



**Work Plan for Polychlorinated  
Biphenyl Investigation**

Madison-Kipp Corporation  
Madison, Wisconsin

**BRRTS No. 02-13-558625**  
**Facility ID No. 113125320**

May 2012



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## **Work Plan for Polychlorinated Biphenyl Investigation**

Madison-Kipp Corporation  
Madison, Wisconsin

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- A Submittal Certification
- B Historical Site Investigation Reports

## 1. Introduction

On behalf of Madison-Kipp Corporation, ARCADIS has been retained to support investigation and remediation activities at its facility located at 201 Waubesa Street in Madison, Wisconsin (Site). The Site is approximately 7.5 acres in size. A 130,000-square foot building occupies much of the Site, with asphalt parking lots located in the northeastern, southwestern and southeastern portions of the Site. The building has a 25,000-square foot second floor and a 25,000-square foot basement. The Site is currently used as a metals casting facility.

The Site is located in the eastern portion of Madison, in a mixed use area of commercial, industrial and residential land use. The Site is also located at the northeast end of the Madison isthmus, approximately 1,500 feet north of Lake Monona and approximately 6,800 feet east of Lake Mendota.

Site investigation activities were initiated in 1994 in response to a request from the Wisconsin Department of Natural Resources (WDNR). Site investigations had been conducted at two adjacent properties, and WDNR requested an investigation at the Site based on the results of those investigations. The initial investigation at the Site identified chlorinated hydrocarbons in soil and groundwater. Additional investigation activities were conducted, and are still ongoing.

As part of ongoing remediation and interim actions, a soil vapor extraction (SVE) system was installed in March 2012 to mitigate offsite migration of vapors. During installation of the SVE system (located along the northeastern property boundary), soil was excavated to install wells and conveyance piping. Excess soil that could not be placed back in the conveyance piping trenches was stockpiled, and waste characterization samples were collected. The samples contained detectable concentrations of polychlorinated biphenyls (PCBs). The WDNR was notified of the PCB results, and the WDNR issued a Responsible Party letter on April 19, 2012.

In a letter dated May 4, 2012, the WDNR requested a work plan for conducting an investigation to evaluate the sources, degree and extent of impacts associated with PCBs. This report presents a work plan for completing the additional site investigation activities associated with PCBs. The information provided herein is based on the requirements of NR 716 Wis. adm. code. An NR 712.09 submittal certification is included in Appendix A.

## 2. Project Background

### 2.1 Site Location, Contacts, and Description

The Site is located at 201 Waubesa Street in Madison, Wisconsin. The Site is located in the southwest quarter of Section 5, Township 7 North, Range 10 East in Dane County. The location of the site is illustrated on a topographic quadrangle presented as Figure 2-1.

The following contact information is provided for the facility and environmental consultant:

Facility Representative: Mark W. Meunier, SPHR  
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The Site is approximately 7.5 acres in size. A 130,000-square foot building occupies much of the Site. Asphalt parking lots are located in the northeastern, southwestern and southeastern portions of the Site. The building has a 25,000-square foot second floor and a 25,000-square foot basement. Figure 2-2 depicts the layout of the Site. The Site is zoned M-1 (industrial/manufacturing). The Site is currently used as a metals casting facility.

The Site is located in the eastern portion of Madison, in a mixed use area of commercial, industrial and residential land use. The Site is bounded by a bicycle trail (Capital City Trail) to the north, Atwood Avenue to the south, and Waubesa Street to the west. Residences are located adjacent to the east and west sides of the Site, and further west (across Waubesa Street) and east (across Marquette Street). Commercial properties are located to the south (across Atwood Street) and further east. The Goodman Community Center is located to the north (across the Capital City Trail).

The Site is also located at the northeast end of the Madison isthmus, approximately 1,500 feet north of Lake Monona and approximately 6,800 feet east of Lake Mendota. The topography of the Site is relatively flat, with an elevation ranging from approximately 870 to 880 feet above mean sea level. The Site and surrounding area is serviced by municipal water supply and sewerage systems.

## **2.2 Geologic and Hydrogeologic Conditions**

### **2.2.1 Geology**

The Madison area lies in a part of Wisconsin underlain by a thick sequence of Paleozoic sedimentary rock that was deeply eroded during Pleistocene glaciations. In the vicinity of the Site, the bedrock surface lies beneath approximately 35 feet of unconsolidated glacial sediments. Clayton and Attig (1997) have mapped the glacial sediments in the Site vicinity as a patchwork of glacial lake sediments (e.g., stratified sand, silt and clay) and till (much denser and poorly sorted gravelly, clayey silty sand). Soil borings completed at the Site describe the unconsolidated zone as a fining-upward sequence consistent with lake sediments. The typical unconsolidated stratigraphy includes:

- A veneer of surficial fill, generally less than 5 feet thick.
- Clay or silty clay, from approximately 5 to between 10 and 15 feet below ground surface.

- Sand, from approximately 10 feet to the top of rock at approximately 35 feet. The sand is typically fine-grained and variably silty, with occasional gravel beds, particularly in the bottom half of the unit.

While the sedimentary bedrock in the Madison area is nearly flat-lying, the bedrock surface was deeply eroded by glaciers. Lakes Mendota and Monona, located to the north and south of the Site, respectively, occupy deep glacial valleys that were scoured into bedrock at least 200 feet deeper than the bedrock surface at the Site (Bradbury and others, 1999).

The Site vicinity is underlain by approximately 750 feet of Cambrian-aged sandstone, shale and dolomite. The expected stratigraphy at the Site is as follows (after Ruekert/Mielke, 2011):

Estimated Depth	Formation/ Group	Description
35-120 feet	Tunnel City Group	Poorly to moderately-well cemented fine-to-medium sandstone, often Glauconitic (containing green/blue sand-sized clay nodules).
120-245 feet	Wonewoc Formation	Medium to fine-grained sandstone
245-430 feet	Eau Claire Formation	The upper part of contains significant shale and siltstone. Deeper, the unit is chiefly dolomitic sandstone.
430-750 feet	Mount Simon Formation	Well-cemented, coarse to medium-grain sandstone

### 2.2.2 Hydrogeology

The hydrostratigraphy of the area is typically divided into four units:

- **Unconsolidated Zone (Upper Unconsolidated Aquifer)**, the zone of saturated glacial sediments overlying bedrock. At the Site this zone is discontinuous. The zone of saturation is thin to absent in the southern part of the Site (e.g., the water-table is at or below the rock surface), to between 10 and 15 feet thick in the north of the Site. Typically, only the sandy portion of the unconsolidated zone is saturated, while the shallow clay is above the water table.
- **Upper Paleozoic Aquifer (Upper Bedrock Aquifer)**, encompassing the Tunnel City Group and Wonewoc Formation (approximately 210 feet total thickness). The

unit is not used extensively for water supply, but is moderately permeable, with a hydraulic conductivity estimated at approximately 5 feet/day (Ruekert/Mielke, 2011).

- **Eau Claire Aquitard**, defined as the thin shaley facies found near the top of the Eau Claire Formation. Where present, this unit functions as an aquitard separating the Upper Paleozoic Aquifer from the Mount Simon Aquifer below. The Eau Claire is present in the immediate Site vicinity, but is eroded in the glacial bedrock valleys beneath Lakes Monona and Mendota.
- **Mount Simon Aquifer (Lower Bedrock Aquifer)**, defined as the Mount Simon and Eau Claire Formations, starting below the Eau Claire Aquitard (approximately 500 feet total thickness). The Mount Simon Aquifer is the chief water-supply aquifer in the region, and is the unit pumped by the City of Madison water-supply wells. The mean hydraulic conductivity of the aquifer is estimated at approximately 10 feet/day (Bradbury and others, 1999).

Though the sandstone aquifers have moderate porosity (typically 10 to 20%), the groundwater flow occurs predominantly in fractures such as bedding planes and joints. The porous matrix of the sandstone creates a secondary permeability, and provides a significant volume of storage.

The water table at the Site generally ranges between 15 and 35 feet below ground surface. Previous reports have shown shallow groundwater flow trending to the east and south; flow in the bedrock appeared to trend south, but has shown more variability than in the upper zones. Based on the groundwater levels measured from nested monitoring wells, the vertical gradient is downwards at the Site. Recently installed wells and additional groundwater level monitoring are anticipated to clarify the patterns of groundwater flow.

### 2.3 Summary of Previous Activities

Site investigation activities were initiated at the Site in 1994, and are ongoing. A Phase I Environmental Site Assessment (ESA) completed in 2002 did not identify any recognized environmental conditions (RECs) other than the previously identified VOC impacts. The Phase I ESA identified the presence of asbestos containing building materials and PCB containing ballasts, but no releases from these building products were noted.

In 2006, an update to the 2002 Phase I ESA was completed. The Phase I ESA update stated that oils that may have contained PCBs may have been used for dust suppression prior to paving the parking lot/loading dock area at the northeastern quadrant of the Site. The finding was reiterated in a 2010 Phase I ESA. Nearly all of the soil borings at the site were completed prior to 2006, and soil samples were generally analyzed for VOCs.

As part of ongoing remediation and interim actions, a SVE system was installed in March 2012 to mitigate offsite migration of vapors. During installation of the SVE system (located along the north eastern property boundary), soil was excavated to install wells and conveyance piping. Excess soil that could not be placed back in the conveyance piping trenches was stockpiled, and waste characterization samples were collected. The samples contained detectable concentrations of PCBs.

On May 10 and 11, 2012, seventeen shallow soil borings were advanced in the backyards of nine residences along the northeastern property boundary of the Site. The soil borings were completed at the following residential properties using a hand auger to a depth of approximately 12 inches: 102, 110, 114, 118, 126, 128, 130, 134 and 142 South Marquette Street. Access could not be obtained for two additional properties (106 and 138 South Marquette Street) at that time. One soil sample from each boring was analyzed for VOCs and PCBs. The results of the 2012 soil sampling activities were presented in a letter report dated May 7, 2012. A copy of the letter report is included in Appendix B, and the soil boring locations are shown on Figure 2-2. The following is a summary of the results:

- None of the soil samples contained detectable concentrations of PCBs.
- Only one soil sample, collected from 102 South Marquette Street, contained detectable concentrations of VOCs. Soil Sample 102-2 contained PCE at 2.19 mg/kg, TCE at 0.445 mg/kg, and cis-1,2-dichloroethene at 0.49 mg/kg.

A review of historical facility operations identified the following potential source of PCBs:

- Oils were spread in the north parking lot to control dust in the years prior to paving the area. Because these were waste oils from facility operations, and because PCB-containing oils were utilized in the past, it is considered possible that PCBs are present beneath the pavement. Soil samples collected from excavated soil during installation of a vapor extraction system in 2012 contained PCBs.

ARCADIS reviewed the appendices of the Phase I ESAs, and identified the following additional potential RECs:

- The 1942, 1950 and 1986 Sanborn Fire Insurance maps depict an oil warehouse on the northwestern portion of the Site. The approximate location of the oil warehouse is shown on Figure 2-2.

#### **2.4 Investigation Scoping**

The focus of this work plan is on PCBs and other constituents as requested by WDNR in its May 4, 2012 letter. The scope of the PCB investigation activities presented herein was developed by reviewing the historical record to obtain information to complete the evaluation of relevant items enumerated under NR 716.07 (1) through (11). These items include historical operations, discharges, potential receptors, and impacted media. The following sections present an overview of the information used to scope the investigation.

History of Operations: Historical facility operations have been researched throughout the investigation in order to determine the sources of constituents. In addition, Phase I ESAs have been completed.

The Site has been used for industrial activities for more than 100 years. Madison-Kipp Corporation purchased the northern portion of the property in 1898, and the southern portion of the Site in 1917. Development initially consisted of a building at the north end of the Site and a building along Atwood Avenue to the south. Building additions were constructed in several phases, and by 1955 the initial two buildings were connected by these additions. The current configuration of the building was established by 1968.

The Site is utilized as a metals casting facility. Natural gas-fired furnaces are used for melting metals, which are then poured into molds to cast parts. The facility conducts limited post-casting processing of parts. Chemical usage at the facility includes chlorine, hydraulic oils, caustic solutions and stoddard solvent. Waste streams consisted primarily of solid wastes such as aluminum byproduct, used steel shot, wastewater sludge, and general refuse.

Based on the Phase I ESA and other reviews, the following operations were identified at the Site that have been or could be potential sources of PCBs:

- Oil was spread in the north parking lot to control dust in the years prior to paving the area. Because this was waste oils from facility operations, and because PCB-containing oils were utilized at the facility in the past, it is considered possible that PCBs are present beneath the paving. Soil samples collected from excavated soil during installation of a vapor extraction system in 2012 contained PCBs. Soil samples collected from the east adjacent properties in 2012 did not contain PCBs.

It is noted that the May 4, 2012 WDNR letter requested information regarding the source, storage, and use of used oil at the facility. Madison-Kipp Corporation has not identified any additional information regarding the used oil beyond its general use as a dust suppressant. This use represents a diffused source; as a result, the investigation activities outlined in this work plan will utilize a grid pattern for sample collection to evaluate soil conditions. Madison-Kipp Corporation continues to investigate its historical used oil activities. If additional information is found, it will be provided to the WDNR, and the information will be used to scope additional boring locations for completing the investigation. An addendum to this work plan will be prepared, if necessary, to present the additional findings and proposed additional borings.

This information was used to select boring locations for additional investigation.

Types of Constituents: The Phase I ESA identified current chemical usage, which includes chlorine, hydraulic oils, caustic solutions and stoddard solvent. Historical chemical usage included PCE and oil potentially containing PCBs. A former gasoline service station was located in the southeastern portion of the Site; chemical usage at this location likely included petroleum products such as gasoline, diesel and motor oil.

Historical analytical data was also reviewed to identify constituents for inclusion during this phase of investigation. . Based on historical operations and site investigation data, constituents of potential interest include the following:

- Chlorinated solvents, including PCE
- Petroleum hydrocarbons related to stoddard solvent, hydraulic oil, gasoline, diesel, and motor oil
- PCBs

The WDNR's May 4, 2012 letter requested that samples collected as part of the PCB investigation be analyzed for the following constituents: PCBs, VOCs, heavy metals, PAHs, and cyanides.

History of Discharges: ARCADIS reviewed the WDNR BRRTS to identify releases that have occurred at the Site. Six BRRTS numbers were listed for the Site's facility Identification Number 113125320:

- BRRTS No.04-13-047387 – This incident occurred on July 17, 1992. A cooling tower leak occurred, and 500 gallons of material were reported spilled. The incident was reported to WDNR and closed.
- BRRTS No. 04-13-050991 – This incident occurred on July 14, 1995. A faulty trip valve malfunctioned, resulting in the release of 75 gallons of hydraulic oil. The spill was cleaned up with absorbent. The spill was reported to WDNR and closed.
- BRRTS No. #04-13-260538 – This incident occurred on September 8, 2000. Operator error caused a spill of aluminum while being transferred to a furnace, resulting in the spill of 50,000 pounds of aluminum. The incident was reported to WDNR and closed.
- BRRTS No. 04-13-281251 – This incident occurred on September 9, 2001. A furnace temperature controller failed, resulting in a release of paint, ink or dye fumes to the atmosphere. The incident was reported to WDNR and closed.
- BRRTS No. 02-13-001569 – Based on investigations conducted to date, this activity is associated with the source of impacts from the two vapor degreasers as well as the former PCE storage area.
- BRRTS No. 02-13-558625 – This activity was opened as the result of the PCBs detected in the soil characterization sample collected during installation of the SVE system.

Affected Media: Figures 2-2 and 2-3 depict the locations of all of the soil borings and monitoring wells that have been advanced at the Site to date. Based on the available data, the following media have been affected:

- Soil – Investigation activities have identified VOCs in soil samples collected from the Site. Detected constituents have generally consisted of chlorinated VOCs. A

waste characterization sample collected from excavated soil in 2012 contained PCBs.

- Groundwater – Investigation activities have identified VOCs in groundwater samples collected from the Site and from off-site locations. Detected constituents indicate two plumes are present. The larger plume consists of chlorinated VOCs, including PCE and related biodegradation daughter products. A second plume, consisting of petroleum VOCs, is located in the southeastern portion of the Site and may emanate from an off-site source, a former gasoline service station that had been on the Site, or a combination thereof.
- Vapor – Investigation activities have identified VOCs in subsurface vapor samples collected from the site and at off-site locations.

Proximity to other Sources: The Site is located in a mixed-use area of commercial, industrial and residential developments. The initial investigation at the Site was requested during investigation activities at two adjacent properties (Madison Brass Works and Kupfer Iron Works). The 2010 Phase I ESA included a regulatory database search of environmental activities at nearby properties. A copy of the Phase I ESA is included in Appendix B. The following is a summary of the regulatory database review from the Phase I ESA:

- Resource Conservation Recovery Act (RCRA) Small Quantity Generators – Two identified within 0.25 mile of the Site.
- RCRA Conditionally Exempt Small Quantity Generators – One identified within 0.25 miles of the Site. Madison-Kipp Corporation was also identified.
- Solid Waste Disposal Sites – One identified within 0.5 mile of the Site.
- Leaking Underground Storage Tanks – Thirty were identified within 0.5 mile of the Site.
- Leaking ASTs – Four were identified within 0.5 mile of the Site.
- Registered Storage Tanks – Seven were identified within 0.25 mile of the Site.
- Institutional Control/Engineering Control – Twenty were identified within 0.5 mile of the Site.

- Wisconsin Emergency Response Program – Seven were identified within 0.5 mile of the Site.

The Phase I ESA identified one of the leaking underground storage tank sites as a REC. The former Clark station, located at 2801 Atwood Avenue is an active remediation site, and was located directly across Atwood Avenue from the Site. The Kupfer Iron Works property, 149 Waubesa Street, was listed on two of the databases (Wisconsin Emergency Response Program database and Institutional Control/Engineering Control database). This site has received closure from WDNR. However, inclusion on the Institutional Control/Engineering Control database indicates that residual contamination remains in place. Based on the direction of groundwater flow, the Kupfer Iron Works site is located directly upgradient of the Site.

Access: Most of the investigation activities described in this work plan will take place on the Site. The areas where investigation activities will occur consist of parking lots, which are readily accessible.

Potential Receptors: ARCADIS identified potential receptors for the identified impacted media (soil and groundwater) to be evaluated by this work plan.

For soil, the potential exposure pathways include ingestion (residential, commercial/industrial worker and construction worker), inhalation (residential, commercial/industrial worker and construction worker), and migration to groundwater. For groundwater, the potential receptor is ingestion (commercial/industrial worker).

ARCADIS also reviewed the WDNR's web-based database to identify nearby public water supply wells, which are depicted on Figure 2-4. One public water supply well operated by the Madison Water Utility (Unit Well 8) is located within 1 mile of the Site.

Sensitive Habitats: The site is located in a mixed-use area of commercial, industrial and residential developments. No sensitive species, habitat, ecosystem, wetlands, or outstanding resource waters are located in the vicinity of the facility. It is noted that the Site is located at the northeast end of the Madison isthmus, approximately 1,500 feet north of Lake Monona and approximately 6,800 feet east of Lake Mendota.

There is a rain garden located adjacent to the northeast property line. While not a habitat for sensitive species, this area has been identified as part of the investigation scoping as rain gardens are typically designed to retain storm water and facilitate infiltration.



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Background Soil and Water Quality and Climatological Conditions: Background soil and groundwater quality issues that may affect investigation or remediation have not been identified to date at the Site.

Climatological conditions at the facility should not adversely affect the scope of the supplemental investigation.

Paragraphs (9) and (10) of NR 716.07 address interim and remedial actions. Interim actions have been taken at the Site, and were discussed earlier in this document.

### 3. Overview of Investigation Strategy

This work plan presents the means and methods for conducting investigation activities at the Site to further evaluate soil conditions for PCBs and other constituents requested by WDNR. The results of the investigation will be used in conjunction with the previous investigation data to evaluate the extent of impacts and to develop a remediation strategy. The work plan proposes the following investigation activities:

- A soil investigation to further evaluate PCB concentrations beneath the parking lots at the Site. In summary, 82 soil borings will be advanced in a grid pattern in the parking lots located in the northern, southwestern, southeastern and western portions of the Site. A subset of borings will be advanced to the water table.
- In accordance with the WDNR letter dated May 4, 2012, soil samples will be collected for analysis of the following constituents: PCBs, VOCs, RCRA metals, PAHs, and total cyanide.
- The results will be presented in a data summary letter.

## **4. Investigation Work Plan**

The following sections present a description of the work to be completed during the investigation. The contents of this section were prepared in accordance with NR 716.09 Wis. admin. code.

### **4.1 Health and Safety**

Prior to beginning the investigation, the Site health and safety plan will be updated to address the planned field activities. Utility marking arrangements will be made through Digger's Hotline (the State of Wisconsin Public Utility clearance service), a ground penetrating radar survey, a private utility locator, and discussions with property owners. Prior to beginning work each day, a "tailgate" health and safety briefing will be held to discuss the activities and identify ways to ensure the health and safety of Site workers. If conditions are encountered during Site investigation activities that differ from those outlined in the health and safety plan, the Site activities will be reevaluated to determine the appropriate actions that will ensure the health and well-being of the workers.

### **4.2 Direct-Push Boring Locations**

The direct-push boring locations described in this work plan were selected based on the information identified during the investigation scoping. In summary, 82 soil borings are proposed for the investigation.

The presence of PCBs in soil beneath the north parking lot is potentially the result of used oil being used as a dust suppressant. This would represent a diffuse source area, rather than a point source such as those identified for the VOC releases at the Site. To evaluate the extent of the PCB impacts in soil, borings will be advanced in a grid pattern across each of the three parking lot areas and the western portion of the Site. A 50 foot by 50 foot grid pattern was created to provide coverage, with borings located at the grid nodes. A denser spacing of 20 feet will be used along the north and east property boundaries. Based on the grid, soil borings will be advanced at 82 locations to evaluate soil for the presence of PCBs. Figure 4-1 depicts the boring locations.

It should be noted that the proposed boring locations depicted on Figure 4-1 are approximate. Deviations to the locations may occur based on receipt of additional

information, screening results from nearby borings, and impediments such as underground utilities and abovegrade infrastructure.

#### **4.3 Direct-Push Soil Boring Sampling and Analysis Plan**

A direct-push drill rig will be used to advance soil borings for collecting soil samples. Forty-five soil borings will be advanced to a depth of 4 feet, and 37 soil borings will be advanced to the water table or top of bedrock, whichever is shallower. The locations of these borings are depicted on Figure 4-1. Below is a summary of the proposed drilling and soil sampling activities.

##### **4.3.1 Drilling and Soil Sampling**

The direct-push soil borings will be advanced using a sampling vehicle equipped with a Geoprobe Series AT-660 Large Bore Soil Sampler (or comparable equipment). Soil samples will be collected by driving a steel sampling rod (sampler) with acetate liners to the desired sampling depth using the hydraulic ram and hammer on the Geoprobe rig. Once the sampler reaches the desired depth, the sampler will be opened by removing a stop pin in the sampler. The sampler will be driven an additional 4 feet to push a soil sample into the sampler, preserving the sample in a 1-inch by 4-foot acetate liner inside the sampler. The acetate sleeves will allow continuous collection of soil samples from each boring.

Companion sampling will be completed by collecting two aliquots of soil from each sampling interval and placing each aliquot into a separate resealable plastic bag. One of the companion samples from each interval will be used for field screening for the presence of total ionizable VOC vapors with a calibrated flame ionization detector (FID). The screening samples will be warmed and the headspace FID reading of the soil taken by inserting the probe end of the FID into the plastic bag through the seal. The screened samples will be discarded; the unscreened companion samples will be used for preparing samples for analytical testing.

An ARCADIS scientist will oversee the drilling activities and visually screen and describe the condition and engineering properties of the soil. Soil descriptions and field screening FID results will be recorded on Soil Boring Logs (WDNR Form 4400-122) in accordance with WDNR requirements.

Soil samples will be collected for laboratory analysis from all 82 direct-push borings. Sampling will be completed as follows:

- One soil sample from a 2-foot interval from the 0 to 4 feet below land surface (bls) interval from each boring advanced will be selected for laboratory analysis. The sample will be selected based on staining, odors and FID readings. The soil sample from the interval containing the greatest indication of impacts will be selected for analysis of PCBs, VOCs, RCRA metals, PAHs, and total cyanide. If no impacts are evident, the soil sample will be collected from the 2 to 4 foot interval.
- If the soil sample from the 2 to 4 foot interval of a boring exhibits indications of oil impact such as odors or staining, the boring will be advanced to an interval free of oil impacts. In addition to collecting a soil sample from the impacted interval, a second soil sample will be collected, from the interval at the base of the boring, but above the water table, to evaluate the vertical extent of impact. The soil sample will be analyzed for PCBs, VOCs, RCRA metals, PAHs and total cyanide.
- A subset of soil borings will be advanced to the water table or the top of bedrock, whichever is shallower, and a second soil sample will be collected from a 2-foot interval for laboratory analysis. The second sample will be selected based on staining, odors and FID readings. If no staining, odors or FID readings above background are observed, the second sample will be collected from the 2-foot interval above the water table or above bedrock. The soil sample from the interval containing the greatest indication of impacts will be selected for analysis of PCBs, VOCs, RCRA metals, PAHs, and total cyanide.

#### 4.3.2 Analytical Parameters

The preceding sections listed the analytical parameters for the sampling activities. The following is a summary of the analytical methods:

- VOCs – U.S. EPA SW-846 Method 8260B
- PAHs – U.S. EPA SW-846 Method 8270C
- PCBs – U.S. EPA SW-846 Methods 8082 and 680
- RCRA Metals – U.S. EPA SW-846 Method 6010B/7471A
- Total Cyanide – U.S. EPA SW-846 Method 9014

PCB analysis has typically been conducted using U.S. EPA Method 8082, which provides results based on Aroclor concentrations. In an electronic mail message from WDNR dated May 17, 2012, the WDNR indicated that PCB results should be evaluated using homologue and congener analyses. WDNR also provided a PowerPoint presentation prepared by the US EPA dated May 26, 2010 entitled PCBs: Sampling, Analysis, Risk Assessment, and Characterization. The presentation provided information on laboratory methods and recommendations for site characterization. Recommendations included use of multiple analytical methods for quantifying PCBs, and suggested submitting up to 20 percent of samples for multiple analyses.

ARCADIS proposes to initially analyze the soil samples for PCBs using the method to quantify Aroclors (Method 8082). An additional volume of soil will be collected for potential homologue and congener analyses from each location. Based on the results of the Method 8082 analysis, up to 20 percent of the samples will be submitted for homologue and congener analyses by Methods 680 and 1688a, respectively. Based on discussions with the laboratory, soil and groundwater sample hold times are one year for these analyses.

#### **4.4 Surveying**

A Wisconsin-licensed surveyor will locate the horizontal location of each boring to Wisconsin state plane coordinates and vertical elevation. Ground elevations will be surveyed to an accuracy of +/-1 foot.

#### **4.5 Management of Investigative-Derived Wastes**

Soil cuttings and decontamination water from cleaning down-hole equipment generated during the investigation will be containerized in appropriate steel 55-gallon drums. Arrangements will be made with a licensed disposal facility for the transportation and disposal of the wastes.

#### **4.6 Investigation Reporting**

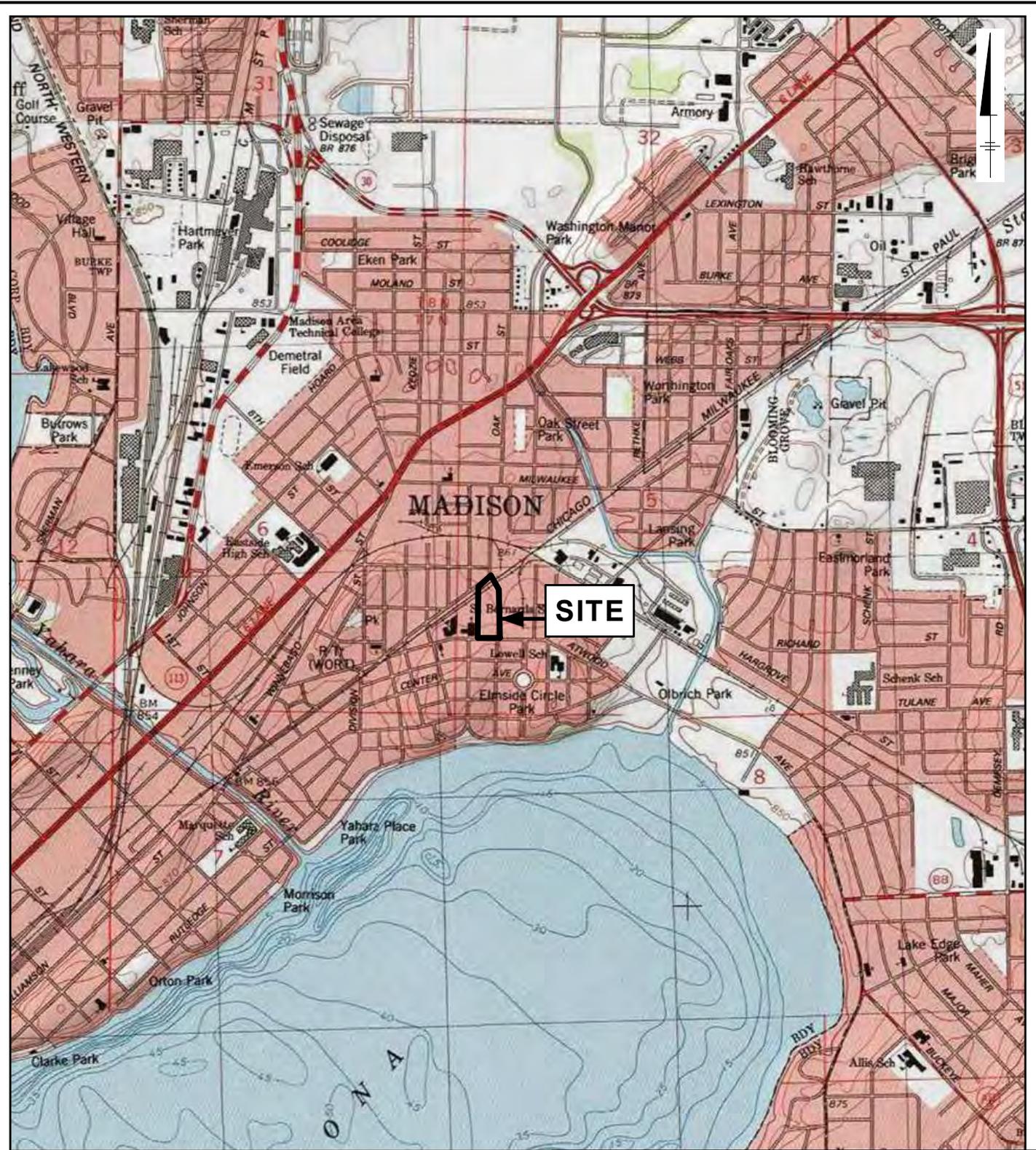
Following receipt of the soil and groundwater analytical results, ARCADIS will prepare a data summary letter. The summary letter will present the results of the field screening and analytical testing. Copies of all boring logs, borehole abandonment forms, and analytical reports will be included as attachments to the summary letter. A



**Work Plan for  
Polychlorinated  
Biphenyl Investigation**

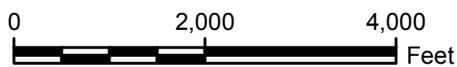
Madison-Kipp Corporation  
Madison, Wisconsin

complete summary of procedures and results will be submitted as part of the overall site investigation report.



SITE LOCATION

NOTE:  
 TOPO BASE MAP OBTAINED FROM  
 ESRI ONLINE MAPPING, USING  
 ARCMAP 10 ACCESSED 5/21/2012



GRAPHIC SCALE

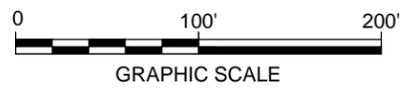
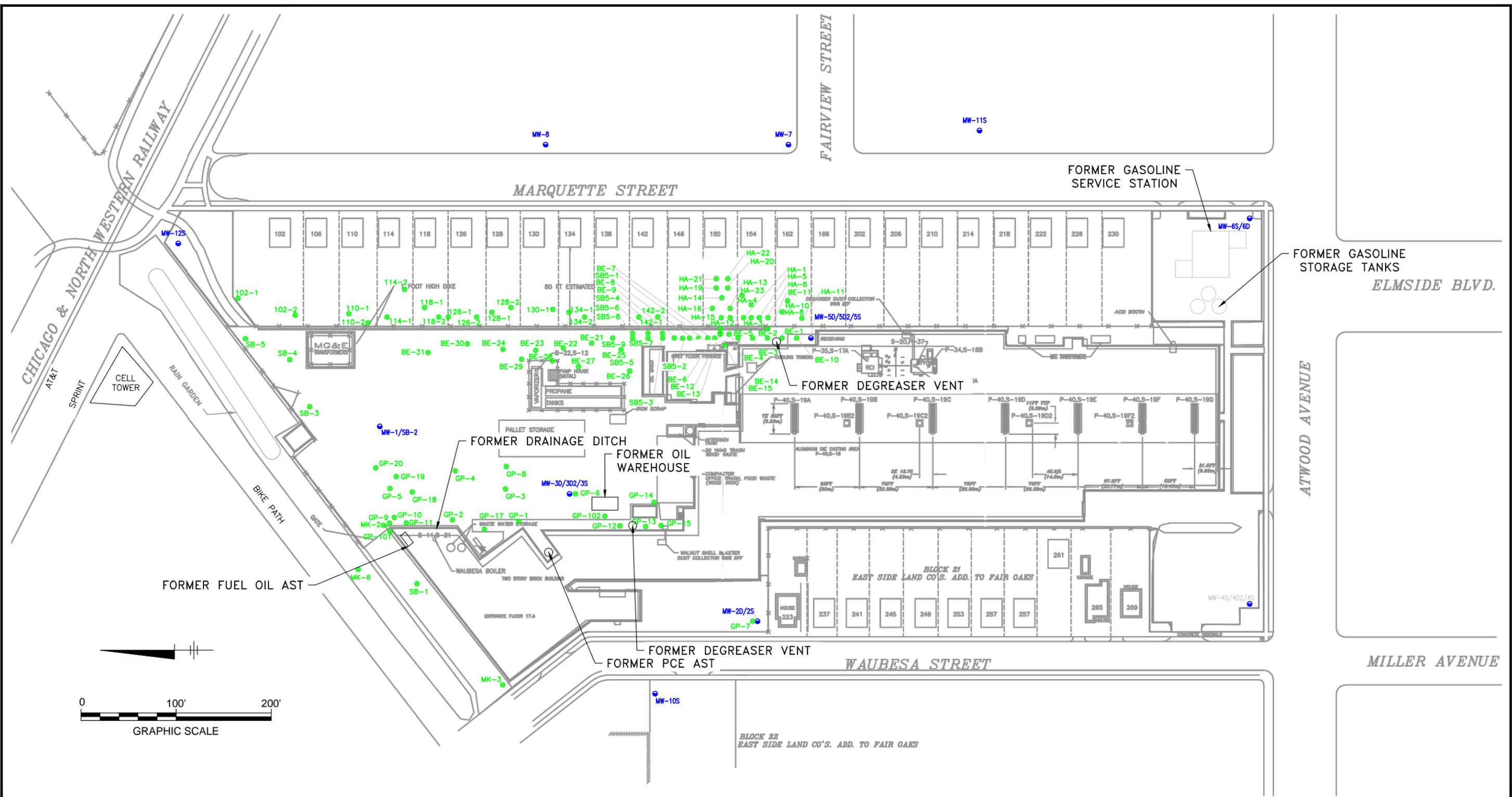
MADISON-KIPP CORPORATION  
 201 WAUBESA STREET  
 MADISON, WISCONSIN

SITE LOCATION MAP



FIGURE  
 2-1

CITY: COSTA MESA DIV: GROUP: PEN/CAD DB: EN/CAD LAYOUT: 2.2 SAVER: 5/18/2012 12:44 PM ACADW: 18.1S (LMS TECH) PAGESETUP: PLOTSTYLETABLE: BLACKGRAY\_WITHBLUEGREEN.CTB PLOTTED: 5/18/2012 1:05 PM BY: HETTLER, ERIC



**LEGEND:**

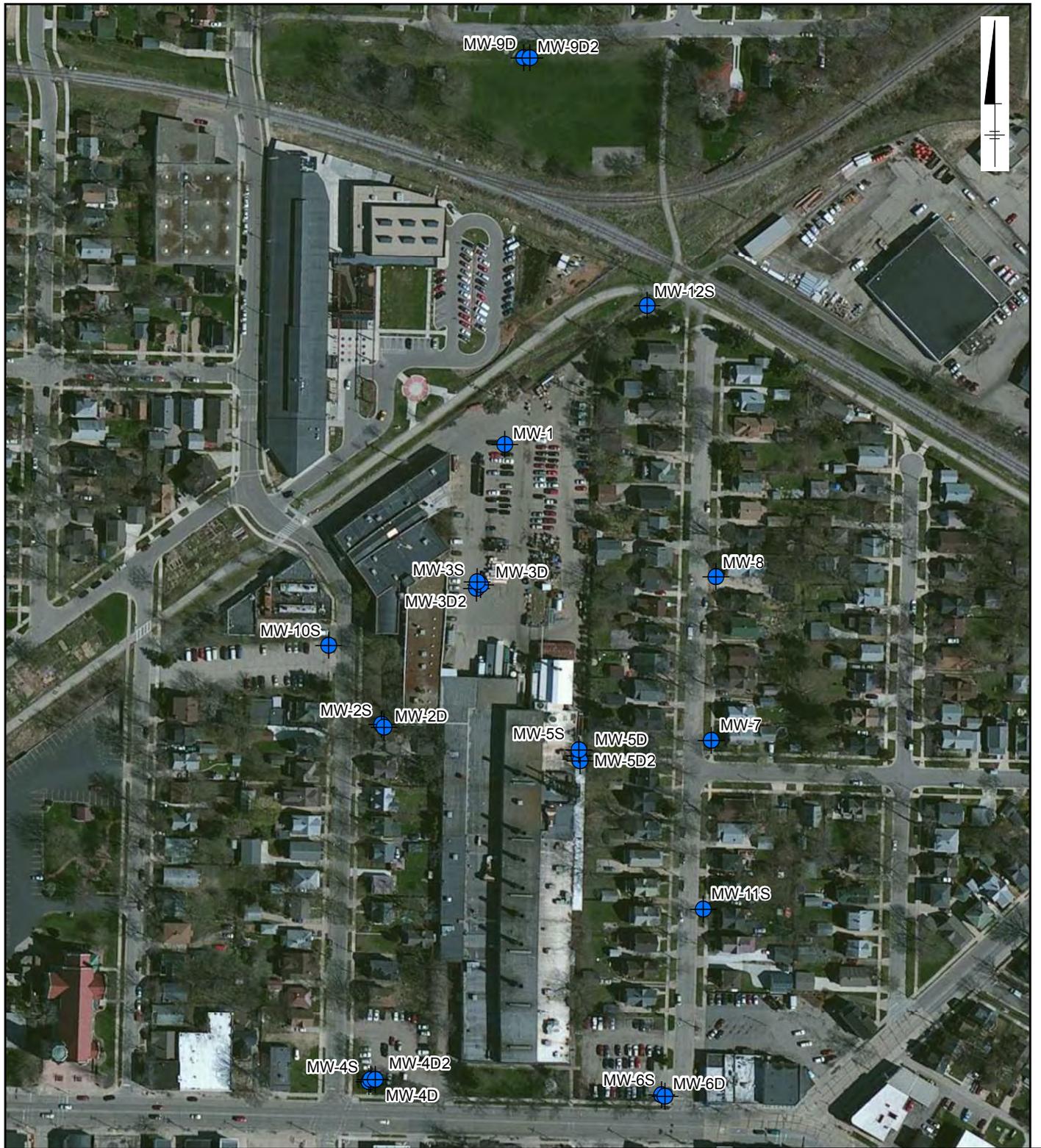
- MW-2D/2S ● MONITORING WELL
- GP-7 ● SOIL BORING

MADISON KIPP CORPORATION  
201 WAUBESA STREET  
MADISON, WISCONSIN

**SITE LAYOUT**  
**SOIL BORING AND MONITORING WELL LOCATIONS**

FIGURE

SOURCE: MADISON KIPP CORPORATION



**LEGEND:**

 MONITORING WELL

**Notes:**

- 1) AERIAL IMAGERY OBTAINED FROM BING IMAGERY SERVICE THROUGH ESRI ONLINE MAPPING, ACCESSED ON 5/18/2012

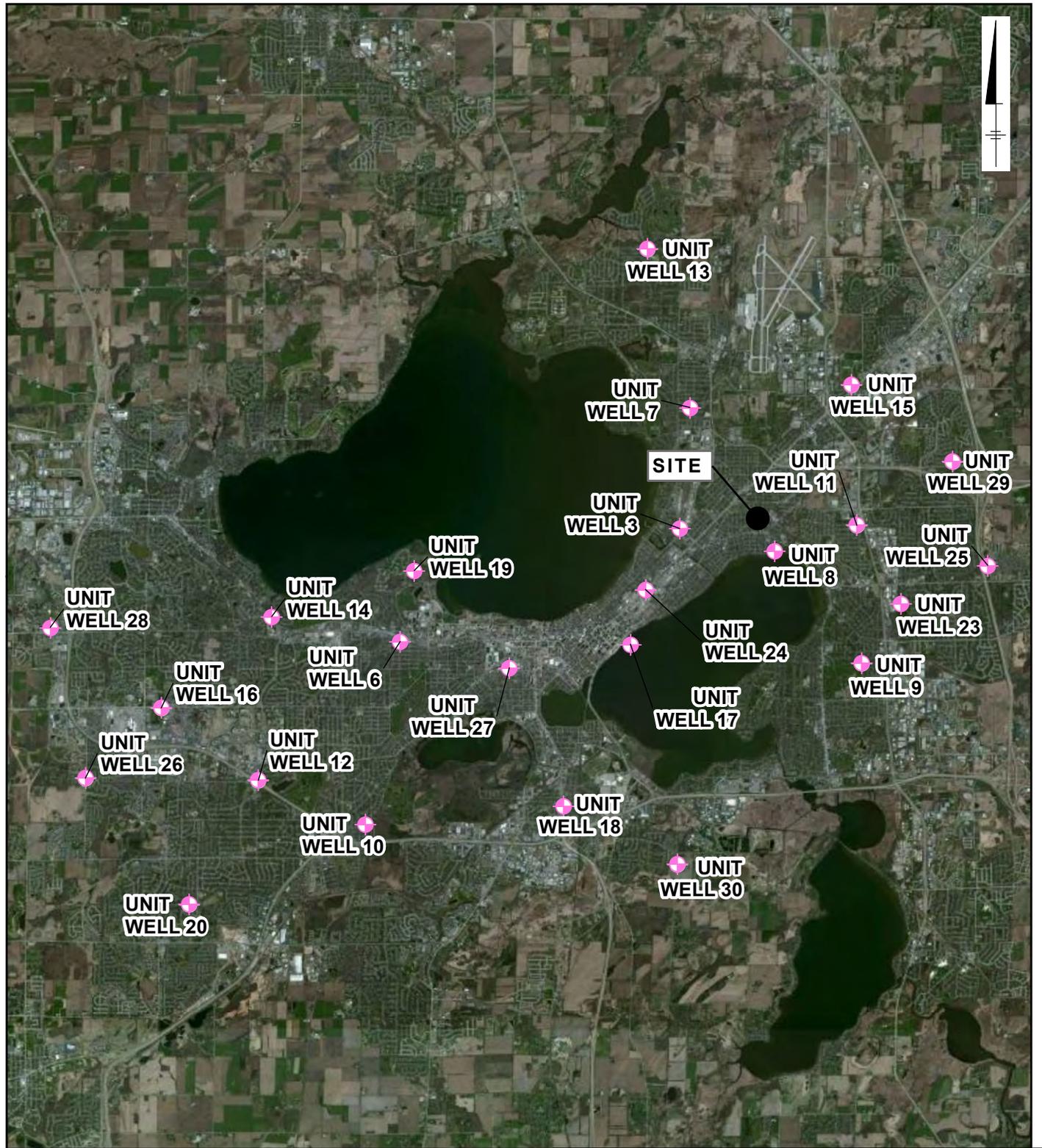


MADISON-KIPP CORPORATION  
 201 WAUBESA STREET  
 MADISON, WISCONSIN

**MONITORING WELL LOCATIONS**



**FIGURE  
 2-3**

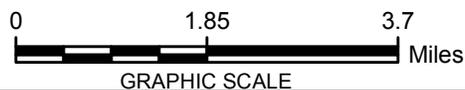


**LEGEND:**

 Public Well

**NOTES:**

1) AERIAL IMAGERY OBTAINED FROM BING IMAGERY SERVICE THROUGH ESRI ONLINE MAPPING, ACCESSED ON 5/18/2012



MADISON-KIPP CORPORATION  
201 WAUBESA STREET  
MADISON, WISCONSIN

**PUBLIC WATER SUPPLY WELL LOCATIONS**



**FIGURE  
2-4**



Appendix A

Submittal Certification



**Submittal Certification**

This attachment was prepared to satisfy the requirements of Wisconsin Administrative Code Chapter NR 712.09 and is applicable to the following document.

**Work Plan for Polychlorinated Biphenyl Investigation  
Madison-Kipp Corporation  
201 Waubesa Street  
Madison, Wisconsin**

I, \_\_\_\_\_, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

\_\_\_\_\_

\_\_\_\_\_

Signature, title and P.E. number

P.E. stamp

\_\_\_\_\_

I, \_\_\_\_\_, hereby certify that I am a hydrogeologist as that term is defined in s. NR 712.03 (1), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

\_\_\_\_\_

\_\_\_\_\_

Signature and title

Date