NEW YORK STATE | Department of Environmental Conservation

PFAS Assessment Work Plan

PHASE III

Meadow Pond School

SPILL NO. 2100460

SOUTH SALEM, NY

MARCH 2026

Kathy Hochul, Governor | Amanda Lefton, Commissioner

Contents

1.0 BACKGROUND AND PROJECT OBJECTIVES

1.1 AREA OF INTEREST

The Meadow Pond Elementary School is located in the Town of Lewisboro, hamlet of South Salem in Westchester County. The school property is bounded by Smith Ridge Road to the west, Shady Lane to the south, Deep Well Farms Road to the east, and Deer View Lane to the north. The immediate surrounding area is primarily residential. A topographic map showing the school and surrounding land features is provided on **Figure 1.**

The school property consists of the Meadow Pond Elementary School facilities, parking lots, and athletic fields. The main school building and parking lots are located on the northern half of the property. Immediately south of the school building are the playground and athletic fields. The school's septic system and leach field are likely located on the southwest corner of the main building and extend beneath the athletic fields. However, the exact location of the septic system infrastructure is unknown. The property is relatively flat but has a steep slope on the eastern side of the property which grades towards Deep Well Farms Road and slopes gradually on the west side of the property towards Smith Ridge Road. A map showing the school and above-referenced features can be found on **Figure 2**.

1.2 DRINKING WATER SUPPLIES

In accordance with public water supply regulations, sampling for PFOA, PFOS, and 1,4-dioxane of the school's supply well was conducted by the Meadow Pond Elementary School in February 2021. The sampling detected concentrations of per- and polyfluoroalkyl substances (PFAS)—specifically perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) at levels above New York State's maximum contaminant levels (MCLs) for public drinking water. A subsequent round of testing in March 2021 confirmed the initial results. A "Do Not Drink" advisory was issued subsequently; however, the school has been using bottled water since 2018 for other water quality issues unrelated to PFAS contamination.

While New York State (NYS) does not regulate PFAS in private wells, out of an abundance of caution State and County Departments of Health (DOH) and DEC conducted a private well evaluation near the school. Sampling was conducted within an area of interest proximate to the school. Several homes had concentrations of PFOA and/or PFOS above the NYS MCLs and exposures were addressed by providing residents with an alternate water supply. DEC and DOH continually evaluate the need to conduct private well sampling in the area.

1.3 PROJECT OBJECTIVES

The primary objectives of this work plan are to:

1. Delineate the boundary of the septic system on the school property and sample soil in the vicinity of the septic system to assess pathway to groundwater.
2. Assess bedrock groundwater quality and hydrogeologic properties on the school property near supply well, the septic field, and property boundaries.
3. Determine potential source(s) of contamination impacting the school's supply well and nearby private residential wells.

2.0 INVESTIGATION

All field activities will be completed by NYSDEC staff or NYSDEC's standby contractors in substantial compliance with Department policies, programs, and procedures, as applicable, including, but not limited to: 6 NYCRR Part 375, DER-10, NYSDEC's *Sampling, Analysis, and Assessment of PFAS* guidance document, US EPA Design and Installation of Monitoring Wells Guidance and ASTM D5092. To the extent feasible, work will be scheduled outside of school hours or when the school is not fully occupied.

Field activities will include:

- Installation of soil borings and bedrock monitoring wells
- Environmental sampling (groundwater, surface water and soil)
- Wastewater sampling

All samples will be submitted to NYSDEC's standby laboratory for PFAS analysis by EPA Method 1633. A select set of soil samples will also be analyzed for pH by EPA Method 9045, total organic carbon (TOC) by Lloyd Kahn, and PFAS in leachate generated from the Synthetic Precipitation Leaching Procedure (SPLP) by EPA Method 1312.

Standard chain-of-custody procedures will be followed for all samples collected. Quality assurance/quality control (QA/QC) samples will be collected at the following frequencies: equipment blanks will be collected for PFAS analysis at a minimum frequency of 1 sample per day per media sampled; and field duplicates, matrix spike, and matrix spike duplicates will be collected at a frequency of 1 per 20 field samples. **Table 1** presents the sampling and analytical plan.

2.1 SURVEYS

2.1.1 UTLIITY SURVEY

Prior to the commencement of ground-intrusive activities, a ground-penetrating radar (GPR)/electromagnetic (EM) survey will be conducted, and Dig Safely New York will be contacted to pre-clear all soil boring and monitoring well locations of subsurface utilities and anomalies.

2.1.2 LAND SURVEY

At the conclusion of field activities, a New York State licensed land surveyor will complete a survey of all sample locations including coordinates, ground surface elevations, and monitoring well casing elevations (as applicable).

2.2 CAMP & EXCLUSION ZONES

In accordance with the NYS Department of Health (NYSDOH) Generic Community Air Monitoring Plan (CAMP), air monitoring for fugitive dust and organic vapors will be conducted during all ground intrusive activities. Two CAMP stations will be utilized: one upwind and one downwind of the work zone.

Additionally, a mobile exclusion zone will be set up 50 feet around the drill rig consisting of signage, traffic cones and a visual barrier consisting of snow fencing and/or caution tape (or something similar). Field staff will be present at all times during active drilling to ensure that the exclusion zone is not compromised and that unauthorized personnel do not enter.

2.3 SEPTIC SYSTEM DELINEATION

A ground-penetrating radar (GPR)/electromagnetic and (EM) survey will be conducted on the field to the south of the Meadow Pond School. Infrastructure related to the septic system will be marked out to inform sampling locations for soil PFAS in the septic field.

2.4 SEPTIC SYSTEM SOIL SAMPLING

Up to 10 soil samples will be collected in the vicinity of the septic system and the surface drainage areas near MW-12. Samples will be collected with a hand auger. Soil cores will be continuously collected, characterized, and screened with a handheld photo-ionization detector (PID). Soil samples will be collected at 3 locations from each soil boring in the septic field and analyzed for PFAS: 0”-2” below vegetative cover, within the depth interval of the septic field, and a sample below the depth of the septic system. Soil samples collected from the depth of the septic system will also be analyzed for pH, TOC, nitrogen/nitrate, and SPLP. Additional samples may be collected if evidence of contamination is identified (i.e. PID, olfactory, visual, etc). Proposed locations are shown on **Figure 3.** Sample locations may be adjusted or added based on field conditions.

2.5 BEDROCK WELL CONSTRUCTION

Five bedrock monitoring wells will be installed on-site. For each bedrock well, casing will be advanced 10 feet into the competent bedrock and grouted in place. After at least 24 hours of curing, bedrock drilling will be conducted below the casing. One well will be

located near the pre-existing water supply well, one will be located between the septic system and the water supply well, two will be located on the east and west sides of the school property and the final well will be between the water supply well and MW-12. Proposed bedrock locations are shown on **Figure 3**. Three of the bedrock wells including the wells located near the water supply well, near the septic system and near MW-12 will be installed to 100 ft depth from top of bedrock and the remaining 2 will be installed to 50 ft depth from top of bedrock. Three soil samples will also be taken in each borehole at 0-2", 2-12" and at the water table. After geophysics (Section 2.7) has been performed on each bedrock well, a monitoring well made of 2-inch Schedule 40 PVC casing and PVC screen will be installed in the borehole screened across the primary water bearing fracture zone. Slot size will be dependent on the rock type and screen length will be decided based on the results of the geophysics. Monitoring wells will be constructed in general accordance with US EPA Design and Installation of Monitoring Wells Guidance and ASTM D5092, as applicable.

2.6 BEDROCK WELL DEVELOPMENT

No earlier than 24 hours after installation, each monitoring well will be developed using over-pumping and surging techniques to help remove fines from the well and to establish a hydraulic connection with the aquifer. Groundwater quality parameters will be collected prior to development, after the removal of each well volume, and at the conclusion of development. Development will be considered complete once turbidity is measured at or below 50 nephelometric turbidity units (NTU), after 1 hour of development, or after the removal of three well volumes, whichever comes first.

2.7 BEDROCK WELL GEOPHYSICS

Geophysical logging in the boreholes (borehole caliper, fluid temperature and conductivity, optical and acoustic televiewer, heat pulse flow meter (HPFM), and natural gamma ray) will be used to find water producing fracture zones and fracture orientation. Additionally, neutron, sonic, or density logging will be conducted in each borehole to determine the porosity. If the geology is suitable, an additional borehole radar reflection survey will be performed and used to create 3D fracture model in each of the 100 ft boreholes.

2.8 BEDROCK WELL SAMPLING

Following the identification of highly fractured intervals, packer testing on the primary water producing fracture zones will be conducted. In each fracture zone, slug testing will be performed. At least one round of synoptic water levels will be collected from the newly installed monitoring wells and water levels will be collected for each fracture zone sampled during the packer test. Groundwater samples will be collected using either low-flow or standard three volume purge sampling techniques in accordance with the most current NYSDEC PFAS sampling guidelines. Groundwater parameters including pH, conductivity, oxidation-reduction potential (ORP), dissolved oxygen (DO), temperature,

and turbidity will be recorded on groundwater sampling logs. All samples will be analyzed for PFAS using EPA Method 1633.

2.9 SURFACE WATER SAMPLING

Two surface water samples will be collected from the pond to the southwest of the School. Both samples will be taken south of Kitchawan Rd and west of Smith Ridge Rd. Samples will be collected using stainless-steel dip cups or other acceptable materials identified in NYSDEC's PFAS sampling guidance. One grab sample will be collected from the north side of the pond and the second grab sample will be collected on the east side of the pond approximately halfway down its length. These samples will be analyzed for PFAS using EPA Method 1633.

2.10 SEDIMENT SAMPLING

Two collocated sediment samples will be collected with the surface water samples. Samples will be collected using stainless-steel dip cups or other acceptable materials identified in NYSDEC's PFAS sampling guidance. These samples will be analyzed for PFAS using EPA Method 1633.

2.11 GEOCHEMICAL SAMPLING

Additional samples of geochemical parameters will be taken at both the septic baffle, the spigot and the bedrock monitoring wells. Geochemical parameters will at least include ammonia, total nitrogen, nitrate, and nitrite.

2.12 INVESTIGATION DERIVED WASTE & DECONTAMINATION

Soil cuttings, decontamination water, and purged water will be managed in accordance with DER-10 Section 3.3(e), as applicable. Any disposable personal protective equipment and sampling equipment will be placed in sealed garbage bags and disposed of as municipal solid waste.

Decontamination of any non-dedicated equipment (e.g., water level meters, drill rods, etc) will be performed using a standard non-phosphate detergent (e.g., Alconox®) wash and potable water rinse between all sample locations. Equipment will be allowed to air dry before reuse.

3.0 REPORTING

The laboratory will provide Category B laboratory reports and NYS electronic data deliverables to NYSDEC. A field activities summary report will be generated and will

summarize historical information, field activities, local geology and hydrogeology, and analytical results. Figures, tables, and field logs will be included as part of the report.

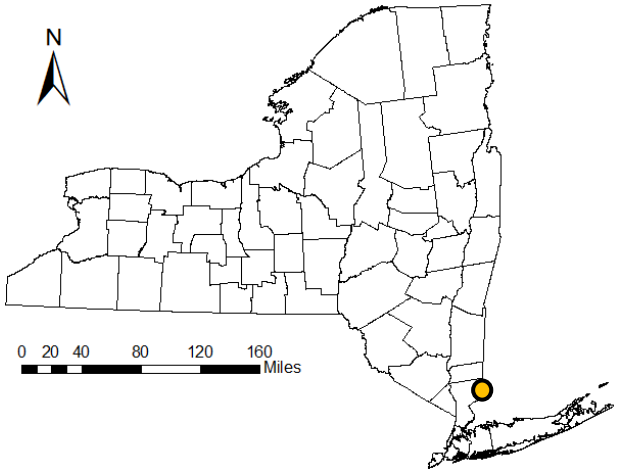
4.0 References

ASTM standard D5092, Design and Installation of Ground Water Monitoring Wells.

NYSDEC. 2021. Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS). https://www.dec.ny.gov/docs/remediation_hudson_pdf/pfassampanaly.pdf

NYSDEC. 2006. 6 NYCRR Part 375, Environmental Remediation Programs, Subparts 375-1 to 375-4 & 375-6. https://www.dec.ny.gov/docs/remediation_hudson_pdf/part375.pdf

USEPA. 2018. Design and Installation of Monitoring Wells. https://www.epa.gov/sites/default/files/2016-01/documents/design_and_installation_of_monitoring_wells.pdf



Legend

Meadow Pond Elementary

Meadow Pond School
#2100460

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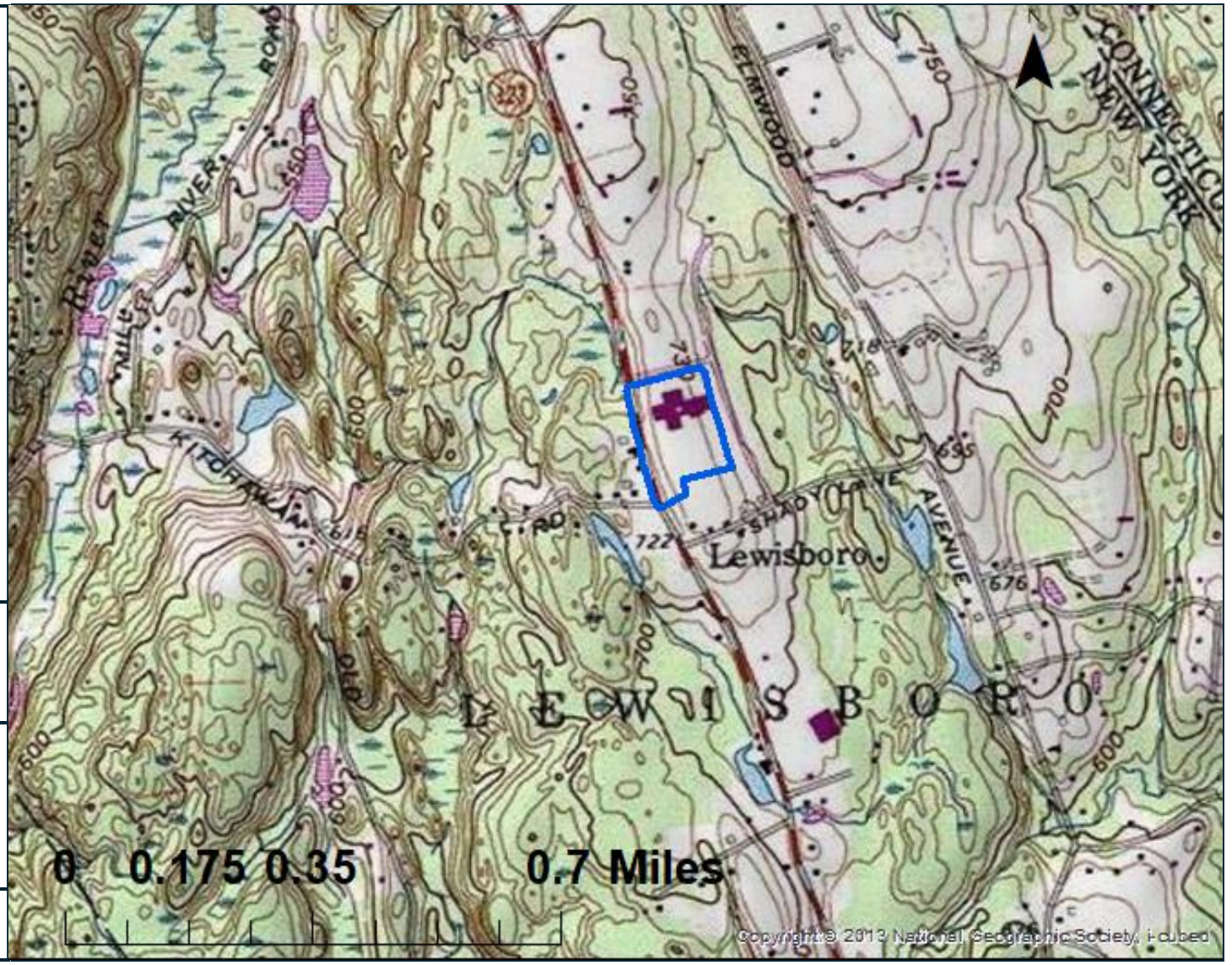
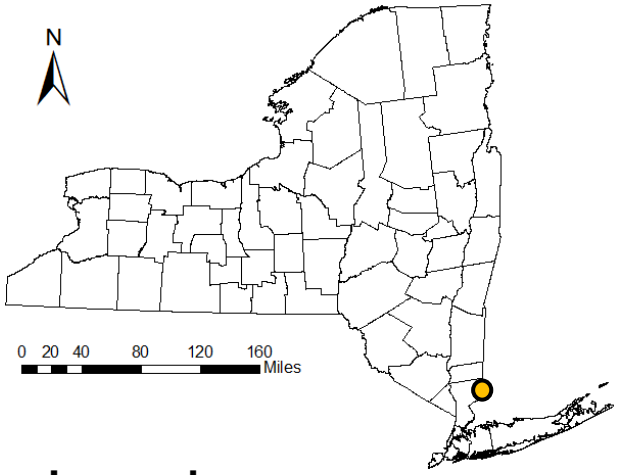
Figure 1





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NYS Streets and Highways

Meadow Pond Elementary

Meadow Pond School
#2100460

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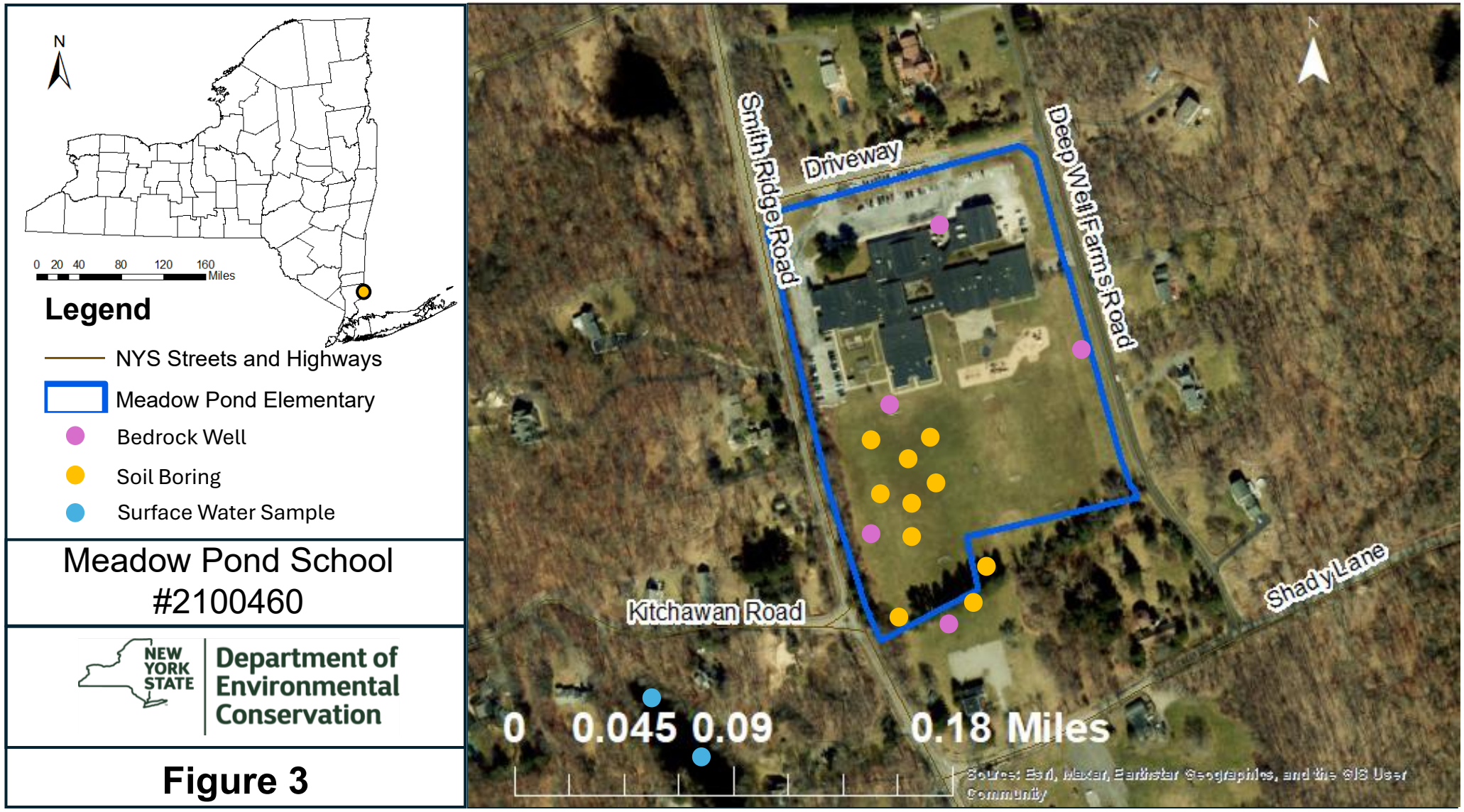
Figure 2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Miles
Legend
NYS Streets and Highways
Meadow Pond Elementary
Bedrock Well
Soil Boring
Surface Water Sample
Meadow Pond School
#2100460
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Figure 3
Smith Ridge Road
Driveway
Deep Well Farms Road
Kitchawan Road
Shady Lane
0 0.045 0.09 0.18 Miles
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community