

February 27, 2025

Chris Rutishauser, P.E., CPWM
Director of Public Works/Village Engineer
Village of Ridgewood
131 North Maple Avenue
Ridgewood, New Jersey 07450

**Re: IMPORTED BERM MATERIAL EVALUATION – GRID SOIL REMEDIAL INVESTIGATION
VILLAGE OF RIDGEWOOD HISTORIC SITE – SCHEDLER PROPERTY
460 WEST SADDLE RIVER ROAD
VILLAGE OF RIDGEWOOD, BERGEN COUNTY, NEW JERSEY 07450
NJDEP CASE NO. 24-05-28-1117-27
PI No. 1062723
MATRIX NO. 23-1429**

Dear Mr. Rutishauser:

Matrix New World Engineering, Land Surveying, and Landscape Architecture, PC (Matrix) has prepared this letter report detailing the recent soil sampling activities at the above referenced site located at 460 West Saddle River Road, Village of Ridgewood (Ridgewood), New Jersey (Site). The summarized work below was conducted as part of a remedial investigation (RI) focusing on the impacted soil samples identified during the June 2024 soil sampling event. This sampling was associated with the grid samples collected from the areas of the property outside of the constructed soil berm. The RI was conducted in general accordance with NJDEP's *Technical Requirements for Site Remediation (TRSR)* N.J.A.C. 7:26E, NJDEP's *Field Sampling Procedures Manual (FSPM)*, and any other applicable NJDEP Guidance Documents.

BACKGROUND

Ridgewood received correspondence from the NJDEP Bureau of Solid Waste Compliance & Enforcement (BSWCE) on December 11, 2023, questioning the sources and quality of the fill material that were imported to the Site to create the berm (**Appendix A**). Based on this correspondence from the NJDEP, it appears that approximately 10,000 cubic yards of fill material were imported to the Site to create the soil berm, as well as possibly filling other low areas of the Site. Subsequently, Ridgewood retained Matrix to complete a review of the data associated with the fill material and respond to the NJDEP BSWCE with a Sampling and Analysis Plan (SAP). On April 2, 2024 Matrix submitted a SAP to the NJDEP BSWCE detailing the scope of work for the sampling of the berm and filled in areas, which

was conditionally approved by NJDEP BSWCE on April 3, 2024. The conditional approval was based on the BSWCE's request for additional sampling among the balance of the Site, outside of the constructed soil berm.

On May 3, 2024 Matrix performed a soil investigation on the Berm portion of the Site (AOC-1). A total of 14 soil samples (SB-1 through SB-14) were collected throughout the berm for laboratory analysis and were analyzed for Target Compound List (TCL) Semi-volatile Organic Compounds (SVOCs) and Target Analyte List (TAL) Metals. Soil samples SB-1, SB-3 through SB-5, SB-7, SB-8, SB-10 through SB-12, and SB-14 were additionally analyzed for TCL Pesticides and polychlorinated biphenyls (PCBs). Several sample locations were identified with concentrations of benzo(a)anthracene, lead, and mercury exceeding the NJDEP's Migration to Groundwater Soil Remediation Standard (MGWSRS). Additionally, concentrations of benzo(a)pyrene were detected exceeding the NJDEP's Residential Ingestion-Dermal Soil Remediation Standard (RIDSRS) in several samples. Due to the RIDSRS exceedance of benzo(a)pyrene, as well as the MGWSRS exceedances of benzo(a)anthracene, lead, and mercury, identified in the soils associated with the imported material, Matrix notified the NJDEP via the NJDEP's Spill Hotline on May 28, 2024. NJDEP Contaminated Site Remediation and Redevelopment (CSRR) program assigned Case No. 24-05-28-1117-27 and Program Interest No. 1062723 to the Site. Subsequently, Matrix submitted a Confirmed Discharge Notification (CDN) form on June 10, 2024 and on July 12, 2024 Chris Pittarese of Matrix was retained as the Licensed Site Remediation Professional (LSRP) for the Site. In accordance with the NJDEP's *Alternative Remediation Standards Technical Guidance for Soil and Soil Leachate for the Migration to Groundwater Exposure Pathway* (May 2021) guidance document, a Synthetic Participation Leaching Procedure (SPLP) was performed for benzo(a)anthracene, lead, and mercury and a Site-Specific Alternative Remediation Standards (ARS) for each were calculated utilizing the SPLP results. Concentrations of benzo(a)anthracene, lead, and mercury detected in the fill material were below their respective Site-Specific ARS.

On June 18, 2024 Matrix submitted correspondence to the NJDEP BSWCE detailing the scope of work for the grid sampling of the filled in areas among the balance of the site, which was conditionally approved by NJDEP BSWCE on June 20, 2024. The conditional approval letter is included in **Appendix B**. The conditional approval was based on BSWCE's request for additional sampling among the balance of the Site, within established grid patterns in areas of suspected contamination based on field and aerial observations.

On June 26 and June 27, 2024 Matrix performed a soil investigation on the balance of the Site (AOC-2). A total of 28 grid soil samples (GRID-1 through GRID-28) were collected and submitted for laboratory

analysis. All grid soil borings were advanced within the limits of the pre-determined sampling grid at locations requested by the NJDEP's representative where imported fill was observed to be present. Soil Samples GRID-1 through GRID-28 were analyzed for TCL SVOCs, TCL Pesticides, PCBs, TAL Metals, and Hexavalent Chromium. Soil samples with photoionization detector (PID) (MiniRae parts per million [ppm] meter) readings greater than or equal to 10 parts per million (ppm) above ambient background (GRID-11 and GRID-21) were additionally analyzed for TCL volatile organic compounds (VOCs). An additional soil sample (SB-12R) was collected at 3.0-3.5 feet bgs in the former location of SB-12 within the berm and analyzed for VOCs. The soil boring investigation identified the SVOC compound benzo(a)pyrene in six soil samples (GRID-4, GRID-11, GRID-16, GRID-21, GRID-26, GRID-28) at concentrations exceeding the NJDEP's RIDSRS and in two soil samples (GRID-18 and GRID-20) at concentrations exceeding both the NJDEP's RIDSRS and NRIDSRS. The soil investigation identified the SVOC compound benzo(a)anthracene in two soil samples (GRID-18 and GRID-20) at concentrations exceeding the NJDEP's MGWSRS and Site-Specific ARS. The soil investigation identified the metal compound mercury in one soil sample (GRID-10A) at a concentration exceeding the NJDEP's MGWSRS and Site-Specific ARS.

On November 7, 2024 Matrix submitted a Sampling Workplan to the NJDEP BSWCE detailing the scope of work for the grid delineation sampling of the previously collected grid samples, which was conditionally approved by NJDEP on November 8, 2024. The conditional approval was based on NJDEP BSWCE's request for additional sampling among the balance of the Site to delineate the identified compounds exceeding the SRS, the characterization of eight additional samples where fill material was observed, and the resampling of pesticides from the nine locations. The Sampling Workplan and Signed Conditional Approval are included as **Appendix C and D**.

GRID DELINEATION SAMPLING

The following section presents a technical overview of remedial investigation activities performed by Matrix at the Site on November 21, 22 and 26, 2024. Soil samples were collected in general accordance with NJDEP's Technical Requirements for Site Remediation (TRSR) N.J.A.C. 7:26E, NJDEP's Field Sampling Procedures Manual (FSPM), Soil Site Investigation/Remedial Investigation/Remedial Action Technical Guidance Document (March 2015), and any other applicable NJDEP Guidance Documents. The objective of this investigation was to perform delineation sampling of the exceedances identified from the site investigation grid sampling on the balance of the Site, outside of the constructed soil berm.

All soil samples were submitted to an NJDEP certified laboratory, SGS Laboratories of Dayton, New Jersey (#12129) within the prescribed field holding times and were received intact, and properly

preserved, with the exception of five soil samples from the GRID-20 delineation area. Matrix submitted all laboratory data to a third-party independent data validator, Nankowep Environmental Consulting (Nankowep) to review holding times, confirm that each analysis method met quality control requirements, and method blanks met method specific requirements.

The applicable remediation standards for soil at this Site are the NJDEP's May 2021 Migration to Groundwater Exposure Pathway Soil Remediation Standards (MGWSRS), Non-Residential Ingestion-Dermal Exposure Pathway Soil Remediation Standards (NRIDSRS), Non-Residential Inhalation Exposure Pathway Soil Remediation Standards (NRISRS), Residential Ingestion-Dermal Exposure Pathway Soil Remediation Standards (RIDSRS), and the Residential Inhalation Exposure Pathway Soil Remediation Standards (RISRS). As mentioned above, a Site-Specific ARS for the MGWSRS was calculated for benzo(a)anthracene, lead, and mercury.

Matrix retained Environmental Probing, Inc. (EPI) from Cream Ridge, New Jersey, to conduct 77 soil borings around the nine locations identified with exceedances in June 2024. This work was carried out using Geoprobe® direct push technology on November 21, 22, and 26, 2024 and in compliance with N.J.A.C. 7:26E(4.2). A Matrix representative provided full-time oversight of drilling activities. In addition, a representative from the NJDEP BSWCE, Tom Farrell, was present during the soil sampling. Each of the nine original grid sample locations identified with exceedances were further investigated with two rings of horizontal delineation borings equally spaced to approximately 7.5 feet in the north, south, east, and west directions; therefore, creating the first ring with a 7.5 foot radius and the second ring with a 15 foot radius from the original sampling location. In instances that fill material with visually observed solid waste was encountered after measuring 7.5 feet, the boring locations were extended outwards until solid waste was not observed. Samples were not collected within fill material from the first ring where solid waste was visually observed, as BSWCE will require excavation of that material regardless of any analytical data. The objective of moving the first ring beyond 7.5 feet was to ensure the first ring did not encompass solid waste and samples were collected from non-solid waste material, thus properly delineating the extent of solid waste material. The step outs were completed in the cardinal directions (north, south, east, and west) identified as N, S, E, and W in the sample nomenclature. Horizontal delineation samples were collected from the original sample interval of 1 to 1.5 feet below ground surface (bgs). Additionally, the original grid samples (collected from 1 to 1.5 bgs) were vertically delineated with two sampling intervals: the first sample collected one foot deeper (2 to 2.5 feet bgs) than the original sample interval and a second sample collected 1.5 feet (2.5 to 3 feet bgs) deeper than the original sample interval. All soil borings were advanced to a depth of 4 feet below ground surface (BGS) with five-foot sampling cores using dedicated acetate sleeves with a Geoprobe. The soil was visually inspected for any

potential visual or olfactory impacts, screened with a PID for organic vapors and logged for material content and lithology.

Based on the approved NJDEP BSWCE SAP, a total of 86 delineation soil samples, surrounding the June 2024 grid sample locations identified with exceedances (GRID-4, GRID-10A, GRID-11, GRID-16, GRID-18, GRID-20, GRID-21, GRID-26, and GRID-28), were collected and submitted for laboratory analysis or extracted and held as a contingency sample. Each delineation sample was analyzed for the compound of concern that was detected exceeding the NJDEP's SRS. Delineation soil samples surrounding GRID-4, GRID-11, GRID-16, GRID-21, GRID-26, and GRID-28 were analyzed for benzo(a)pyrene. Delineation soil samples surrounding GRID-18 and GRID-20 were analyzed for benzo(a)pyrene and benzo(a)anthracene. Delineation soil samples surrounding GRID-10A were analyzed for mercury and benzo(a)pyrene. Per the NJDEP's request, for any delineation sample that displayed a visually inconsistent appearance to the fill material that has already been characterized (i.e., a different kind of fill material is identified), the analysis of that sample location was to be expanded to analyze the Target Compound List/Target Analyte List (TCL/TAL) plus a forward library search (+30) suite. All delineation samples were collected within native soils and did not indicate a visually inconsistent appearance to the fill material that had already been characterized, so no sample locations were expanded to analyze TCL/TAL+30. Quality Assurance/Quality Control (QA/QC) samples included three field blanks and five duplicate samples. The field blank samples FB-1, FB-2, and FB-3 were analyzed for TCL/TAL+30. Duplicate samples, DUP-1, DUP-2, and DUP-3, were analyzed for benzo(a)pyrene, DUP-4 was analyzed for benzo(a)pyrene and benzo(a)anthracene, and DUP-5 was analyzed for mercury and benzo(a)pyrene.

There were no observations of elevated PID readings, odor, staining, or sheen throughout the soil column in any of the delineation sample locations. The native soil encountered throughout the Site predominantly consisted of a brown sandy silt. A sample summary table is included as **Table 1**. The soil sample analytical results are summarized below and are included on **Table 2**. The soil boring delineation sample locations are shown on **Figure 2** with analytical results displayed on **Figure 2A through 2I**. Soil boring logs are provided in **Appendix E**.

The Nankoweep data validation report is included as **Appendix F**. Additional information regarding the reliability of the laboratory analytical data can be found in the Case Narrative/Conformance Summary section of the laboratory analytical reports for soil included in **Appendix G**.

GRID-4

The contaminant of concern (COC) at this grid location was benzo(a)pyrene. Based on analytical results for the GRID-4 delineation area, vertical delineation sample GRID-4(2.0-2.5) exhibited concentrations of benzo(a)pyrene below all applicable NJDEP SRS. The horizontal delineation step outs were collected approximately 7.5 feet from the original GRID-4 location within the first ring and ranged from 15 to 20 feet from GRID-4 within the second ring. The corresponding delineation samples (GRID-4-N1, GRID-4-S1, GRID-4-E1, GRID-4-W1) were collected and analyzed for benzo(a)pyrene. All four horizontal delineation samples did not exhibit concentrations for benzo(a)pyrene above applicable NJDEP SRS within the first delineation ring; therefore, the second group of step out samples were not activated. Based on the analytical results, the vertical and horizontal delineation of GRID-4 is complete.

GRID-10A

The COC at this grid location was mercury. Given the presence of benzo(a)pyrene at other grid locations, the NJDEP BSWEC requested that delineation samples from GRID-10A also be analyzed for benzo(a)pyrene. Based on analytical results for the GRID-10A delineation area, vertical delineation sample GRID-10A(2.0-2.5) exhibited concentrations of mercury and benzo(a)pyrene below their applicable NJDEP SRS. The horizontal delineation step outs were collected approximately 7.5 to 10.5 feet from the original GRID-10A location within the first ring and ranged from 15 to 18 feet from GRID-10A within the second ring. Both northern delineation samples, GRID-10A-N1 and GRID-10A-N2, exhibited concentrations (0.939 mg/kg and 0.822 mg/kg, respectively) of benzo(a)pyrene exceeding the NJDEP RIDSRS. Both southern delineation samples, GRID-10A-S1 and GRID-10A-S2, exhibited concentrations (0.31 mg/kg and 0.98 mg/kg, respectively) of mercury exceeding the ARS-MGWSRS. Both GRID-10A-E1 and GRID-10A-W1 exhibited concentrations of benzo(a)pyrene and mercury below the applicable NJDEP SRS. Further investigation is recommended in the northern direction at GRID-10A to identify the extent of the benzo(a)pyrene exceedances and in the southern direction to identify the extent of mercury exceedances.

GRID-11

The COC at this grid location was benzo(a)pyrene. Based on analytical results for the GRID-11 delineation area, vertical delineation sample GRID-11(2.0-2.5) exhibited a concentration of benzo(a)pyrene (0.804 mg/kg) exceeding the NJDEP RIDSRS; its corresponding deeper delineation sample GRID-11(2.5-3.0) results did not exceed its applicable NJDEP SRS. The horizontal delineation step outs were collected approximately 7.5 feet from the original GRID-11 location within the first ring and ranged from 15 to 25 feet from GRID-11 within the second ring. The horizontal delineation sample GRID-11-N1 exhibited a concentration (0.89 mg/kg) exceeding the NJDEP RIDSRS; the second step out sample, GRID-11-N2, exhibited a concentration of benzo(a)pyrene below its applicable NJDEP SRS.

Both southern delineation samples GRID-11-S1 and GRID-11-S2 exhibited concentrations (0.561 mg/kg and 1.03 mg/kg, respectively) exceeding the NJDEP RIDSRs. Both delineation samples GRID-11-E1 and GRID-11-W1 exhibited concentrations of benzo(a)pyrene below its applicable NJDEP SRS. Further investigation is recommended in the southern direction at GRID-11 to identify the extent of the benzo(a)pyrene exceedances.

GRID-16

The COC at this grid location was benzo(a)pyrene. Based on analytical results for the GRID-16 delineation area, vertical delineation sample GRID-16(2.0-2.5) did not exhibit concentrations for benzo(a)pyrene above applicable NJDEP SRS. The horizontal delineation step outs were collected approximately 7.5 feet from the original GRID-16 location within the first ring and approximately 15 feet from GRID-16 within the second ring. The four horizontal delineation samples within the first delineation ring (GRID-16-N1, GRID-16-S1, GRID-16-E1, GRID-16-W1) did not detect benzo(a)pyrene; therefore, the second group of step out samples were not activated. Based on the analytical results, the vertical and horizontal delineation of GRID-16 is complete.

GRID-18

The COCs at this grid location were benzo(a)pyrene and benzo(a)anthracene. Based on analytical results for the GRID-18 delineation area, vertical delineation sample GRID-18(2.0-2.5) did not exhibit concentrations for benzo(a)pyrene or benzo(a)anthracene above applicable NJDEP SRS. The horizontal delineation step outs were collected approximately 7.5 feet from the original GRID-18 location within the first ring and approximately 15 to 36 feet from GRID-18 within the second ring. The four horizontal delineation samples within the first delineation ring (GRID-18-N1, GRID-18-S1, GRID-18-E1, GRID-18-W1) did not exhibit concentrations of benzo(a)pyrene or benzo(a)anthracene above applicable NJDEP SRS; therefore, the second group of step out samples were not activated. Based on the analytical results, the vertical and horizontal delineation of GRID-18 is complete.

GRID-20

The COCs at this grid location were benzo(a)pyrene and benzo(a)anthracene. Based on analytical results for the GRID-20 delineation area, vertical delineation sample GRID-20(2.0-2.5) exhibited a concentration (2.82 mg/kg) of benzo(a)pyrene exceeding the NJDEP NRIDSRS and a concentration (2.52 mg/kg) of benzo(a)anthracene exceeding the NJDEP ARS-MGWSRS; its corresponding deeper delineation sample GRID-20(2.5-3.0) identified a concentration (2.63 mg/kg) exceeding the NJDEP NRIDSRS for benzo(a)pyrene. The sample collected from 2.5 to 3.0 feet bgs was not released for the contingent benzo(a)anthracene analysis. The horizontal delineation step outs were collected approximately 7.5

10.5 feet from the original GRID-20 location within the first ring and ranged from 15 to 18 feet from GRID-20 within the second ring.

All delineation samples within the first step out ring, GRID-20-N1, GRID-20-S1, GRID-20-E1, and GRID-20-W1, exhibited concentrations (9.26 mg/kg, 6.22 mg/kg, 2.5 mg/kg, and 7.52 mg/kg, respectively) of benzo(a)pyrene exceeding both the NJDEP RIDSRS and the NRIDSRS. The corresponding further step out delineation samples GRID-20-N2, GRID-20-S2, GRID-20-E2, and GRID-20-W2 exhibited concentrations (1.52 mg/kg, 0.868 mg/kg, 1.73 mg/kg, and 0.817 mg/kg, respectively) of benzo(a)pyrene exceeding the NJDEP RIDSRS. Samples GRID-20-N1, GRID-20-S1, and GRID-20-W1 exhibited concentrations (7.65 mg/kg, 5.44 mg/kg, and 6.74 mg/kg, respectively) of benzo(a)anthracene exceeding the NJDEP RIDSRS and sample GRID-20-E1 exhibited a concentration (2.35 mg/kg) of benzo(a)anthracene exceeding the ARS-MGWSRS. The corresponding second ring step out delineation samples GRID-20-N2, GRID-20-S2, and GRID-20-W2 exhibited concentrations of benzo(a)anthracene below all applicable NJDEP SRS. Sample GRID-20-E2 was not released for the contingent benzo(a)anthracene analysis.

Due to a discrepancy at the laboratory regarding the method hold times for the second vertical delineation sample and the second ring of step-out samples, these samples were analyzed outside of the required hold times and will not be used to determine clean boundaries of contamination in GRID-20. Based on the exceedances of benzo(a)pyrene identified both vertically and in all cardinal directions, this grid is expected to be delineated using clean samples from adjacent grid locations. Further investigation is recommended to identify the vertical extent of benzo(a)pyrene and benzo(a)anthracene exceedances.

GRID-21

The COC at this grid location was benzo(a)pyrene. Based on analytical results for the GRID-21 delineation area, vertical delineation sample GRID-21(2.0-2.5) exhibited concentrations of benzo(a)pyrene below all applicable NJDEP SRS. The horizontal delineation step outs to the north and east were collected approximately 7.5 to 17 feet from the original GRID-21 location within the first ring and ranged from 15 to 45 feet from GRID-21 within the second ring. During the collection of the delineation samples, it was determined that the proposed delineation sample locations (GRID-21-S1, GRID-21-S2, GRID-21-W1, and GRID-21-W2) were located within fill material which extended into the soil berm. As a result, samples were not collected at these locations. Given the planned remediation of the soil berm, which includes excavation and off-site disposal, the southern and western boundaries of GRID-21 are expected to be excavated along with the soil berm. Both northern delineation samples GRID-21-N1 and GRID-21-N2 exhibited concentrations (0.586 mg/kg and 1.06 mg/kg, respectively) of

benzo(a)pyrene exceeding the NJDEP RIDSRS. GRID-21-E1 exhibited a concentration of benzo(a)pyrene below its applicable NJDEP SRS. Further investigation is recommended in the northern direction at GRID-21 to identify the extent of the benzo(a)pyrene exceedances.

GRID-26

The COC at this grid location is benzo(a)pyrene. Based on analytical results for the GRID-26 delineation area, vertical delineation sample GRID-26(2.0-2.5) did not exhibit concentrations for benzo(a)pyrene above applicable NJDEP SRS. The horizontal delineation step outs were collected approximately 7.5 feet from the original GRID-26 location within the first ring and approximately 15 feet from GRID-26 within the second ring. The four horizontal delineation samples (GRID-26-N1, GRID-26-S1, GRID-26-E1, GRID-26-W1) from the first ring did not detect concentrations of benzo(a)pyrene; therefore, the second group of step out samples were not activated. Based on the analytical results, the vertical and horizontal delineation of GRID-26 is complete.

GRID-28

The COC at this grid location is benzo(a)pyrene. Based on analytical results for the GRID-28 delineation area, vertical delineation sample GRID-28(2.0-2.5) exhibited a concentration (0.772 mg/kg) of benzo(a)pyrene exceeding the NJDEP RIDSRS; its corresponding deeper delineation sample GRID-28(2.5-3.0) also exhibited a concentration (1.36 mg/kg) of benzo(a)pyrene exceeding the NJDEP RIDSRS. The horizontal delineation step outs were collected approximately 7.5 to 60 feet from the original GRID-28 location within the first ring and ranged from 15 to 72 feet from GRID-28 within the second ring. During the collection of the delineation samples, it was determined that horizontal delineation sample locations GRID-28-S1, GRID-28-S2, GRID-28-W1, and GRID-28-W2 were located within fill material which extended into the soil berm and were not analyzed. Given the planned remediation of the soil berm, which includes excavation and off-site disposal, the southern and western boundaries of GRID-28 are expected to be excavated along with the soil berm. Delineation samples, GRID-28-N1 and GRID-28-E1 did not detect concentrations of benzo(a)pyrene. Further investigation is recommended at GRID-28 to identify the vertical extent of the benzo(a)pyrene exceedances.

PESTICIDE QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) SAMPLING

Samples collected as part of the June 2024 grid site investigation indicated a laboratory QA/QC discrepancy involving the Matrix Spike analysis on six pesticide compounds. Based on the NJDEPs BSWCE's November 2024 conditional approval, resampling for pesticides from the nine locations included in the RI delineation (GRID-4, GRID-10A, GRID-11, GRID-16, GRID-18, GRID-20, GRID-21, GRID-26, and GRID-28) was requested as a QA/QC check. A total of nine soil samples, GRID-4R, GRID-

10R, GRID-11R, GRID-16R, GRID-18R, GRID-20R, GRID-21R, GRID-26R, and GRID-28R, were collected and analyzed TCL Pesticides with Matrix Spike. All pesticide samples were collected at the same depths as the June 2024 samples, approximately 1.0 to 1.5 feet bgs. Laboratory analytical results indicated that one pesticide analyte, heptachlor epoxide, was identified in sample GRID-4R at a concentration (0.0799 mg/kg) exceeding the NJDEP's RIDSRS of 0.076 mg/kg. The presence of this pesticide may be linked to the maintained lawn of the residential structure on-site, as GRID-4R is located adjacent to it. The corresponding deeper sample collected from GRID 4 collected at 2.0 to 2.5 feet bgs was run for pesticides. Based on the analytical results, heptachlor epoxide was not detected exceeding any of the NJDEP SRS. The remaining samples collected to further assess pesticides (GRID-10R, GRID-11R, GRID-16R, GRID-18R, GRID-20R, GRID-21R, GRID-26R, GRID-28R) results did not exhibit concentrations of pesticides above applicable NJDEP SRS. The third-party data validation results for the pesticide samples showed that the matrix spike analyses were out of range, making it difficult to determine a clear direction or level of bias. Further investigation is necessary at GRID-4R to identify the horizontal extent of the heptachlor epoxide exceedance. The samples are included on the summary table, **Table 1**. The soil sample analytical results are summarized below and are illustrated on **Table 3**. Soil sample locations and analytical results are shown on **Figure 3** and **Table 3**. The soil boring logs are provided in **Appendix E**.

ADDITIONAL FILL MATERIAL CHARACTERIZATION SAMPLING

To further characterize the grids that were identified with impacted material, eight additional soil borings were advanced by EPI throughout the balance of the Site. The additional characterization soil borings were advanced within areas of uncharacterized, visually observed fill based on field observations by a representative from the NJDEP's BSWCE and Matrix. All soil borings were advanced to a depth of 4 feet bgs, with five-foot sampling cores using dedicated acetate sleeves with a Geoprobe. The soil was inspected for any potential visual or olfactory impacts, screened with a PID for organic vapors, and logged for material content and lithology. All additional characterization soil samples were collected at a depth of approximately 1.0 to 1.5 feet bgs, as field screening/observations indicated that interval was the bottom six inches of the imported fill material. There were no observations of elevated PID readings, odor, staining, or sheen throughout the soil column in any of the sample locations. Based on the approved NJDEP sampling workplan, eight soil samples (GRID-29 through GRID-36), were collected and submitted for TCL/TAL+30.

The samples are included on the summary table, **Table 1**. Soil boring locations and analytical results are shown on **Figure 4** and included in **Table 4**. Soil boring logs are provided in **Appendix E**.

Based on the analytical results, the additional characterization soil samples, GRID-29, GRID-30, GRID-32, GRID-33, GRID-35, and GRID-36, did not exhibit concentrations above applicable NJDEP SRS for VOCs, SVOCs, Pesticides, PCBs, and Metals. Soil samples, GRID-31 and GRID-34 exhibited concentrations (0.902 mg/kg and 1.06 mg/kg, respectively) of benzo(a)pyrene exceeding the NJDEP RIDSRS. GRID-31 and GRID-34 did not exhibit concentrations above applicable NJDEP SRS for any other compounds. Further investigation is recommended for the benzo(a)pyrene exceedances identified in the soil samples GRID-31 and GRID-34.

GRID SOIL/REMEDIAL INVESTIGATION – Additional VOC Sampling

To further understand potential VOC presence within the imported fill material and maintain compliance with applicable NJDEP CSRR requirements, additional VOC samples were collected and analyzed at sample locations that were originally sampled during the June 2024 grid site investigation. On November 26, 2024 seven soil borings were advanced at former sample locations GRID-1, GRID-2, GRID-5, GRID-6, GRID-17, GRID-19, and GRID-25. These locations were selected based on the already acquired VOC data from the June 2024 sampling event to ensure that VOC analysis was collected throughout the entire Site. All soil borings were advanced with a Geoprobe to a depth of 4 feet bgs with five-foot sampling cores using dedicated acetate sleeves. The soil was inspected for any potential visual or olfactory impacts, screened with a PID for organic vapors, and logged for material content and lithology. All additional characterization soil samples were collected at depths of approximately 1.0 to 1.5 feet bgs. There were no observations of elevated PID readings, odor, staining, or sheen throughout the soil column in any of the sample locations. Seven samples were collected and submitted for TCL VOC+15 laboratory analysis.

The samples are included on the summary table, **Table 1**. Soil boring locations and analytical results are shown on **Figure 5** and **Table 5**. Along with the recently collected VOC samples, the previous sample locations and analytical results from the June 2024 site investigation are also included in **Table 5**. Soil boring logs are provided in **Appendix E**.

Based on the analytical results, the additional VOC characterization soil samples (GRID-1, GRID-2, GRID-5, GRID-6, GRID-17, GRID-19, and GRID-25) did not exhibit concentrations above applicable NJDEP SRS.

CONCLUSIONS

Based on the results of the RI sampling completed at the Site in November 2024, the boundaries of the delineation at grid locations GRID-16, GRID-18, and GRID-26 have been identified. Matrix recommends

excavation and offsite disposal to the extents identified in the RI. In an effort to minimize the volume of soil that will need to be removed from the site to satisfy BSWCE, Matrix recommends further investigation for grids: GRID-10A, GRID-11, GRID-20, GRID-21, and GRID-28 associated with the benzo(a)pyrene, benzo(a)anthracene, and/or mercury exceedances. In addition, Matrix recommends further investigation at sample location GRID-4R associated with the pesticide exceedance and GRID-31 and GRID-34 for the benzo(a)pyrene exceedance of the RIDSRS.

Based on the NJDEP's *Groundwater Technical Guidance: Site Investigation, Remedial, and Remedial Action Performance Monitoring*, the results of the soil sampling completed as part of this RI do not trigger a groundwater investigation. Matrix will coordinate with the Village of Ridgewood and the NJDEP to prepare a scope of work to continue to investigate soil contamination at the Site with the goal of developing a Remedial Action plan.

If you have any questions or require any additional information, do not hesitate to contact us at (973) 240-1800.

Sincerely,



Melissa Feury
Project Manager



Chris Pittarese, LSRP
Senior Project Manager

Enclosed:

- Figure 1 – Site Location Map
- Figure 2 – Grid Delineation Sample Locations and Soil Analytical Results
- Figure 2A – GRID-4 Delineation Sampling Analytical Results
- Figure 2B – GRID-10A Delineation Sampling Analytical Results
- Figure 2C – GRID-11 Delineation Sampling Analytical Results
- Figure 2D – GRID-16 Delineation Sampling Analytical Results
- Figure 2E – GRID-18 Delineation Sampling Analytical Results
- Figure 2F – GRID-20 Delineation Sampling Analytical Results
- Figure 2G – GRID-21 Delineation Sampling Analytical Results
- Figure 2H – GRID-26 Delineation Sampling Analytical Results
- Figure-2I – GRID-28 Delineation Sampling Analytical Results
- Figure 3 – Pesticide QA/QC Sample Locations and Soil Analytical Results
- Figure 4 – Additional Fill Characterization Sample Locations and Soil Analytical Results
- Figure 5 – Additional VOC Sample Locations and Soil Analytical Results
- Table 1 – Sample Summary Table
- Table 2 – Grid Delineation Sampling Soil Analytical Results Table
- Table 3 – Pesticide QA/QC Sampling Soil Analytical Results Table
- Table 4 – Additional Fill Material Characterization Sampling Soil Analytical Results Table
- Table 5 – Additional VOC Sampling Soil Analytical Results Table

- Appendix A – NJDEP December 11, 2023 Correspondence
- Appendix B – NJDEP Signed Conditional Sampling Plan Approval June 20, 2024
- Appendix C – Sampling Workplan
- Appendix D – NJDEP Signed Conditional Sampling Plan Approval November 8, 2024
- Appendix E – Soil Boring Logs
- Appendix F – Nankowep Data Validation Reports
- Appendix G – SGS Laboratory Reports