

Environmental, Planning, and Engineering Consultants

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March 11, 2025

Mr. Ryan Richard
New York State Department of Environmental Conservation
Division of Environmental Remediation – Region 3
21 South Putt Corners Road
New Paltz, NY 12561

Re: Supplemental Bedrock Groundwater Investigation Work Plan – REVISED

Brookfield Commons Phase 3, White Plains, Westchester County

NYSDEC BCP Number: C360246 AKRF Project Number: 210122

Dear Mr. Richard:

This Supplemental Bedrock Groundwater Investigation Work Plan (SBGWIWP) has been prepared by AKRF, Inc. (AKRF) on behalf of Trinity Brookfield Commons Phase Three Limited Partnership (the "Volunteer") for the "Brookfield Commons Phase 3" project site. The Volunteer entered into a Brownfield Cleanup Agreement (BCA) with the New York State Department of Environmental Conservation (NYSDEC) in February 2024, to investigate and remediate a 1.284-acre property located at 159 South Lexington Avenue in White Plains in Westchester County, New York (hereafter referred to as the "Site"). The Site location is shown on Figure 1.

Based on a discussion on February 4, 2025 between the New York State Department of Environmental Conservation (NYSDEC), New York State Department of Health (NYSDOH), AKRF and the Volunteer, an additional investigation will be performed to further delineate the extent of chlorinated solvents in bedrock for the area of concern identified as AOC-6. This SBGWIWP has been prepared to outline protocols for the installation and sampling of additional wells at the Site to complete the RI. This SBGWIWP has been revised based on email correspondence received from NYSDEC on February 12, 2025, telephone communication with NYSDEC on February 13, 2025, and correspondence received from NYSDEC on February 28, 2025 and March 7, 2025.

Fifteen VOCs, including chlorinated solvents and petroleum-related compounds, were detected at concentrations above their respective the NYSDEC Technical Operational and Guidance Series (TOGS) Class GA Ambient Water Quality Standards and Guidance Values AWQSGVs in one or more groundwater samples. The highest concentrations of the chlorinated solvent tetrachloroethylene (PCE) was detected in the bedrock groundwater sample RI-MW-10BR (1,000  $\mu$ g/L) in the northern portion of the Site, at a bottom depth of 42.54 feet below grade

The proposed scope for the SBGWI includes the following:

- Installation and sampling of two additional shallow bedrock monitoring wells (RI-MW-12BR and RI-MW-14BR) to further delineate the horizontal extent of the chlorinated solvent groundwater plume.
  - o RI-MW-12BR will be installed in the west-central portion of the Site, in the vicinity of monitoring wells RI-MW-12 and RI-MW-12D.

- o RI-MW-14BR will be installed in the northeastern portion of the Site, approximately 75 feet east of RI-MW-10BR and in the vicinity of TW-05.
- Installation and sampling of three intermediate and three deep bedrock monitoring well (RI-MW-09BR-I, RI-MW-10BR-I, and MW-11BR-I (intermediate bedrock wells) and RI-MW-09BR-D, RI-MW-10BR-D, and RI-MW-11BR-D (deep bedrock wells) to further delineate the vertical extent of the chlorinated solvent groundwater plume in the vicinity of RI-MW-09BR, RI-MW-10BR, and RI-MW-11BR. Each of the intermediate and deep monitoring wells will be installed adjacent to the previously installed shallow bedrock wells (RI-MW-09BR, RI-MW-10BR, and RI-MW-11BR).
- Sampling the eight new wells for laboratory analysis for VOCs.
- Surveying the locations and elevations of the eight new wells, and completion of at least one full round of fluid-level gauging (inclusive of all newly installed and existing monitoring wells) to facilitate groundwater elevation contour mapping.

All proposed work will be performed in accordance with the NYSDEC-approved May 2024 RIWP and/or as indicated below in the proposed supplemental Scope of Work. Proposed additional sampling locations are included on Figure 2. Proposed monitoring well construction details, based on assumptions from previous investigations, are included on Table 1.

### Proposed Bedrock Well Supplemental Scope of Work

#### Shallow Bedrock Well Installation

Two shallow bedrock monitoring wells (RI-MW-12BR and RI-MW-14BR) will be installed to delineate the horizontal extent of the chlorinated solvent groundwater plume in shallow bedrock. The depth to bedrock at each of the proposed bedrock monitoring wells will be established by examining soil cores from soil boring advancement using a Sonic drill rig.

The proposed bedrock wells will be installed by advancing a 4 to 6-inch diameter secondary steel casing at least 5 feet into competent bedrock. The bottom of the casing will be set using a slurry grout consisting of Type I Portland cement/bentonite or cement/sand mixture and left to cure for at least 24 hours. After the grout has cured, a boring will be advanced through the outer casing and continuous bedrock cores will be collected by spinning the coring barrel fitted with a custom shoe into the bedrock at 5-foot intervals until the first water bearing fracture is encountered. The bedrock cores will be placed in a core box and logged for geology and fracture content. The well depths and screen intervals may be adjusted based upon examination of the rock cores and bedrock geotechnical logging (as described below). NYSDEC will be consulted prior to determining the final well depths and screen intervals for the shallow wells.

After completing the coring process, the boring for the bedrock well will be over drilled using an approximately 3.9-inch diameter roller bit and a truck-mounted drill rig. The bedrock wells will be constructed with 2-inch diameter PVC, which will include 5 feet of 0.02 slotted well screen installed into the first water bearing zone in competent bedrock. The annular space around the well screen will be backfilled with sand filter pack extending from the bottom of the well to 1 to 2 feet above the screen. The annular space around the well riser will be sealed with bentonite extending 5 feet above the sand filter pack and completed to ground surface and within the exterior casing with a non-shrinking cement mixture to grade. The bentonite seal will be given approximately 24 hours to set and expand. Each well will be provided with a locking well cap and be finished with a flush mount cover.

### Intermediate and Deep Bedrock Well Installation

Three intermediate and three deep bedrock monitoring wells, RI-MW-09BR-I, RI-MW-10BR-I, and MW-11BR-I (intermediate bedrock wells) and RI-MW-09BR-D, RI-MW-10BR-D, and RI-MW-11BR-D (deep bedrock wells) will be installed to delineate the vertical extent of the chlorinated solvent groundwater plume in the vicinity of RI-MW-09BR, RI-MW-10BR, and RI-MW-11BR, respectively. The proposed bedrock wells will be installed by advancing a 4 to 6-inch diameter secondary steel casing at least 5 feet into competent bedrock using a Sonic Rig. The bottom of the casings will be set using a slurry grout consisting

of Type I Portland cement/bentonite or cement/sand mixture and left to cure for at least 24 hours. After the grout has cured, a boring will be advanced through the outer casing of the designated deep bedrock well locations (RI-MW-09BR-D, RI-MW-10BR-D and RI-MW-11BR-D), and continuous bedrock cores will be collected by spinning the coring barrel fitted with a custom shoe into the bedrock at 5-foot intervals until the predetermined depth of 100 feet below grade is reached, but could be extended deeper if significant water bearing fractures are not observed at the interval of 90 to 100 feet below grade. The bedrock cores will be placed in a core box and logged for geology and fracture content.

The target depth of the intermediate (RI-MW-09BR-I, RI-MW-10BR-I, and MW-11BR-I) and deep (RI-MW-09BR-D, RI-MW-10BR-D, and RI-MW-11BR-D) bedrock monitoring wells are approximately 75 and 100 feet below grade, respectively, which correlates to roughly 25-30 and 50-50 feet deeper than the previously installed shallow bedrock wells. The well depths and screen intervals may be adjusted based upon examination of the rock cores and bedrock geotechnical logging (as described below). Specifically, the rock cores will be examined for evidence of significant water bearing fractures between 70 and 80 feet below grade (for each intermediate well) and 90 to 100 feet below grade (for each deep bedrock well). NYSDEC will be consulted prior to determining the final well depths and screen intervals for the intermediate and deep wells.

After completing the coring process, the borings for the deep bedrock wells will be over drilled using an approximately 3.9-inch diameter roller bit and a truck-mounted drill rig to an approximate depth of 100 feet below grade. The deep bedrock wells (RI-MW-09BR-D, RI-MW-10BR-D, and RI-MW-11BR-D) will then be constructed with 2-inch diameter PVC to depths of approximately 100 feet below grade.

Bedrock coring will not be conducted at the intermediate well locations (RI-MW-09BR-I, RI-MW-10BR-I, and MW-11BR-I) since they will be located adjacent to the deep bedrock well locations where coring would have already been completed. An approximately 3.9-inch diameter roller bit and a truck-mounted drill rig will be used to advance a boring in rock through the steel casing for the intermediate bedrock wells to an approximate depth of 75 feet below grade. The intermediate bedrock wells (RI-MW-09BR-I, RI-MW-10BR-I, and MW-11BR-I) will be constructed with 2-inch diameter PVC to approximate depths of 75 feet below grade.

Each bedrock well will be fitted with 5 to 10 feet of 0.02 slotted well screen (depending on the fracture density and locations), and the annular space around the well screen will be backfilled with sand filter pack extending from the bottom of the well to 1 to 2 feet above the screen. The annular space around the well riser will be sealed with bentonite extending 1 to 2 feet above the sand filter pack and completed to ground surface and within the exterior casing with a non-shrinking cement mixture to grade. Each well will be provided with a locking well cap and be finished with a flush mount cover.

## Bedrock Geotechnical Logging

Downhole geotechnical logging will be performed during advancement of the three deep bedrock wells (RI-MW-09BR-D, RI-MW-10BR-D, and RI-MW-11BR-D), as well as two shallow bedrock well locations (RI-MW-12BR and RI-MW-14BR) to ascertain additional information related to the bedrock geology. The borehole geophysical logging program will consist of the following to characterize the in-situ conditions of the bedrock encountered in the open bedrock portions of the boreholes including determining the depths, orientation (dip angles and dip azimuths), and frequency of the bedrock fractures, as well as other characteristics using the following tooling and data collection:

- Optical Televiewer (OTV) and Acoustic Televiewer (ATV);
- Fluid Temperature and Fluid Conductivity;
- Heat Pulse Flow Meter (HPFM) Logging Under Ambient and Stressed (Low Constant Rate Pumping) Conditions;
- Natural Gamma Ray;
- Poly Electric Probe; and

### • Caliper measurement.

In conjunction with the examination of the bedrock cores, the geotechnical logging may reveal conditions that warrant modification to the screen intervals for the shallow, intermediate, and/or deep bedrock wells. NYSDEC will be consulted prior to determining the final well depths and screen intervals of the bedrock wells. The interim geophysical data will be included in the daily reports following each day that logging is completed. Any deviations due to site conditions will be noted in the logs and final geophysical report. The geophysical data will be reviewed by NYSDEC and with discussions with AKRF and the geophysical subcontractor, the well screens should be able to be set within 24 to 48 hours of submission of interim data to the NYSDEC.

### Well Development

Following installation, each monitoring 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.

## Contingency Soil Sampling and Analysis

If any field evidence of soil contamination (e.g. odors, PID readings, etc.) is observed during advancement of the borings within the overburden, soil samples will be collected and analyzed for VOCs. Samples slated for laboratory analysis will be labeled and placed in laboratory-supplied containers and shipped to the laboratory via courier with appropriate chain-of-custody documentation in accordance with appropriate USEPA protocols to a NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory for analysis for VOCs by EPA method 8260, with Category B deliverables.

## **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 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 wells will only be sampled for VOCs by EPA Method 8260 during the SBGWI.

# 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 May 2024 RIWP, and will include a minimum of one field blank, one field duplicate, one trip blank, and one matrix spike/matrix spike duplicate (MS/MSD) to be analyzed for the same list of parameters (VOCs) as the samples. 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. All IDW will be containerized in NYSDOT-approved 55-gallon drums. The drums will be sealed at the end of each workday 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 new 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 an updated groundwater elevation contour maps for the shallow and deep monitoring wells. The elevation datum for the wells will be based on NAVD88.

### Health and Safety and Perimeter Air Monitoring

All work outlined in this SBGWIWP will be conducted in accordance with the Health and Safety Plan (HASP) included as Appendix B of the NYSDEC-approved May 2024 RIWP. Air monitoring during well installation will include collecting continuous VOC and particulate measurements within the work zone and continuous community air monitoring at the work zone perimeter utilizing two portable air monitoring stations setup at the upwind and downwind perimeter. Air monitoring during well sampling 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 May 2024 RIWP.

#### Reporting

Daily progress reports will be submitted to the NYSDEC following each workday during implementation of the SBGWI 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 SBGWI into an updated RIR, which will be submitted to the NYSDEC for review/approval. The final geophysical report will be summarized in and appended to the RIR. The results of the SBGWI will also be used to update the draft Remedial Action Work Plan (RAWP), which was submitted to the NYSDEC in December 2024.

#### **Schedule**

The field work associated with the scope outlined in this SBGWIWP has been tentatively scheduled to begin as soon as drilling and borehole geophysical subcontractors can be scheduled, pending NYSDEC review and approval of this work plan. Please contact Colleen at (914) 922-2363 or <a href="mailto:cgriffiths@akrf.com">cgriffiths@akrf.com</a> if you have any questions or require any additional information.

Sincerely, AKRF, Inc.

Marc S Godick, LEP Senior Vice President Colleen Griffiths Vice President

Colleen L. Griff Sho

cc: Steven McCague, Sarah Saucier – NYSDEC

Johnathan Robinson, Melissa Doroski – NYSDOH

Thomas Brown, Omalawa Abdullah-Musa, Allison Brown – Trinity/Volunteer

Lawrence Schnapf – Schnapf LLC

Gregory Baird, Rebecca Kinal – AKRF

# Certification

# List of Attached Figures

Figure 1 – Site Location

Figure 2 – Site and Sample Location Plan

Figure RI-MW-XXBR – Example Bedrock Installation Log

# List of Attached Tables

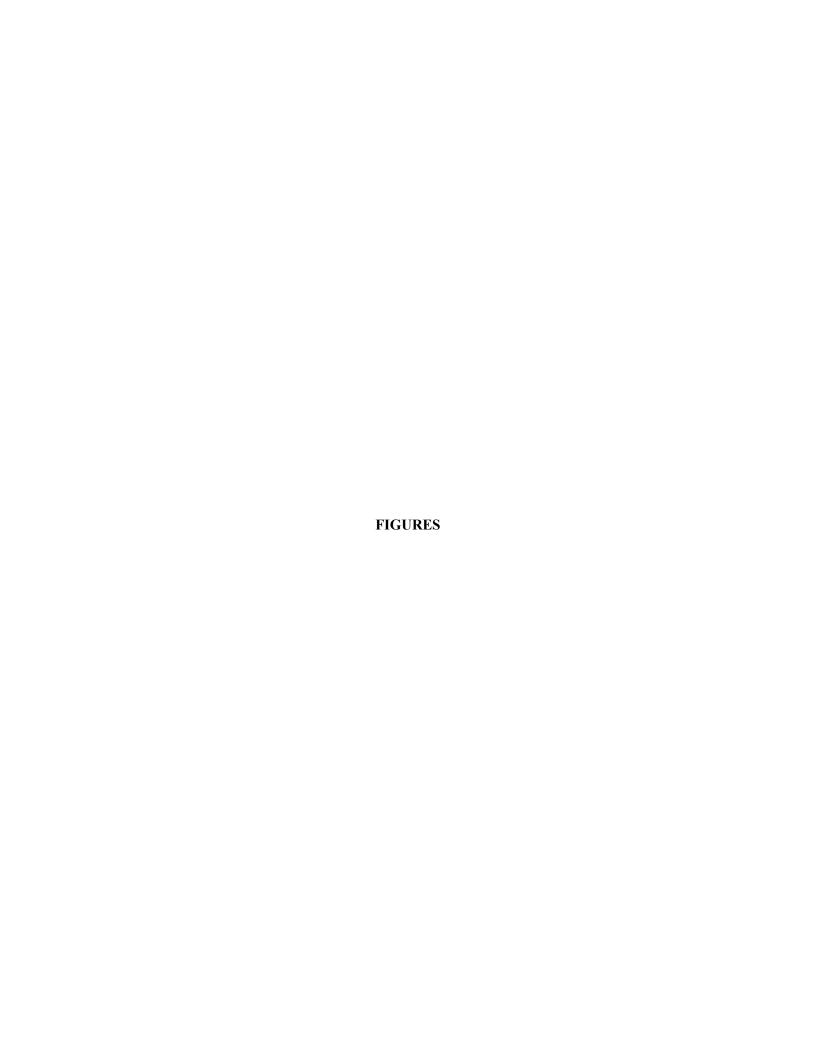
Attached Table 1 – Proposed Monitoring Well Construction Details

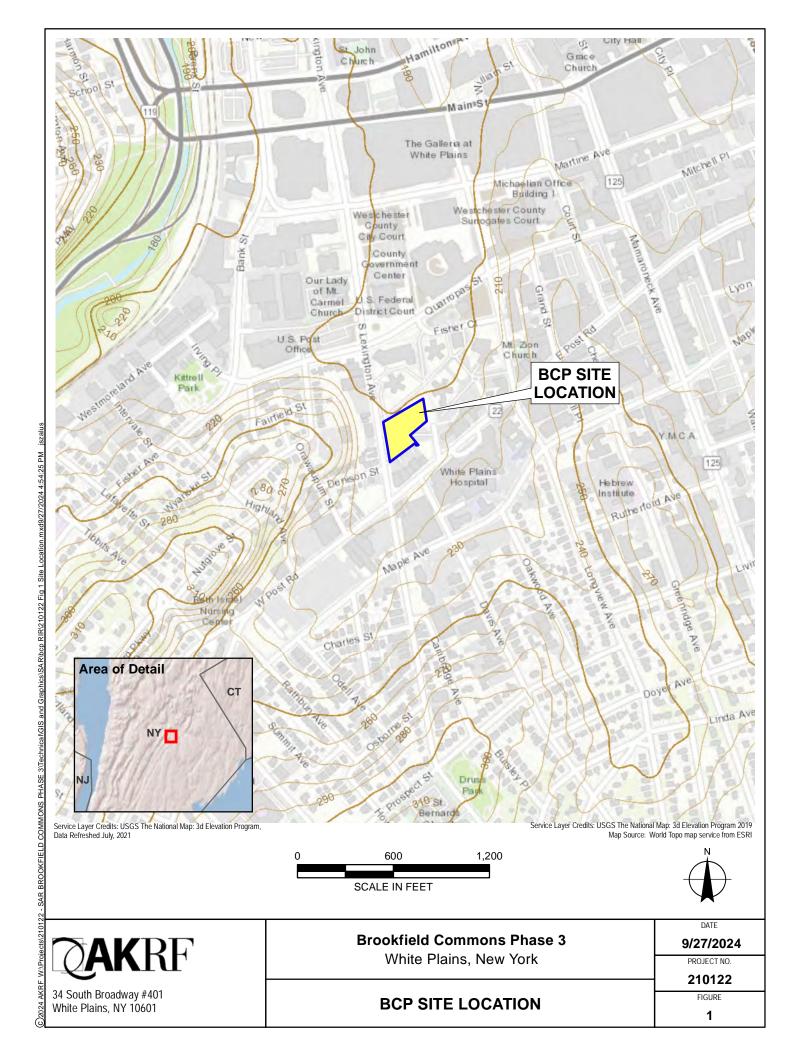
Attached Table 2 – Installed Well Construction Details

# **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	March 11, 2025	
Qualified Environmental Professional	Date	Signature







34 South Broadway #401 White Plains, NY 10601

SITE PLAN AND SAMPLING LOCATIONS

**Brookfield Commons Phase 3** White Plains, New York

DATE

2/13/2025

PROJECT NO. **210122** 

FIGURE 2

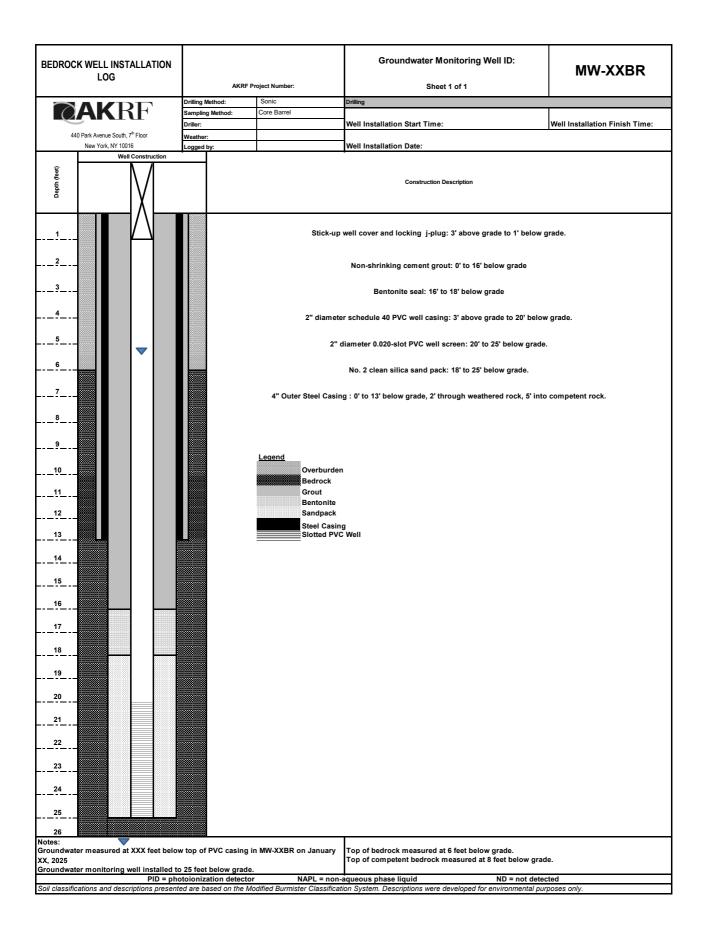




Table 1 - Proposed Monitoring Well Construction Details

		Ge	ologic Cond	ditions - Depth	(feet)	Well Construction - Depth (feet)										
				Top of	First	Secondary Steel		2" PVC Screen		Sand Pack Interval		Bentonite Interval		Grout Interval		
	Well		Assumed	Competent	Water											
MWID	Туре	GW	Top of BR	BR	Bearing	Тор	Bottom	Тор	Bottom	Тор	Bottom	Тор	Bottom	Тор	Bottom	Notes
RI-MW-09BR-I	BR	6	25	40	N/A	0	45	70	75	68	75	68	66	Grade	68	Intermediate BR Well
RI-MW-09BR-D	BR	6	25	40	N/A	0	45	95	100	93	100	93	91	Grade	93	Deep BR Well
RI-MW-10BR-I	BR	5	23	25	N/A	0	30	70	75	68	75	68	66	Grade	68	Intermediate BR Well
RI-MW-10BR-D	BR	5	23	25	N/A	0	30	95	100	93	100	93	91	Grade	93	Deep BR Well
RI-MW-11BR-I	BR	6	9	10	N/A	0	15	70	75	68	75	68	66	Grade	68	Intermediate BR Well
RI-MW-11BR-D	BR	6	9	10	N/A	0	15	95	100	93	100	93	91	Grade	93	Deep BR Well
RI-MW-12BR	BR	5	18	23	33	0	28	31	36	29	36	29	27	Grade	29	Shallow BR Well
RI-MW-14BR	BR	5	25	30	40	0	35	38	43	36	43	36	34	Grade	36	Shallow BR Well

Table 2 - Installed Well Construction Details

		Geologic	Conditions -	Depth (feet)		Well Construction - Depth (feet)									
				Top of Competent	First Water Bearing	Secondary Steel 2" PVC Screen Casing Interval Interval		Sand Pack Interval		Bentonite Interval		Grout Interval			
MW ID	Well Type	GW	Top of BR	BR	Fracture(s)	Тор	Top Bottom		Bottom	Top Bottom		Top Bottom		Тор	Bottom
RI-MW-01DA	Deep	5.92	25					15	25	13	25	13	11	Grade	13
RI-MW-02	Shallow	5.42						2	12	1	12	1	0.5	Grade	1
RI-MW-02D	Deep	5.52	15					10	15	8	15	8	6	Grade	8
RI-MW-03	Shallow	3.99	10					2	10	1	10	1	0.5	Grade	1
RI-MW-04	Shallow	3.18	8					1	8	0.5	8	0.5	1	Grade	0.5
RI-MW-05	Shallow	Inaccessible (basement, directly below slab)	4					2	4	1	4	0.5	1	Grade	0.5
RI-MW-06	Shallow	6.22	14					4	14	2	14	1	0.5	Grade	1
RI-MW-07	Shallow	6.53						3	11	1	11	1	0.5	Grade	1
RI-MW-07D	Deep	6.32	18					13	18	11	18	11	9	Grade	11
RI-MW-08A	Shallow	6.05	10					3	10	1	10	1	0	Grade	1
RI-MW-9D	Deep	6.11	25					20	25	18	25	18	16	Grade	18
RI-MW-9BR	Bedrock	5.8	25	40	49	0	45	47	52	45	52	45	43	Grade	45
RI-MW-10D	Deep	4.52	23					18	23	16	23	16	14	Grade	16
RI-MW-10BR	Bedrock	4.79	23	25	40	0	30	38	43	36	43	36	34	Grade	36
RI-MW-11D	Deep	6.4	9					4	9	2	9	2	0	Grade	2
RI-MW-11BR	Bedrock	6.03	9	10	27	0	15	25	30	23	30	23	21	Grade	23
RI-MW-12	Shallow	4.14						2	12	1	2	0	1	Grade	0
RI-MW-12D	Deep	4.25	18					13	18	11	18	11	9	Grade	11
RI-MW-13D	Deep	3.05	13.5					3.5	13.5	1.5	13.5	1.5	0	Grade	1.5