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April 23, 2024; revised April 29, 2024

Mr. Matthew Hubicki
NYS Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway
Albany, NY 12233-7016

Re: Supplemental Groundwater Investigation Work Plan
Former United Hospital – 406 Boston Post Road, Port Chester, NY
NYSDEC BCP Site No. C360202

Dear Mr. Hubicki:

This Supplemental Groundwater Investigation Work Plan (SGWIWP) has been prepared by AKRF, Inc. (AKRF) on behalf of Boston Post Road Owner LLC and BR RA Port Chester LLC (collectively, the Volunteers) for the Former United Hospital Brownfield Cleanup Program (BCP) Site (BCP Site No. C360202), located at 406 Boston Post Road in Port Chester, NY (hereafter referred to as the “Site”). The Site comprises an area of 12.03 acres and is inclusive of one tax lot, identified as Section 141.052, Block 1, Lot 2 on the Town of Rye, Village of Port Chester Tax Map. The Site location is shown on Figure 1, and a Site Plan is provided as Figure 2.

As outlined in the New York State Department of Environmental Conservation (NYSDEC)-approved February 2022 Remedial Investigation Work Plan (RIWP), the RI field activities included two phases of work due to access constraints and safety issues associated with the former buildings at the Site. The initial phase of the RI included the investigation of exterior portions of the Site (the associated field work was completed in August 2022), and the second phase of the RI included the investigation of areas within the footprint of the former buildings after demolition (the associated field work was completed in November 2023). The RI included the following scope of work:

- Completion of a geophysical survey across accessible exterior portions of the Site to investigate the potential presence of underground storage tanks (USTs) and/or buried aboveground storage tanks (ASTs) from past on-site uses, and to clear boring locations of underground utilities.
- Advancement of 59 soil borings (RI-SB-01 through RI-SB-59) and collection of 132 soil samples [plus associated quality assurance/quality control (QA/QC) samples] for laboratory analysis. Of the 132 soil samples collected, 120 samples were analyzed for volatile organic compounds (VOCs) by United States Environmental Protection Agency (EPA) Method 8260, semivolatile organic compounds (SVOCs) by EPA Method 8270, pesticides by EPA Method 8081, herbicides by EPA Method 8151, polychlorinated biphenyls (PCBs) by EPA Method 8082, Target Analyte List (TAL) metals by EPA Method 6000/7000 series, hexavalent chromium by EPA Method 7196A, cyanide by EPA Method 9012, 1,4-dioxane by EPA Method 8270, and per- and polyfluoroalkyl substances (PFAS) by EPA Method 537 (modified)]; six samples were analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, pesticides by EPA Method 8081, herbicides by EPA Method 8151, PCBs by EPA Method 8082, TAL metals by

EPA Method 6000/7000 series, hexavalent chromium by EPA Method 7196A, cyanide by EPA Method 9012, and 1,4-dioxane by EPA Method 8270; three of the samples were analyzed for TAL metals by EPA Method 6000/7000 series; and three samples were analyzed for VOCs by EPA Method 8260 and SVOCs by EPA Method 8270.

- Developed and sampled two groundwater monitoring wells (SESI-GW-2 and SESI-GW-3) that were previously installed at the Site by others. The groundwater samples were analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, pesticides by EPA Method 8081, herbicides by EPA Method 8151, PCBs by EPA Method 8082, TAL metals by EPA Method 6000/7000 series (total and dissolved), cyanide by EPA method 9012, 1,4-dioxane by EPA Method 8270-SIM, and PFAS by EPA Method 537.1.
- Installation of 11 temporary soil vapor points (RI-SV-01 through RI-SV-11) and collection of 11 soil vapor samples and two ambient air samples (AA-01_20220829 and AA-01_20231108) for laboratory analysis. The soil vapor and ambient air samples were analyzed for VOCs by EPA Method TO-15.

The locations of the soil borings, groundwater monitoring wells, and temporary soil vapor points from the RI are shown on Figure 3. Soil sample analytical results for VOCs, SVOCs, pesticides, herbicides, PCBs, and metals were compared to the NYSDEC Part 375 UUSCOs, RRSCOs, and Protection of Groundwater Soil Cleanup Objectives (PGWSCOs) (for VOCs only); the results for PFAS were compared to the Unrestricted Use Guidance Values (UUGVs) and Restricted Residential Guidance Values (RRGVs) for PFAS. The complete laboratory analytical results are summarized in Tables 1A through 1F. Exceedances of the UUSCOs, RRSCOs, and/or PGWSCOs are shown on Figures 4A through 4D, and exceedances of the UUGVs and RRGVs for PFAS are shown on Figure 5. Although groundwater at the Site is not used as a source of potable drinking water, the groundwater sample analytical results for VOCs, SVOCs, pesticides, PCBs, and metals were conservatively compared to the NYSDEC Class GA Ambient Water Quality Standards and Guidance Values (AWQSGVs), and the total PFAS concentrations were compared to the NYSDEC PFAS guidance values. Groundwater sample analytical results are presented in Tables 2A through 2G. Groundwater sample concentrations above their respective AWQSGVs are shown on Figure 6. Groundwater samples with PFAS concentrations above their guidance values are shown on Figure 7.

It should be noted that groundwater was not encountered above bedrock in any of the soil borings advanced during the RI; therefore, the proposed permanent groundwater monitoring wells (RI-MW-01 through RI-MW-11) were not installed, and the associated groundwater sampling and monitoring well elevation survey were not completed. As previously noted, AKRF identified two groundwater monitoring wells (SESI-GW-2 and SESI-GW-3) that were reported to be installed by SESI circa 2018/2019; however, details regarding the installation/construction of the wells were not available. Following identification, AKRF informed the NYSDEC of the plan to develop and sample the wells in accordance with the RIWP. Groundwater was detected at depths ranging from approximately 9.4 to 12.5 feet bgs at SESI-GW-2, a well with a measured total depth of approximately 14 feet below ground surface (bgs) (bedrock encountered at approximately 10 to 13 feet bgs in the vicinity of this location), and at depths ranging from approximately 11.1 to 11.3 feet bgs at SESI-GW-3, a well with a measured total depth of approximately 27 feet bgs (bedrock encountered at approximately 8 to 10 feet bgs in the vicinity of this location). Groundwater at the Site is anticipated to flow in a generally southerly direction, towards the Long Island Sound.

Based on discussions with representatives of the NYSDEC during an on-site meeting on April 10, 2024, groundwater conditions across the 12.03-acre Site were not adequately characterized with the sampling of the two existing groundwater monitoring wells (SESI-GW-2 and SESI-GW-3). Therefore, a Supplemental Groundwater Investigation (SGWI) consisting of the installation and sampling of bedrock wells would be required. As such, this SGWIWP has been prepared to outline protocols for the installation and sampling of bedrock wells at the Site to complete the RI. The proposed scope for the SGWI includes the following:

- Installation of six bedrock wells (RI-MW-01BR through RI-MW-06BR) to facilitate the collection of groundwater samples.

- RI-MW-01BR will be installed in the northwestern portion of the Site and will be positioned such that it is presumed to be hydraulically downgradient of the location where faint petroleum-like odors and low-level photoionization detector (PID) readings [max of 1.7 parts per million (ppm)] were detected (RI-SB-02) during the RI, and where SVOCs (and one VOC) were historically detected in a water sample (SESI_TW-1).
- RI-MW-02BR will be installed in the suspected petroleum source area the northern portion of the Site, adjacent to the former 25,000-gallon No. 6 fuel oil USTs, suspected closed-in-place 1,000-gallon No. 2 fuel oil USTs, former power/boiler plant, and former unknown structure.
- RI-MW-03BR will be installed in the in the southeastern portion of the Site and will be positioned such that it is presumed to be hydraulically downgradient of the location where SVOCs were historically detected in a water sample (SESI-TW-2), and in the vicinity of the presumed downgradient Site boundary.
- RI-MW-04BR will be installed in the northeastern portion of the Site and will be positioned such that it is presumed to be hydraulically downgradient of the former hospital operations (and former unknown historic buildings), and to generally characterize groundwater conditions in the northeastern portion of the Site.
- RI-MW-05BR will be installed in the central portion of the Site and will be positioned such that it is presumed to be hydraulically downgradient of the utility vault building, which is the only building currently remaining at the Site (to be demolished once the electrical transformers are removed), and the suspected petroleum source area located in the northern portion of the Site (see RI-MW-02BR above).
- RI-MW-06BR will be installed in the western portion of the Site and will be positioned such that it is presumed to be hydraulically downgradient of the former hospital operations (and former unknown historic buildings), and to provide coverage for the characterization of groundwater in the western portion of the Site.
- Sampling the six bedrock wells and two existing groundwater monitoring wells for laboratory analysis.
- Surveying the locations and elevations of the six bedrock wells and two existing groundwater monitoring wells, and completion of at least one full round of fluid-level gauging to facilitate groundwater elevation contour mapping.

The results from the groundwater sampling completed by SESI in 2018/2019, along with other historic AOC information related to groundwater sampling/observations, are included on Figure 8. The proposed bedrock well, existing monitoring well, and former temporary monitoring well locations are shown on Figure 9. All proposed work will be performed in accordance with the NYSDEC-approved February 2022 RIWP and/or as indicated below in the proposed Scope of Work.

Proposed Scope of Work

Bedrock Well Installation

The proposed bedrock wells (MW-01BR through MW-06BR) will be installed using a Geoprobe™ rig that is capable of advancing augers through unconsolidated soil/fill, and then air rotary tooling will be used once bedrock is encountered. The augers will be advanced to apparent bedrock refusal, at which point air rotary tooling will be used to advance the borehole into bedrock. The air rotary tooling will be advanced in approximate 5-foot intervals and then removed to determine if water bearing fractures are present; if sufficient water flow is not observed, the well will be advanced deeper (to a maximum depth of approximately 40 feet bgs). AKRF will notify the NYSDEC via phone/email in the event that water bearing fractures are not observed to 40 feet bgs, and will leave the borehole open for a period of approximately 24 hours to confirm whether or not water accumulates. If water is not present after 24 hours, AKRF will consult with the NYSDEC to determine if continued drilling is warranted or if the open borehole can be abandoned/closed as appropriate (e.g., cement-bentonite grout within bedrock and uncontaminated fill/sand

in unconsolidated zone). Based on boring logs from the RI, bedrock is expected to be encountered at depths ranging from approximately 3 to 15 feet bgs in the vicinity of the proposed bedrock wells (see Table 1 for the anticipated depth to bedrock at each location). Once adequate groundwater flow is confirmed, the wells will be installed by setting a minimum of 5 to 10 feet of 2-inch diameter, 0.02-slot PVC well screen across the observed water bearing zone in bedrock; the well screen will not extend above the surface of apparent bedrock. The wells will be completed using 2-inch diameter PVC well riser, with a sand pack extending 1 foot above the well screen, followed by 2 feet of bentonite above the sand pack and a cement-bentonite grout to ground surface. Each well will be finished at grade with a locking well cap and flush mount cover.

Following installation, each bedrock well will be developed via pumping and surging to remove accumulated fines and establish a hydraulic connection with the surrounding aquifer. Development will continue until turbidity within the well is less than 50 nephelometric turbidity units (NTUs) for three successive readings and water quality indicators (pH, temperature, and specific conductivity) have stabilized, or until at least three well volumes have been purged from the well.

The rationale for the proposed groundwater sample locations is summarized in Table 1; the locations of the two existing groundwater monitoring wells and the rationale for their sampling is also provided in the table. Note that the proposed bedrock well locations shown on Figure 9 are approximate/estimated and will be adjusted as necessary to meet the goals of the SGWI.

Table 1
Proposed Groundwater Sample Location Rationale

Sample Location	On-Site Location	Anticipated Depth to Bedrock (ft bgs)	Rationale
RI-MW-01BR	Northwestern portion of Site	8-10	Investigate groundwater conditions downgradient* of the area where suspected petroleum-contaminated soil/fill was detected during the RI (RI-SB-02), and where SVOCs (and one VOC) were historically detected in a water sample (SESI_TW-1).
RI-MW-02BR	Northern portion of Site	10-15	Investigate groundwater conditions in the suspected petroleum source area (current and former USTs, reported separate phase petroleum, etc.) in the northern portion of the Site, adjacent to the former power/boiler plant and an unknown structure.
RI-MW-03BR	Southeastern portion of Site	4-10	Investigate groundwater conditions downgradient* of the area where SVOCs were historically detected in a water sample (SESI-TW-2), and in the vicinity of the downgradient* Site boundary.
RI-MW-04BR	Northeastern portion of Site	3-9	Investigate groundwater conditions downgradient* of former hospital operations and to generally characterize groundwater conditions in the northeastern portion of the Site.
RI-MW-05BR	Central portion of Site	5-10	Investigate groundwater conditions downgradient* of the utility vault building, which is the only building currently remaining at the Site and the suspected petroleum source area in the northern portion of the Site (see RI-MW-02BR above).
RI-MW-06BR	Western	10-15	Investigate groundwater conditions downgradient* of former hospital operations and to generally characterize groundwater conditions in the western portion of the Site.
SESI-GW-2	Northern portion of Site	10-13 (measured well depth: 14 ft bgs)	Investigate groundwater conditions downgradient* of the suspected petroleum source area (current and former USTs, reported separate phase petroleum, etc.) in the northern portion of the Site, adjacent to the former power/boiler plant and an unknown structure.
SESI-GW-3	Central portion of Site	8-10 (measured well depth: 27 ft bgs)	Investigate groundwater conditions within the suspected petroleum source area (current and former USTs, reported petroleum sheen, etc.) in the central portion of the Site, adjacent to the historical laundry facilities, boiler house, and incinerator.

Sample Location	On-Site Location	Anticipated Depth to Bedrock (ft bgs)	Rationale
Notes: ft bgs = feet below ground surface. * = Groundwater at the Site is anticipated to flow in a generally southerly direction, towards the Long Island Sound.			

Groundwater Sampling and Analysis

In accordance with EPA low-flow sampling protocols, the wells will be sampled a minimum of one week following their development. Prior to sampling the bedrock wells and the existing groundwater monitoring wells, an electronic interface probe will be used to measure the water level in each well, and a bailer will be used to measure any separate phase liquid that is detected. The monitoring wells will be purged and sampled in accordance with EPA's low-flow sampling procedures using a submersible or peristaltic pump. The purge water will be monitored for turbidity and water quality indicators [i.e., pH, dissolved oxygen, oxidation-reduction potential (ORP), temperature, and specific conductivity] with measurements collected approximately every five minutes. The criteria for stabilization will be three successive readings within $\pm 10\%$ for pH, temperature, and specific conductivity.

The groundwater samples will be collected and containerized in accordance with NYSDEC and EPA protocols. Each sample container will be properly preserved, labeled, and placed in an ice-filled cooler for delivery via courier under standard COC procedures to a NYSDOH ELAP-certified laboratory for analysis with Category B deliverables. The groundwater samples collected from the six bedrock wells will be analyzed for VOCs by EPA Method 8260, SVOCs by EPA Method 8270, pesticides by EPA Method 8081, herbicides by EPA Method 8151, PCBs by EPA Method 8082, TAL metals by EPA Method 6000/7000 series (total and dissolved), cyanide by EPA method 9012, 1,4-dioxane by EPA Method 8270-SIM, and PFAS by EPA Method 537.1. As the two existing groundwater monitoring wells were sampled for the full analytical suite as part of the RI, these wells will only be sampled for VOCs by EPA Method 8260, SVOCs by EPA Method 8270 and TAL metals by EPA Method 6000/7000 series (total and dissolved) during the SGWI.

Purge water from the installation, development, and sampling activities will be containerized in properly labeled DOT-approved 55-gallon drums for off-site disposal at a permitted facility. Disposable sampling equipment that comes in contact with environmental media will be disposed with municipal trash as non-hazardous refuse.

Quality Assurance/Quality Control (QA/QC) and Data Usability Review

As required for Category B deliverables, additional samples will be included for QA/QC purposes. The QA/QC samples will be collected in accordance with the Quality Assurance Project Plan (QAPP) included as Appendix A of the NYSDEC-approved February 2022 RIWP, and will include one field blank, one field duplicate, and one matrix spike/matrix spike duplicate (MS/MSD) to be analyzed for the same list of parameters as the bedrock well samples (the MS/MSD and field duplicate samples will be collected from one of the newly installed bedrock wells). In addition, a laboratory-supplied aqueous trip blank will accompany each sample shipment and will be analyzed for VOCs only. Upon receipt of the analytical data package from the laboratory, it will be reviewed by a third-party data validator, who will prepare a Data Usability summary Report (DUSR).

Decontamination and Investigation-Derived Waste (IDW) Management

All non-dedicated sampling equipment will be decontaminated between sampling locations by scrubbing and rinsing twice a biodegradable soap (e.g., Alconox) and tap water, and rinsing a final time with distilled water. Non-dedicated equipment used for groundwater sampling of emerging contaminants will be decontaminated using laboratory-certified PFAS-free water.

All IDW will be containerized in NYSDOT-approved 55-gallon drums. The drums will be sealed at the end of each work day and labeled with the date, the well number(s), the type of waste (i.e., drill cuttings,

decontamination fluids, development water, or purge water), and the name of an AKRF point-of-contact. All drums will be labeled “pending analysis” until laboratory data is available. The drums will be properly disposed of off-site at a permitted facility following receipt of the analytical results.

Monitoring Well Survey

The bedrock wells and the existing groundwater monitoring wells will be surveyed by a New York State-licensed surveyor to determine their accurate locations and elevations. Two elevation measurements will be taken at each well – the at-grade elevation adjacent to the well cover and the elevation of the top of the PVC casing – to facilitate preparation of a groundwater contour map and to determine the direction of groundwater flow. The elevation datum for the wells will be based on NAVD88.

Health and Safety and Perimeter Air Monitoring

All work outlined in this SGWIWP will be conducted in accordance with the Health and Safety Plan (HASP) included as Appendix B of the NYSDEC-approved February 2022 RIWP. Air monitoring during well installation will include collecting continuous VOC and particulate measurements within the work zone and periodic measurements (at least once per hour) at the work zone perimeter utilizing only roving equipment. Response actions will be implemented as required based on perimeter air monitoring results in accordance with the NYSDOH Generic CAMP and as described in the Community Air Monitoring Plan (CAMP) included as Appendix C of the NYSDEC-approved February 2022 RIWP.

Reporting

Daily progress reports will be submitted to the NYSDEC following each work day during implementation of the SGWI field activities to summarize work progress, field findings, and air monitoring results. Upon receipt of the analytical data and DUSR, AKRF will incorporate the results of the SGWI into the RI Report (RIR), which will be submitted to the NYSDEC for review/approval. The results of the SGWI will also be used to develop the Remedial Action Work Plan (RAWP) for the proposed remedial action(s) to address the contamination identified at the Site.

Schedule

The field work associated with the scope outlined in this SGWIWP has been tentatively scheduled to begin on April 30, 2024, pending NYSDEC review and approval of this work plan. Please contact Tim at (914) 922-2374 or tmcclintock@akrf.com if you have any questions or require any additional information.

Sincerely,
AKRF, Inc.



Marc S Godick, LEP
Senior Vice President



Timothy McClintock
Technical Director

cc: Kerry Maloney – NYSDEC
Melissa Doroski – NYSDOH
Christopher Gibaldi – Boston Post Road Owner LLC
Christine Leas – Sive, Paget & Riesel P.C.
Stephen Schmid – AKRF

Attachments:

Certification

Figure 1: Site Location

Figure 2: Site Plan

Figure 3: Sampling Locations

Figures 4A-D: Soil Sample Concentrations Above NYSDEC UUSCOs, RRSCOs, and/or PGWSCOs

Figure 5: Soil Sample Emerging Contaminants Concentrations Above NYSDEC Guidance Values

Figure 6: Groundwater Sample Concentrations Above NYSDEC AWQSGVs

Figure 7: Groundwater Sample Emerging Contaminants Concentrations Above NYSDEC Guidance Values

Figure 8: Groundwater Sample Concentrations Above NYSDEC AWQSGVs – SESI Groundwater Sampling (2018/2019)

Figure 9: Proposed Supplemental Groundwater Investigation Sample Locations

Tables 1A-1F: Soil Analytical Results

Tables 2A-2G: Groundwater Analytical Results

Table 3: Soil Vapor Analytical Results

CERTIFICATION

I, Marc Godick, certify that I am currently a Qualified Environmental Professional (QEP) as defined in 6 New York City Codes, Rules and Regulations Part 375 and that this Remedial Investigation Report was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and that all activities were performed in full accordance with the DER-approved work plans, work plan addenda, and any DER-approved modifications.

Marc S. Godick, QEP

Qualified Environmental Professional

April 29, 2024

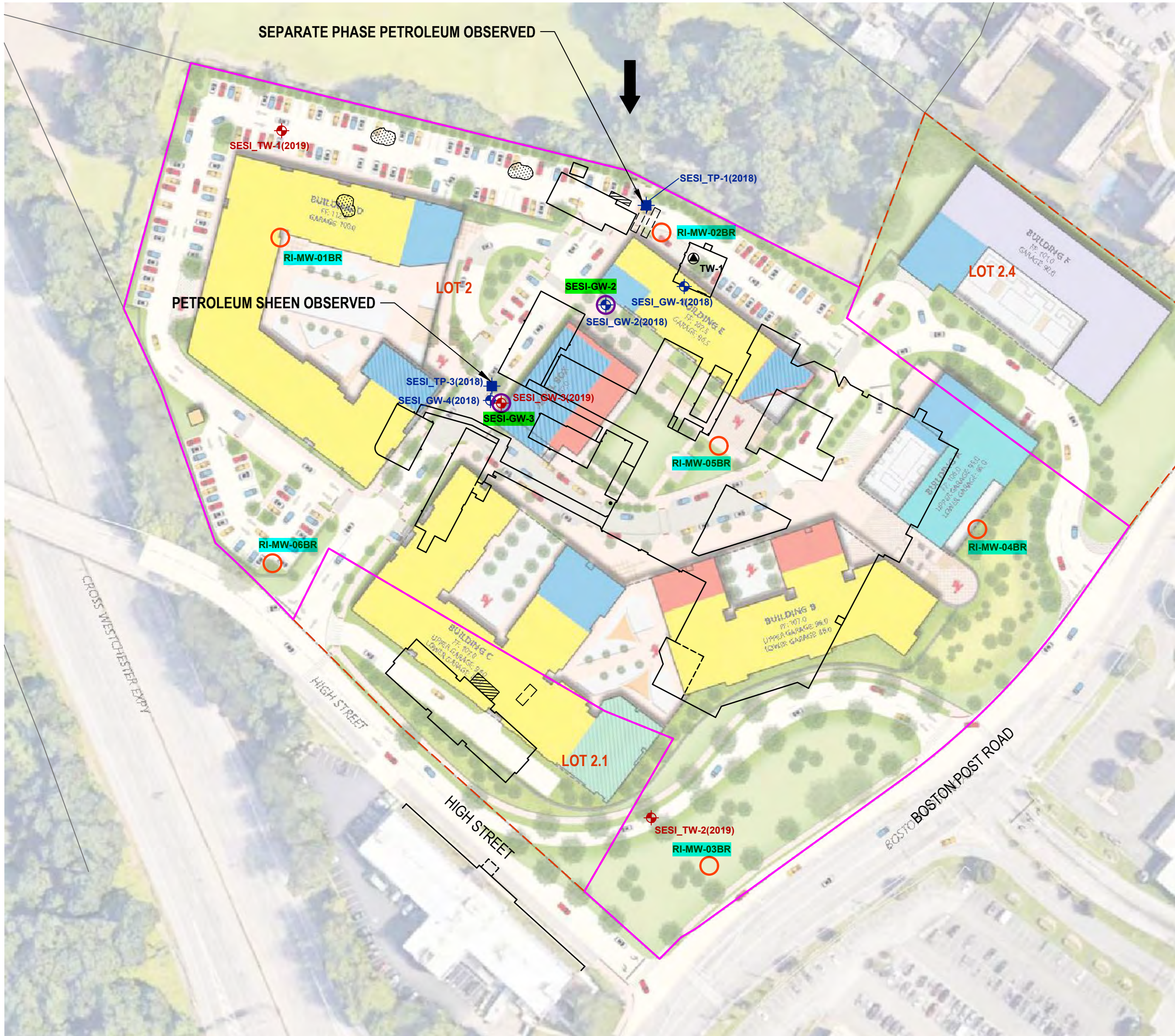
Date



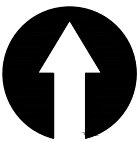
Signature

©2024 AKRF, Inc. Q:\Projects\20057 - FORMER UNITED HOSPITAL\Technical\Hazmat\WP\CAD\20057 Fig 9 Proposed Supplemental Groundwater Investigation Sample Locations.dwg last save: mvelieux 4/29/2024 12:02 PM

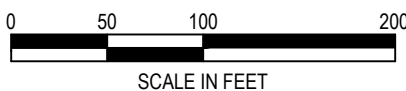
MAP SOURCES:
1. CAD drawing A051141B 406 Boston Post Road, Port Chester Email 03-21-2017.dwg received from Rose Associates, Inc. on March 17, 2020.
2. https://giswww.westchestergov.com
3. 2018 and 2019 Borings, Soil Vapor Points, Temporary Groundwater Wells, and Test Pits taken from SESI Drawing Numbers FIG 1.4 (dated 11-14-19), FIG-3.1, FIG-3.2, FIG-3.3 (dated 12/17/18).
4. Port Chester United Hospital Redevelopment - Site Plan, Exhibit 1-4a.



- MULTI-FAMILY BUILDING
- ASSISTED LIVING
- HOTEL
- AMENITY SPACE (GROUND FLOOR)
- AMENITY SPACE (GROUND FLOOR & ROOFTOP)
- AMENITY SPACE (ROOF TOP)
- RETAIL SPACE (GROUND FLOOR)
- PARKING GARAGE



- LEGEND**
- BCP SITE BOUNDARY
 - TAX LOT BOUNDARY
 - UNDERGROUND STORAGE TANK (UST)
 - ABOVEGROUND STORAGE TANK (AST)
 - EXISTING BUILDING
 - C&D DEBRIS PILE
 - AKRF TEMPORARY GROUNDWATER WELL LOCATION (2020)
 - SESI SOIL AND TEMPORARY GROUNDWATER WELL LOCATION (2019)
 - SESI MONITORING WELL LOCATION (2018)
 - SESI TEST PIT LOCATION (2018)
 - EXISTING GROUNDWATER MONITORING WELL (SESI-GW-2 & SESI-GW-3)
 - PROPOSED BEDROCK MONITORING WELL (RI-MW-01BR THROUGH RI-MW-06BR)
 - PRESUMED GROUNDWATER FLOW DIRECTION



440 Park Avenue South, New York, NY 10016

Former United Hospital
406 Boston Post Road
Port Chester, New York

PROPOSED SUPPLEMENTAL GROUNDWATER INVESTIGATION SAMPLE LOCATIONS

DATE
4/29/2024
PROJECT NO.
200057
FIGURE
9

NOTE: FORMER BUILDING STRUCTURES TAKEN FROM TRC "SITE LAYOUT PLAN INCLUDING EXISTING AND DEMOLISHED BUILDINGS", DATED AUGUST 2014, FIGURE 2.