consist of BTEX, PAHs, and total and amenable cyanide. The COCs were identified on both the Campmarina property and within the Center Avenue right-of-way. The locations and distribution of these COCs were influenced by historic MGP operational practices and fill depositional events that significantly altered the river bank alignment and surface topography.

## Upland OU Remediation

Based on the site investigation work described above, as well as a remediation feasibility study and other technical documents and studies, WDNR selected a remedy for the former MGP facility. WDNR's November 22, 2000, ROD selected *Full Source Area Encapsulation of Contaminated Media with Low Flow Biosparging* as the remedy for the Upland OU. The remedy was comprised of the following major components:

- Excavation and off-site thermal treatment of highly-contaminated source materials in surface soils in the central portion of the MGP facility and in the Center Avenue right-of-way
- Vertical barrier wall to completely encircle the former MGP areas
- Groundwater drainage trenches to maintain inward gradients within the cutoff wall
- Engineered multi-layer cap over all areas within the vertical barrier wall
- Low-flow biosparging to promote natural degradation of remaining contaminants within the containment area
- Long-term operation and maintenance of the containment system, including vapor monitoring
- Long-term monitoring of groundwater conditions inside and outside of the containment system

Remedy construction was performed in two phases to fulfill the requirements of the State-issued ROD. Phase I consisted of the removal of MGP-impacted soil and debris and transporting the material off-site for screening and thermal treatment. The soil impact areas above the water table were small and isolated, and there was no unsaturated source area which contributed to groundwater contamination. Evidence of tar below the water table warranted the removal of the tar during Phase I, since removal of the tar would significantly reduce the effort required for groundwater remediation. Excavation and grading operations were performed to remove previously identified source areas, reduce overall grades to accommodate future construction of the park, and prepare the site for Phase II remedy construction. Phase I activities were performed from approximately October 2000 through January 2001.

Phase II consisted of the installation of a special type of environmental sheet pile barrier wall (Waterloo®) that completely encircled affected areas on both Campmarina and the right-of-way, installation of a biosparge system, and construction of a low permeability geosynthetic cover. The sheet pile wall was keyed into a laterally continuous lower clay aquitard. The biosparge system was designed to gently inject air into the subsurface within the containment area to promote natural biodegradation of MGP constituents in shallow groundwater. Following construction of the geosynthetic cover, the site was brought back to its original grade using a combination of clean imported fill and beneficial reuse of thermally treated material. As part of these activities, the river bank was completely restored along Campmarina and the right-of-way using a combination of clean structural fill and riprap. Beneficial reuse of thermally treated material included amending material with organically rich compost for placement in areas

designated for future landscaping. Phase II was initiated in December 2000 and was substantially completed in July 2001.

Following substantial completion of these activities, the Upland OU was then redeveloped. The City of Sheboygan constructed a landscaped neighborhood park, including the creation of a river walk, removal of Water Street along Campmarina, and new recreational facilities. Construction of the park was initiated during the summer of 2001 and was substantially completed in June 2002. (See Figure 9 for remedy features location.)

In accordance with the State-issued ROD, long-term monitoring of groundwater conditions inside and outside of the containment system has been ongoing since 2002. Details about the groundwater monitoring program and results are discussed below in the “Evaluation of WDNR’s Upland OU Remedy Performance” section.

Operation and maintenance of the biosparge system has been conducted monthly<sup>2</sup>, including monitoring the drainage/venting system vent and sump, and an annual site inspection is completed to assess the condition of all remedy components.

### **Remedial Action Objectives of State-issued ROD**

Remedial Action Objectives are general descriptions of the goals established for protecting human health and the environment, to be accomplished through remedial actions. RAOs identify the medium of concern, contaminants of concern, allowable risk levels, potential exposure routes, and potential receptors.

WDNR identified the following RAOs for the Upland OU in its November 2000 ROD:

- Reduce the potential for human exposure to MGP residual oil and tar;
- Prevent leaching of free-phase MGP residuals to surface water or sediments;
- Prevent contaminants in unsaturated soil from leaching into the groundwater or river at concentrations above standards;
- Reduce the potential for contaminated groundwater to discharge into the river; and
- Prevent the migration of contaminated groundwater and achieve applicable groundwater standards<sup>3</sup> for contaminants within a reasonable period of time. A reasonable time period at this site may be very long considering that the shallow groundwater isn’t currently used and is likely not to be used in the future.

### **CURRENT AND POTENTIAL FUTURE SITE AND RESOURCE USES**

<sup>2</sup> On June 6, 2013, the WDNR authorized the shutdown of the biosparge system because it had reached the limit of its effectiveness. See Appendix 1.

<sup>3</sup> The ROD indicated that the applicable groundwater cleanup standards are those in Chapter NR 140 of the Wisconsin Administrative Code.

After WPSC completed the state-mandated remediation work at the former MGP facility (now called the Upland OU) in 2001, the City of Sheboygan redeveloped both Campmarina and the adjoining property to the south into a park, a condominium complex, and a river walk. The Upland OU is now within Riverside Park with landscaped lawn, recreational areas, seating, and sidewalks. The park footprint includes the former MGP property and abandoned right-of-ways for North Water Street, Center Street, and New York Avenue. The surrounding land use includes residential, recreational, and commercial/industrial buildings. Groundwater in the vicinity of the site is not used as a source of drinking water, nor is it expected to serve as a drinking water source in the future; all drinking water in the vicinity of the site is drawn from Lake Michigan. The reasonably anticipated future land and resource uses are the same as the current uses.

A review of the Natural Heritage Inventory Database for Township 15 Range 23 North Section 23 was performed by Integrys Business Support (IBS). No federal or state threatened or endangered species or state species of special concern were identified during the review. A similar review of the state Wisconsin Historic Preservation Database, a resource for accessing archaeological and historical information, was performed by IBS. No archaeological sites were identified during the review.

### **SITE RISKS PRIOR TO REMEDIATION ACTIVITIES**

The proximity of the former MGP facility to the Sheboygan River, shallow depth to groundwater, and the redevelopment of a neighborhood park, condominium complex, and river walk presented several potential pathways that, prior to site cleanup activities, could have served as routes for exposure. A quantitative risk assessment was not performed for the Upland OU during the site investigation overseen by the State. However, a qualitative risk evaluation was performed during those investigations by considering the potential routes of exposure to the site contamination. The exposure pathways evaluated included direct contact through ingestion, particulate and/or vapor phase inhalation, leaching to groundwater, and leaching to surface water (i.e., the Sheboygan River). Environmental media for the site included unsaturated soil, saturated soil, shallow groundwater within the sand and gravel aquifer, and surface water. Deeper groundwater within the sand and gravel aquifer was ruled out as an exposure pathway at the site because the presence of MGP-related impacts diminished at depths greater than 25 feet bgs, and groundwater analytical data from three piezometers at the site did not indicate the presence of MGP residuals in the deeper groundwater within the sand and gravel aquifer. A low-permeability silty clay layer was identified in all borings sampled to 25 feet bgs or deeper. This low-permeability layer appears to serve as a barrier to vertical migration of the MGP-related constituents and coal tar.

The potential routes for exposure from each of the media are summarized below:

Unsaturated Soil: The upper unsaturated fill materials were relatively unaffected by MGP residuals and did not serve as significant routes for leaching soluble components to groundwater. Of primary concern was the potential direct contact exposure to construction and/or remediation workers excavating or managing materials at the site and



vapor phase migration of BTEX components along foundations for the then-proposed condominium complex. Generally, BTEX compounds were not detected in shallow soil, with the exception of a relatively isolated area in the central portion of Campmarina and in the right-of-way. Concentrations detected were generally below health-based residential and industrial values. Similarly, weak acid dissociable cyanide concentrations were below guideline values referenced in the feasibility study developed for the Upland OU under the State-implemented actions. Although cyanide concentrations were not above published levels of concern, scattered oxide box wastes consisting primarily of Prussian-blue (complexed cyanide) stained wood chips and affected vegetation (tree roots) were identified in near surface soil (less than two feet bgs) of the right-of-way. PAHs were detected at concentrations that exceeded established guideline values on both Campmarina and the right-of-way. Lead was detected in several areas on Campmarina and in the right-of-way above established generic direct contact residual contaminant levels that would potentially pose concerns for particulate inhalation. Lead concentrations in soils did not suggest they were a potential source for leaching to groundwater.

Saturated Soil and Shallow Groundwater within the Sand and Gravel Aquifer: Shallow groundwater is approximately 5 feet bgs to 21 feet bgs. Subsurface conditions within this zone consist of a heterogeneous mixture of glacial deposits intermixed with fill material. Intermittent and stratified lenses of higher permeability sand, silt and gravel containing stringers of coal tar were identified up to 21 feet bgs. This saturated region contained the largest amounts of coal tar identified at the site. Lighter MGP residual hydrocarbon fractions were also observed in sediments encountered beneath the river bank in the right-of-way. These materials would pose concerns for direct contact exposure to remediation workers and the local community if excavated. The presence of coal tar and lighter MGP residual oils containing relatively elevated concentrations of BTEX and PAHs directly contributed to shallow groundwater contamination.

Surface Water: The presence of coal tar and lighter phase, separated MGP residuals apparently contributed to surface water impacts in the Sheboygan River. This was documented by observations of intermittent hydrocarbon surface water sheen along the river's edge and the presence of coal tar in the river bank. The extent of this contribution was not defined, as coal tar previously identified in river sediments might have also influenced surface water quality.

## **EVALUATION OF WDNR's UPLAND OU REMEDY PERFORMANCE**

Groundwater monitoring has been conducted semi-annually at the site since 2002. The groundwater-monitoring network currently consists of the following monitoring wells: MW-701R, PZ-701, MW-706, PZ-702, MW-707R, PZ-703, MW-705, MW-708, and MW-709R (see Figure 2). Groundwater samples from all monitoring wells are analyzed for BTEX and PAHs except at upgradient well MW-705. Geochemical parameters, including sulfate, nitrate, nitrite, and methane analyses, are collected semi-annually from monitoring wells MW-701R, PZ-701, MW-706, PZ-702, MW-707R, and PZ-703 and from biosparge wells BW6 and BW15, and annually from MW-705, MW-708, and MW-709R. Quarterly water levels are collected from all

monitoring wells and a river staff gauge. Field-measured parameters (temperature, field conductivity, pH, dissolved oxygen, and oxidation/reduction potential) are collected quarterly from all monitoring wells except for upgradient well MW-705, and are collected semi-annually from biosparge wells BW6 and BW15.

The depth to groundwater ranges from approximately 5 to 8 feet bgs throughout the site. Flow in the shallow groundwater unit is to the south-southeast, toward the Sheboygan River. Shallow groundwater quality is close to or below standards at perimeter wells MW-705, MW-708, and MW-709R, which are located outside of the containment system (see Figure 13 and Tables 5 and 6). The groundwater plume remains contained based on groundwater elevation data, the primary measure of containment performance. Groundwater elevation data for 2010 are summarized in Table 7. The groundwater elevations in MW-708 outside the containment barrier compared to the lower groundwater elevations in MW-706 within the containment barrier indicate that upgradient containment has been achieved. The river elevation at staff gauge SG-703 remains below the groundwater elevations within the containment barrier, and there is no indication that water levels in the river have influenced groundwater elevations either within or outside of the containment barrier, as shown in Figure 12. The measurements also indicate that downgradient containment has been achieved. Groundwater elevations outside the containment barrier indicate shallow groundwater flow to the northwest around the containment barrier. Groundwater elevations within the containment barrier indicate shallow groundwater flow to the west towards the river and a decreased horizontal gradient compared to 2002 and 2010, as shown in Figure 10.

Deeper groundwater appears to continue to flow to the southwest with almost no change since 2009, as shown in Figure 11.

The secondary measure of containment performance is contaminant concentration trends in shallow monitoring wells outside the containment barrier (MW-705, MW-708, and MW-709R) and piezometers below the containment barrier (PZ-701, PZ-702, and PZ-703). Groundwater samples were collected from all the monitoring wells and piezometers via low-flow sampling techniques. Results of the groundwater monitoring are presented in Tables 5 and 6 and Figure 13. Contaminant concentrations in shallow monitoring wells outside the containment barrier and piezometer PZ-701 (below the containment zone), including BTEX and PAHs, are below their respective WAC Chapter NR 140 PALs. Exceedances of the WAC Chapter NR 140 ESs have not been historically observed at these wells (with the exception of benzene at PZ-701 in 1995; this result appeared to be anomalous). At piezometer PZ-703, PAH and BTEX concentrations continue to decrease as demonstrated by the data in Tables 5 and 6. At PZ-703, the measured naphthalene concentration has remained below the PAL since the 2004 sampling events.

The biosparge system performance was measured based on contaminant concentration and geochemistry trends at shallow groundwater monitoring wells MW-701R, MW-706, and MW-707R, all located within the containment system. The results of these trends indicated fluctuating to decreasing benzene and naphthalene concentrations and continued biologic activity within the biosparge system's zone of influence during operation of the system. These trends indicated that the biosparge system maintained or mildly increased biologic degradation of contaminants within the containment system while the system was operating.

Based on the groundwater monitoring data (including groundwater elevation data) discussed above, which has been collected since implementation of the remedy, the remedy has achieved all of the RAOs identified in the State's November 2000 ROD, with the exception of achieving groundwater cleanup standards. Excavation of the most highly-contaminated soils and capping/containment of the remaining materials has reduced the potential for human exposure to the MGP residuals, prevented the migration of free-phase residuals to surface water or sediments, prevented contaminants in unsaturated soil from leaching to groundwater below or outside of the containment system, reduced the potential for contaminated groundwater to discharge into the river, and prevented the further migration of contaminated groundwater. The remaining RAO, the achievement of applicable groundwater standards throughout the shallow aquifer, has not yet been achieved. In its November 2000 ROD, WDNR indicated that groundwater at the site is expected to achieve applicable standards through removal and treatment of the most highly-contaminated soils, low-flow biosparging, and subsequently through natural attenuation after the biosparging system ceases operation. The State acknowledged that it is expected to take a very long time to achieve groundwater standards, but that this is reasonable given the continued presence and maintenance of the containment cover, vertical barrier wall and hydraulic control drainage system, along with the lack of current and expected future uses of the shallow groundwater.

EPA has reviewed all available environmental data collected pursuant to the State-mandated remedy that was implemented at the Upland OU. Based on groundwater elevation data – the primary measure of containment performance -- the groundwater contamination at the Upland OU remains contained within the containment barrier. The groundwater elevations outside the containment barrier (in MW-708) compared to the lower groundwater elevations within the containment barrier (in MW-706) indicate that upgradient containment has been achieved. The river elevation at the staff gauge has been below the groundwater elevations within the containment barrier, and there is no indication that water levels in the river have influenced groundwater elevations either within or outside of the containment barrier. Groundwater elevation measurements also indicate that downgradient containment has been achieved. Groundwater elevations outside of the containment barrier indicate that shallow groundwater flows to the northwest around the containment barrier. The secondary measure of containment performance is contaminant concentration trends in shallow monitoring wells outside of the containment barrier (MW-705, MW-708 and MW-709R) and piezometers below the containment barrier (PZ-701, PZ-702 and PZ-703). Contaminant concentrations in shallow monitoring wells outside of the containment barrier and piezometer PZ-701 (below the containment zone), including BTEX and PAHs, are below the State's respective NR 140 Preventive Action Limits. Exceedances of the State's NR 140 Enforcement Standards have not been historically observed at these wells.

### **Institutional Controls**

Although some institutional controls were required by the State's November 2000 ROD – groundwater use restrictions were specifically mentioned – land use restrictions and restrictions to protect remedy components were not included. WDNR later required the implementation of comprehensive ICs at the Upland OU. A WDNR letter dated June 6, 2013, documented the specific ICs that are required and that have been implemented at the Upland OU (see Appendix

1). The ICs are enforceable by the State. Maintenance of the barrier system has been required and is intended to prevent contact with any remaining soil contamination as well as contain the spread of groundwater contamination. The ICs require the current or future property owner to notify the WDNR before making a change in land use, in order to determine if further action is needed to maintain the protectiveness of the remedy required by the State. Current or future owners must obtain prior written approval from WDNR for any changes to the barrier system or changes in land use. A cap inspection log must be kept and submitted to WDNR upon request. The following activities are prohibited on any portion of the property where pavement, soil cover, or the barrier system is required, unless prior written approval has been obtained from the WDNR: removal of the existing barrier, replacement with another barrier, excavating or grading of the land surface, filling on covered or paved areas, plowing for agricultural cultivation, construction or placement of a building or other structure, and use of groundwater from the subsurface for human consumption (until standards are met). The site has been listed on the WDNR's Remediation and Redevelopment Program's internet-accessible Geographic Information System (GIS) Registry,<sup>4</sup> to provide notice of residual contamination and of continuing obligations. In addition, approval prior to well construction or reconstruction is required for all sites shown on the GIS Registry, in accordance with NR 812.09(4) (w) of the Wisconsin Administrative Code.

### **SUMMARY OF RATIONALE FOR DECISION**

After considering the actions that have been implemented at the Upland OU pursuant to the State-issued ROD and evaluating post-construction groundwater monitoring data from the site, EPA has decided that **No Further Action**, beyond the remedial work that has been and is being conducted under State authority, is required for the Upland OU of the WPSC Campmarina MGP Site. The remedial work conducted at the Upland OU pursuant to the State's November 2000 ROD, including ongoing operation and maintenance work, is substantially equivalent to what would be required under CERCLA and has achieved all of the remedial action objectives that were established, with the exception that groundwater cleanup standards have not yet been achieved; it is expected to take a long time to achieve groundwater standards at the site. Additionally, WDNR required comprehensive institutional controls to restrict land and/or groundwater use and to protect the remedy components at the Upland OU, and all appropriate institutional controls are now in place. WDNR will continue to oversee the monitoring and maintenance of the Upland OU remedy, and will continue to share all environmental data with EPA. EPA retains the right to require further actions under CERCLA at the Upland OU in the event the State ceases to enforce or the potentially responsible party ceases to conduct the remedial work required by the State's ROD and/or other documents or decisions enforceable by the State.

Based on the actions that have been taken, EPA believes that the risks associated with contamination at the former MGP have been adequately addressed, and that the Upland OU remedy that has been implemented pursuant to the State-issued ROD effectively protects human

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<sup>4</sup> The State of Wisconsin has not passed a uniform environmental covenants act (UECA). Instead, the State uses its GIS Registry as a statewide mechanism for recording ICs. Region 5 EPA has accepted the State's GIS Registry as an acceptable and enforceable mechanism for IC implementation in Wisconsin.

health and the environment. Therefore, EPA believes that no further action is required under CERCLA at the Upland OU of the WPSO Campmarina MGP Site.

Since this is a decision for "No Further Action," the statutory requirement of CERCLA Section 121 for conducting five-year reviews is not triggered. However, because this "No Further Action" decision results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, EPA will conduct at least one discretionary five-year review of the site per the requirements of §300.430(f)(4)(ii) of the NCP.

#### **DOCUMENTATION OF SIGNIFICANT CHANGES**

There are no significant changes from the recommended alternative described in the Proposed Plan.

### **PART III: RESPONSIVENESS SUMMARY**

The Proposed Plan for the WPSC Campmarina Former MGP Site was released for public comment in late June 2013, and the public comment period ran from July 8 through August 7, 2013. EPA received only one comment during the public comment. That comment, and EPA's response, is provided below.

**Comment:**

**EPA Response:**

## **FIGURES**

## **TABLES**



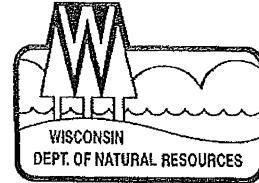
**Appendix 1 – WDNR Biosparge System Shutdown and ICs Letter**

**Appendix 2 - ADMINISTRATIVE RECORD INDEX**

**Appendix 1 – WDNR Biosparge System Shutdown and ICs Letter**

State of Wisconsin  
DEPARTMENT OF NATURAL RESOURCES  
Plymouth Service Center  
1155 N Pilgrim Road  
Plymouth WI 53073

Scott Walker, Governor  
Cathy Stepp, Secretary  
Telephone 608-266-2621  
Toll Free 1-888-936-7463  
TTY Access via relay - 711



June 6, 2013

Brian Bartoszek  
Integrays Business Support LLC  
PO Box 19002 Green Bay, WI 54307

Dear Mr. Bartoszek:

Subject: Air-sparging system shut-down approval and institutional controls, Camp Marina former  
Manufactured Gas Plant, 732 North Water Street, Sheboygan, file reference BRRTS  
#0260000095.

Thank you for having your consultant submit a performance evaluation and shut-down request of the ancillary remedial action system at this site, which is the air sparging system, that has reached the limit of its effectiveness. This remedial action was designed to supplement the primary remedial action which consisted of excavation and thermal treatment of soils contaminated with MGP residuals followed by encapsulation of the contaminated soil and groundwater remaining in place with sheet pile walls tied into clay soil at depth, and a barrier cover on top, followed by long term monitoring of the groundwater at the site ( the sheet pile walls and cover system will be referred to in the remainder of this letter as the barrier system). This remedial action plan was approved by the Wisconsin Department of Natural Resources (WDNR) in the form of a Record of Decision signed by the WDNR in January of 2001.

I have reviewed your analysis of the performance of the air-sparge system and concur with your consultant that it should be shut-down. Also at this time, the WDNR is hereby imposing institutional controls on the upland portion of the site, that is, inspection, maintenance and upkeep of the barrier system. This maintenance and upkeep requirement was originally part of the remedial action plan/ROD but was not formalized in a deed instrument at that time (deed restrictions and notifications being the common practice for institutional controls in Wisconsin in the past). The institutional controls set forth in this letter are enforceable under s. 292.12 Wis Stats. This letter will be recorded with other documents from our file on the WDNR's publically accessible geographic information system database.

#### Continuing Obligations

The continuing obligations for this site are summarized below. Further details on actions required are found in the section Conditions.

- Groundwater contamination is present above ch. NR 140, Wis. Adm. Code enforcement standards.
- Residual soil contamination exists.
- The barrier system must be maintained over and surrounding contaminated soil, and the department must approve any changes to this barrier.
- If the land use is ever changed, additional environmental work must be completed.

BRRTS #0260000095, June 6, 2013

### GIS Registry

This site will be listed on the Remediation and Redevelopment Program's internet accessible Geographic Information System (GIS) Registry, to provide notice of residual contamination and of continuing obligations.

WDNR approval prior to well construction or reconstruction is required for all sites shown on the GIS Registry, in accordance with s. NR 812.09(4) (w), Wis. Adm. Code. To obtain approval, complete and submit Form 3300-254 to the DNR Drinking and Groundwater program's regional water supply specialist. This form can be obtained online at <http://dnr.wi.gov/topic/wells/documents/3300254.pdf> or at the web address listed below for the GIS Registry.

All site information is on file at the Southeast Regional WDNR office, at 1155 Pilgrim Road, Plymouth WI 53073. This letter and file information, including the maintenance plan, will be included on the GIS Registry in a PDF attachment. To review the site on the GIS Registry web page, visit the RR Sites Map page at <http://dnrmaps.wi.gov/imf/imf.jsp?site=brrts2>.

### Prohibited Activities

Certain activities are prohibited at this property because maintenance of the barrier system is intended to prevent contact with any remaining soil contamination, and to contain the spread of groundwater contamination. You or the current or future property owner is required to notify the WDNR before making a change in land use, in order to determine if further action is needed to maintain the protectiveness of the remedy employed. The following activities are prohibited on any portion of the property where pavement, soil cover, or the barrier system is required, as shown on the **attached map**, unless prior written approval has been obtained from the WDNR:

- Removal of the existing barrier;
- Replacement with another barrier;
- Excavating or grading of the land surface;
- Filling on covered or paved areas;
- Plowing for agricultural cultivation;
- Construction or placement of a building or other structure.
- Use of groundwater from the subsurface for human consumption (until standards are met).

### Conditions

Compliance with the requirements of this letter is a responsibility to which the current and any subsequent property owners must adhere. WDNR staff will conduct periodic prearranged inspections to ensure that the conditions included in this letter and the attached maintenance plans are met. If these requirements are not followed, the WDNR may take enforcement action under s. 292.11, Wis Stats. to ensure compliance with the specified requirements, limitations or other conditions related to the property.

### Residual Groundwater Contamination (ch. NR 140, 812, Wis. Adm. Code)

Groundwater contamination greater than enforcement standards is present on this contaminated property, as shown on the **attached map**. If the property owner intends to construct a new well, or reconstruct an existing well, you'll need prior WDNR approval. Continued sampling of the monitoring of the wells is required.

BRRTS #0260000095, June 6, 2013

Cover or Barrier (s. 292.12 (2) (a), Wis. Stats.)

The pavement, landscaping, and barrier system that exists in the location shown on the **attached map** shall be maintained in compliance with the **attached maintenance plan** in order to minimize the infiltration of water and prevent additional groundwater contamination that would violate the groundwater quality standards in ch. NR 140, Wis. Adm. Code, and to prevent direct contact with residual soil contamination that might otherwise pose a threat to human health.

A request may be made to modify or replace a cover or barrier. The replacement or modified cover or barrier must be protective of the revised use of the property, and must be approved in writing by the WDNR prior to implementation. The **attached maintenance plan and inspection log** are to be kept up-to-date and on-site. The current owner must submit the inspection log to the WDNR annually.

In addition, depending on site-specific conditions, construction over contaminated materials may result in vapor migration of contaminants into enclosed structures or migration along newly placed underground utility lines. The potential for vapor inhalation and means of mitigation should be evaluated when planning any future redevelopment, and measures should be taken to ensure the continued protection of public health, safety, welfare and the environment at the site.

Please send written notifications in accordance with the above requirements to:

Remediation and Redevelopment Program Assistant  
Wisconsin Department of Natural Resources  
P.O. Box 12436  
Milwaukee, WI 53211

If you have any questions regarding this letter, please contact John Feeney at 920-892-8756, extension 3023.

Sincerely,



Frances Koonce, Sub Team Supervisor  
Southeast Region Remediation & Redevelopment Program  
Wisconsin Department of Natural Resources

Attachments:

- remaining groundwater contamination map
- remaining soil contamination map
- ~~missing monitoring well location map~~ J.F.
- extent of sheet pile barrier and cover map
- maintenance plan

cc: Natural Resource Technology  
City of Sheboygan  
SER File



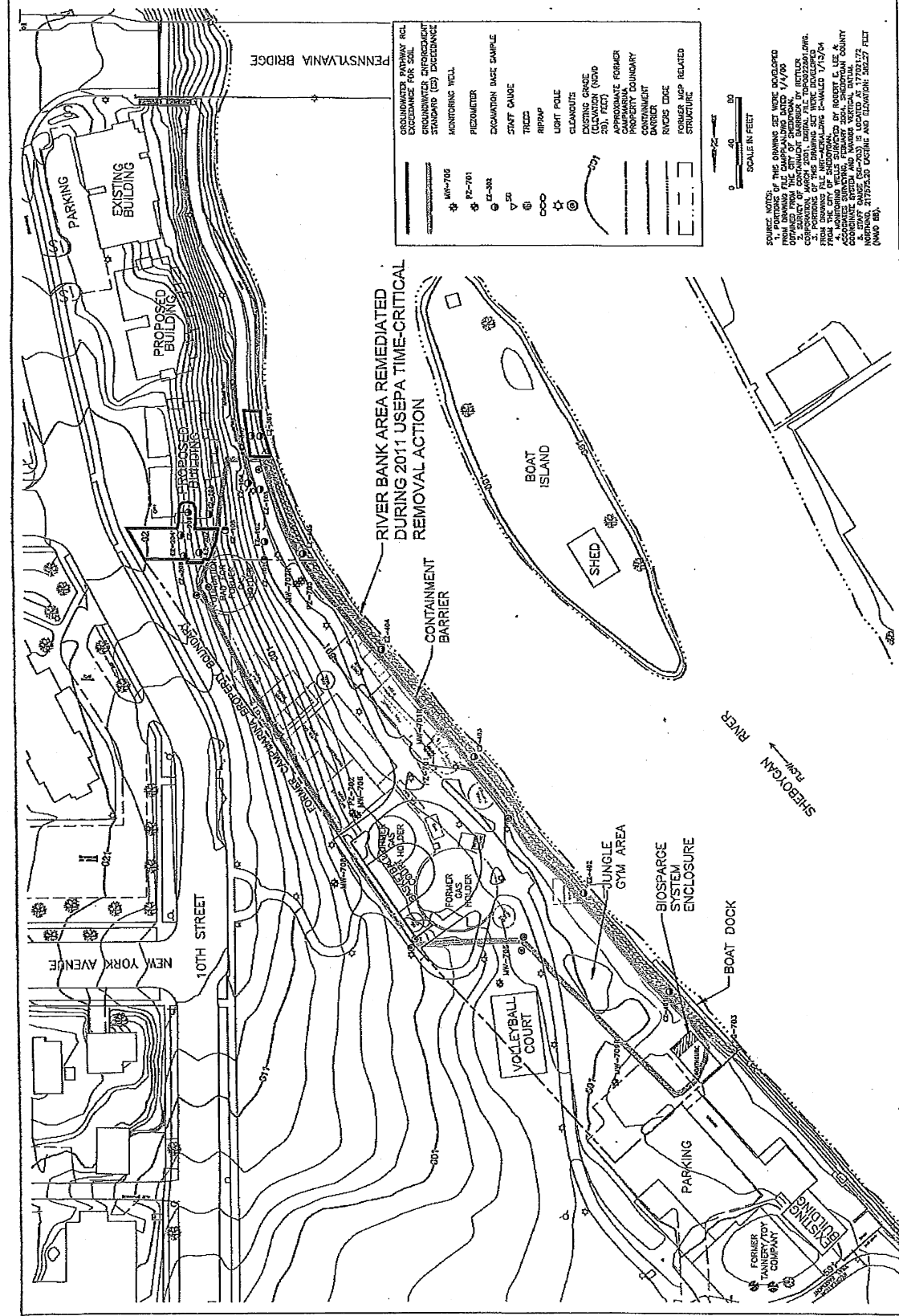
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**POST-REMEDIAL SOIL CONTAMINATION**

BRRTS #02-80-000095  
 CAMP MARINA MANUFACTURED GAS PLANT  
 SHEBOYGAN, WISCONSIN

NATURAL  
 RESOURCE  
 TECHNOLOGY

DRAWN BY: NWD	DATE: 04/09/13	APPROVED BY: JMK	DATE: 05/17/13
CHECKED BY: JMV	DATE: 04/09/13	DRAWING NO: 1313-B-2-Post-Remedial Soil	
REFERENCE: SEE INFO BLOCK			







PROJECT NO.  
1313/B.0

FIGURE NO.  
D.1.a

**AREAS SUBJECT TO MAINTENANCE PLAN**

BRTS #02-60-000095  
CAMP MARINA MANUFACTURED GAS PLANT  
SHEBOYGAN, WISCONSIN

REFERENCE: SEE INFO BLOCK  
DRAWING NO: 1313-B-D.1.a-Maint Plan

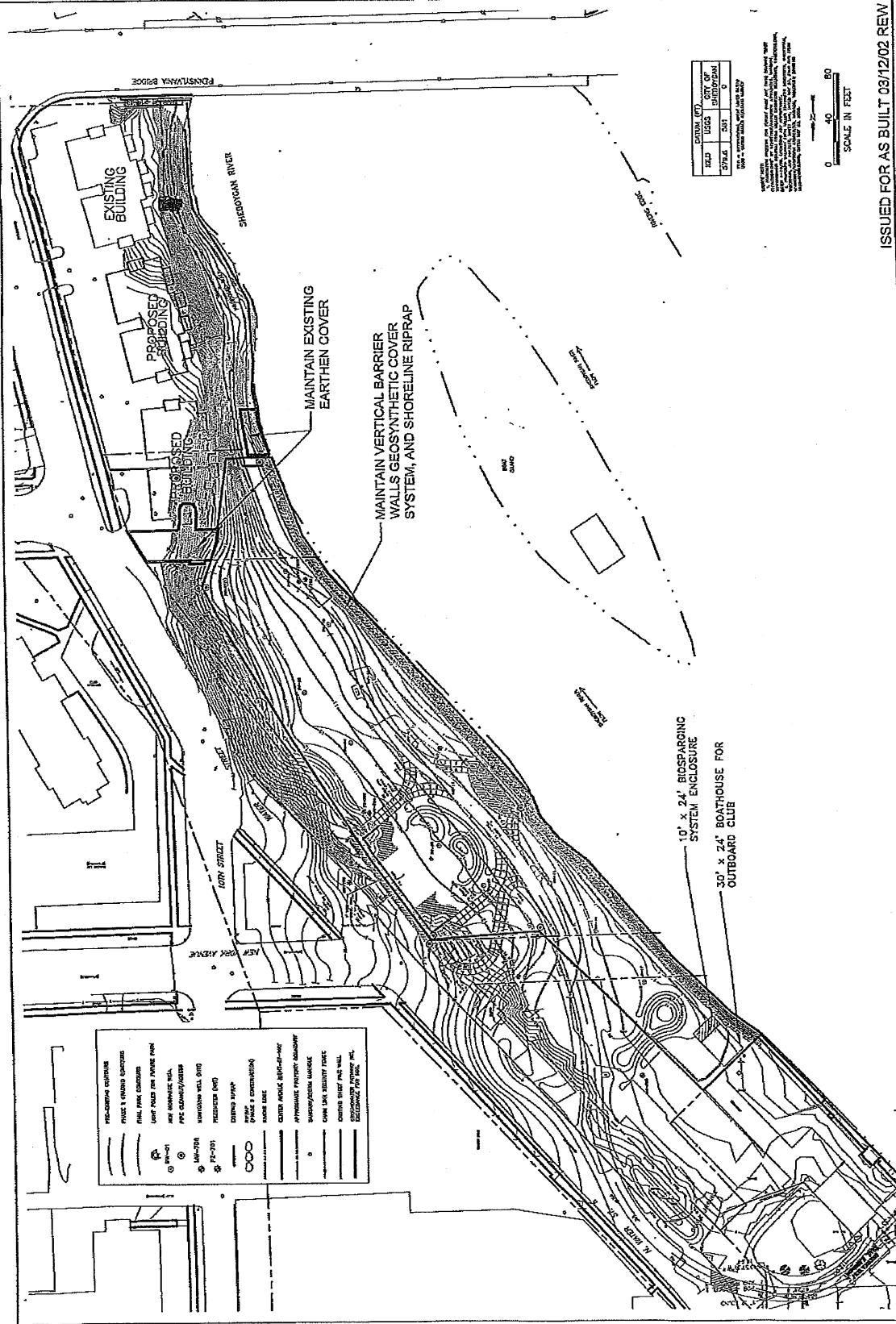
DRAWN BY: MVO DATE: 04/09/13  
CHECKED BY: JMW DATE: 04/09/13  
APPROVED BY: JMK DATE: 05/03/13

STATE	WI
COUNTY	OSHTAGO
CITY	OSHTAGO
MAP	1313/B.0
DATE	05/03/13
SCALE	AS SHOWN

THIS PLAN IS THE PROPERTY OF NATURAL RESOURCE TECHNOLOGY. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED HEREON. ANY REUSE OR MODIFICATION OF THIS PLAN WITHOUT THE WRITTEN CONSENT OF NATURAL RESOURCE TECHNOLOGY IS STRICTLY PROHIBITED.

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Campmarina Former MGP  
Maintenance Plan  
May 2013

Property: Campmarina Former Manufactured Gas Plant  
732 N. Water Street  
714 N. Water Street  
Sheboygan, Wisconsin 53081  
Sheboygan County

Legal Description:

732 N. Water Street:  
ORIGINAL PLAT ALL OF BLK 149 & THE VACATED SOUTHERLY 20' OF NEW YORK  
AVENUE ADJACENT TO BLOCK 149 CAMPMARINA PARK  
TAX #59281107760

And

714 N. Water Street:  
ORIGINAL PLAT ALL OF LOTS 1,2 & 3 BLK 133 AND THE NELY 40' OF LOTS 4 & 5  
AND THE NELY 40' OF THE SELY 20' OF LOT 6 BLK 133, ALSO THE VAC N 20' OF  
NEW YORK AVE ADJ BLK 133 (CAMPMARINA PARK)  
TAX #59281107756

And

Center Avenue ROW:  
ORIGINAL PLAT THAT PRT OF VAC CENTER AVE LYING W OF WATER ST  
BETWEEN BLKS 149 & 156, ALSO THE NLY 10' OF BLK 156 DESC AS COM AT  
INTERSECTION OF S LN OF CENTER AVE WITH THE W LN OF WATER ST, THE  
P.O.B., TH S 13° E 10.25', TH 115.79'  
TAX #59281108711

Geographic Coordinates (WTM83/91): 703,699 meters Easting, 366,900 meters Northing  
(NW 1/4 of the SW 1/4 of Sec 23, T15N, R23E),

Property Owner:  
City of Sheboygan  
828 Center Avenue  
Sheboygan, WI 53081

WDNR File: Camp Marina Manufactured Gas Plant  
732 N. Water Street  
Sheboygan, Wisconsin 53081 (Figure B.1.a)  
BRRTS# 02-60-000095; FID # 460134950

WDNR Contact  
Mr. John Feeney, Hydrogeologist  
Wisconsin Department of Natural Resources  
1155 Pilgrim Parkway  
Plymouth, WI 53073  
(920) 892-8756 Ext. 3023  
[johnm.feeney@wisconsin.gov](mailto:johnm.feeney@wisconsin.gov)

## Introduction

This Maintenance Plan has been prepared in accordance with the requirements of s. NR 724.13(2), Wisconsin Administrative Code for the above-referenced property ("Property") to be implemented as part of the case closure. The maintenance activities relate to the following engineering controls occupying the area over impacted soil and groundwater at the park or on the site (Figure D1):

- Vertical barrier wall
- Engineered geosynthetic cover underlying the earthen cover
- Shoreline riprap

A copy of the engineering as-builts for the engineering controls is attached.

A copy of this Plan is to be kept on file by: (1) the Wisconsin Department of Natural Resources (WDNR), Northeast Region; (2) the Property Owner, including future Property owners; and (3) the Property Manager, if any. The Plan shall be made available by the Property Owner to prospective purchasers, contractors, utilities and maintenance personnel, and any other public or private persons or entities authorized to perform work at the Property. Summary reports are on file with the WDNR and are available upon request (WDNR file reference BRRTS# 02-60-001016).

More site-specific information about this property may be found by consulting:

- The case file in the WDNR Northeast Region office;
- BRRTS on the Web (WDNR's internet based data base of contaminated sites):  
<http://dnr.wi.gov/botw/SetUpBasicSearchForm.do>;
- GIS Registry PDF file for further information on the nature and extent of contamination:  
<http://dnrmaps.wisconsin.gov/imf/imf.jsp?site=brrts2>; and
- The WDNR project manager for Sheboygan County.

## Plan Purpose and Site Information

The purpose of this Plan is to document the responsibilities associated with the land use controls applicable to the Property and to identify how to properly manage residual impacted soil and groundwater under the earthen cover. Residual soil impacts are listed on Table 8.

The existing engineering controls contain the underlying residual soil and groundwater impacts. The earthen cover provides further protection from direct contact with underlying residual contaminants. The earthen cover and shoreline rip rap protects the existing engineering controls (geosynthetic cover and vertical barrier wall). The locations of these engineering controls and barriers are located at the park and shown on Figure D.1.a. Based on the current and future use of the property (as a recreational park), the engineering controls and barriers should function as intended at a level of effort similar to any other recreational park, unless disturbed.

## Annual Inspection

The existing engineering controls contain the underlying residual soil and groundwater impacts. The earthen cover and the shoreline riprap (Figure D.1.a) will be inspected once a year for to verify the earthen cover and shoreline riprap are present and significant soil erosion has not occurred that may allow exposure to

underlying soils and groundwater. Typically, this annual inspection will be completed in the spring after all snow has melted.

The inspections will be performed by the property owner or designated representative. The inspector will walk the perimeter and interior of the park, looking for areas where soil has rills, eroded, or significantly settled that may result in ponding water. The inspector will stand at the water's edge to visually observe the presence-absence of shoreline riprap along the bank. Any area of the park where soils have eroded or are likely to erode or greater than 10 consecutive linear feet of shoreline riprap are not present, will be documented. A log of the inspections and associated repairs will be maintained by the property owner and is included as Exhibit A, Inspection Log. The log will include recommendations for necessary repairs of areas where erosion was observed. Once repairs are completed, they will be documented in the inspection log. A copy of the inspection log will be kept at the City of Sheboygan municipal offices and available for submittal or inspection by WDNR representatives upon their request.

#### **Maintenance Activities**

Repairs will be scheduled by the property owner as soon as practical if problems are noted during the annual inspection or at other times during the year if observed as part of the regular park maintenance activities (i.e., mowing). Repairs are typical of any other shoreline park and can include filling or resurfacing of erosional areas of the earthen cover or replacing shoreline riprap. If maintenance activities may expose the underlying soil or groundwater, the owner must inform maintenance workers of direct contact exposure hazards and ensure they have appropriate personal protective equipment. The owner must also sample any soil excavated from the site prior to off-site disposal to ascertain if contamination remains. The soil must be treated, stored, and disposed by the owner in accordance with applicable local, state, and federal law.

In the event the engineering controls are removed or replaced as a result of significant utility or construction activities at the park, the replacement controls must function in a manner equal to or exceeding the original controls to prevent direct contact with soil and groundwater, and groundwater migration to surface water. Any replacement barrier will be subject to the same maintenance and inspection guidelines as outlined in this Maintenance Plan unless otherwise indicated by the WDNR or its successor.

The property owner, in order to maintain the integrity of the engineering controls, will maintain a copy of this Maintenance Plan at the City of Sheboygan Municipal Offices and make it available to all interested parties (i.e. on-site employees, contractors, future property owners, etc.) for viewing.

#### **Prohibition of Activities and Notification of DNR Prior to Actions Affecting a Cover or Cap**

The following activities are prohibited on any portion of the park property where engineering controls are required as shown on the attached maps, unless prior written approval has been obtained from the Wisconsin Department of Natural Resources: 1) removal of the existing engineering control; 2) replacement with another engineering control; 3) excavating or grading of the land surface; 4) filling on capped or paved areas; 5) plowing for agricultural cultivation; or 6) construction or placement of a building or other structure. Any area of cap disturbance shall be restored in a manner consistent with the original cap condition. If disturbance cannot be avoided, activities that disturb the soil will not be conducted until approval is obtained from WDNR. Proper material management includes, but is not limited to:

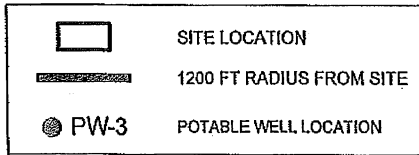
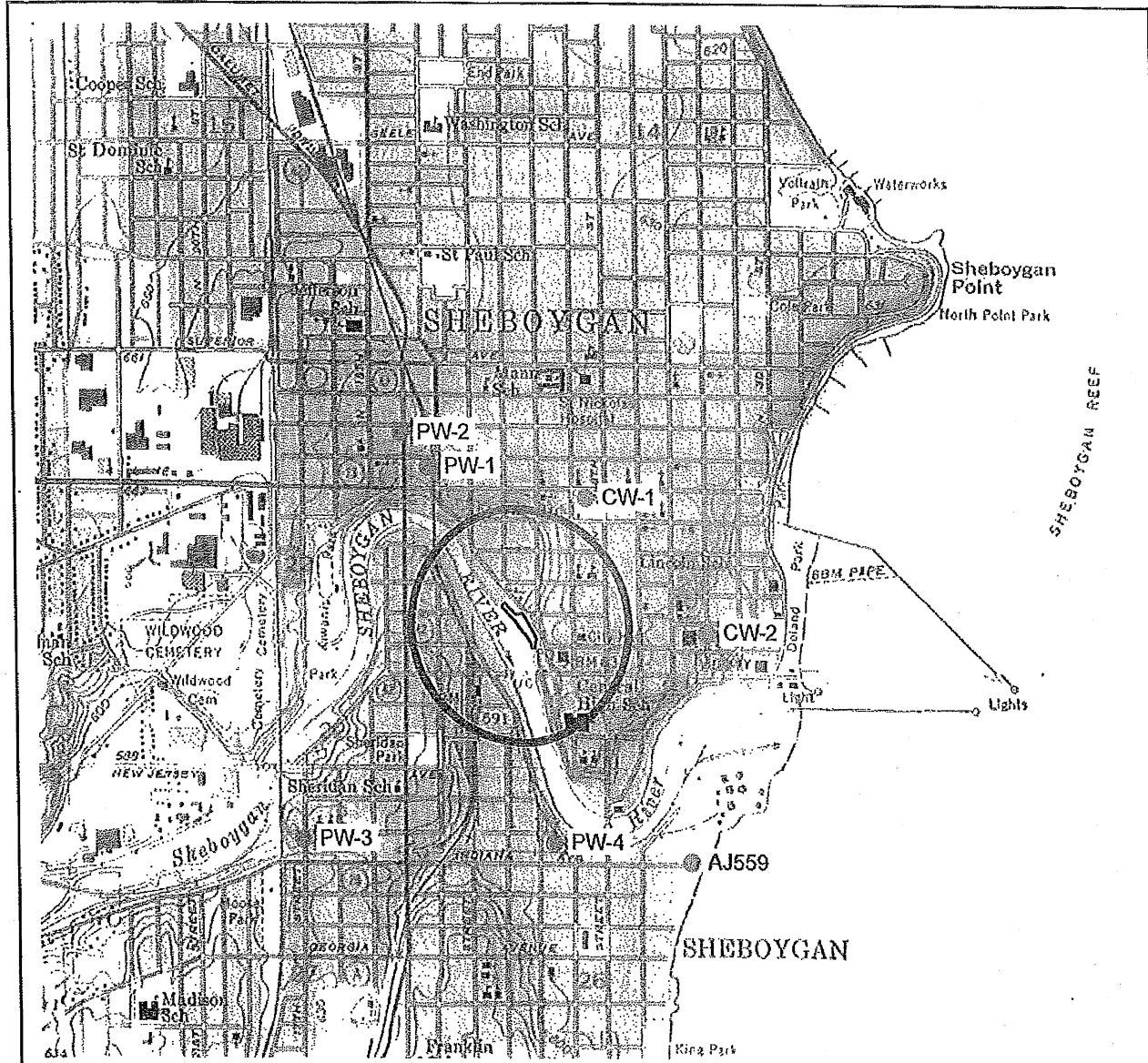
- Characterize, manage, and dispose impacted soil and groundwater in accordance with Wisconsin solid waste rules.

- Determine whether planned site improvements require WDNR approval. Site improvements include, but are not limited to, constructing or placing a building or other structure or landscaping which could be disruptive to the existing barriers.

#### **Amendment or Withdrawal of Plan**

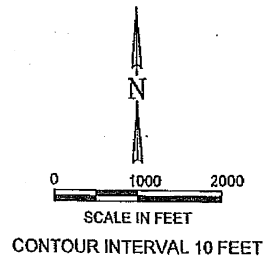
This Plan can be amended or withdrawn by the Property Owner with the written approval of the WDNR.

Attachments: Figure B.1.a. - Location Map  
Figure D.1.a- Areas Subject to Maintenance Plan  
Figure D.1.b- Geosynthetic Cover System As-Built  
Figure D.1.c- River Bank and Center Avenue ROW As-Built  
Table A.4. - Pre and Post Remaining Soil Contamination  
Exhibit A -Inspection Log Form



**SOURCE NOTES:**

1. USA TOPO MAPS - COPYRIGHT © 2011 NATIONAL GEOGRAPHIC SOCIETY, I-CUBED-CUBED.
2. COORDINATE SYSTEM IS WISCONSIN COUNTY COORDINATE, SHEBOYGAN COUNTY, US FOOT.



May 03, 2013 1:04pm PLOTTED BY: ndrads@nrtech  
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## LOCATION MAP



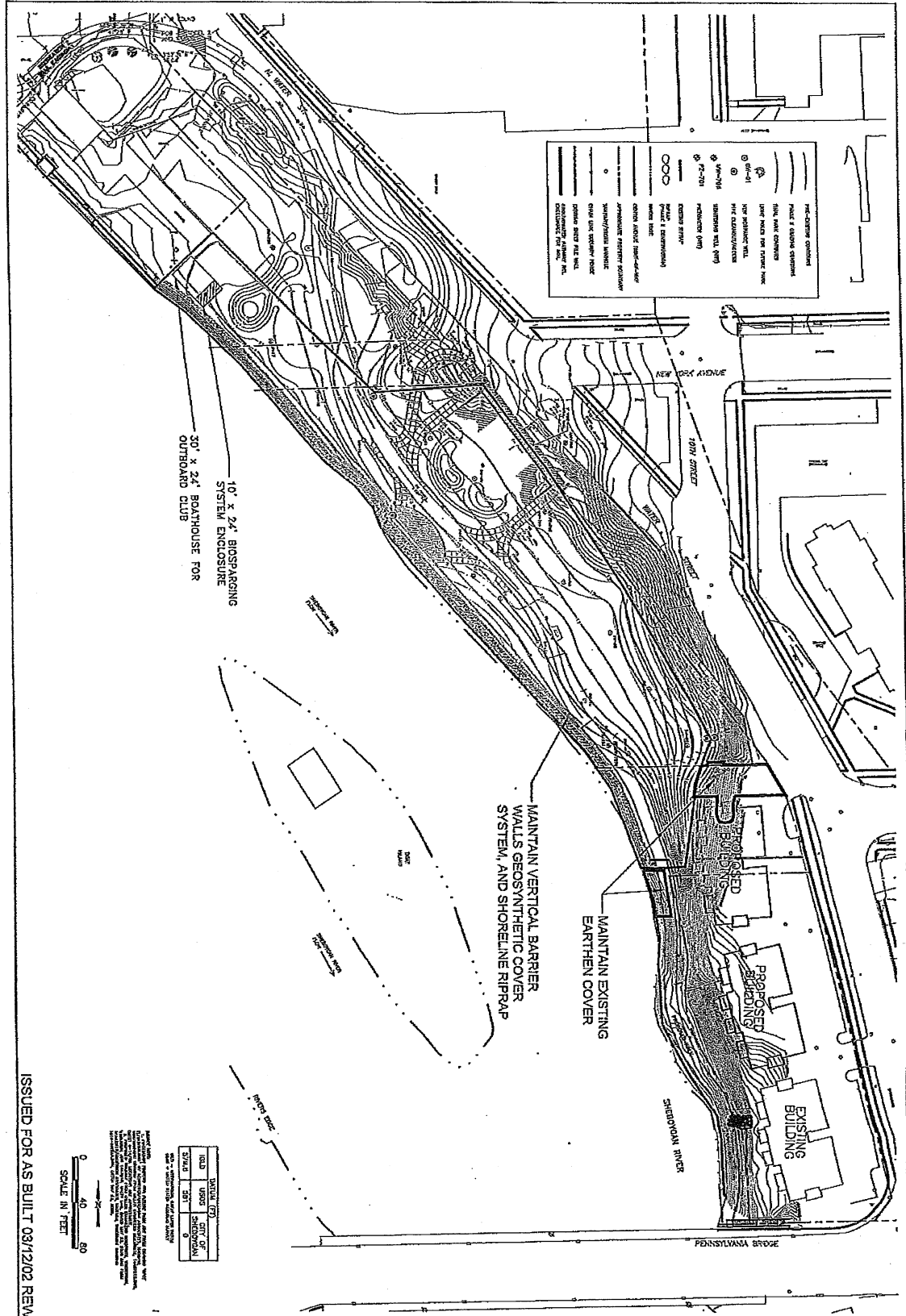
BRTS #02-60-000095  
 CAMP MARINA MANUFACTURED GAS PLANT  
 SHEBOYGAN, WISCONSIN

PROJECT NO.  
1313/8.0

DRAWING NO.  
1313-8-B.1.a-LOCATION MAP

FIGURE NO.  
B.1.a

DRAWN: NWDDATE: 04/09/13 CHK'D: JJW DATE: 04/09/13 APP'D: JMK DATE: 05/03/13



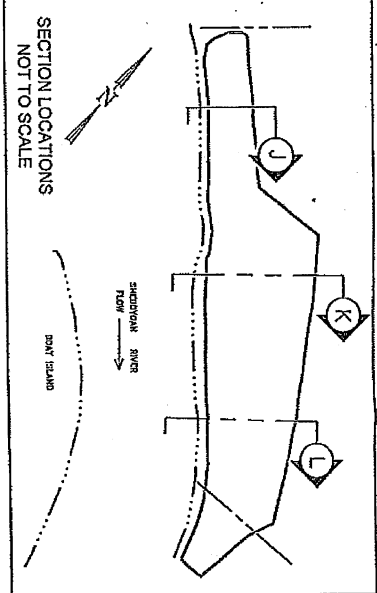
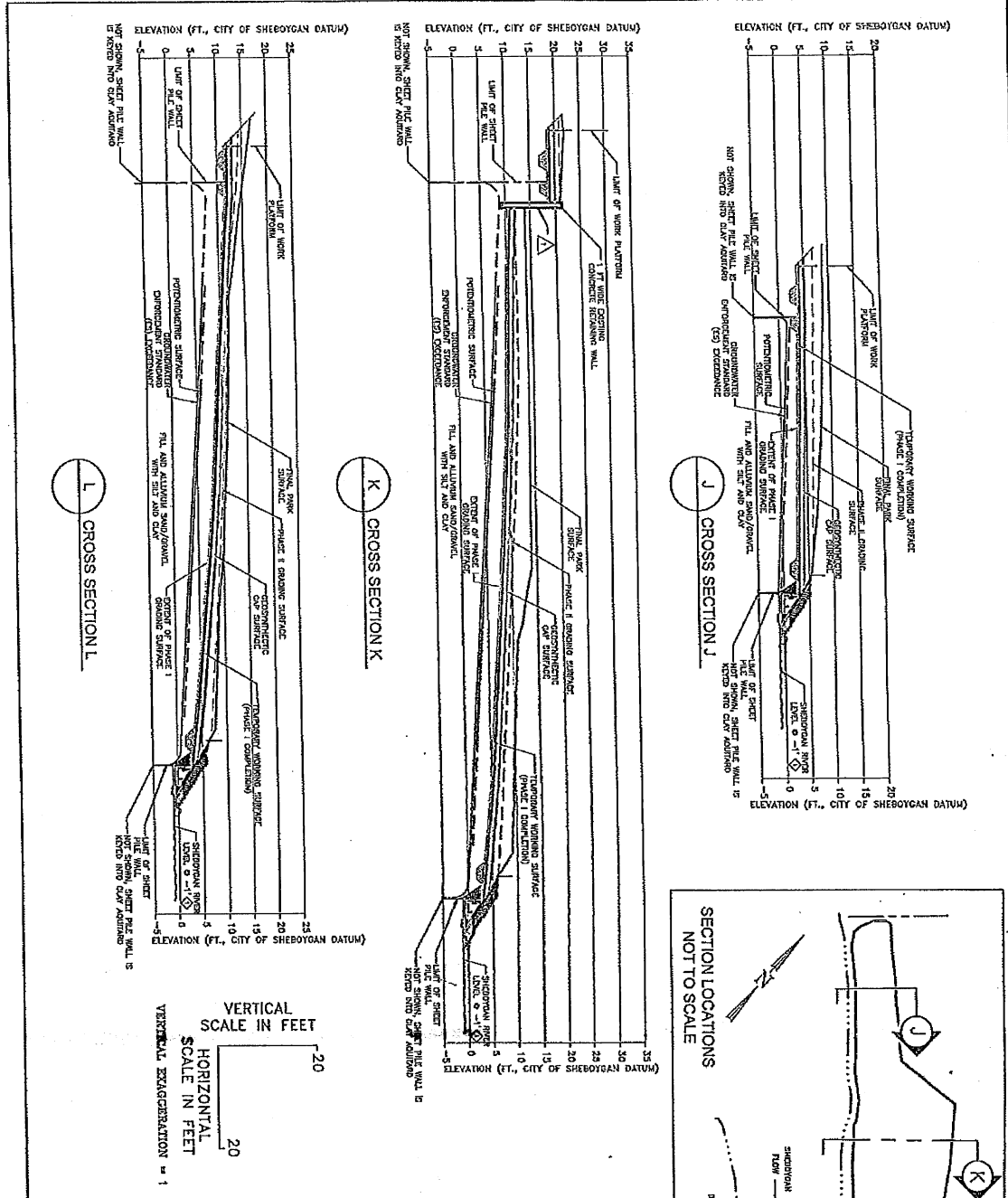
ISSUED FOR AS BUILT 03/12/02 REW

DATE	USER	DESCRIPTION
03/12/02	JW	AS BUILT
03/12/02	JW	REVISION

SCALE IN FEET  
 0 40 80

PROJECT NO. 1313B.0  
 FIGURE NO. D.1A

	<b>AREAS SUBJECT TO MAINTENANCE PLAN</b>	
	BRRS #02-60-000095 CAMP MARINA MANUFACTURED GAS PLANT SHEBOYGAN, WISCONSIN	
	DRAWN BY: NYD CHECKED BY: JW APPROVED BY: JMK DRAWING NO: 1313-8-D-1-a-Main Plan	DATE: 04/09/13 DATE: 04/09/13 DATE: 05/03/13
	REFERENCE: SEE #INFO BLOCK	



- GENERAL CONTRACTOR NOTES**
- 1. CONTRACTOR SHALL TAKE PRECAUTIONS NOT TO DAMAGE EXISTING CONCRETE RETAINING WALL DURING SITE REMEDIATION.
  - AS BUILT NOTES
  - 2. REFER TO SHEET LOCATED AT -30' ELEVATION (CITY OF SHEBOYGAN DATUM) DURING PHASE I CONSTRUCTION.
- LEGEND**
- LIMIT OF WORK PLATFORM
  - EXTENT OF PHASE I GROUND
  - TEMPORARY WORKING SURFACE (PHASE I COMPLETION)
  - DISPERSED CAP SURFACE
  - FINAL PARK SURFACE
  - PHASE II GRADING SURFACE

DATUM (FT)	0
CITY OF SHEBOYGAN	0
ICLD USGS	571.8
581.0	0

ISSUED FOR AS BUILT 03/12/02 REW

**GEOSYNTHETIC COVER SYSTEM AS-BUILT**

BRRTS #02-60-000095  
 CAMP MARINA MANUFACTURED GAS PLANT  
 SHEBOYGAN, WISCONSIN

DRAWN BY:	NWD	DATE:	04/09/13
CHECKED BY:	JJW	DATE:	04/09/13
APPROVED BY:	JMK	DATE:	05/03/13
DRAWING NO:	1313-3-D-1.5-Cover System AB		
REFERENCE:	SEE INFO BLOCK		

PROJECT NO.  
1313/8.0

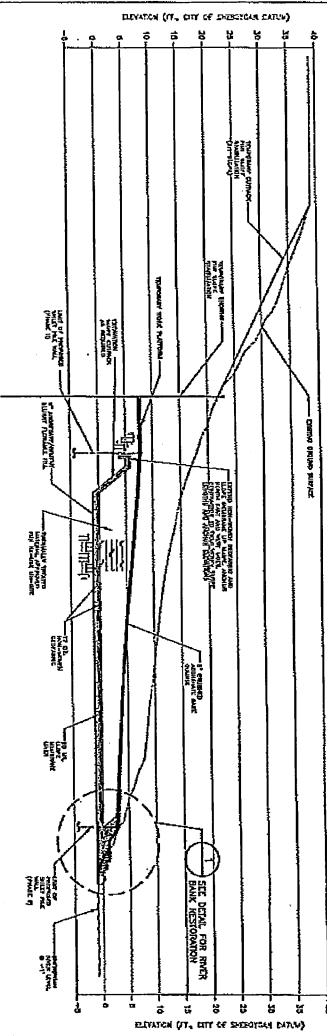
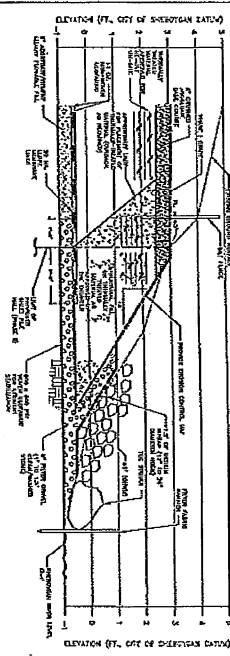
FIGURE NO.  
D.1.5





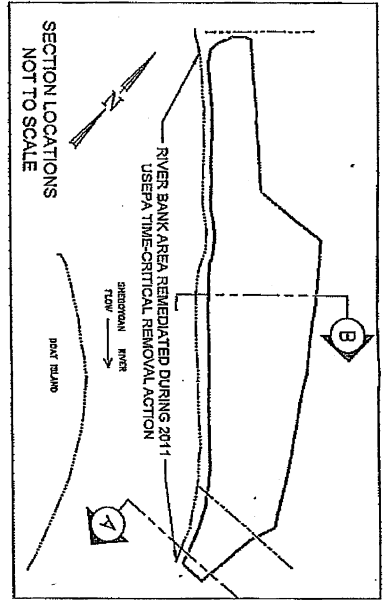
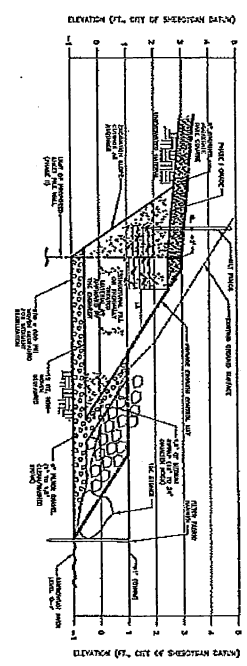
**1 PHASE I RIVER BANK RESTORATION, CENTER AVENUE RIGHT-OF-WAY**

**CRITICAL CONSTRUCTION LIMITS:** THE RIVER BANK RESTORATION PROJECT IS A MAJOR INFRASTRUCTURE PROJECT THAT REQUIRES THE EXISTING RIVER BANK TO BE REMOVED AND REPLACED WITH A RESTORED RIVER BANK. THE EXISTING RIVER BANK IS UNSTABLE AND SUBJECT TO EROSION. THE RESTORED RIVER BANK WILL BE CONSTRUCTED TO PROVIDE A STABLE, EROSION-RESISTANT BANK THAT MEETS ALL APPLICABLE REGULATORY REQUIREMENTS. THE RESTORED RIVER BANK WILL BE CONSTRUCTED TO PROVIDE A STABLE, EROSION-RESISTANT BANK THAT MEETS ALL APPLICABLE REGULATORY REQUIREMENTS. THE RESTORED RIVER BANK WILL BE CONSTRUCTED TO PROVIDE A STABLE, EROSION-RESISTANT BANK THAT MEETS ALL APPLICABLE REGULATORY REQUIREMENTS. THE RESTORED RIVER BANK WILL BE CONSTRUCTED TO PROVIDE A STABLE, EROSION-RESISTANT BANK THAT MEETS ALL APPLICABLE REGULATORY REQUIREMENTS. THE RESTORED RIVER BANK WILL BE CONSTRUCTED TO PROVIDE A STABLE, EROSION-RESISTANT BANK THAT MEETS ALL APPLICABLE REGULATORY REQUIREMENTS.



**RIVER BANK AREA REMEDIATED DURING 2011  
 USEPA TIME-CRITICAL REMOVAL ACTION**

LEGEND	
1/2" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
3/4" DIAM. SANDSTONE	CORRODIVE RESISTANT SURF COVER
1" DIAM. SANDSTONE	SLURRY WALL CONSTRUCTION
2" DIAM. SANDSTONE	HIGHLY WEARABLE MATERIAL
3" DIAM. SANDSTONE	STRUCTURAL FILL
4" DIAM. SANDSTONE	17' DEEP SANDSTONE SANDPILE
5" DIAM. SANDSTONE	60% x 40% PER PERCENT SANDPILE
6" DIAM. SANDSTONE	25% x 75% PERCENT SANDPILE
7" DIAM. SANDSTONE	EXTERIOR DRAINAGE STRUCTURE
8" DIAM. SANDSTONE	EXTERIOR DRAINAGE STRUCTURE
9" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
10" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
11" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
12" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
13" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
14" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
15" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
16" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
17" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
18" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
19" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
20" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
21" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
22" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
23" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
24" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
25" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
26" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
27" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
28" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
29" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
30" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
31" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
32" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
33" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
34" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
35" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
36" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
37" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
38" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
39" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL
40" DIAM. SANDSTONE	INDUSTRIAL WASTE MATERIAL



**B PHASE I RIVER BANK RESTORATION, CAMP MARINA**

PROJECT NO. 1313/8-B  
 FIGURE NO. D.1.c

**RIVER BANK AND CENTER AVENUE R.O.W. AS-BUILT**

BRTS #02-60-000095  
 CAMP MARINA MANUFACTURED GAS PLANT  
 SHEBOYGAN, WISCONSIN



DRAWN BY: NWD	DATE: 04/09/13
CHECKED BY: J/W	DATE: 04/09/13
APPROVED BY: J/MK	DATE: 05/03/13
DRAWING NO: 1313-8-B.1.e-Engineering Controls	
REFERENCE: SEE INFO BLOCK	

ISSUED FOR AS BUILT 03/12/02 REW

Table A.4-1 Pre-Remedial Soil Analytical Data Exceeding RCLs Table 1 of 3.  
 Camp Marina Manufactured Gas Plant  
 BRRTS #02-06-000095

Sample Location	Sample Depth (ft)	Sample Date	Benzene mg/kg	Phenol mg/kg	Benzo(a)anthracene mg/kg	Benzo(b)fluoranthene mg/kg	Benzo(a)pyrene mg/kg	Chrysene mg/kg	Dibenzo(a,h)anthracene mg/kg	Indeno(1,2,3-cd)pyrene mg/kg	Naphthalene mg/kg
<i>Groundwater Pathway RCLs</i>			0.005	2.30	NE	0.48	0.47	0.15	0.15	NE	0.66
<b>Direct Contact RCLs</b>			1.49	18300	0.15	0.15	0.01	14.8	0.01	0.15	5.15
Soil Samples from the Unsaturated Zone											
Monitoring Well Samples											
MW-701	2-4	7/18/1995			2.3	0.95	1.7	1.6	0.18	1.3	77
MW-702	2-4	7/19/1995			1.1	0.66	1.2	0.74	0.15	0.75	
MW-703	4-6	7/18/1995	0.073			2.3	3.8	2.8			3
MW-705	2-4	7/19/1995			1.7	1	1.7	1.3	0.27	1.1	
MW-707	2-4	7/19/1995		83	0.33	0.18	0.43	0.23	0.063	0.33	
Soil Boring Samples											
SB-701	2-4	7/19/1995			0.91	0.49	0.74	0.68	0.093	0.5	

Notes:

- 1) Concentrations in italics are above the Groundwater Pathway RCLs
- 2) Concentrations in bold are above the Direct Contact RCLs
- 3) NE - not established.



Table A.4.-2 Pre-Remedial Soil Analytical Data Exceeding RCLs Table 2 of 3.  
Camp Marina Manufactured Gas Plant  
BRRTS #02-06-000095

Sampling Location	Sampling Depth (feet below ground surface)	Sampling Date	Lead, total	Cyanide, total <sup>3</sup>	Cyanide, weak acid dissociable <sup>4</sup>	Benzene	Ethylbenzene	Toluene	Total Xylenes
<b>Groundwater Pathway RCLs</b>									
			27	NE	4.04	0.005	1.57	1.11	3.94
<b>Direct Contact RCLs</b>			400	26.4	NE	1.49	7.47	818	258
<b>Soil Samples Collected from the Unsaturated Zone</b>									
HA-701	2	07/29/98	350	89	46	0.13			
SS-701	0.5	07/29/98	410						
TP-701	2-8	07/29/98	540	78	17	0.23			
TP-702	2-7	07/29/98	110						
TP-703	4-6	07/29/98	260						
TP-705	5	07/29/98	980		260	0.11			
TP-706	1-8	07/29/98	530						
SB-717	11-11.5	07/29/98	110						
SB-718	13-13.5	07/29/98	280						
SB-719	11-11.5	07/29/98	190						
SB-720	10-10.5	07/29/98	400	42					
SB-726	11-12	12/09/98	67						
SB-732	12-14	12/10/98				0.3	2.521		
SB-733	10-12	12/09/98				25.7	5.49	55.4	49.9
SB-734	12-14	12/09/98				0.309			
SB-735	10-12	12/10/98				0.172	7.07	1.15	13.46
SB-736	6-8	12/08/98				0.374			
SB-739	6-8	12/09/98	634				1.81		6.02
PZ-702	14-16	12/09/98				259	168	572	599
PZ-703	16-18	12/08/98				1.49	10.6		

Notes:

- 1) Concentrations in italics are above the Groundwater Pathway RCLs
- 2) Concentrations in bold are above the Direct Contact RCLs
- 3) The groundwater pathway RCL has been established for free cyanide only.
- 4) The groundwater pathway RCL for free cyanide is used for dissociable cyanide.
- 5) NE - not established.



**Table A.4.3 Pre-Remedial Soil Analytical Data Exceeding RCLs Table 3 of 3.**

Camp Marina Manufactured Gas Plant

BRTS #02-06-000095

Sampling Location	Sampling Depth (feet)	Sampling Date	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) fluoranthene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Pyrene
<b>Groundwater Pathway RCLs</b>													
			NE	0.47	0.48	NE	0.15	14.8	88.8	14.8	NE	0.66	54.5
<b>Direct Contact RCLs</b>			0.15	0.01	0.15	1.48	14.8	0.01	2290	2290	0.15	5.15	1720
<b>Soil Samples Collected from the Unsaturated Zone</b>													
HA-701	2	07/29/98	49	17	56	32	58	13			25	10	60
SS-701	0.5	07/29/98	7.2	4.5	7.3	7.1	8.2	1.9			3.2		
TP-701	2-8	07/29/98	25	19	56	36	34	11			23	4.3	
	8-9	07/29/98		0.56	0.57		0.46						
TP-702	2-7	07/29/98	40	36	27	28	39	10	110	21	18	13	71
	7-10	07/29/98		0.71	0.71		0.59						
TP-703	4-6	07/29/98		5.1	6.8		5.6						
TP-704	3-4	07/29/98		0.13									
	7-8	07/29/98		1	0.81		0.67						
TP-705	5	07/29/98		43	190		140					19	
TP-706	1-8	07/29/98	13	11	11		13	3.6			7.6		
SB-717	11-11.5	07/29/98					0.39						
SB-718	13-13.5	07/29/98		2.2	2.3		2.2						
SB-719	11-11.5	07/29/98		3.2	3.5		3.6					170	170
SB-720	10-10.5	07/29/98			82		93		250				
<b>Soil Samples Collected from the Saturated Zone</b>													
SB-726	11-12	12/09/98		0.622	2.65		4.86					0.699	
SB-732	12-14***	12/10/98***										1.3	
	12-14***	12/10/98***										309	179
SB-733	10-12	12/09/98		14.8	9.03		15.1			20.1		5.85	66.4
SB-734	12-14	12/09/98		14.3	10.7		13.9			54.5		268	123
SB-735	10-12	12/10/98		16.2	9.4		14.3					3.56	
SB-736	6-8	12/08/98		4.64	1.77		1.54					1.68	
SB-739	6-8	12/09/98		1.22	1.14		1.54					1,400	729
PZ-702	14-16	12/09/98		47.8	44.5		60.2					10.7	
PZ-703	16-18	12/08/98											

Notes:

- 1) Concentrations in italics are above the Groundwater Pathway RCLs
- 2) Concentrations in bold are above the Direct Contact RCLs
- 3) \*\*\* - The laboratory surrogate recovery was below laboratory limits. The sample was re-extracted past hold time and analyzed. Both results are reported.
- 4) NE - not established.



Table A.4.4 Post-Remedial Soil Analytical Data Exceeding RCLs Table 1 of 1.  
Camp Marina Manufactured Gas Plant  
BRRTS #02-06-000095

Sample ID	Approximate Elevation (Feet, Mean Sea Level)	Date	Volatile Organic Compounds (mg/kg)											Total Lead	Total Cyanide <sup>7</sup>					
			Benzene	Toluene	Benzo(a)anthracene [c]	Benzo(a)pyrene [c]	Benzo(b)fluoranthene [c]	Benzo(k)fluoranthene [c]	Chrysene [c]	Dibenzo(a,h)anthracene [c]	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene [c]			Naphthalene	Pyrene			
Groundwater Pathway RCLs			0.005	1.11	NE	0.47	0.48	NE	0.15	1.48	0.15	0.015	88.8	14.8	NE	0.66	54.5	27	NE	26.4
Direct Contact RCLs			1.49	818	0.15	0.01	0.15	1.48	0.15	1.48	0.15	0.015	2290	2290	0.15	5.15	1720	400		
Soil Samples Collected from the Unsaturated Zone																				
EZ-102 <sup>5</sup>	580	12/15/2000	0.3		1.5	3.27	2.92	1.89	1.76	0.563					1.42			29	33	
EZ-103 <sup>5</sup>	580	12/15/2000	0.577		40.5	41.4	50.5	31.4	39.4	8.32			31.5		20	4.65	65.4	363	579	
EZ-104 <sup>5</sup>	580	12/15/2000	0.045		2.33	2.32	3.08	2.19	2.3	0.556					1.42			423		
EZ-201 <sup>5</sup>	Excavated	11/27/2000	0.068															192	250	
EZ-202 <sup>5</sup>	Excavated	11/27/2000	0.068															510	411	
EZ-203 <sup>5</sup>	Excavated	11/27/2000	0.068																81	
EZ-205 <sup>5</sup>	601	4/2/2001			0.663	0.742	1.0		0.786										31	
EZ-206 <sup>5</sup>	601	4/2/2001			1.73	1.79	1.99	2.7	1.96										93	
EZ-301 <sup>5</sup>	580	12/5/2000			4.85	4.17	4.445	4.3	5.22	0.98					2.59			346	93	
EZ-302 <sup>5</sup>	580	12/5/2000			6.73	4.37	7.67	5.61	7.68	1.19					3.29			230	241	
EZ-401 <sup>6</sup>	580	11/30/2000	0.284		1.17	1.29	1.32		1.47							0.949		1,010		
EZ-402 <sup>6</sup>	580	11/30/2000	5.49	3.57	173	157	168	105	153	25.6		431	48.4	86	10.9	358	60			
EZ-403 <sup>6</sup>	578	11/30/2000	0.579		9.62	12.3	14.5	8.14	9.97	2.25				7.01	2.5		168	42		
EZ-404 <sup>6</sup>	580	11/30/2000			3.9	3.61	3.4	2.95	3.97					1.65	0.886		62			
EZ-405 <sup>6</sup>	580	11/30/2000	0.371		18.7	18.2	25.9	14.6	19.4	3.4				8.07	3.23		229	113		

Notes:

- 1) Concentrations in italics are above the Groundwater Pathway RCLs
- 2) Concentrations in bold are above the Direct Contact RCLs
- 3) [c]= carcinogenic PAH, classified as B2 probable human carcinogen
- 4) NE = not established
- 5) Locations EZ-101 to EZ-302 were either excavated or are covered with geosynthetic and/or earthen cover.
- 6) Locations EZ-401 to EZ-405 in river bank area remediated during 2011 USEPA time-critical removal action.
- 7) The groundwater pathway RCL has been established for free cyanide only.



**EXHIBIT A**  
**INSPECTION LOG FORM**



**Attachment D.4. Inspection Log**





**Appendix 2 - ADMINISTRATIVE RECORD INDEX**

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL ACTION

ADMINISTRATIVE RECORD  
FOR  
WPS CAMPMARINA MGP SITE  
SHEBOYGAN, SHEBOYGAN COUNTY, WISCONSIN

ORIGINAL  
FEBRUARY 16, 2011  
(SDMS ID: 405244)

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	06/30/92	Simon Hydro-Search	Wisconsin Public Service Corporation	Phase I Environmental Investigation Report for Manufactured Gas Plant Site (SDMS ID: 278256)	69
2	06/28/96	Natural Resource Technology, Inc.	Wisconsin Public Service Corporation	Phase II Environmental Investigation Report for Former Manufactured Gas Plant Site (SDMS ID: 277986)	210
3	11/10/98	Natural Resource Technology, Inc.	Wisconsin Public Service Corporation	Sediment Investigation Report for the Former Manufactured Gas Plant Site (SDMS ID: 277993)	190
4	02/28/03	Natural Resource Technology, Inc.	Wisconsin Public Service Corporation	Phase I and II Remedy Documentation Report for the Campmarina Former Coal Gas Facility: Volume 1 of 2 (Text, Tables, Figures and Appendices A-D) (SDMS ID: 277983)	438
5	02/28/03	Natural Resource Technology, Inc.	Wisconsin Public Service Corporation	Phase I and II Remedy Documentation Report for the Campmarina Former Coal Gas Facility: Volume 2 of 2 (Appendices E-Y) (SDMS ID: 277984)	1007
6	07/09/04	Natural Resource Technology, Inc.	Wisconsin Public Service Corporation	Remedial Investigation/ Feasibility Study Work Plan for the Campmarina Former Manufactured Gas Plant Site (SDMS ID: 277991)	374

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
7	02/05/07	Nagle, R., U.S. EPA	Lawniczak, C., Wisconsin Public Service Corporation	Letter Forwarding Attached January 26, 2007 Administrative Settlement Agreement and Order on Consent for Remedial Investi- gation and Feasibility Study for the WPSC Campmarina MGP Site (SDMS ID: 266126)	79
8	03/22/07	Natural Resource Technology, Inc.	Wisconsin Public Service Corporation	River Operable Unit Technical Letter Report for Campmarina Former Manufactured Gas Plant (SDMS ID: 360633)	56
9	04/00/07	U.S. EPA	File	Community Involvement Plan for the WPSC Campmarina MGP Site (SDMS ID: 360637)	9
10	04/10/07	Natural Resource Technology, Inc. and Exponent	Wisconsin Public Service Corporation	Multi-Risk Assessment Framework for RI/FS at WPSC's Former Man- ufactured Gas Plant Sites (SDMS ID: 360631)	91
11	08/02/07	Integrlys	File	Multi-Site Health and Safety Plan for the Former Manufactured Gas Plant Site (SDMS ID: 360622)	69
12	08/05/07	Kelley, M., Burns & McDonnell	Logan, M. & T. Prendiville, U.S. EPA	Letter Forwarding Attached Multi-Site Conceptual Site Model for the Former Manufac- tured Gas Plant Sites (SDMS ID: 360624)	31
13	09/04/07	Integrlys Business Support	Wisconsin Public Service Corporation, Peoples Gas Light and Coke Company, North Shore Gas Company	Multi-Site Quality Assurance Project Plan for Former Manufactured Gas Plant Sites: Volume 1 of 2 (SDMS ID: 360616)	1576
14	09/04/07	Integrlys Business Support	Wisconsin Public Service Corporation, Peoples Gas Light and Coke Company, North Shore Gas Company	Multi-Site Quality Assurance Project Plan for Former Manufactured Gas Plant Sites: Volume 2 of 2 (SDMS ID: 360617)	1407

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
15	09/17/07	WDNR	Wisconsin Public Service Corporation	Preliminary Assessment Report for Wisconsin Public Service Corpora- tion Camp Marina Former Manufactured Gas Plant (SDMS ID: 296276)	50
16	02/20/08	Integrys Business Support	Wisconsin Public Service Corporation, Peoples Gas Light and Coke Company, North Shore Gas Company	Multi-Site Field Sampling Plan for Former Manufactured Gas Plant Sites (SDMS ID: 360619)	486
17	07/00/08	Environmental Chemistry Consulting Services, Inc.	Kahler, J., Natural Resource Technology, Inc.	Remedial Investigation Report for the River Operable Unit at the WPSC Campmarina MGP Site: Appendix G Analytical Report (SDMS ID: 360971)	13482
18	07/00/08	Environmental Chemistry Consulting Services, Inc.	Kahler, J., Natural Resource Technology, Inc.	Remedial Investigation Report for the River Operable Unit at the WPSC Campmarina MGP Site: Appendix G Analytical Report (SDMS ID: 360972)	10560
19	08/18/08	Young, K., TestAmerica	Kahler, J., Natural Resource Technology, Inc.	Remedial Investigation Report for the River Operable Unit at the WPSC Campmarina MGP Site: Appendix G Analytical Report (SDMS ID: 360970)	20904
20	12/11/08	Kahler, J. & R. Weber, Natural Resource Technology, Inc.	Valentin, P., U.S. EPA	Letter Forwarding Attached Remedial In- vestigation/Feasibility Study Work Plan (SDMS ID: 360627)	244
21	07/29/09	Natural Resource Technology, Inc.	Integrys Business Support	Remedial Investigation Report for the River Operable Unit at the WPSC's Sheboygan-Camp- marina Former Manufac- tured Gas Plant (SDMS ID: 360630)	3381

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL ACTION

ADMINISTRATIVE RECORD  
FOR  
WPSC CAMPMARINA MGP SITE  
SHEBOYGAN, SHEBOYGAN COUNTY, WISCONSIN

US EPA RECORDS CENTER REGION 5



417413

UPDATE #1  
JULY 7, 2011  
(SDMS ID: 405247)

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	06/16/11	Nagle, R. & P. Valentin, U.S. EPA	Karl, R., U.S. EPA	Memorandum Forwarding Attached Administrative Settlement Agreement and Order on Consent with Wisconsin Public Service Corporation for a Time-Critical Removal at the Camp- marina Site (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED) (SDMS ID: 405245)	107
2	06/23/11	Valentin, P., U.S. EPA	Karl, R., U.S. EPA	Enforcement Action Memorandum: Determina- tion of Threat to Public Health or the Environment at the Wisconsin Public Service Corporation Camp Marina Manufac- tured Gas Plant (PORTIONS OF THIS DOCUMENT HAVE BEEN REDACTED) (SDMS ID: 405246)	54

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REMEDIAL ACTION

ADMINISTRATIVE RECORD  
FOR  
WPSC CAMPMARINA MGP SITE  
SHEBOYGAN, SHEBOYGAN COUNTY, WISCONSIN

UPDATE #2  
JULY 19, 2012  
(SDMS ID: 424457)

<u>NO.</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	01/10/11	Kahler, J. & R. Weber, Natural Resource Technology, Inc.	Valentin, P., U.S. EPA	Feasibility Study (Revision 2) for the River Operable Unit at WPSC Campmarina MGP Site (SDMS ID: 424453)	313
2	07/11/11	Envirocon	File	Sheboygan Campmarina Sediment Removal RAWP Amendment 1 (SDMS ID: 424454)	9
3	03/21/12	Tlachac, E. & R. Weber, Natural Resource Technology, Inc.	Valentin, P., U.S. EPA	Construction Com- pletion Report for Focused NAPL and Sedi- ment Removal Action at the WPSC Campmarina Site (SDMS ID: 424455)	2268
4	07/00/12	U.S. EPA	Public	Proposed Plan for the WPSC Campmarina Former MGP Site River Operable Unit (SDMS ID: 424456)	

UPDATE #3  
SEPTEMBER 25, 2012

1	09/25/12	U.S. EPA	Public	Record of Decision for the River Operable Unit (OU #2) at the WPSC Camp- marina Former MGP Super- fund Alternative Site (SDMS ID: 442029)	47
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U.S. Environmental Protection Agency  
Remedial Action

Administrative Record  
for the  
**WPSC Campmarina MGP Site**  
Sheboygan, Sheboygan County, Wisconsin

Update 4  
July 9, 2013  
SEMS ID: 906384

<u>NO.</u>	<u>SEMS ID</u>	<u>DATE</u>	<u>AUTHOR</u>	<u>RECIPIENT</u>	<u>TITLE/DESCRIPTION</u>	<u>PAGES</u>
1	441421	6/1/13	U.S. EPA	File	Proposed Plan for the WPSC Campmarina Former MGP Site - Upland Operable Unit	17
2	441420	6/6/13	Koonce, F., Wisconsin Department of Natural Resources	Bartoszek, B., Integrys Business Support, LLC	Letter re: Air-sparging system shut-down approval and insititutional controls, Camp Marina former Manufactured Gas Plant	22



**FIGURES**



SOURCE: DIGITAL DOWNLOAD FROM  
<http://STORE.USGS.GOV>.  
 USGS 7.5 MINUTE QUADRANGLE,  
 SHEBOYGAN NORTH AND SOUTH  
 DATED 1954. REVISED 1994.



0 2000 4000

SCALE IN FEET  
 CONTOUR INTERVAL 10 FEET

FIGURE 1 SITE LOCATION MAP

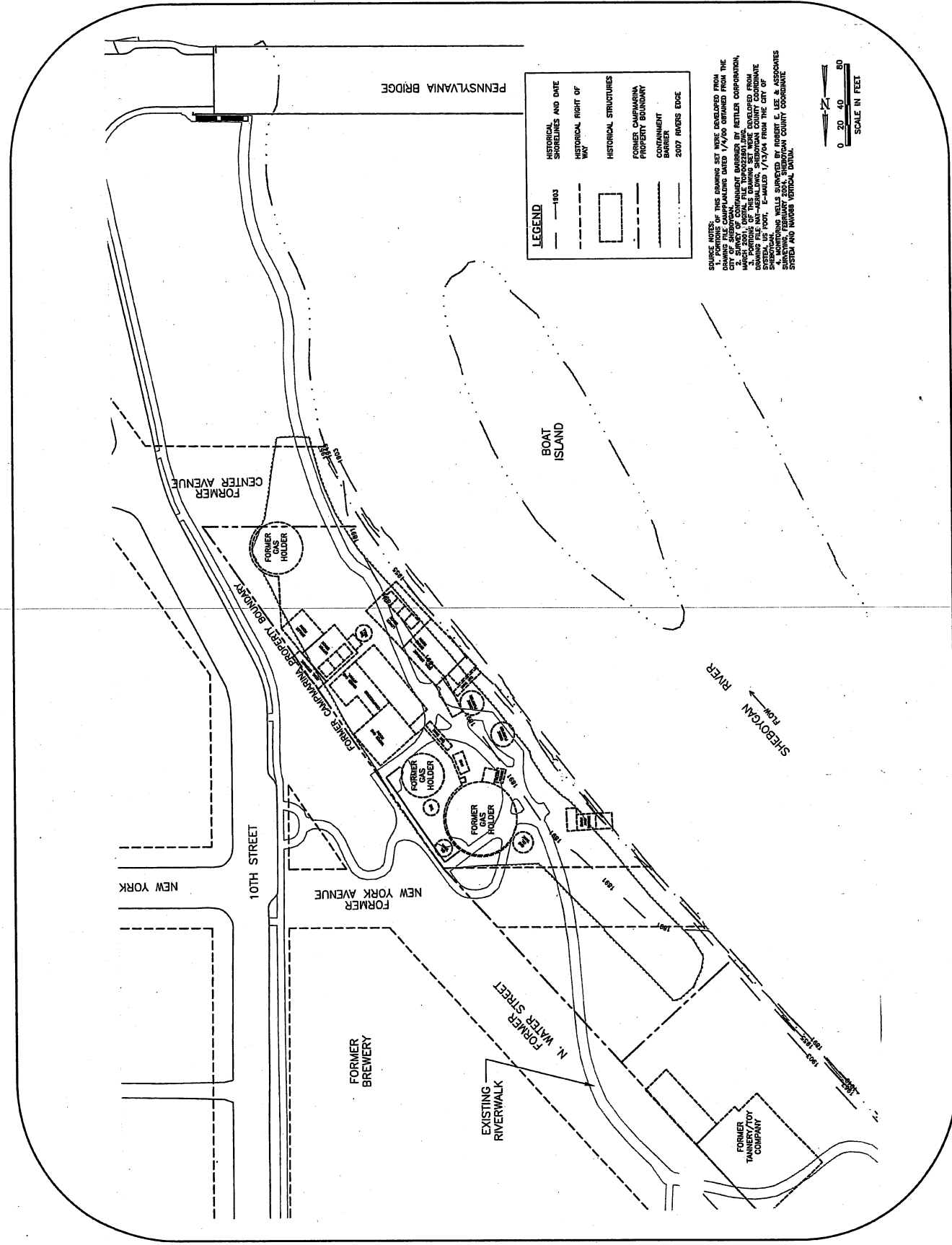


FIGURE 2 HISTORICAL SITE LAYOUT MAP

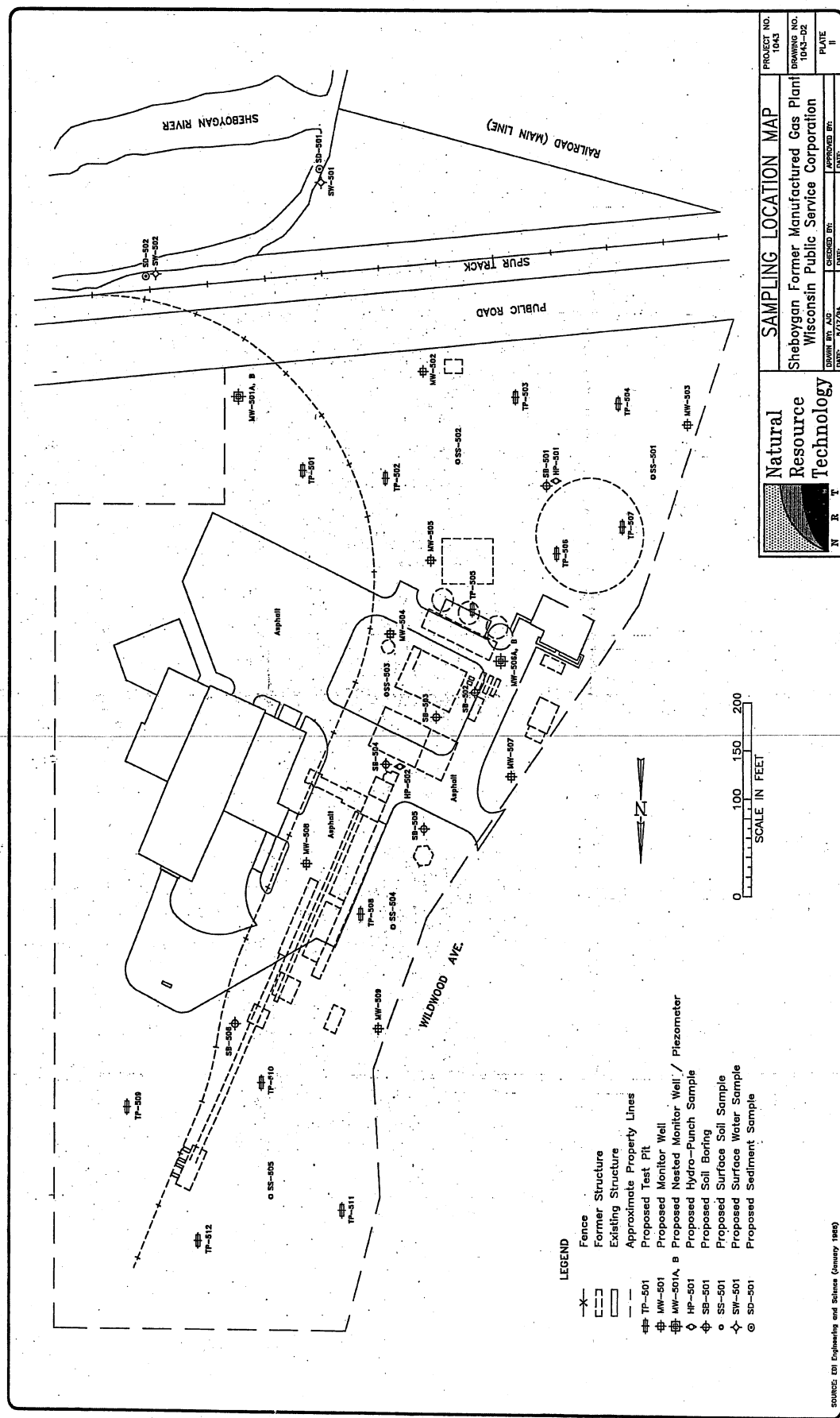


Figure 3 - Test Pits Sample locations

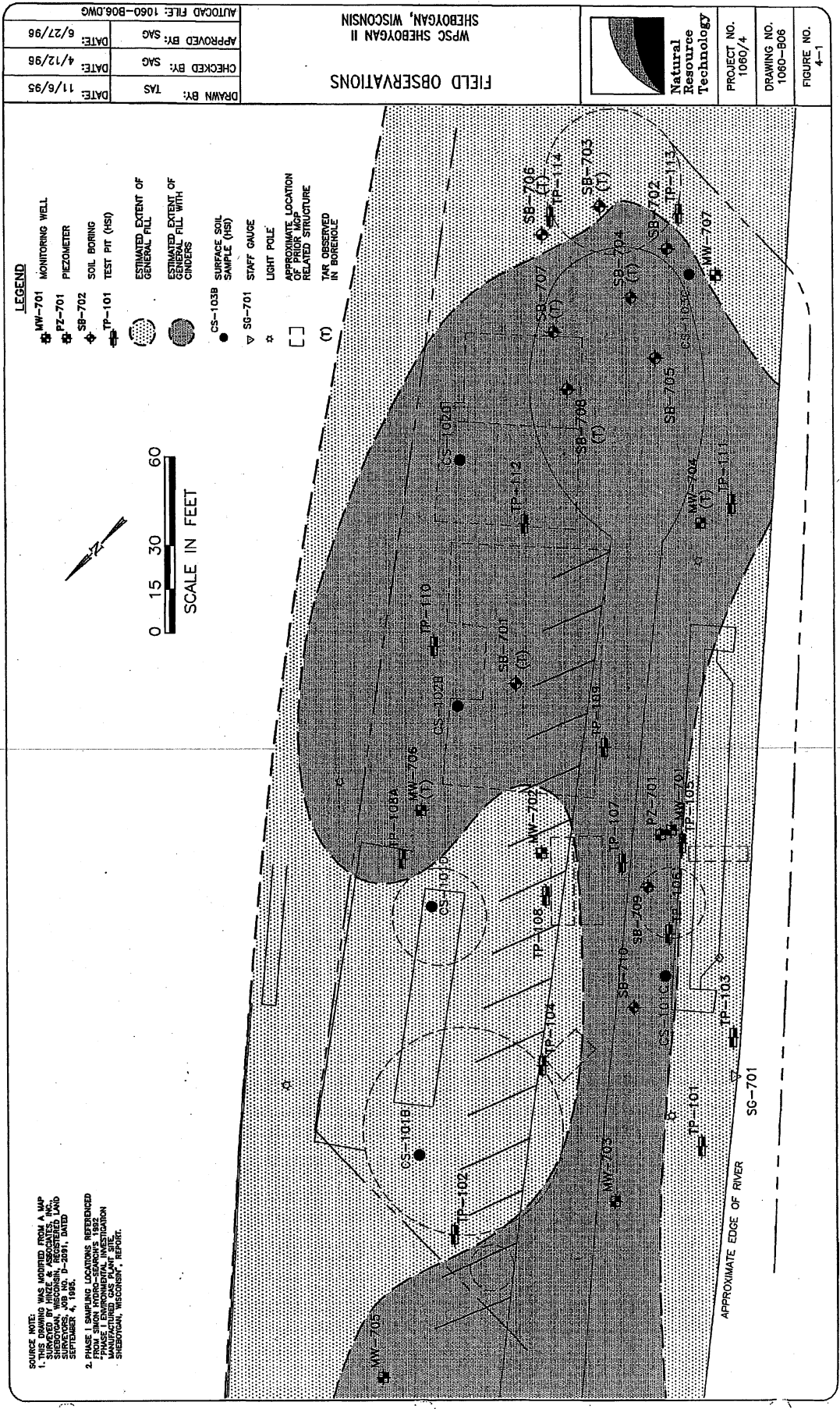


Figure A  
Soil Sample locations

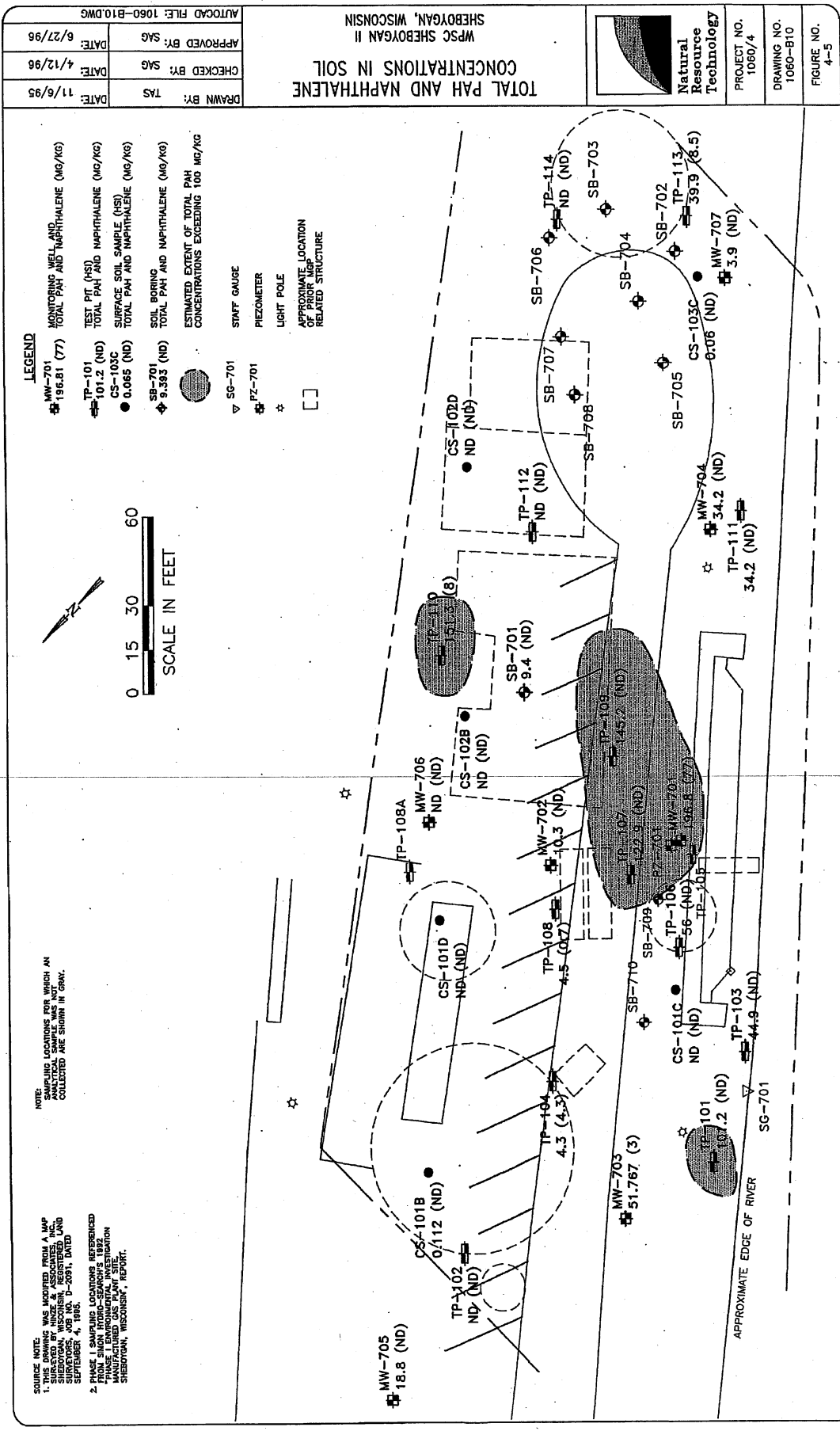


Figure 5 - PAH/Naphttha

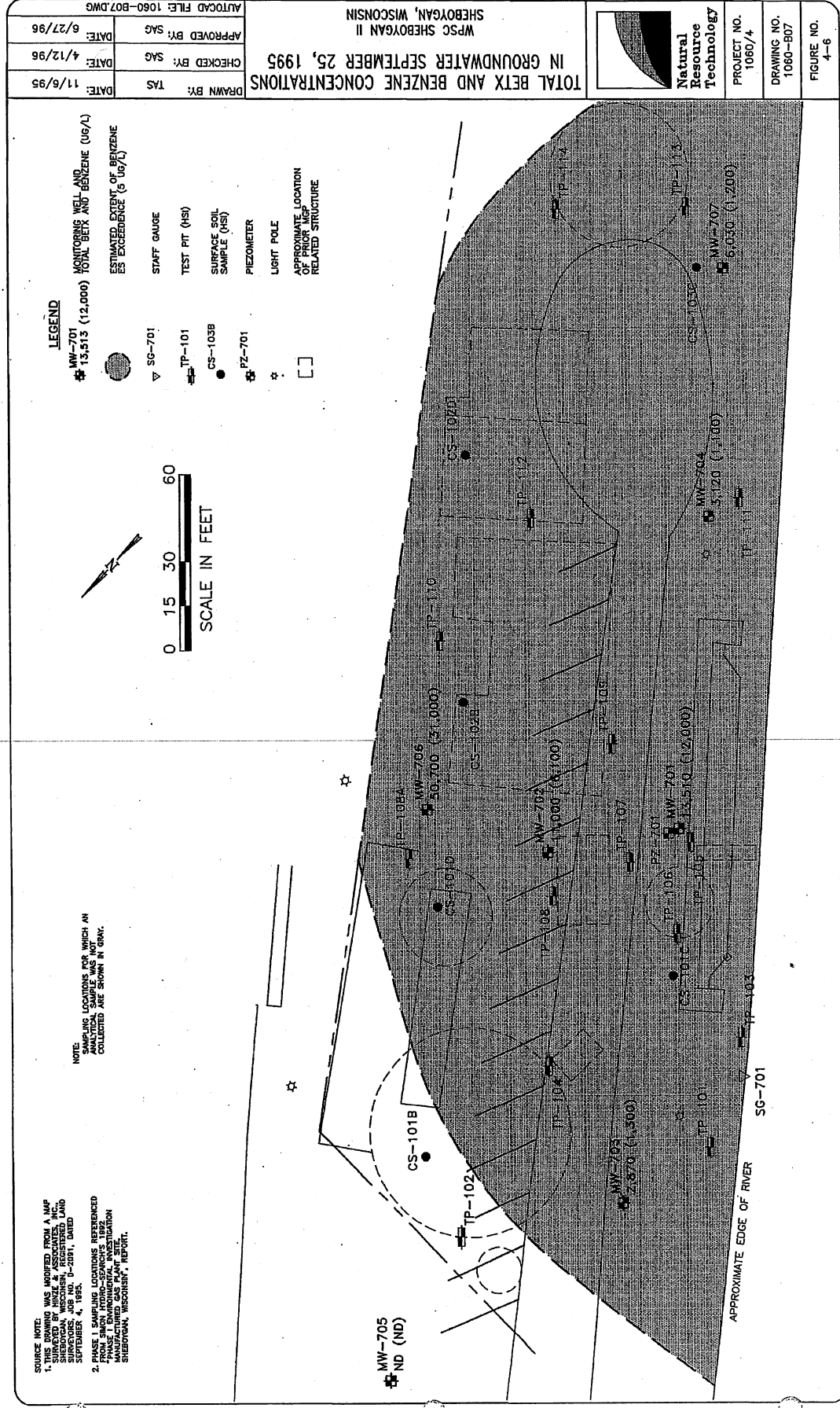


Figure 6

SOURCE NOTE:  
 1. WAS OBTAINED FROM A MAP SURVEYED BY HYZE & ASSOCIATES, INC. SHEBOYGAN, WISCONSIN, REGISTERED LAND SURVEY NO. 10-2871, DATED SEPTEMBER 4, 1985.  
 2. PHASE I SAMPLING LOCATIONS REFERENCED FROM SHEBOYGAN INDUSTRIAL WASTEWATER TREATMENT PLANT SITE, SHEBOYGAN, WISCONSIN, REPORT.

NOTE:  
 SAMPLING LOCATIONS FOR WHICH AN ESTIMATED EXCESS OF NAPHTHALENE AND PAH EXCEEDED 140 US/L ARE SHOWN IN GRAY.



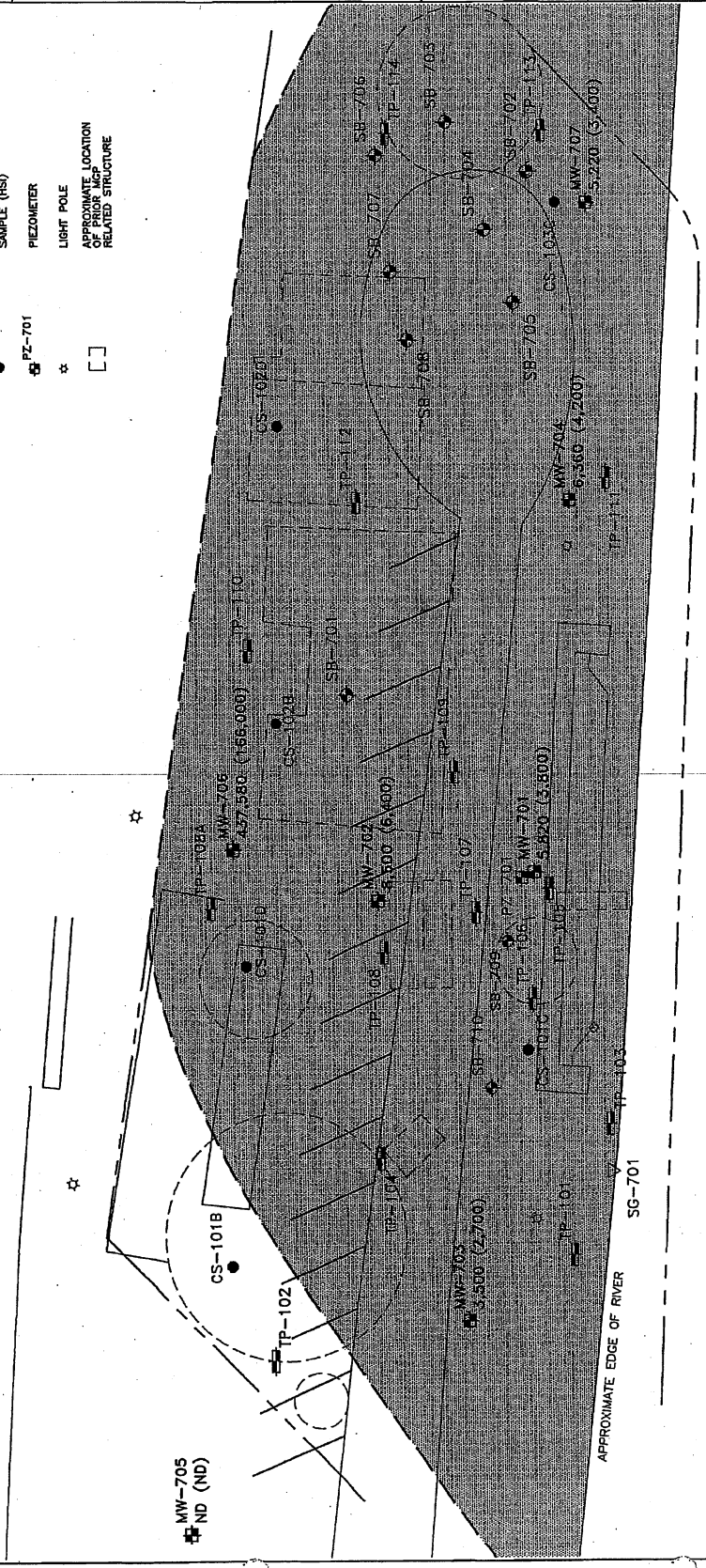
**LEGEND**

MW-701 5,823.97 (3,800)  
 ESTIMATED EXTENT OF NAPHTHALENE AND PAH EXCESS (140 US/L)

MONITORING WELL AND TOTAL PAH AND NAPHTHALENE (UG/L)

ESTIMATED EXTENT OF NAPHTHALENE AND PAH EXCESS (140 US/L)

STAFF GAUGE  
 SOIL BORING  
 TEST PIT (HS)  
 SURFACE SOIL SAMPLE (HS)  
 PIEZOMETER  
 LIGHT POLE  
 APPROXIMATE LOCATION RELATED STRUCTURE



TOTAL PAH AND NAPHTHALENE CONCENTRATIONS  
 IN GROUNDWATER SEPTEMBER 25, 1995



PROJECT NO. 1060/4  
 DRAWING NO. 1060-B08  
 FIGURE NO. 4-7

APPROVED BY: SAG DATE: 4/12/96  
 CHECKED BY: SAG DATE: 6/27/96  
 DRAWN BY: TAS DATE: 11/6/95  
 WPC SHEBOYGAN II  
 SHEBOYGAN, WISCONSIN  
 AUTOCAD FILE: 1060-B08.DWG

Figure 7



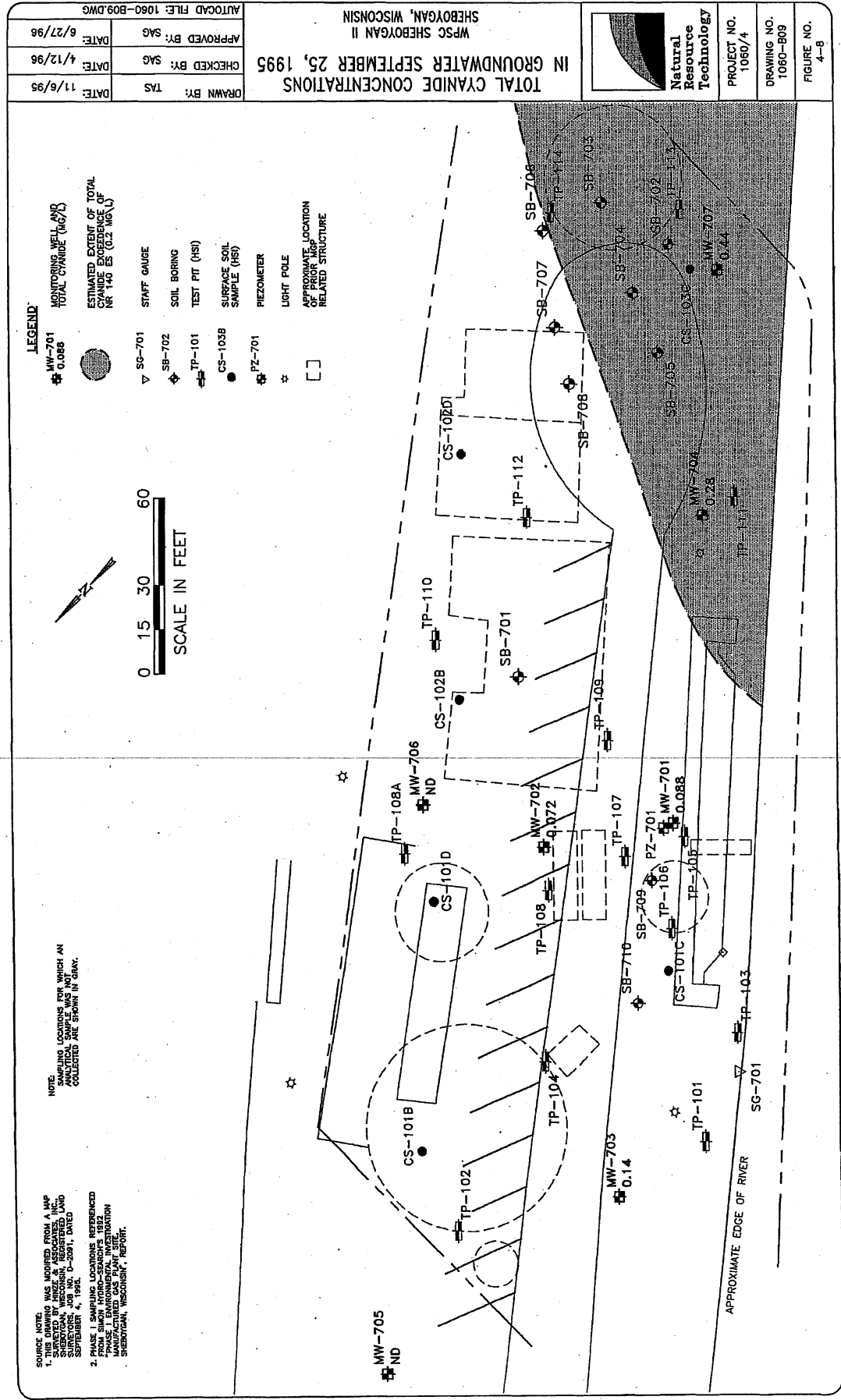
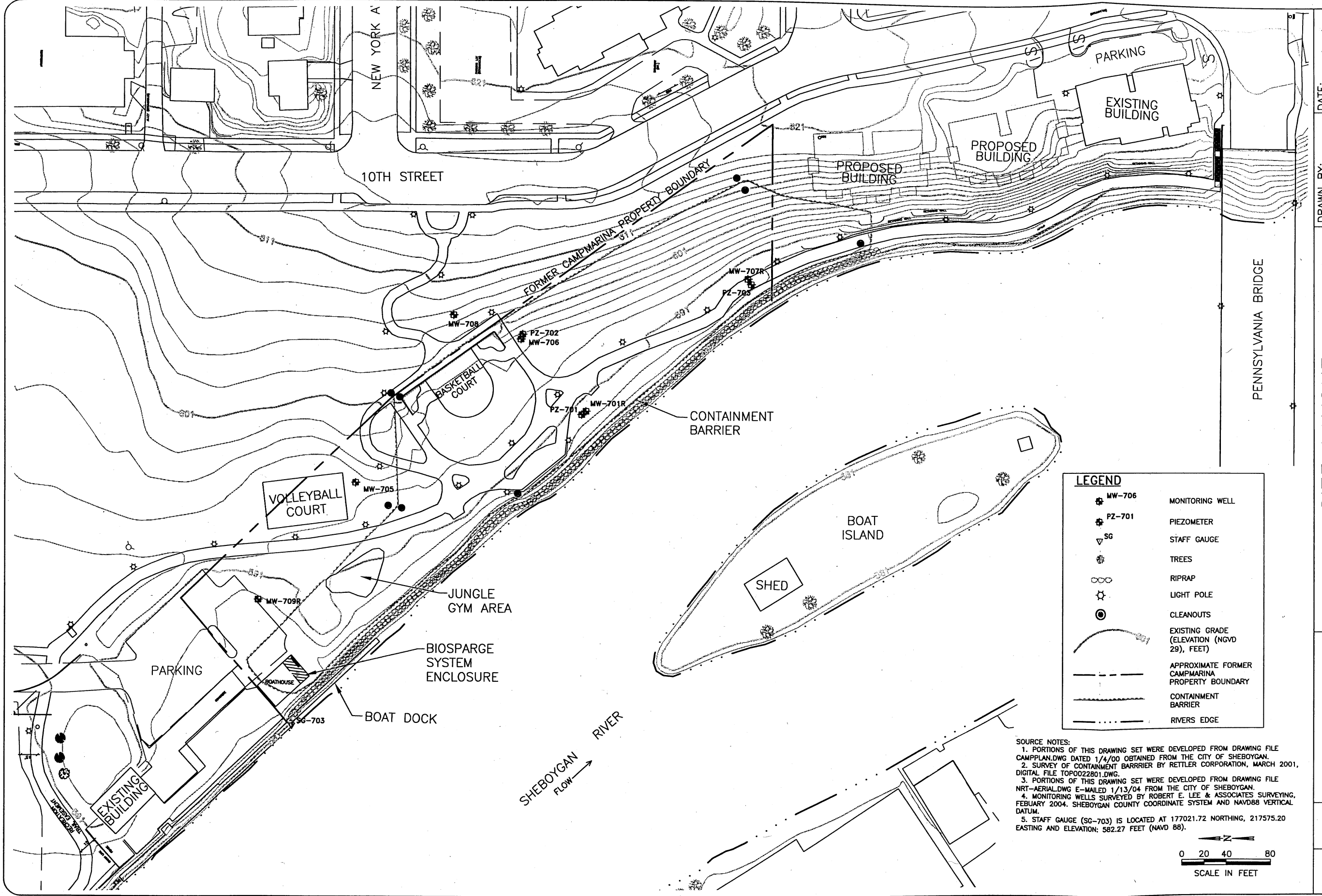


Figure 8

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50



DRAWN BY:	BJK	DATE:	03/12/07
CHECKED BY:	HMS	DATE:	03/20/07
APPROVED BY:	RHW	DATE:	04/25/07
DRAWING NO: 1313-6-B06			
REFERENCE:			

**SITE LAYOUT**

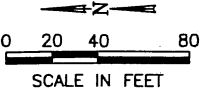
TECHNICAL LETTER REPORT-UPLAND OU  
 CAMPMARINA FORMER MGP SITE  
 WISCONSIN PUBLIC SERVICE CORPORATION  
 SHEBOYGAN, WISCONSIN

**LEGEND**

	MW-706	MONITORING WELL
	PZ-701	PIEZOMETER
	SG	STAFF GAUGE
		TREES
		RIPRAP
		LIGHT POLE
		CLEANOUTS
		EXISTING GRADE (ELEVATION (NGVD 29), FEET)
		APPROXIMATE FORMER CAMPMARINA PROPERTY BOUNDARY
		CONTAINMENT BARRIER
		RIVERS EDGE

**SOURCE NOTES:**

1. PORTIONS OF THIS DRAWING SET WERE DEVELOPED FROM DRAWING FILE CAMPPLAN.DWG DATED 1/4/00 OBTAINED FROM THE CITY OF SHEBOYGAN.
2. SURVEY OF CONTAINMENT BARRIER BY RETTLER CORPORATION, MARCH 2001, DIGITAL FILE TOPO022801.DWG.
3. PORTIONS OF THIS DRAWING SET WERE DEVELOPED FROM DRAWING FILE NRT-AERIAL.DWG E-MAILED 1/13/04 FROM THE CITY OF SHEBOYGAN.
4. MONITORING WELLS SURVEYED BY ROBERT E. LEE & ASSOCIATES SURVEYING, FEBRUARY 2004. SHEBOYGAN COUNTY COORDINATE SYSTEM AND NAVD88 VERTICAL DATUM.
5. STAFF GAUGE (SG-703) IS LOCATED AT 177021.72 NORTHING, 217575.20 EASTING AND ELEVATION: 582.27 FEET (NAVD 88).

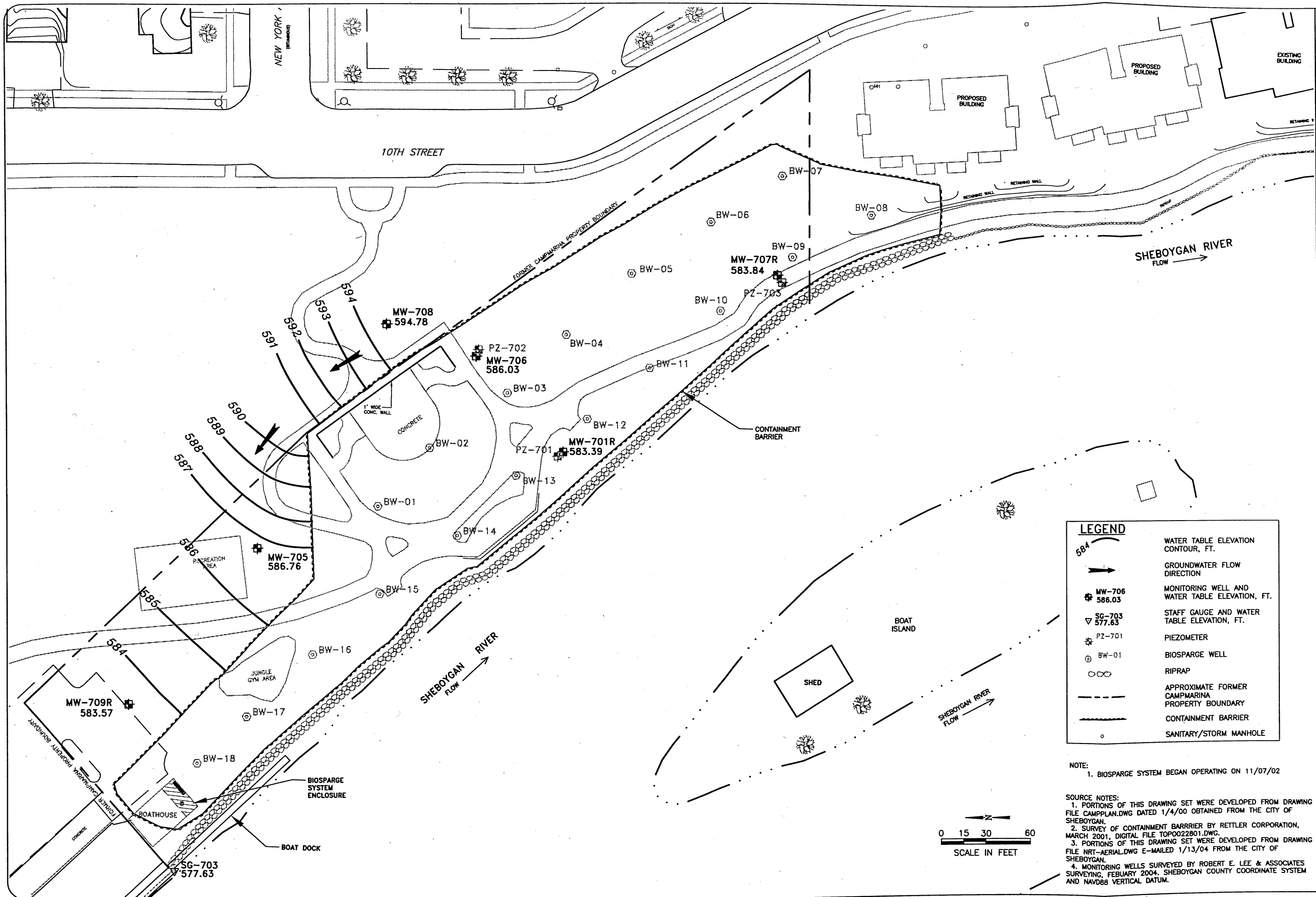


NATURAL  
RESOURCE  
TECHNOLOGY

PROJECT NO.  
1313/6.0

FIGURE NO.  
**19**

Figure 9

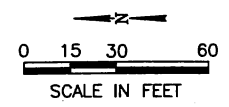


**LEGEND**

- WATER TABLE ELEVATION CONTOUR, FT.
- GROUNDWATER FLOW DIRECTION
- MONITORING WELL AND WATER TABLE ELEVATION, FT.
- STAFF GAUGE AND WATER TABLE ELEVATION, FT.
- PIEZOMETER
- BIOSPARGE WELL
- RIPRAP
- APPROXIMATE FORMER CAMPMARINA PROPERTY BOUNDARY
- CONTAINMENT BARRIER
- SANITARY/STORM MANHOLE

NOTE:  
1. BIOSPARGE SYSTEM BEGAN OPERATING ON 11/07/02

SOURCE NOTES:  
1. PORTIONS OF THIS DRAWING SET WERE DEVELOPED FROM DRAWING FILE CAMPPLAN.DWG DATED 1/4/00 OBTAINED FROM THE CITY OF SHEBOYGAN.  
2. SURVEY OF CONTAINMENT BARRIER BY RETTLER CORPORATION, MARCH 2001, DIGITAL FILE TOPO022801.DWG.  
3. PORTIONS OF THIS DRAWING SET WERE DEVELOPED FROM DRAWING FILE NRT-AERIAL.DWG E-MAILED 1/13/04 FROM THE CITY OF SHEBOYGAN.  
4. MONITORING WELLS SURVEYED BY ROBERT E. LEE & ASSOCIATES SURVEYING, FEBRUARY 2004, SHEBOYGAN COUNTY COORDINATE SYSTEM AND NAVD88 VERTICAL DATUM.



DRAWN BY:	KNW	DATE:	03/09/11
CHECKED BY:	HMS	DATE:	03/10/11
APPROVED BY:	HMS	DATE:	03/14/11
DRAWING NO: 1313-64-B03			
REFERENCE: .			

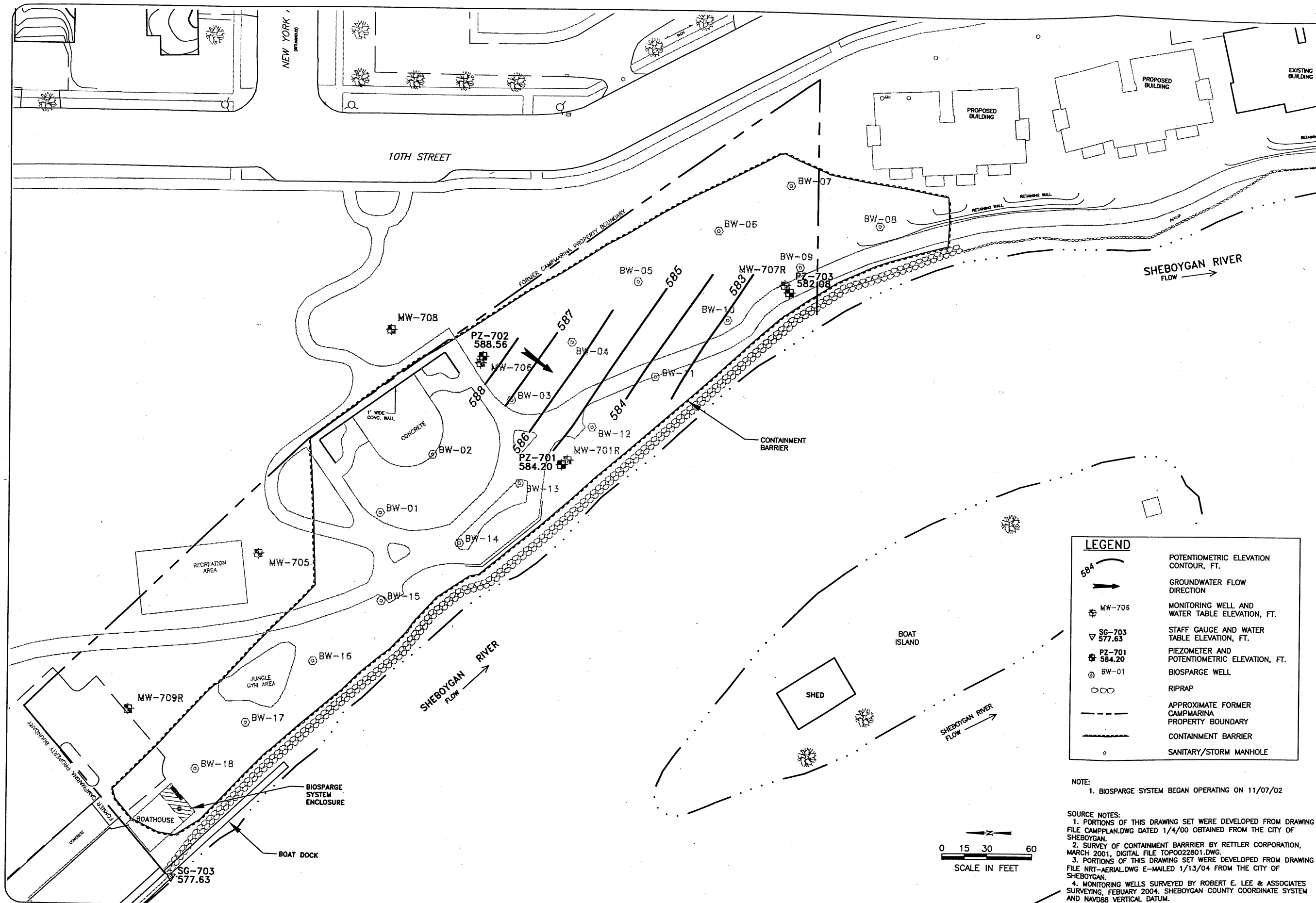
WATER TABLE ELEVATION CONTOURS-09/08/10  
 GROUNDWATER MONITORING UPDATE  
 CAMPMARINA FORMER MGP SITE  
 WISCONSIN PUBLIC SERVICE CORPORATION  
 CITY OF SHEBOYGAN, WISCONSIN

NATURAL  
 RESOURCE  
 TECHNOLOGY

PROJECT NO.  
1313/6.4

FIGURE NO.  
3

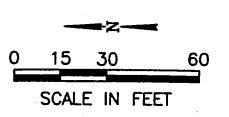
Figure 10



LEGEND	
	POTENTIOMETRIC ELEVATION CONTOUR, FT.
	GROUNDWATER FLOW DIRECTION
	MONITORING WELL AND WATER TABLE ELEVATION, FT.
	STAFF GAUGE AND WATER TABLE ELEVATION, FT.
	PIEZOMETER AND POTENTIOMETRIC ELEVATION, FT.
	BIOSPARGE WELL
	RIPRAP
	APPROXIMATE FORMER CAMPMARINA PROPERTY BOUNDARY
	CONTAINMENT BARRIER
	SANITARY/STORM MANHOLE

NOTE:  
1. BIOSPARGE SYSTEM BEGAN OPERATING ON 11/07/02

SOURCE NOTES:  
1. PORTIONS OF THIS DRAWING SET WERE DEVELOPED FROM DRAWING FILE CAMPPLAN.DWG DATED 1/4/00 OBTAINED FROM THE CITY OF SHEBOYGAN.  
2. SURVEY OF CONTAINMENT BARRIER BY RETTLER CORPORATION, MARCH 2001, DIGITAL FILE TOP0022801.DWG.  
3. PORTIONS OF THIS DRAWING SET WERE DEVELOPED FROM DRAWING FILE NRT-AERIAL.DWG E-MAILED 1/13/04 FROM THE CITY OF SHEBOYGAN.  
4. MONITORING WELLS SURVEYED BY ROBERT E. LEE & ASSOCIATES SURVEYING, FEBRUARY 2004. SHEBOYGAN COUNTY COORDINATE SYSTEM AND NAVD88 VERTICAL DATUM.



DRAWN BY:	KNW	DATE:	03/09/11
CHECKED BY:	HMS	DATE:	03/10/11
APPROVED BY:	HMS	DATE:	03/14/11
DRAWING NO:	1313-64-B04		
REFERENCE:			

POTENTIOMETRIC SURFACE CONTOURS-09/08/10  
GROUNDWATER MONITORING UPDATE  
CAMPMARINA FORMER MGP SITE  
WISCONSIN PUBLIC SERVICE CORPORATION  
CITY OF SHEBOYGAN, WISCONSIN



PROJECT NO.	1313/6.4
FIGURE NO.	4

Figure 11

Figure 6. Groundwater Elevations vs River Water Elevations  
 Wisconsin Public Service - Campmarina Former MGP Site  
 Sheboygan, WI

