

April 24, 2024

Project Reference #14411

Joseph J. Martinez
Hydrogeologist – Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
1027 West St. Paul Avenue
Milwaukee, WI 53233

Submitted *electronically via WDNR RR Submittal Portal and email to* joseph.martinez@wisconsin.gov

**RE: Work Plan for Additional Indoor Air Sampling at the MPS Greentree Preparatory School, Additional Soil Vapor Sampling South of the School, and Additional Emerging Contaminants Sampling at the Landfill
Village of Whitefish Bay Landfill
5201 West Good Hope Road, Milwaukee, WI 53223
WDNR BRRTS #02-41-000254**

Dear Mr. Martinez:

The Sigma Group, Inc. (Sigma), on behalf of the Village of Whitefish Bay (Village), has prepared this work plan for additional sampling activities requested by the Wisconsin Department of Natural Resources (WDNR letter dated March 7, 2024) for the Whitefish Bay Landfill project site (**Figure 1**). A separate document will be prepared to address the items listed in the March 7, 2024 letter under the heading “Previous DNR Request” and submitted to the WDNR in the coming months. Therefore, Sigma on behalf of the Village is requesting a 60-day extension of the time to respond to the items listed therein.

BACKGROUND

Site History

The Village of Whitefish Bay (the “Village”) acquired the landfill property located at 5201 West Good Hope Road, Milwaukee, in 1960. The property includes approximately 13-acres of land and is located south of West Good Hope Road, west of Lincoln Creek and east of the Presidio Square Apartment Complex. South of the landfill is an MPS property (Greentree Preparatory Academy) with a residential neighborhood further south beyond the school property (**Figure 1**).

Subsurface Environmental Conditions

During environmental due diligence and site assessment activities completed in the late 1980’s the presence of volatile organic compounds (VOCs) were identified within the southern half of the landfill property. Follow up subsurface investigations conducted from 1995 through 2018 on the landfill property and downgradient locations south of the landfill defined the source(s) of VOCs at the southeast corner of the landfill. Multiple rounds of groundwater investigations performed on-site and downgradient off-site locations south of the landfill defined the groundwater VOC plume. The groundwater monitoring also confirmed the presence of only breakdown compounds of chlorinated VOCs (Cis-1,2-dichloroethene [Cis-1,2-DCE] and vinyl chloride [VC]) and no parent compounds (tetrachloroethylene [PCE] or trichloroethylene [TCE]) within the subsurface south of the landfill.

Three rounds of indoor air sampling completed within the school building provided sufficient data that indicates potential for vapor intrusion into structure is not likely. Furthermore, the multiple rounds of soil

vapor and sub-slab vapor sampling completed over time also indicated that the potential for vapor intrusion is unlikely. However, due to the presence of two rooms without concrete floor slab (only dirt floor), and air samples collected in the vicinity of these room were analyzed by the laboratory using detection limits relatively higher than the indoor air vapor action limits (VALs) additional sampling may be completed to provide conclusive evidence that vapor intrusion is not occurring even under the open floor conditions.

SCOPE OF WORK

In response to WDNR request the following activities are proposed.

Indoor Air Sampling at the School Building

To verify that the indoor air quality within the two school rooms with dirt floors continue to meet the VALs, additional air samples will be collected from these rooms. Attached **Figure 2** presents the locations of the indoor air samples (IA-1R and IA-2R) as requested by the WDNR. In addition, an outdoor air sample will be collected to evaluate the background air quality for comparison.

The air samples will be collected using the sampling protocol for passive sampler (provided by Beacon Environmental) over a period of 7 to 14 days. The samplers will be installed approximately 4 to 5 feet above the floor and secured in place. The samplers will be retrieved after one week time, packaged in laboratory supplied containers, and shipped in a cooler on ice to the Beacon Environmental laboratory for analysis of select CVOC constituents (PCE, TCE, Cis-1,2-DCE, and vinyl chloride).

Based on Sigma's experience using passive samplers provided by Beacon Environmental for indoor air sampling the analytical method used (USEPA Method TO-17) allows the laboratory detection limits to be lower than the respective VALs. Therefore, due to the relatively low detection limits the analytical results should provide conclusive evidence if any of the constituents are present within a sample at concentrations higher than their respective VALs.

Soil Vapor Assessment in the Residential Neighborhood

Results of two rounds of soil vapor sampling completed within the residential neighborhood do not indicate CVOCs impacts greater than WDNR vapor risk screening levels (VRSLs) within the vadose zone vapor above the groundwater. However, the vapor intrusion screening performed following WDNR guidance document RR-800 indicates potential for VAL exceedance for vinyl chloride in the residential neighborhood.

Considering the relatively high-water table typically observed in spring season and the likely presence of homes with basements, an additional round of soil vapor sampling is appropriate. Per the WDNR request, an additional round of soil vapor sampling will be performed in the northern portion of the residential neighborhood immediately south of the West Greentree Road (**Figure 3**). Three sample locations (VP-1-24, VP-2-24, & VP-3-24) are proposed along the south right-of-way of West Greentree Road and in proximity of the groundwater monitoring well MPS:P-6 where relatively high groundwater impacts of breakdown compounds Cis-1,2-DCE and VC were identified. Two additional sample locations are proposed approximately 150 feet south, one along the east right-of-way of North 51st Street (VP-4-24) and one along the west right-of-way of the North 52nd street (VP-5-24).

At each sample location a passive vapor sampler will be installed at an approximate depth of 4 feet below ground surface. Following the sampling protocol provided by Beacon Environment the sampling points will be drilled using a hand drill attached with a 4-foot-long drill bit and the sampler installed near the

bottom of the hole. The top of hole will be appropriately covered and sealed at the surface to prevent vapor leakage. The samplers will be retrieved after approximately one week time, packaged in laboratory supplied containers, and shipped in a cooler on ice to the Beacon Environmental laboratory for analysis.

Groundwater Assessment in the Residential Area

In response to WDNR request Sigma proposed to complete one round of groundwater monitoring at select sampling points located within the residential area adjacent to the West Greentree Road to evaluate the subsurface groundwater conditions within the northern portion of the residential neighborhood. The activities will include water level measurements and collection of groundwater samples from 8 existing monitoring well and piezometer locations as depicted in the attached **Figure 3** (MPS:P-6, MPS: P-7, MW-11, PZ-11, MW-12, PZ-12, MW-13, and PZ-13). The data will be compared with the historical water level measurements to determine if water level has risen significantly over the last several years (last sampled in 2020) and the potential to encroach on the basement foundation dewatering systems, if present. The groundwater samples will be laboratory analyzed for VOCs to evaluate the changes of the dissolved VOC plume previously identified in this area.

Sigma's field staff will mobilize to the site to purge and sample the selected monitoring wells in accordance with the Wisconsin Administrative Code (WAC) Ch. NR 141. Prior to sample collection, each well location will be inspected for integrity of the protective casing and well riser. At each well the depth to water and the depth to the bottom will be measured and the volume of purge water will be calculated. Each well will be purged using a new bailer and the required amount of groundwater sample will be collected in the laboratory supplied sample containers from each well and labeled appropriately. A set of quality control samples will also be collected that include a duplicate sample, an equipment blank, and a trip blank. The duplicate groundwater sample will be collected to determine laboratory precision. The equipment blank and trip blank samples will be analyzed to determine if contaminants infiltrated the samples during field procedure or transportation, respectively. The groundwater samples collected will be placed in a shipping cooler with ice and shipped to the project laboratory for analysis of VOCs using USEPA Method 8260B.

The purge groundwater will be placed in 55-gallon drums and staged on-site until receipt of the laboratory analytical results. At that time, proper disposal of the staged purge water will be coordinated.

Additional Emerging Contaminant Evaluation at the Landfill

In response to the WDNR request Sigma plans to collect a second round of groundwater samples from select monitoring wells for PFAS analysis within the landfill property. The sampling plan includes collection of groundwater samples from four monitoring well locations as depicted in the attached **Figure 4** (MW-6, W-MW-10, W-MW-11, and W-MW-4S) located within the landfill.

Sigma's field staff will mobilize to the site to purge and sample the selected monitoring wells in accordance with the Wisconsin Administrative Code Ch. NR 141. The sampling staff will take necessary steps to prepare for the special sample handling and care needed for PFAS sampling to minimize possible cross-contamination or outside interferences during groundwater sampling following Sigma's standard operating procedures for PFAS sampling.

Prior to sample collection, each well location will be inspected for integrity of the protective casing and well riser. At each well the depth to water and the depth to the bottom will be measured and the volume of purge water will be calculated. Each well will be purged in accordance with NR 141 using a new bailer made of materials appropriate for PFAS sampling. Following purging, the required amount of water

sample was collected in the laboratory supplied sample containers from each well and labeled appropriately. A set of quality control samples will also be collected that include a duplicate sample, an equipment blank, and a trip blank. The duplicate groundwater sample will be collected to determine laboratory precision. The equipment blank and trip blank samples will be analyzed to determine if contaminants infiltrated the samples during field procedure or transportation, respectively.

The groundwater samples collected will be placed in a shipping cooler with ice and shipped to the project laboratory for analysis of 33 PFAS compounds currently listed by the WDNR. Samples will be submitted to the project laboratory certified by the WDNR for PFAS analysis (Eurofins Chicago) using the EPA Method 537 (modified).

The purge groundwater will be placed in 55-gallon drums and staged on-site until receipt of the laboratory analytical results. At that time, proper disposal of the staged purge water will be coordinated.

Reporting

Following completion of the proposed activities, Sigma will prepare a letter report to document the completed site activities and present the results.

CLOSING

We appreciate your assistance in this matter. If you have any questions regarding this submittal, please contact us at your convenience.

Sincerely,

THE SIGMA GROUP, INC.



Mafizul Islam, P.E.
Senior Engineer



Kristin Kurzka, P.E., P.G.
Vice President

Attachments

Figure 1 – Site Vicinity Map

Figure 2 – Ground Floor Plan, School Building

Figure 3 – Proposed Vapor Points and Monitoring Wells – Residential Neighborhood

Figure 4 – Proposed Groundwater PFAS Sampling Map – Landfill Site

ATTACHMENTS

LEGEND

- = MONITORING WELL
- ⊕ = PIEZOMETER
- x - = CHAIN LINK FENCE
- = PROPERTY LINE
- = ADJACENT PROPERTY LINE

NOTES:

1. BOUNDARIES ARE APPROXIMATE.
2. THIS MAP WAS DEVELOPED FROM A MILWAUKEE COUNTY MAP, THIENSVILLE QUADRANGLE TOPOGRAPHIC MAP, AND SURVEY DATA.
3. AERIAL IMAGERY (DATED 2015) FROM SOUTHEAST WISCONSIN REGIONAL PLANNING COMMISSION (SEWRPC).

FORMER LANDFILL PROPERTY

PRESIDIO SQUARE APARTMENT COMPLEX

STORAGE FACILITY

MMSD DETENTION BASIN

WYRICK PARK

**GREEN TREE PREPARATORY ACADEMY
(MILWAUKEE PUBLIC SCHOOL PROPERTY)**

LINCOLN CREEK

RESIDENTIAL NEIGHBORHOOD

GRACELAND CEMETERY

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SITE VICINITY MAP

**FORMER WHITEFISH BAY LANDFILL/MPS PROPERTY
5201 WEST GOOD HOPE ROAD
MILWAUKEE, WISCONSIN**

FIGURE

1

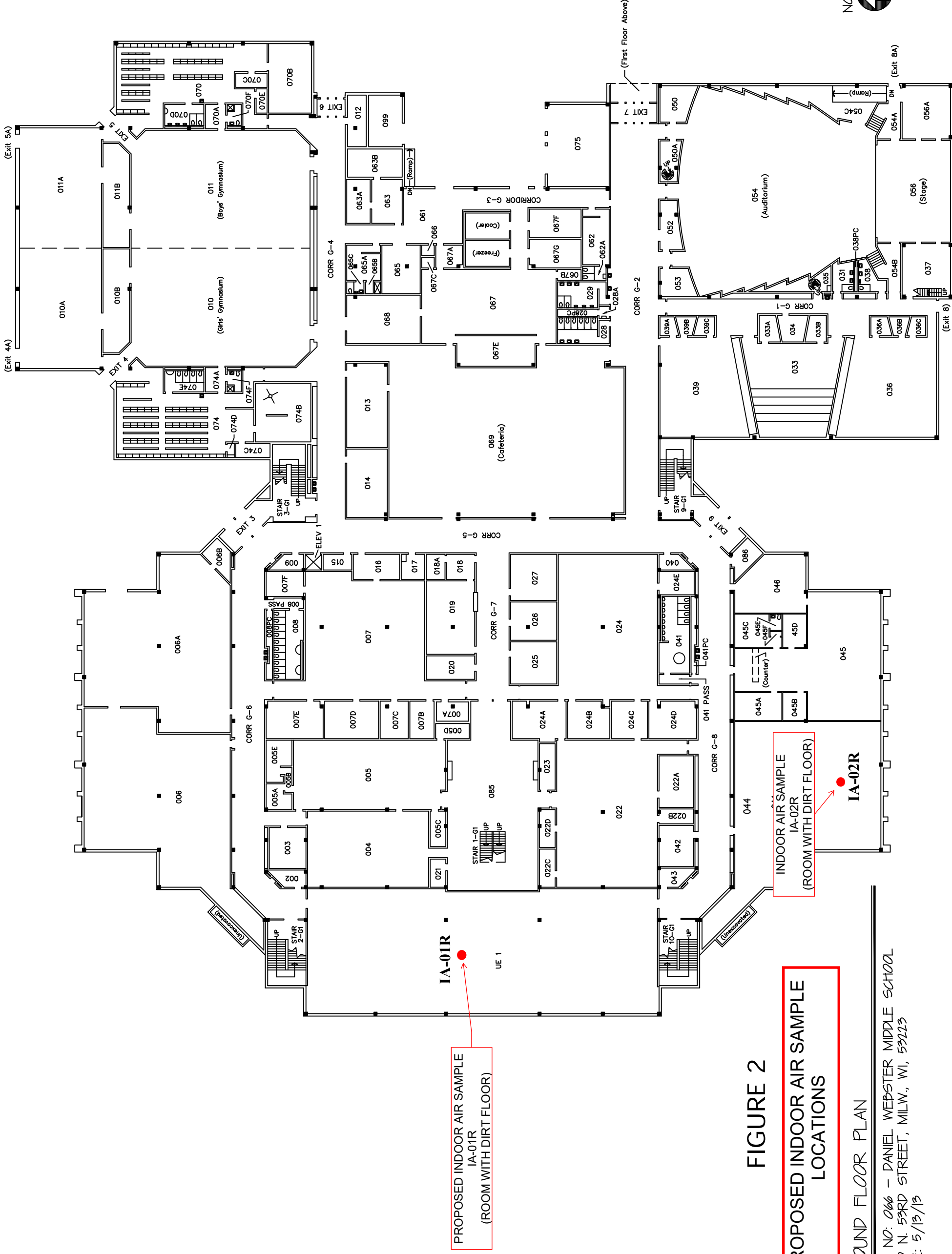
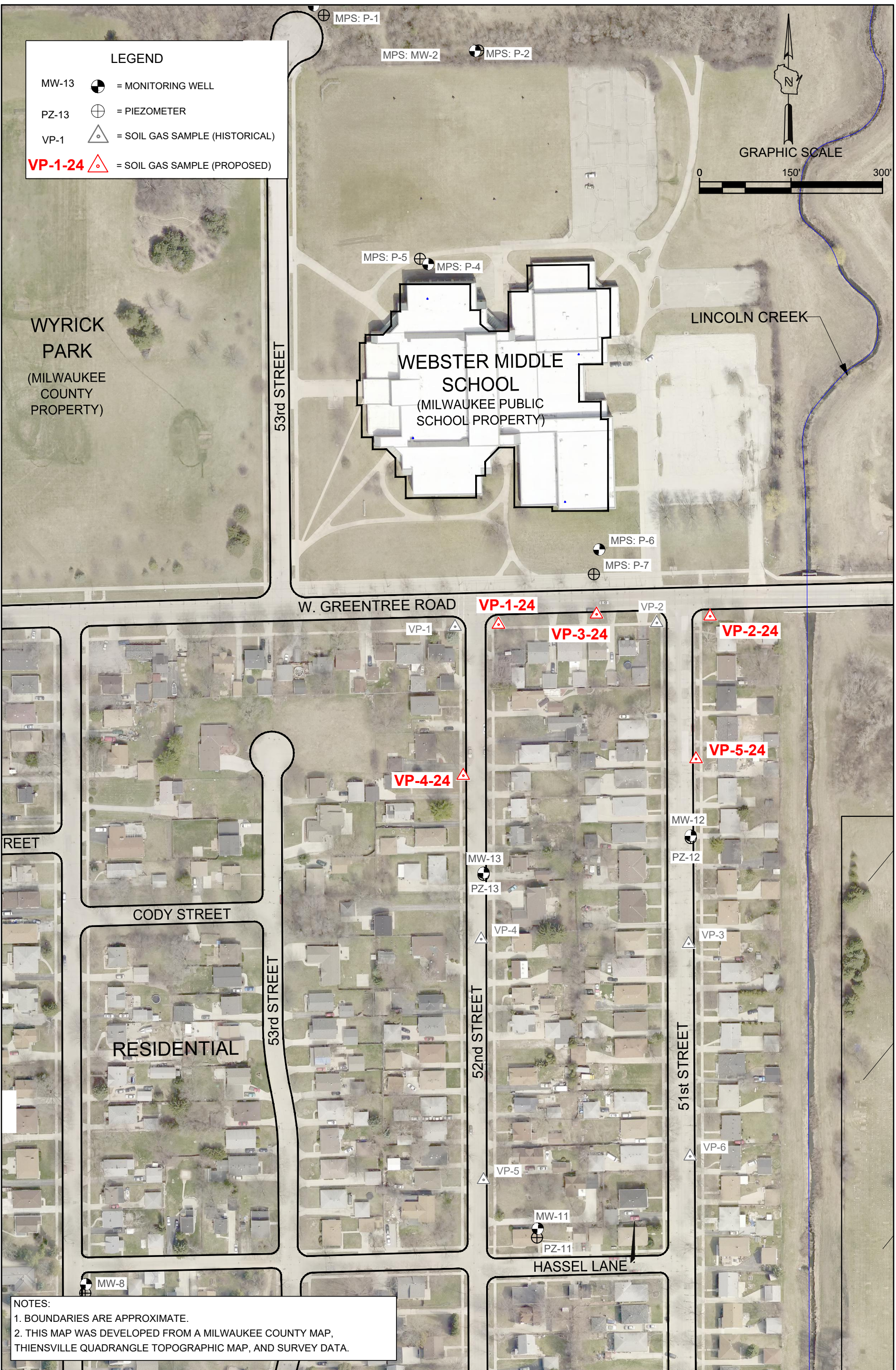


FIGURE 2

PROPOSED INDOOR AIR SAMPLE LOCATIONS

GROUND FLOOR PLAN

SITE NO: 066 - DANIEL WEBSTER MIDDLE SCHOOL
 6850 N. 53RD STREET, MILW., WI, 53223
 DATE: 5/13/13



LEGEND

MW-13 = MONITORING WELL

PZ-13 = PIEZOMETER

VP-1 = SOIL GAS SAMPLE (HISTORICAL)

VP-1-24 = SOIL GAS SAMPLE (PROPOSED)

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**PROPOSED VAPOR POINT
2024 MAP**

FORMER WHITEFISH BAY LANDFILL/MPS PROPERTY
5401 WEST PRESIDIO LAND AND 5201 WEST GOOD HOPE ROAD
MILWAUKEE, WISCONSIN

FIGURE
3

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LEGEND

- = PROPERTY LINE
- = ADJACENT PROPERTY LINE
- MW-6**  = MONITORING WELL SAMPLED FOR FOR PFAS & 1,4-DIOXANE
-  = MONITORING WELL NOT SAMPLED FOR PFAS & 1,4-DIOXANE
-  = PIEZOMETER NOT SAMPLED FOR PFAS & 1,4-DIOXANE

NOTES:

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3. AERIAL IMAGERY (DATED 2015) FROM SOUTHEAST WISCONSIN REGIONAL PLANNING COMMISSION (SEWRPC).

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PROPOSED GROUNDWATER PFAS SAMPLING MAP

FORMER WHITEFISH BAY LANDFILL/MPS PROPERTY
5201 WEST GOOD HOPE ROAD
MILWAUKEE, WISCONSIN

FIGURE

4