



**Stantec Consulting Services, Inc.**  
 12080 Corporate Parkway, Suite 200  
 Mequon, Wisconsin 53092

July 15, 2024

**Attention: John Feeney**  
 Wisconsin Department of Natural Resources  
 1155 Pilgrim Road  
 Plymouth, WI 53073-4294  
 (262) 414-8643  
[johnm.feeney@wisconsin.gov](mailto:johnm.feeney@wisconsin.gov)

Dear Mr. Feeney:

**Reference: Supplemental Site Investigation Workplan; Cedarburg Power Plant Property;  
 (BRRTS #02-46-547626 & 03-46-003301, FID #246100800)**

This Supplemental Site Investigation Workplan has been prepared on behalf of Cedarburg Light & Water Utility by Stantec Consulting Services, Inc. (Stantec) for field sampling and associated laboratory analyses to be performed as part of a Supplemental Site Investigation (SSI) located at W61 N617 Mequon Avenue, Cedarburg, Wisconsin (herein referred to as the "Property") in response to the WDNR's response letter dated April 10, 2024. The location of the Property relative to regional topography are illustrated on **Figure 1**. Proposed and existing sample locations are illustrated on **Figure 2**.

**BACKGROUND INFORMATION**

The Property parcel details are identified in the table below:

Address	Parcel Number	WDNR FID	BRRTS Nos.	Owner	Size (acres)	Current Usage
<b>W61 N607-31 Mequon Avenue</b>	130840307000	246100800	#02-46-547626 & #03-46-003301	City of Cedarburg	1.35	Cedarburg Fire Department & Vacant Power Plant

*WDNR = Wisconsin Department of Natural Resources, FID = Facility Identification Number, BRRTS = Bureau for Remediation and Redevelopment Tracking System, No. = Number. See **Figure 1** for the Property location. Ozaukee County Parcel GIS, <https://www.arcgis.com/apps/webappviewer/index.html?id=1846293f82c24db2a9d7adf5e6554b77>*

The Property is currently an open WDNR Bureau of Remediation and Redevelopment Tracking System (BRRTs) case due to the presence of chlorinated volatile organic compound (CVOC) and diesel fuel contamination in the soil and groundwater (BRRTS #02-46-547626 and BRRTS #03-46-003301, respectively). Identified contamination is associated with past uses of the Property. The City of Cedarburg operated an electrical power plant at the Property from 1901 until 1984. The original electrical generators utilized steam for driving the turbines. From 1901 until 1929, wood and coal were used to fuel steam production. In 1929, diesel fuel powered electrical generators were installed along with two 20,000-gallon underground storage tanks (USTs) located on the northwest side of the power plant to store diesel fuel. Diesel fuel was used to fuel generators on site until the power plant closure in 1984. The two diesel fuel USTs were reportedly cleaned and abandoned on April 16, 1986 and remain in place at the Property (see approximate location on **Figure 2**).

A 1,000-gallon UST was also present at the Property, located approximately 10 feet north of the diesel USTs (**Figure 2**). This UST was originally used to store gasoline and was later used to store diesel fuel for vehicular use. The UST was also cleaned, removed, and scrapped in April 1986. A closure assessment to document decommissioning of the tank systems was not required at the time these USTs were taken out of service.

In April 1993, Cedarburg Light and Water Commission retained Northern Environmental to sample soil in the vicinity of the closed USTs as part of an environmental assessment and investigate CVOC contamination.

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A soil sample obtained from soil boring B1 (**Figure 2**) indicated the presence of diesel range organic compounds (DRO) and gasoline range organic compounds (GRO) in the subsurface near the USTs. Borings B2 through B4 were drilled on October 14, 1993, as part of the same investigation. Field screening did not produce evidence of petroleum impacts in soil samples obtained from boreholes B3 and B4. Laboratory analytical results of soil samples collected from borings B1 and B2 indicate that DRO was present in the sample. Three groundwater monitoring wells were installed at B2 through B4 and were sampled for DRO, GRO, polycyclic aromatic hydrocarbon (PAH), and volatile organic compound (VOC) laboratory analysis. CVOCs were the primary contaminant of concern detected in the groundwater sampled on site.

In an unrelated remedial action, Mercury Marine, Incorporated removed polychlorinated biphenyl contaminated sediments from Ruck Pond during 1994. DRO contaminated soils were discovered in stream bank excavations at the Property (see **Figure 2** for sediment sample locations). The WDNR and Cedarburg Light and Water were notified. Northern Environmental collected soil samples from the excavations to assess the extent of contamination. Excavation soil samples were laboratory analyzed for DRO and petroleum volatile organic compounds. High concentrations of DRO are present beneath the cooling towers on the bank of Ruck Pond. Additional groundwater quality monitoring was performed during January and June 1995. Ground-water samples from MW200 contained trichloroethene (TCE) and tetrachloroethene (PCE) above the WDNR water quality enforcement standard (ES). Low levels of benzene were detected in samples from MW300.

In 1997, a request for case closure was submitted to the WDNR. The WDNR denied the closure request and asked that the source of the chlorinated solvents be identified, and additional groundwater sampling be completed to document groundwater trends. Based on further discussions, the required scope of work included one additional year of quarterly groundwater monitoring. Reportedly, the requested monitoring occurred though documentation could not be located, and the information was not provided to the WDNR.

In April 2012, an on-site meeting occurred with WDNR representatives to discuss the steps needed to close this case. During the meeting, the WDNR reiterated the need to identify the source of chlorinated solvent contamination and requested two separate groundwater sampling events be performed on a quarterly basis. Shortly after the meeting, Stantec implemented the desired activities requested by the WDNR. A subsequent meeting was held between Stantec and the WDNR in May 2018 in which the WDNR requested the following:

- 1) Submittal of a site investigation workplan
- 2) History of the site, previous discharges, and uses of contaminants on the Property including USTs and potential solvent use/discharges
- 3) Evaluation of environmental media affected or potentially affected by contamination including vapor screening
- 4) Potential or known impacts to receptors

During August and September 2022, a Supplemental Site Investigation (SSI) was implemented to address these requests. The SSI included:

- Installation of eight Geoprobe® soil borings (SB-3 through SB-7) along the eastern Cedar Creek shoreline, east of the Property alleyway (SB-1/MW-2 and SB-2/MW-3), and in the location of the MW-1. In addition, two hand auger samples, HA-1 and HA-2, were advanced in the Property building. Soil from these locations were analyzed for VOCs and/or PAHs.
- Three monitoring wells (MW-1 through MW-3) were installed within and east of the alleyway of the Property and sampled for VOCs and/or Polyfluoroalkyl Substances (PFAS).
- PFAS was also analyzed from wells MW200, and MW400
- Two sub-slab vapor, two indoor air, and one ambient air sample were collected and analyzed for VOCs to determine if CVOCs are a potential threat to the building's indoor air quality.

Based on the results of the 2022 SSI, the extent of VOC and PAH contamination in soil and groundwater was defined and relatively isolated to the former identified source areas on-site.

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However, PFAS have been detected above the chapter (ch.) NR140 Wisconsin Administrative Code (WAC) enforcement standard (ES) at three wells along the central/western portion of the Property. Based on the results of historical site investigation activities and subsequent monitoring results, Stantec, on behalf of the Cedarburg Light & Water Utility, requested the WDNR review the information and had a follow-up discussion on April 10, 2024, to determine future steps at the Property. The discussion and next steps discussed in the meeting was summarized in the letter provided by the WDNR that same day which requested the following:

- Further evaluate potential contaminant sources (for CVOCs and PFAS)
- Evaluate CVOC soil in the area near the CVOC groundwater contamination (near MW200)
- PFAS sampling to determine trends in groundwater at the property to determine horizontal extent.
- Piezometers to determine vertical extent of groundwater contamination (*will be addressed under a separate change order after review of VOC/PFAS results*).
- Determine if natural attenuation is an applicable remedy to existing groundwater contamination (*natural attenuation parameters will be field measured during the groundwater sampling event*).
- Another round of sub-slab vapor sampling at SS-1 and SS-2 and subsequent indoor air sampling in the vicinity of these points
- Install a third sub-slab vapor point in the center of the Property building (and collect an indoor air sample at this location)
- Assess whether sediment/surface water pathways are complete in terms of contaminants of concern on the Property
- Provide historical data completed in the early 1990s on the Property

## SCOPE OF SERVICES

### Workplan Preparation

### Field Investigation

#### Soil Sampling

Before any intrusive work is begun, Diggers Hotline® will be contacted to locate public utilities in the project area (coordinated by the driller), and a site-specific health and safety plan will be developed by Stantec. Additionally, the driller will coordinate a private utility locate. Up to two boreholes will be installed at the Property using direct-push (Geoprobe®) techniques near MW200 within the Property to further assess soil quality and source(s) of chlorinated solvent concentrations.

Sampling and analysis will be performed in compliance with WDNR regulations and guidance. Soil samples will be collected continuously from each borehole. A portable photoionization detector will be used to field screen the samples for the presence of volatile organic compounds, such as solvents and petroleum fuels. Stratigraphic borehole logs will be prepared by Stantec personnel in general conformance with the ASTM International Method D-2488. The exact quantity of soil samples collected will be determined in the field and will target soils indicative of a suspected release and/or the presence of fill materials. All soil sampling equipment will be washed with a detergent solution and double rinsed with potable water before each soil sample is collected to prevent sample cross-contamination. Two soil samples will be collected from each borehole, properly preserved, and submitted for VOC analyses by a WDNR-certified laboratory. Following sampling activities and as required by State law, all boreholes will be decommissioned after sampling by filling with bentonite.

#### Groundwater Sampling

Each monitoring well will be purged prior to sampling. After purging, groundwater samples will be collected from all groundwater monitoring wells and analyzed for VOCs (three locations; MW-1, MW-2, and MW-3), and PFAS (six locations).

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All soil cuttings and purge water will be collected in 55-gallon drums. Each drum or container will be sealed, labeled, and stored in an appropriate location, pending receipt of laboratory analytical results for the soil and groundwater samples, which will be used to determine, what, if any, special measures are necessary for handling and proper disposal. Drum disposal is not included in the scope of this workplan but may be provided as a supplemental service.

The WDNR sent the client a letter on August 17, 2020, titled, *Reminder to Include Evaluation of Emerging Contaminants in Site Investigation*. Emerging contaminants include PFAS, 1,4-dioxane and others. PFAS is currently being addressed in this workplan, as noted above, but 1,4-dioxane has not yet been evaluated. 1,4-dioxane is used as a stabilizer for chlorinated solvents like trichloroethane and trichloroethylene, which have been reported on site. 1,4-dioxane will be sampled at MW1, MW200, and MW400 to determine if present.

#### Vapor Sampling

One sub-slab vapor monitoring point will be installed through the ground-floor of the Property building in the central portion. The sub-slab vapor point will be constructed using a 5/8-inch diameter VaporPin® kit. A 1.5-inch diameter drill bit will be used to allow placement of a flush-mounted cover over the VaporPin® in the upper 4-inches of concrete. A 5/8-inch diameter drill bit is then used to fully penetrate the concrete floor and allow VaporPin® installation. The VaporPin® is fitted with a stainless steel sealable hose barb to allow for sample collection. The specific locations of sub-slab vapor monitoring points will be determined following the previous tasks.

After vapor point construction, leak testing consisting of a “shut-in test” that measures airtightness of the fittings between the sample probe and the sample container and a “helium shroud test” to measure if the vapor point seal leaks will be performed. The helium shroud test consists of using a shroud filled with helium and placed over the vapor point. Air purged from the vapor is then tested for helium. If helium is detected, the sampling point will be resealed and retested for helium.

After successful shut-in and helium shroud tests at each sampling location (or before re-sampling existing sub-slab points; SS-1 and SS-2), each location will be purged one well volume at a flow rate near or less than 200 milliliters per minute. Following purging, “grab” samples will be collected at a flow rate near or less than 200 milliliters per minute using a laboratory provided 6-liter Summa canister. Up to three air samples will be analyzed for VOCs using EPA Method TO-15. In addition, one corresponding indoor air sample at each sub-slab point (at “normal breathing height”) and one outdoor ambient air sample will be collected to evaluate quality assurance and quality control.

#### Report Preparation

The findings and results will be evaluated, interpreted, and summarized in a report. At a minimum, the report format will include:

- Procedures
- Site description
- Soil, groundwater, and vapor sampling results
- Historic reports/data the WDNR requested in the April 10, 2024, letter
- Natural attenuation assessment
- Evaluation of utilities as migration pathways and/or receptors
- Evaluation of sediment and surface water pathways
- Evaluation of Emerging Contaminants
- Conclusions and Recommendations
- Site maps or aerial photographs, and other maps that may be useful
- Tabulated data
- Boring logs, well development, and borehole abandonment forms
- Laboratory reports and chain-of-custody documentation

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## **SUPPLEMENTAL ASSUMPTIONS**

- All work at the Site will be performed by trained personnel in conformance with 40 CFR 1910.22. Based on the current conditions, we anticipate that work will proceed under Environmental Protection Agency Safety Level D conditions. A site-specific health and safety plan will be prepared before implementing the work. This safety plan will include general information about the Site, waste characteristics, safety characterization, an emergency response plan, and emergency routes. Additionally, the safety level will be continuously monitored and revised as necessary based on the conditions encountered.
- The proposed work includes subsurface work. The driller is responsible for contacting public utility locating services (e.g., Diggers Hotline and local municipalities), private utility locates, and making a good faith effort to locate underground improvements that could be damaged by the proposed work. Since the owner or operator of the Property usually has the most detailed knowledge of the type and locations of such improvements, the owner/operator will be called upon to assist in locating buried improvements. Consequently, the presence of a Property owner representative is required to locate underground appurtenances to ensure that damage is not done to these components and other structures. The owner may also be requested to sign an agreement affirming that the drilling contractors have made conscientious efforts to avoid damaging buried improvements.
- Stantec assumes that well abandonment and drum disposal will occur after WDNR approval of site closure and is not currently included in this workplan's scope.

We trust this information meets your needs. If you have any questions or comments, please contact us.

Regards,

### **STANTEC CONSULTING SERVICES INC.**



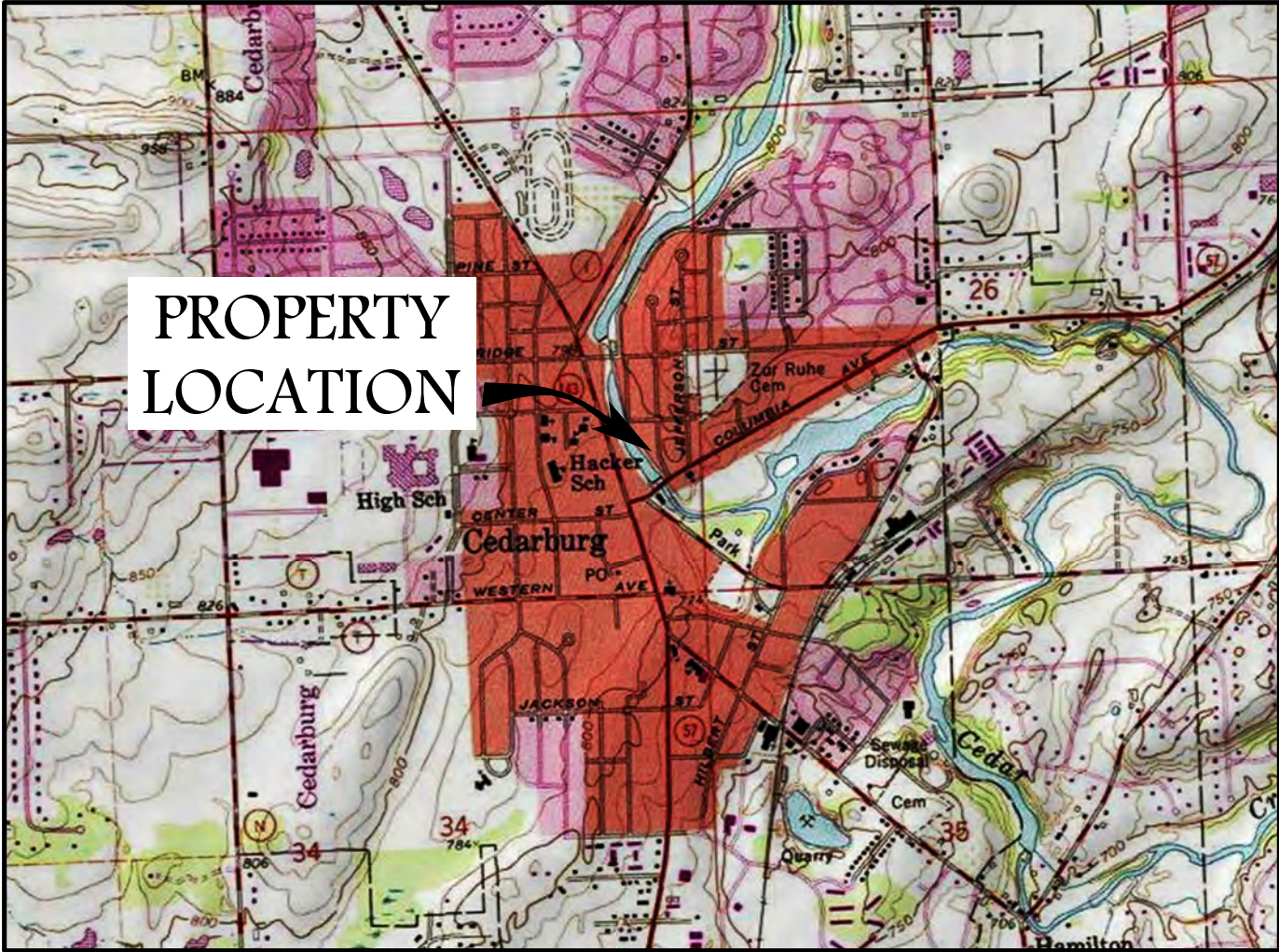
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**Attachments:** Figure 1 & Figure 2

# FIGURES



**PROPERTY  
LOCATION**

SCALE IN FEET

1" = 2000'



CONTOUR INTERVAL 10 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929



QUADRANGLE LOCATION

BASE MAP SOURCE: USGS 7.5 MINUTE QUADRANGLE, CEDARBURG, WISCONSIN, 1994 (NATIONAL GEOGRAPHIC HOLDINGS, INC.)



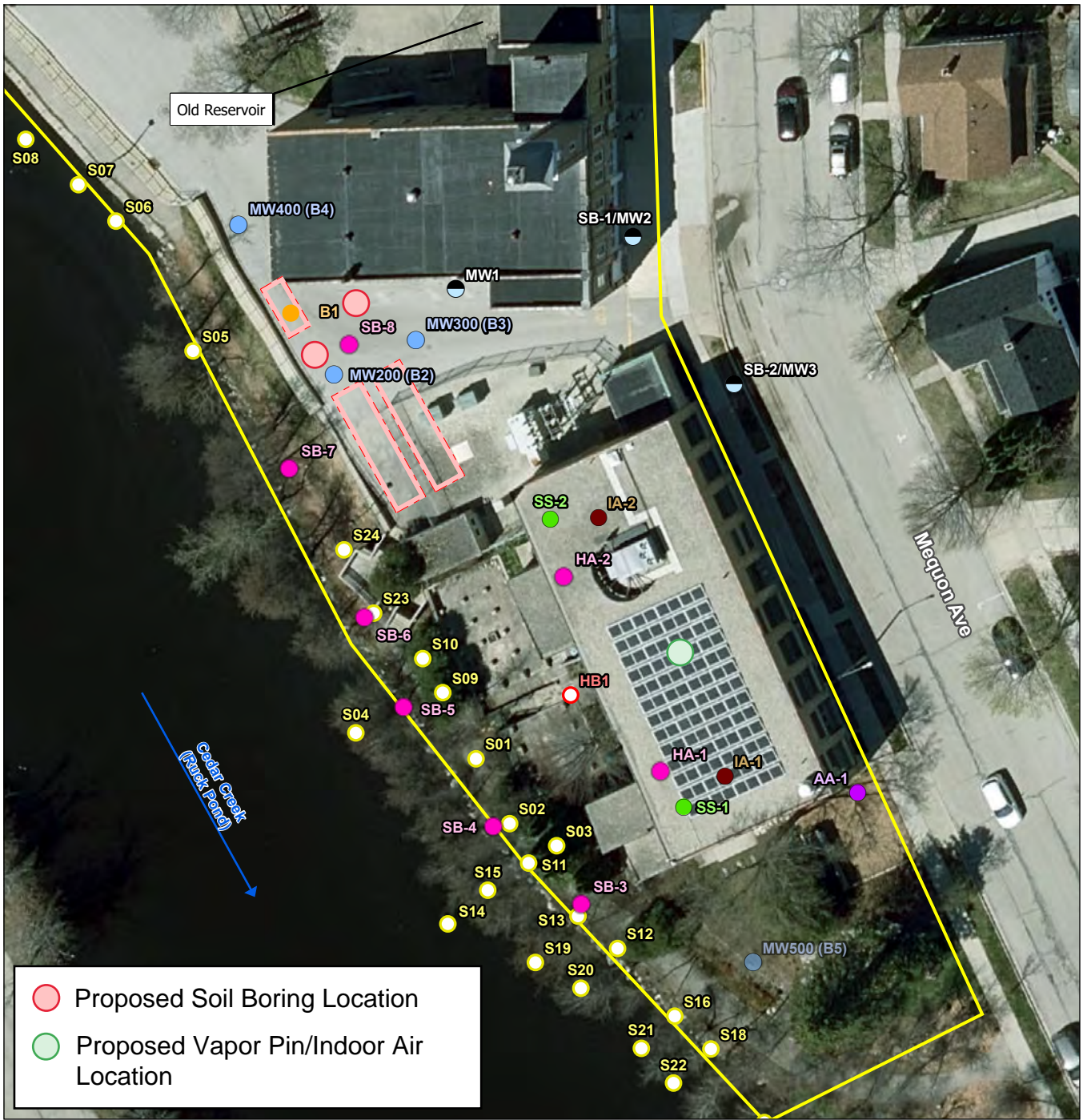
12080 CORPORATE PARKWAY, SUITE 200  
MEQUON, WISCONSIN, 53092  
Phone: 262-241-4466

**PROPERTY LOCATION  
& LOCAL TOPOGRAPHY**

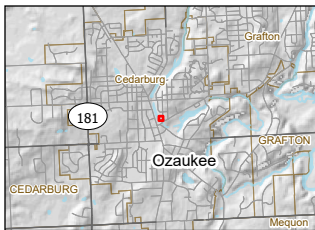
**FORMER CEDARBURG POWER PLANT  
CEDARBURG, WISCONSIN**

*This drawing and all information contained therein is the property of Stantec. Stantec will not be held liable for improper or incorrect usage. Professional seals and signatures do not apply to electronic drawing files. The user assumes all responsibility and risk for the accuracy and verification of all information contained in electronic files.*

DATE: 06/07/2024	DRAWN BY: AJ S	REVISED: ENG	PROJECT NUMBER: 193709024	FIGURE 1
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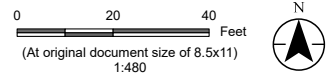


- Proposed Soil Boring Location
- Proposed Vapor Pin/Indoor Air Location



**Notes**  
 1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet  
 2. Data Sources: Stantec, Northern Environmental, SCO, WisDOT, WDNR  
 3. Background: Esri World Imagery

- Legend**
- Property Boundary
  - Former Location of Underground Storage Tank (UST)
  - Surface Water Flow Direction
  - Former Soil Boring (Northern Environmental, 1994)
  - Former Stream Bank Sampling (Northern Environmental, 1995)
  - Hand Auger Location (Stantec, 2012)
  - Ambient Air Sample (Stantec, 2022)
  - Indoor Air Sample (Stantec, 2022)
  - Soil Boring (Stantec, 2022)
  - Sub-Slab Vapor Point (Stantec, 2022)
  - Formerly Installed Monitoring Well (Northern Environmental, 1993-1994)\*
  - Monitoring Well (Stantec, 2022)
- \*MW500 (B5) has previously been abandoned



**Project Location**  
 T10N, R21E, S27  
 City of Cedarburg, Ozaukee Co., WI

**Prepared by** SC on 2023-05-03  
 TR by JS on 2023-05-03  
 IR by EG on 2024-06-07

**Client/Project**  
 Cedarburg Light & Water Utility  
 Cedarburg Power Plant Property  
 Workplan

**Figure No.**  
 2

**Property Layout and Environmental Investigation Locations**