

SAMPLING AND ANALYSIS PLAN

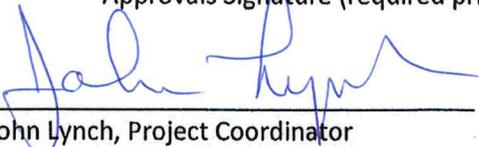
**366-394 WILSON AVENUE
NEWARK, NJ
GENERAL FACILITY TRACKING IDENTIFICATION # NJN986663052
BLOCK 5038, Lot 97
Docket No. CERCLA-02-2022-2012**

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Salomone Brothers, Inc.

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1.0 INTRODUCTION

Envocare Environmental & Facility Management (ENVO CARE) has prepared this Sampling and Analysis Plan (SAP) on behalf of Salomone Brothers Inc. (SBI) and 366-394 Wilson Ave, L.L.C. for the property located at 366-394 Wilson Avenue, Newark, New Jersey (the Site). This SAP should be implemented during all future construction operations conducted at the Property. This SAP outlines all requirements and procedures for the characterization of on-site stockpiled soil materials including the sampling and laboratory analyses of these materials and post-removal sampling.

1.1 PURPOSE

The purpose of the SAP is to outline procedures for collection of soil samples to characterize soil before and after offsite disposal of onsite soil stockpiles. To meet the United States Environmental Protection Agency (USEPA) sampling requirements for site remediation of the stockpiles this SAP also includes the field screening procedure to be followed for collection of soil samples, number of samples to be collected from each soil stockpile (Stockpile A, Stockpile B and Stockpile C) area, number of post-removal sampling to be collected just below and outside the limits of the soil stockpiles, the number of background samples to be collected at the Site and the laboratory analyses to be completed for the various samples that will be collected. The Property and surroundings are shown on a Site Location Map (Figure 1). Figure 2 presents site plans and work area locations.

1.2 PROJECT TEAM

Table 1 – Project Team				
Project Team	Company	Responsibility	Phone Number	Emails
John Lynch	366-394 Wilson Avenue, LLC	Party Coordinator	973 406-2902	jlynch@salomone.com
Devang R Patel	ENVO CARE	Project Manager	732 253-5740	dpatel@envocarenj.com
Bob Sims	Clean Earth	Disposal Coordinator	610 256-4605	bsims@harsco.com
Jordan Hedvat	Chemtech Laboratories	Lab Coordinator	908 728-3144	jordan@chemtech.net
Jeri Rossi	Independent Subcontractor	Third-Party Validator	908 3703-431	richjerirossi513@gmail.com
Pamela Tames	U.S. Environmental Protection Agency	Remedial Project Manager (RPM)	212-637-4255	Tames.Pam@epa.gov
David Rosoff	U.S. Environmental Protection Agency	On-Site Coordinator (OSC)	732-906-6879	Rosoff.David@epa.gov

1.3 PROJECT TASKS AND SCHEDULE

The schedule for planning document preparation, stockpile sampling, post-removal sampling, data review and preparation of final deliverables will conform to the following:

Table 2 Project Schedule					
Activity	Responsible Party	Planned Start Date	Planned Completion Date	Deliverable(s)	Deliverable due date
Stockpile Survey and Volume Stockpile Soil Volume Verification	ENVO CARE	TBD	1-2 days	Meeting Notes	Within 10 days from completion
Stockpile Sampling	ENVO CARE	TBD	2-3 days	Field Notes	Within 10 days from completion
Letter Report Documenting Stockpile Sample Results	ENVO CARE	TBD	2-3 weeks	Report of Analyses/Data Package	Within 10 days from receipt of full data package from the lab (45 days from date of authorization)
Soil Disposal Removal	ENVO CARE	TBD	1-2 weeks	Field Notes	After 60-70 days from date of authorization
Post-removal sampling	ENVO CARE	TBD	2-3 days	Field Notes	Within 10 days from completion and after removal of stockpile
Background Sampling	ENVO CARE	TBD	2-3 days	Field Notes	Within 10 days from completion and after removal of stockpile
Laboratory analysis and reporting	ENVO CARE/ Chemtech	TBD	3-4 weeks	Report of Analyses/Data Package, Project-Specific Summary Table	Within 25 days after any sampling event (90-100 days from date of authorization)
Data Validation	Third Party Data Validator	TBD	3-4 weeks	Letter Report	Within 25 days after receipt of full data package from the laboratory.
Final Removal Action Completion Report	ENVO CARE	TBD	3-4 weeks	Project-Specific Report	Within 30 days after receipt of soil analytical results (120-150 days from date of authorization)

2.0 BACKGROUND INVESTIGATIONS

The Site is presently unoccupied; however, it was most recently a scrap metal recycling facility owned and operated by Globe Metals, Inc. The Site occupies 2.392 acres in an industrial area and is bordered by a railroad to the east, a vegetable oil manufacturer to the north, a chemical company to the west, and a commercial trading and hardware store to the south. The Property and surroundings are shown on a Site Plan Map ([Figure 1](#)). The Site is improved with an abandoned 2-story structure on the western portion of the subject property and a smaller former building on the southwestern portion of the subject property.

2.1 OPERATIONAL HISTORY

The Site was a former scrapyard and smelter under the previous owner. As a part of due diligence activities in connection with a potential purchase of 366-394 Wilson Avenue Property, SBI conducted excavations and culvert installations in areas adjacent to the undefined, unnamed tributary (UT) of Pierson’s Creek.

Stockpile A was generated from the northern portion of the property, while Stockpile B was generated from areas throughout the Property. Stockpile C was generated from the western boundary of the property, as well as a portion of the stream north of the Property.

2.2 PREVIOUS INVESTIGATION

CDM performed groundwater sampling of the Globes Metals Well in the unnamed tributary (UT) in December 2019. Soil and sediment samples collected in the UT between Globe and Troy adjacent to the east side of the UT were collected in August 2019 (D1, D2, D3 sediment and SO-01, SO-02 and SO-03 soil). Refer to [QAPP Appendix B](#) for analytical results.

On September 26, 2019, Salomone Brothers performed their due diligence of the site in a Limited Phase II ESA Site Assessment prior to their drainage activities (drainage activities were completed from September 21, 2019, through September 27, 2019). Activities consisted of advancing four soil borings and soil sampling throughout the property. The initial Phase II investigation in September did not include in-situ soil sampling beneath the main subject building due to accessibility issues caused by flooding, overgrowth, and remnant debris. Refer to [QAPP Appendix C](#) for site activities and findings.

On December 27, 2019, Salomone Brothers conducted their Supplemental Phase II investigation to further investigate the property based on information obtained from CDM sampling from August 2019. Activities at the subject property involved advancement of twelve soil borings and the collection of eleven soil samples from the soil borings and installation of temporary monitoring wells at three of the soil boring locations plus the collection of three groundwater samples from the wells. Sampling of in-situ soils was completed beneath the main subject building. Their results indicated that in-situ soils including soils beneath the main subject building

identified contaminants above the NJDEP Impact to Ground Water Soil Screening Levels (IGWSSL) and Ground Water Quality Standards (GWQS). Refer to [QAPP Appendix D](#) for site activities and findings.

On July 10, 2020, ENVOCARE mobilized to conduct soil sampling on the property. Three total soil samples were collected for waste classification determination and disposal facility-specific parameters. The sampling frequencies were based on the facility requirements; Clean Earth Facility requires one soil sample for every 700 cubic yards.

Test pits dug in the soil stockpiles were investigated with the use of a Photoionization Detector (PID) and a Jerome 431X (Jerome) meter to measure volatile organic compounds (VOCs) and vapor mercury (Hg), respectively. Soil sampling done in the western portion of stockpile A identified VOCs of 7 to 9 parts per million (ppm) in the same area as petroleum impacted soil. All other areas of investigation (stockpiles B and C) found VOCs and Hg at 0.0 ppm and 0 milligram per cubic meter (mg/m³). A soil sample for VOCs was collected from the location with the highest suspected VOC soil contamination (field instrument readings or visual evidence).

The analytical results were evaluated against the NJDEP Residential Direct Contact Soil Remediation Standards and Non-Residential Direct Contact Soil Remediation Standards (RDCSRS and NRDCSRSs), as well as the USEPA Toxicity Characteristic Leaching Procedure (TCLP) regulatory criteria.

The analytical results identified Pesticides (4,4-DDD, Chlordane, cis-Chlordane, Dieldrin, trans-Chlordane), PCBs, Semi Volatile Organics, Metals (arsenic, copper, lead, mercury, nickel, zinc) and 1,4-Dichlorobenzene above the RDCSRS/NRDCSRS standards for one or all the samples. All compounds were reported below the EPA TCLP criteria. Based on the TCLP and Resource Conservation and Recovery Act (RCRA) characteristic analytical results, the stockpile is contaminated but non-hazardous based on chemical characteristics. Refer to [QAPP Appendix E](#) analytical report.

On November 2, 2020, excavated soil was stockpiled into three (3) distinct soil piles during drainage improvement of the property located at both onsite and offsite area. The stockpiled soil was discovered to contain contaminants as well as general overburden soil from the Property.

CDM Smith followed a sampling protocol based on New Jersey's Fill Material Guidance for SRP Sites (2015) during an investigation in November 2020. Representative soil samples were collected from different locations and depth horizons within each stockpile based on the following criteria: one sample collected every 20 cubic yards (CY) for the first 100 CY of material, and one sample collected every 100 CY for the next 1,000 CY of material. A total of 26 soil samples were collected from all 3 stockpiles: 7 samples from stockpile A, 11 samples from stockpile B, and 8 samples from stockpile C. One duplicate sample was collected from stockpile A for quality control.

All samples were analyzed for polychlorinated biphenyls (PCBs), toxicity via Toxicity Characteristic Leaching Procedure (TCLP), reactivity, ignitability, and corrosivity by Katahdin Analytical Services in Scarborough, Maine.

CDM Smith submitted a report to the EPA summarizing the results of November 2020 soil pile sampling, which notes that seven soil samples from stockpile B (northeastern portion of the site, larger of the two piles in this area) detected TCLP lead above the hazardous screening criteria of EPA. The report notes that one soil sample from stockpile C (western portion of the site, near the unnamed tributary) detected TCLP lead above the hazardous screening criteria. The report notes that five soil samples from stockpile A (northeastern portion of the site, smaller of the two piles in this area) detected PCBs in soil at concentrations greater than 50 ppm. Refer to [QAPP Appendix F](#) for analytical report.

2.3 GEOLOGY & HYDROGEOLOGY

Site soil data was obtained from the on-line Web Soil Survey application as reported by the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service. The regional soil type is mapped as Urban Land (UR) Bigapple substratum mostly covered by streets, parking lots, buildings, and other structures of urban areas. The regional subsurface is described as up to 12 inches of material underlain up to 14 inches of gravelly sand. Beneath that is up to 12 inches of loamy sand followed by up to 22 inches of gravelly sandy loam material.

Site lithology generally consists of areas of Urban Land, which are areas with highly disturbed land and impervious cover. Site lithology is assumed to be the same as the regional geology. There may be an area of Rikers loamy sand in the southeastern portion of the property for the first six inches as the Web Soil Survey shows it just outside that corner of the property. The loamy sand is then underlain by gravelly sand.

In addition to fill, other disturbances within and adjacent to the project areas consist of previous cutting and grading associated with parking lot, road, and underground utility construction. Historic fill consisting of brick, ash, asphalt, glass, or other materials may be present at various depth intervals throughout the Property.

3.0 PROJECT DATA QUALITY OBJECTIVES

3.1 PROJECT OBJECTIVES AND PROBLEM DEFINITION/ LAND USE

The Site was a former scrapyard and smelter under the previous owner. SBI performed excavation work on the property in anticipation of purchase of the Site. Soils and sediment containing mercury, lead, and PCBs were excavated and stockpiled onsite (Stockpiles A, B, and C). Refer to [Section 1.1](#) for project objectives.

3.2 DATA QUALITY OBJECTIVES

The data quality objectives (DQOs) are qualitative and quantitative criteria on which project decisions will be made. The two problems requiring the DQOs are 1) the concentrations of hazardous materials in the stockpiled soils to be disposed of offsite and 2) the concentrations of hazardous materials remaining in the soil underneath and around the perimeters of the stockpile locations after the soil stockpiles are disposed of offsite. The hazardous material concentrations remaining in the soil underneath and around the perimeters of the stockpiles will be used to determine if further remedial action is needed. Regardless of new soil sample data collected, soils will be disposed of as contaminated soils based on November 2020 CDM Smith investigation.

The soil stockpiles will be sampled for the number of samples and analytical parameters as described in [Section 4](#). Once the concentrations of hazardous contaminants in the stockpiled soil samples are received, the soil can be divided up into different waste streams, if needed, and decisions as to where the soil can be disposed of offsite can be made. Note that a prior determination will need to be made by the USEPA that the offsite disposal facility(ies) is (are) acceptable under 40 Code of Federal Regulations (CFR) 300.440. If the analytical results meet the disposal criteria for the approved disposal facility for the waste stream, then the stockpiled soil will be transported to that facility. If not, the ENVOCARE project manager, in consultation with the USEPA, will endeavor to determine an alternate disposal facility that can accept the stockpiled soil.

Roll-Offs (If necessary)

If no alternate disposal facility can be found, as per paragraph 35 in the USEPA Administrative Settlement Agreement and Order on Consent (ASAOC), the stockpiled soil will be placed in roll-offs on the site that are prepared in such a way as to prevent rust, damage, spillage and/or leakage from the roll-offs. The roll-offs will need to be inspected every month (and every major storm event) for rust, damage, and/or spillage/leakage. As the generated stockpile has not been disturbed and will not be disturbed until the disposal approval. Currently the stockpiles are placed under tarps. New Jersey Department of Transportation (NJDOT) approved container will be utilized on site for the storage of hazardous material and NJDOT regulation will be applied to transport of roll-offs off site.

Also, the concentrations of hazardous materials in the stockpiled soil will be used to determine the specific analyses for the soil below the stockpiles remaining onsite. If a contaminant concentration in the stockpile samples exceeds the NJDEP action levels, then the soil underneath and near the perimeter of the former stockpile locations will be analyzed for that contaminant. The ENVOCARE project manager, in consultation with USEPA OSC, will be the decision maker as to the soil disposal and post stockpile removal soil sampling analyses.

Soil under and around the stockpiles will be sampled and then compared to EPA Removal Management Levels (RMLs) and NJDEP Remediation Standards, and lastly the background sample results that will be taken from the site. In addition, data will be compared to background site samples collected by ENVOCARE. Finally, USEPA OSC will determine if additional remediation is necessary.

Clean Backfill (If Necessary)

NJDEP guidance (Fill Material Guidance for SRP Sites, Version 4, October 2021) will be applied when a clean backfill material is brought to the project site (if necessary). A virgin quarry mined Certified clean backfill will be used to restore the site. The certified clean backfill will come from a NJDEP approved site. The quarry operator will be responsible for providing a certified clean backfill that is acceptable USEPA OSC. Use of backfill will be determined with the USEPA OSC after all sampling events.

3.3 DATA QUALITY INDICATORS (DQIs) AND MEASUREMENT QUALITY OBJECTIVES (MQOs)

The DQIs and MQOs are specified in laboratory quality assurance project plan (QAPP).

3.4 DATA REVIEW AND VALIDATION

All analytical data for samples collected at the site will be subjected to a Step I validation (A verification and validation based only on completeness and compliance of sample receipt conditions) Step 2A validation compliance (A verification and validation based on completeness and compliance checks of sample receipt conditions and ONLY sample-related QC results) Step 2B validation comparison (A verification and validation based on completeness and compliance checks of sample receipt conditions and BOTH sample-related and instrument-related QC results) and a Step 3 data usability (A verification and validation based on completeness and compliance checks of sample receipt conditions, both sample-related and instrument-related QC results, AND recalculation checks) as described in *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (OSWER 9200.1-85; EPA 540-R_08-005; January 2009). as described in the QAPP.

3.5 DATA MANAGEMENT

Data management for the site will be handled as described in the QAPP.

3.6 ASSESSMENT OVERSIGHT

Assessment oversight will be conducted as described in the QAPP.

3.7 APPLICABILITY OF SOIL REMEDIATION

Applicable soil remediation standards include the EPA Regional Removal Management Levels (RMLs') updated on Nov. 2022; NJDEP Remediation Standards, N.J.A.C. 7:26D, May 17, 2021; and background samples to be implemented for the site. ENVOCARE will follow the stricter standards of the EPA RMLs and NJDEP remediation standards or the background sample results for attainment.

Post-removal soil sampling protocol will also be implemented after approval of stockpiles. The ENVOCARE project manager in consultation with USEPA OSC will be the decision maker regarding determining if sufficient soil removal is completed after review of post-excavation soil sample results. Additional excavation will be necessary, if soil sample results do not meet the EPA RMLs and NJDEP Remediation Standards or the site-specific background sample results. ENVOCARE will also use the site characterization results from the site to establish the background compounds of concern concentrations. The applicability determination will be done in consultation with USEPA OSC.

3.8 DATA REVIEW AND ASSESSMENT

ENVOCARE will prepare a letter report documenting soil sampling procedures implemented at the Project site. The report will also include, sample location map, sample depth, chain-of-custody forms, laboratory data, all data from field instrumentation, visual observations, summary of soil analytical results. The analytical results will classify the waste into one of five categories defined below.

- **Hazardous Contaminated Soil:**
 - Soils containing concentrations that are Hazardous as defined in 40 CFR Part 261, Identification and Listings of Hazardous Waste.
 - Soils containing PCBs at or above 50 parts per million (ppm) are regulated under the Toxic Substance Control Act (TSCA).
- **Non-Hazardous Contaminated Soil (If Applicable):**
 - Soils exhibiting a distinct petroleum odor or containing visible petroleum products.
 - Soils containing petroleum constituents exceeding NJDEP soil cleanup objectives (SCOs).
- **Non-Hazardous PCB Contaminated (If Applicable):**

Soils containing PCBs greater than 1.0 ppm and less than 50.0 ppm (>1.0 ppm and <50 ppm) PCBs (on a dry weight basis) as contaminated but below the TSCA thresholds.

3.9 APPLICABILITY OF REGULATIONS

ENVOCARE reviewed the previous investigation results provided by EPA consultant CDM Smith. Since stockpiles A, B, and C are planned for disposal, the following NJDEP and EPA guidance and regulations will be applied:

- NJDEP Field Sampling Procedure Manual
- NJDEP Technical Guidance for Site Investigation of Soil, Remedial Investigation of Soil, and Remedial Action Verification Sampling for Soil, Version 1.2, March 2015
- NJDEP Technical Requirements for Site Remediation, N.J.A.C 7:26E
- NJDEP Administrative Requirements for the Remediation of Contaminated Sites (ARRCS) N.J.A.C. 7:26C
- NJDEP Remediation Standards, N.J.A.C. 7:26D, May 17, 2021
- NJDEP Coordination of NJDEP and USEPA PCB Remediation Policies, July 2, 2020
- USEPA Toxic Substances Control Act (TSCA)
- USEPA Resource Conservation and Recovery Act (RCRA)
- USEPA Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- USEPA Contract laboratory Program Guidance for Field Samplers. EPA-540-R-014-013. October 2014.

The following NJDEP guidance will be applied when a clean backfill material is brought to the project site (if necessary):

- Fill Material Guidance for SRP Sites, Version 4, October 2021

4.0 SOIL SAMPLING

Prior to the field mobilizations, each field team member will review all project plans and participate in a field planning meeting. The meeting will be conducted by the project manager, the USEPA OSC, and by all field staff and QA staff. Any new field personnel will receive a comparable briefing if they do not attend the initial field planning meeting and/or tailgate kick off meeting. A field planning meeting may be held in the field instead of an office setting if this is more convenient for the personnel involved. Supplemental meetings may be conducted as required by any changes in site conditions or to review field operational procedures. A field sampler checklist is provided in [QAPP Appendix H](#). Sample Labeling presented in [Section 8.3](#). Field Sampling SOPs provided in the QAPP.

4.1 STOCKPILE SOIL SAMPLING & RATIONALE

Using ERT SOP #2001(ERT-PROC-2001-20), the waste characterization soil samples will be collected from the stockpiles as individual grabs, samples collected from each stockpile will then be composited and submitted to the analytical laboratory for analysis of Full TCLP (minus TCLP VOCs), RCRA Characteristics. Waste characterization soil samples will be collected in a manner that is specified by requirements of the soil disposal facility (Clean Earth of Kearney). Previous Site investigative reports, project planning between the USEPA, SBI and Envocare, and visual evidence will determine field screening used to bias to the highest soil contamination and field screening results.

Disposable equipment such as PPE, macro cores for soil borings and disposable sterile sampling scoop will be used for all sampling events. Decontamination includes the use of Alconox® and rinse of DI water. Refer to the QAPP and the Health and Safety Plan (HASP) for more information on decontamination and disposal of site-specific equipment.

Using grid sampling discussed in the section below, one soil sample from each grid within stockpile will be analyzed for TCL/TAL to identify compound of concern that may be present above the project action limits (Provided as [QAPP Appendix G](#)) but reported below hazardous levels. Based on the results of previous investigation, CDM Smith's sampling of the piles in November 2020 indicated that piles B and C yielded hazardous contaminant concentrations for lead and that the results for pile A yielded PCB concentrations indicative of Toxic Substances Control Act (TSCA) waste. As it is expected that the contaminant concentrations identified during the next round of waste classification soil sampling of the piles will be very similar to CDM Smith's sampling of the piles, ENVO CARE recommends disposal of stockpiles as hazardous waste.

The waste classification soil samples collected by CDM Smith from stockpile A through C confirms the stockpile material exceeded hazardous waste criteria published by the EPA. However, CDM Smith only did partial analysis requirements of the soil disposal facility. The supplement soil sampling proposed as part of this SAP will be utilized in conjunction with CDM Smith 2020 data to meet the full disposal facility acceptance criteria. All stockpile soil will be disposed of based on

CDM Smith Classification of the stockpiles. The waste characterization soil samples will be collected from the stockpiles as outlined in [Table 3](#).

All soil sample results will be submitted to USEPA OSC in a form of a letter report with the proposed disposal facility details for authorization to proceed.

Table 3 – Waste Characterization Sampling						
Stockpile ID	Estimated Volume	Sample Matrix	Sample Method/ Type***	Depth (ft BGS) *	Estimate Number of Samples**	Proposed Laboratory Analysis
Stockpile A	300 cubic yards	Soil	Composite/ disposable sterile sampling scoop	2-5	3-5	Full TCLP (minus TCLP VOCs), Full TCL/TAL, RCRA Characteristics, Paint Filter
		Soil	Grab/ disposable sterile sampling scoop	2-5	3-5	TCL VOCs, TCLP VO, EPH
Stockpile B	700 cubic yards	Soil	Composite/ disposable sterile sampling scoop	2-5	7-9	Full TCLP (minus TCLP VOCs), Full TCL/TAL, RCRA Characteristics, Paint Filter
		Soil	Grab/ disposable sterile sampling scoop	2-5	7-9	TCL VOCs, TCLP VO, EPH
Stockpile C	200 cubic yards	Soil	Composite/ disposable sterile sampling scoop	2-5	2-4	Full TCLP (minus TCLP VOCs), Full TCL/TAL, RCRA Characteristics, Paint Filter
		Soil	Grab/ disposable sterile sampling scoop	2-5	2-4	TCL VOCs, TCLP VO, EPH

*Samples taken will be beneath any DGA or stone found on site

**Number of samples provided is the number of composited samples to be submitted to the laboratory, not the number of grabs to be collected from the pile.

*** Sampling method based on ERT SOP#2001

TCL – Target Compound List

TAL – Target Analyte List

RCRA – Resources Conservation and Recovery Act

CN – Cyanide by EPA Method 9012B

VO/VOCs – Volatile Organic Compounds

TCLP -Toxicity Characteristic Leaching Procedure

Grid Sampling

This SAP presents the soil sampling planned to address the question of potential impacts from stockpiled soil and pre-disposal soil characterization. The proposed plan is to collect one grab sample per grid. If one grab sample in the grids came back as hazardous and other grab samples in the grid did not, the stockpile will still be disposed as a Hazardous waste since CDM Smith 2020

data exceeded EPA hazardous waste criteria. [Figure 3](#) presents the proposed grids. These grids will be adjusted based on the drone survey.

The drone survey will be used to collect accurate GPS data and aerial photos to create 3D maps and models for estimating the volume of the stockpiles onsite and track site progress. Stockpile surveys can calculate how much material still needs to be removed using drone data software. Drone Survey checklist provided in [QAPP Appendix P](#).

NJDEP guidance provides for one soil sample per 900 square feet (ft²) to demonstrate remediation compliance plus one soil sample every 30 linear feet. To make sure enough soil samples were taken to verify we have no impact on the property, ENVO CARE recommends increasing sampling frequency to one soil sample per 400 ft² of stockpile material. One soil sample per 30 linear feet will be collected. Sampling frequency will remain the same and the square footage will be changed based on the area, volume of stockpile and field conditions.

Since previous soil sampling results reported PCBs concentration above hazardous levels (50 mg/kg), and lead concentrations were reported above the TCLP criteria published by the EPA and no new materials were introduced, one soil sample per every 100 cubic yards is proposed. The soil samples will be taken from areas identified to have significantly higher PID reading and/or is exhibiting unusual odor or visual appearance, then samples will be collected with the assistance of an excavator to reach sample depth from the suspected contaminated soil. This information will be used to determine the post-removal soil analysis. ENVO CARE will coordinate sample locations and frequency of soil sample with USEPA OSC.

The Project Coordinator, representative of the respondent, and USEPA will be notified if soil is discovered that appears to contain unknown contaminants or soil that varies significantly from the type of contamination identified in the Administrative Settlement Agreement and Order on Consent for Removal Action (ASAOC).

4.2 POST REMOVAL SOIL SAMPLING

Following removal of the soil piles, post-removal soil sampling will be completed using grab sampling methods under and just outside the limits of the piles. It is anticipated that post-removal soil sampling laboratory analytical protocol will be based on the laboratory results for the soil sampling described in the SAP, [Section 3](#).

It is anticipated that surface soil sampling will be completed beneath and just outside of the former soil piles following their removal (i.e., sample collection 0-6 inches below ground surface). Sampling locations will be selected based on professional judgment and in consultation with the USEPA OSC. If any material other than native soils are encountered during post-removal soil sampling (e.g., stone or dense grade aggregate (DGA)), this material will not be sampled, and

native soils located directly beneath such material would be sampled (e.g., 0.5 - 1.0 feet below ground surface).

The sample will be preserved immediately (4 degrees Celsius and/or with appropriate reagent as detailed in the QAPP), properly labeled, packaged for transportation as per Contract Laboratory Protocols (CLP). Information such as sample number, location, collection time and sample description should be recorded in the field logbook. Associated paperwork (e.g., Chain of Custody forms, Sample Analysis Request forms) should then be completed and should stay with the sample cooler. The sample cooler should be packaged in a manner that will allow the appropriate storage temperature to be maintained during shipment to the lab.

Using grid sample methodology section discussed above, approximately 5-7 post-removal soil samples per pile will be collected from underneath and around the soil piles and compared to background samples to determine cleanup objectives are met. Final decisions regarding the number of post-removal soil samples will be determined in the field by the ENVOCARE project manager in consultation with the USEPA OSC. Prior to the onset of post-removal sampling, an onsite meeting will be held between the ENVOCARE project manager and the USEPA OSC to establish a framework for the decisions that are to be made during subsequent post-removal sampling. Refer to [Table 4](#).

Table 4 - Post Removal Sampling						
Stockpile ID	Estimated Area	Sample Matrix	Sample Method/ Type	Depth (ft BGS)	Estimated Number of Samples	Proposed Laboratory Analysis
Stockpile A	1,500 Ft ²	Soil	Grab/ disposable sterile sampling scoop	0.5 - 1	5 – 7*	PCBs, Lead, Mercury and additional analysis based on the Full TCL/TAL stockpile soil sample results
Stockpile B	1,000 Ft ²	Soil	Grab/ disposable sterile sampling scoop	0.5 - 1	5 – 7*	PCBs, Lead, Mercury and additional analysis based on the Full TCL/TAL stockpile soil sample results
Stockpile C	1,000 Ft ²	Soil	Grab/ disposable sterile sampling scoop	0.5 - 1	5 – 7*	PCBs, Lead, Mercury and additional analysis based on the Full TCL/TAL stockpile soil sample results

*Number of Samples estimated, additional samples added based on field conditions and communication with USEPA OSC

4.3 BACKGROUND SOIL SAMPLING

The NJDEP typically requires 9 or more soil samples to establish the background contaminants of concern concentrations. A total of 10 to 14 samples are proposed outside the stockpiled area to

establish background conditions. If any stone or DGA is encountered during background soil sampling, this material will not be sampled, and native soils located beneath such material would be sampled (e.g., 0.5 - 1.0 feet below ground surface). Locations, depth and field screening were selected based on ENVOCARE’s discussion with the SBI respondents regarding previous site activities and consultation with the USEPA OSC. Background sample standards will be developed after background samples have been collected as discussed with the EPA OSC in project planning sessions. The background standard will most likely require use of statistical based analysis such as ProUCL or other statistically analysis to be determined with the USEPA. The background standard will be chosen based on the respective sample location to the stockpiles on the property. Refer to [Figure 4](#) for proposed background sample locations.

Table 5 - Background Soil Sampling				
Sample Matrix	Sample Method/ Type	Depth (ft BGS)	Estimated Number of Samples	Proposed Lab Analysis
Soil	Grab/ disposable sterile sampling scoop	0.5-1	10-14*	PCBs, Lead, Mercury and additional compounds will be added based on the Full TCL/TAL stockpile soil sample results (exceeding applicable remediation standards)

*Additional Soil samples collected as part of the initial assessments done by Salomone Brothers and USEPA Site contractor presented in [Section 2.2](#) will be used to develop background contaminants of concern concentrations. All samples collected prior to site disturbance as part of background studies will be tabulated and discussed with USEPA OSC for compliance attainment.

5.0 FIELD METHODS AND PROCEDURES

5.1 FIELD EQUIPMENT

Field equipment to be used for sampling activities are:

- Field surveying wheel
- Pin flags/survey tape
- Stainless steel hand auger or disposable scoops
- Encore® sampler T handle
- Project field book
- Field forms printed on waterproof paper
- Indelible ink pens
- Digital camera
- Disposable plastic trowels
- Stainless Steel bowls
- Sample coolers
- Ice
- Two 5-gallon buckets for decontamination
- Plastic trash bags
- Paper towels
- Scrub brush
- Spray bottles
- Bottled water (tap/deionized/distilled)
- Alconox or equivalent non-phosphate detergent
- Nitrile gloves

5.2 FIELD SCREENING EQUIPMENT

The following field screening equipment to be used to screen soil prior to selection of samples:

- Photoionization detector (PID)
- Jerome (Jerome® 431X Vapor Mercury Analyzer)

DustTrak and Aeroqual are used for community air monitoring. Refer to CAMP cover.

5.3 CALIBRATION PROCEDURE

Gas detector factory calibration is a technical procedure performed every 6 to 12 months to ensure your device is functioning accurately. Over time, gas detectors and their respective sensors degrade at different speeds. The only way to ensure accurate and repeatable measurements is through gas calibration. The following procedure will be implemented at the start of each workday.

- Zero calibration is performed to establish baseline readings of atmospheres that are known to be free of toxic and combustible gasses.
- Baseline readings are zero for carbon monoxide, hydrogen sulfide, combustibles and 20.9% for oxygen.

- Span calibration is the adjustment of the gas monitor's response to match that of a known concentration of gas. Sensors can lose sensitivity through normal degradation, exposure to high gas concentrations or sensor poisoning.
- The Span calibration is performed to ensure the gas monitor detects the target gasses within specific operating parameters.

The Mercury Analyzer, DustTrak and Aeroqual are pre-calibrated by the equipment vendor. Refer to QAPP for further information.

5.4 FIELD SCREENING

A perimeter field Screening will be performed to establish the background conditions. Previous Site investigative reports, project planning between the USEPA, SBI and Envocare, and visual evidence will determine field screening used to bias to the highest soil contamination and field screening results.

5.5 DECONTAMINATION PROCEDURES

Decontamination procedures will be conducted for any non-disposable sampling equipment that will be used at multiple sampling locations (i.e., hand augers, shovels).

Equipment that is covered with large amounts of adhered soil should be pre-cleaned by brushing or scraping prior to cleaning with fluids, as described below. The following sequential wash, scrubbing, and rinsing procedures will be implemented for each piece of equipment to be decontaminated:

- Non-phosphate detergent and tap water wash, using a brush if necessary;
- Tap water rinse; and
- Deionized/distilled water rinse.

Hand augers and shovels will either be allowed to air dry or will be dried with clean paper towels after being rinsed and washed at the discretion of the field sampling personnel.

6.0 LABORATORY ANALYSES

6.1 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) SAMPLES

In addition to investigative samples, Quality Assurance/Quality Control (QA/QC) samples will also be collected for laboratory analysis. These include duplicates, equipment rinsate blank, trip blanks, and matrix spike/matrix spike duplicates.

- Duplicates - One per 20 investigative samples or per day
- Equipment Rinsate Blank - One per day and following decontamination
- Trip Blank - One per cooler (for investigative samples for VOCs only)

Information relating to project-specific personnel, data quality objectives, sample control procedures, analytical protocols, and field and laboratory QA/QC is presented in the QAPP.

6.2 LABORATORY CERTIFICATE

Samples will be sent to Chemtech Laboratories part of the EPA Contract Laboratory Program (CLP) to perform the required tests for analysis. Laboratories accreditations for Chemtech laboratory provided in [QAPP Appendix M](#).

6.3 SAMPLER QUALIFICATIONS

Mayur Patel has over three years of experience in field sampling including soil sampling for waste characterization purposes. He is thoroughly knowledgeable in sample collection protocols, laboratory requirements, and the handling of chain of custody procedures. Sampling will be conducted under the management of Licensed Site Remediation Professional Devang Patel.

6.4 LABORATORY ANALYSIS

Samples will be analyzed for Grab Sample Analysis:

Matrix	Analytical Group	Method/SOP Reference
Soil	TCL VOCs Percent Moisture	SW-846 Method 8260D
	TCL SVOCs	SW-846 Method 8270E
	TCL Pesticides/PCBs	SW-846 Method 8081B/8082A
	TCL Herbicide	SW-846 Method 8151A
	NJEPH	NJEPH
	TAL Metals (includes Mercury)	SW-846 Method 6010/7471/7470
	Cyanide	SW-846 9012B
	TCLP VOCs	SW-846 Method 1311/8260D
	TCLP SVOCs	SW-846 Method 1311/8270E
	TCLP Pesticide	SW-846 Method 1311/8081A
	TCLP Herbicide	SW-846 Method 1311/8151A
	TCLP Metals	SW-846 Method 1311/6010D
	TCLP Mercury	SW-846 Method 1311/7470/7471
	Corrosivity	SW-846 Method 9045
	Ignitability	SW-846 Method 1030
	Reactive Cyanide	SW-846 9012B
	Reactive Sulfide	SW-846 9034
	Paint Filter	SW-846 Method 9095

7.0 SAMPLE CONTAINERS PRESERVATION, PACKAGING AND SHIPPING

7.1 SAMPLE PRESERVATION

All samples will be collected according to the Field Sampling Procedures Manual and will be placed in laboratory provided bottles with the appropriate preservatives where required. Samples will be maintained at the recommended temperature requirements of (4 +/-2 degrees Celsius) and will be analyzed within the required holding time. The laboratory will perform the appropriate QA/QC verification as per the method to ensure that requirements, sample handling, preservation and holding times are met.

7.2 PACKAGING AND SHIPPING

All sample containers will be placed in a strong-outside shipping container (cooler). The following outlines the packaging procedures that will be followed for low concentration samples.

- Pre-frozen ice packs are used.
- The bottom of the cooler will be lined with bubble wrap to prevent breakage during shipment.
- Check caps for tightness and mark on the outside of the sample bottles with indelible ink.
- Wrap all glass sample containers in bubble wrap to prevent breakage.
- Seal all sample containers in heavy duty plastic zip-lock bags. Write the sample numbers on the outside of the plastic bags with indelible ink.
- Place samples in a sturdy cooler(s) lined with a large plastic trash bag. Enclose the appropriate COC(s) in a zip-lock plastic bag affixed to the underside of the cooler lid.
- Fill empty space in the cooler with bubble wrap or Styrofoam peanuts to prevent movement and breakage during shipment. Vermiculite should also be placed in the cooler to absorb spills if they occur.
- Ice used to cool samples will be double sealed in two zip lock plastic bags and placed on top and around the samples to chill them to the correct temperature.
- Each ice chest will be securely taped shut with fiberglass strapping tape, and custody seals will be affixed to the front, right and back of each cooler.

8.0 SAMPLE DOCUMENTATION AND SHIPMENT

8.1 FIELD LOGBOOKS

All field-sampling activities will be recorded in bound, sequentially paginated field logbooks and on pre-printed field-log sheets. All sample collection shall include, at a minimum, the following information:

- Project name
- Date and time
- Sampling and other personnel present
- Sample location
- Sample identification number
- Sample depth interval
- Soil descriptions
- Photographs
- Weather observations
- Any deviations from the SAP
- Other relevant project-specific site or sample information

Entries will be made in permanent ink, with corrections crossed out with a single line, dated, and initialized. Field books will be signed at the bottom of each page by personnel making entries on that page. Completed field forms will also be signed by sampling personnel.

Field records will be checked for completeness at the end of each day of sampling by the members of the field sampling team. The check of field record completeness will ensure that all requirements for field activities have been fulfilled, complete records exist for each field activity, and that the procedures specified in the SAP were implemented. Field documentation will ensure sample integrity and provide sufficient technical information to recreate each field event.

8.2 PHOTOGRAPHS

Photographs will be taken at the sampling locations and at other areas of interest on the site or sampling area. They will serve to validate information entered in the field logbook.

8.3 LABELING

All samples collected will be labeled in a clear and precise way for proper identification in the field and for tracking in the laboratory. The samples will have pre-assigned, identifiable, and unique numbers. At a minimum, the sample labels will contain the following information:

- Waste Classification Sample Numbers:
 Stockpile ID_Sample ID_Date: Stockpile NameWC_S1_Year_Month_Day
- Post Removal Samples Numbers:
 Location ID_Sample ID_Date: Stockpile NamePR_S1_Year_Month_Day

- Background Samples Numbers:
Location ID Sample ID Date: Stockpile NameBG_S1_Year_Month_Day

8.4 SAMPLE CHAIN OF CUSTODY FORMS

Each sample container shall be labeled to document project location, contractor name, sample location, sample depth, date, and time of sampling. A chain-of-custody form will accompany the samples. The chain of custody will include sample ID, number of sample containers, analysis required and type of contaminants if known at the time of sampling. [QAPP Appendix I](#) presents a sample chain of custody.

All sample coolers will be arranged for pick up from the ENVOCARE office by Mayur Patel under chain of custody seal or pick up at site by laboratory.

9.0 DISPOSAL OF RESIDUAL MATERIAL

During the course of environmental sample collection is being performed, the sampling personnel will generate various types of potentially contaminated investigation-derived waste (IDW) that may include the following:

- Used PPE and disposable equipment will be bagged and placed in a drum and shipped with hazardous stockpile soil. PPE material will be sampled for hazardous waste classification prior to shipping to the non-hazardous waste at the municipal landfill if approved by the USEPA OSC.
- All decontamination liquid generated during the project (e.g. sampling apparatuses, excavation equipment) will be drummed and disposed of at the USEPA approved disposal facility. (CENJ) Decontamination liquid will be sampled for hazardous waste classification prior to shipping to a state/federally approved facility. Any IDW shipped from the Site to an off-site facility will be done so in accordance with applicable regulations and requirements, and in compliance with Section 121(d)(3) of CERCLA, 42 U.S.C. § 9621(d)(3), 40 C.F.R. § 300.440, USEPA’s “Guide to Management of Investigation Derived Waste,” OSWER 9345.3-03FS (April 2012).

The USEPA's National Contingency Plan (NCP) requires that management of IDW generated during sampling comply with all applicable or relevant and appropriate requirements (ARARs) to the extent practicable. The sampling plan will follow the *Management of Investigation Derived Waste* (LSASDPROC-202-R4; May 2020) and *Guide to Management of Investigation-Derived Wastes* (Office of Solid Waste and Emergency Response Publication No.9345.3-03FS; April 2012)., which provides the guidance for the management of IDW. In addition, other legal and practical considerations that may affect the handling of IDW will be considered. Refer to HASP for further information on decontamination and disposal.

10.0 FIELD VARIANCE

As conditions in the field may vary, it may become necessary to implement minor modifications to sampling as presented in this plan. When appropriate, the QA Office will be notified, and a verbal approval will be obtained before implementing the changes. Modifications to the approved plan will be documented in the sampling project report.

11.0 HEALTH AND SAFETY

All contractors are required to prepare a project-specific health and safety plan (HASP) that is in general accordance with the overall project health and safety and applicable Occupation and Health Safety Administration (OSHA) Requirements. All site contractors are required to maintain a copy of their health and safety plan in the field available for the Owner's inspection. The HASP will detail the minimum requirements and standard operating procedures to be implemented by personnel handling soil and working on-site operations. The HASP will address the health and safety issues associated with the contamination identified in the on-site, health and safety practices, procedures, and PPE requirements.

Traffic control will likely be necessary when utilizing the right-of-way traversing the Troy Chemical Property. Notification and coordination will be consummated with Troy Chemical and other entities that utilize the right-of-way off of Avenue L prior to the onset of remediation activities.

12.0 REFERENCES

- USEPA, Requirements for Quality Assurance Project Plans (QA/R-5)" EPA 240/B-01/003 (March 2001, reissued May 2006)
- USEPA, *USEPA Contract Laboratory Program Guidance for Field Samplers* (USEPA-540-R-20-005. November 2020; https://www.epa.gov/sites/default/files/2021-03/documents/samplers_guide_clp_guidance_for_field_samplers_november_2020.pdf).
- USEPA, *USEPA Sampler's Guide Contract laboratory Program Guidance for Field Samplers*. EPA-540-R-014-013. October 2014
- USEPA, *Region 2 Brownfields Quality Assurance Project Plan Guidance*. (November 2011, Revised December 2019)
- NJDEP *Hazsite Electronic Data Submittal Application*, Version 7.1.5, September 2016
- USEPA, *Uniform Federal Policy for Quality Assurance Project Plans, Parts 1-3*, EPA/505/B-04/900A-900C (March 2005)
- NJDEP Field Sampling Procedure Manual, Chapters 1 through 4, 2021
- NJDEP Field Sampling Procedure Manual, Chapters 5 through 14, 2005
- NJDEP Technical Requirements for Site Remediation N.J.A.C 7:26E
- NJDEP Administrative Requirements for the Remediation of Contaminated Sites (ARRCS) N.J.A.C. 7:26C
- N.J.A.C. 7:26D, Remediation Standards, May 17, 2021
- NJDEP Background Investigation Guidance Document
- NJDEP *Hazsite Electronic Data Submittal Application*, Version 7.1.5, September 2016
- USEPA Toxic Substances Control Act (TSCA)
- NJDEP Coordination of NJDEP and USEPA PCB Remediation Policies Updated July 2, 2020
- USEPA Resource Conservation and Recovery Act (RCRA)
- USEPA Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)
- NJDEP Technical Guidance for Site Investigation of Soil, Remedial Investigation of Soil, and Remedial Action Verification Sampling for Soil, Version 1.2, March 2015
- NJDEP Fill Material Guidance for SRP Sites, 2021

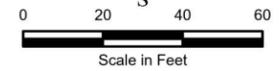


Troy Chemical Right of Way
Off of Avenue L

Stockpile C

Stockpile A

Stockpile B



1:550

Legend

- ★ Site Location
- ⋯ Property Boundary
- ▭ Pile Location
- Proposed Tributary Restoration

NOTES:
 1. PARCEL DATA OBTAINED FROM NEW JERSEY GEOGRAPHIC INFORMATION NETWORK (NJGIN)
 2. PARCEL DATA IS NOT FROM A LICENSED SURVEYOR... AERIAL AND PROPERTY LINE MAY NOT ALIGN
 3. SERVICE LAYER CREDITS: COPYRIGHT NEARMAP



1" = 160 miles

Figure 1
Site Location Map

366-394 Wilson Avenue
 (Block: 5038, Lot: 97)
 Newark, New Jersey

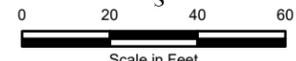
Project No: 150405

Date: July 2020

Drawn By: K. Starkes

Checked By: DP





Scale in Feet
1:500

Legend

- ★ Site Location
- Property Boundary
- Pile Location

NOTES:
 1. PARCEL DATA OBTAINED FROM NEW JERSEY GEOGRAPHIC INFORMATION NETWORK (NJGIN)
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1" = 160 miles

Figure 2
Grid Mapping

366-394 Wilson Avenue
 (Block: 5038, Lot: 97)
 Newark, New Jersey

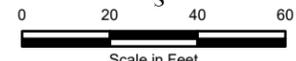
Project No: 150405

Date: July 2020

Drawn By: K. Starkes

Checked By: DP





Scale in Feet
1:500

Legend

- ★ Site Location
- Property Boundary
- Pile Location
- Proposed Sample Location

NOTES:
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 3. SERVICE LAYER CREDITS: COPYRIGHT NEARMAP



1" = 160 miles

Figure 3
Proposed Sample Location

366-394 Wilson Avenue
 (Block: 5038, Lot: 97)
 Newark, New Jersey

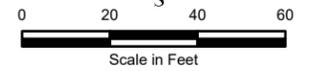
Project No: 150405

Date: July 2020

Drawn By: K. Starkes

Checked By: DP





- Legend**
- ★ Site Location
 - Property Boundary
 - Pile Location
 - Proposed Background Locations
 - - - Proposed Sectioning of Background locations

NOTES:
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 3. SERVICE LAYER CREDITS: COPYRIGHT NEARMAP



1" = 160 miles

Figure 4
 Proposed Background Location Map

366-394 Wilson Avenue
 (Block: 5038, Lot: 97)
 Newark, New Jersey

Project No: 150405

Date: July 2020

Drawn By: K. Starkes

Checked By: DP

