SESI
CONSULTING ENGINEERS

Supplemental Remedial Investigation Workplan

For:

White Plains Chrysler Car Dealership
70 Westchester Avenue
White Plains, New York
NYSDEC BCP Site # C360209

Prepared for:

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CERTIFICATIONS

I, Fuad Dahan, certify that I am a professional engineer, and meet the definition of qualified environmental professional as defined in 6 NYCRR Part 375 and that this Supplemental Remedial Investigation Work Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Fuad Dahan	9/6/2022	
NJ Professional Engineer # 090531	Date	Signature

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

LIST OF ACRONYMS

Acronym	Definition
AWQS	Ambient Water Quality Standards
BCP	Brownfield Cleanup Program
bgs	Below ground surface
CSCOs	Commercial Soil Cleanup Objectives
DER	Division of Environmental Remediation
DER-10	NYSDEC Technical Guidance for Site Investigation & Remediation
MW	Monitoring Well
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PAH	Polyaromatic Hydrocarbons
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethene
PFAS	Per and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanesulfonic Acid
PHC	Petroleum Hydrocarbon
PID	Photoionization Detector
ppt	parts per trillion
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan
RRSCO	Restricted Residential Soil Cleanup Objectives
SCG	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objectives
SESI	SESI Consulting Engineers, DPC
SRIWP	Supplemental Remedial Investigation Work Plan
SVOCs	Semi-Volatile Organic Compounds
TAL	Target Analyte List
TCE	Trichloroethene
TOGS	Technical and Operations Guidance Series
USCOs	Unrestricted Soil Cleanup Objectives
VOCs	Volatile Organic Compounds

1.0 INTRODUCTION

The White Plains Chrysler Car Dealership Site (herein referred to as the "Site") was accepted into the New York Brownfield Cleanup Program (BCP) by the New York State Department of Environmental Conservation (NYSDEC) on May 18, 2021, and is known as BCP Site No. C360209. The Site is approximately 1.826 acres in size and is bound by Franklin Avenue and retail businesses to the north, the White Coach Diner to the west, Westchester Avenue and the Westchester Mall to the south, and a closed car dealership to the east.

SESI Consulting Engineers DPC (SESI) has prepared this Supplemental Remedial Investigation Work Plan (SRIWP) to further investigate the nature and extent of contamination requiring remediation at the Site. This document comprises an addendum to the Remedial Investigation Work Plan (RIWP) which was last revised in October 2021, and approved by NYSDEC on October 13, 2021. The completed and proposed actions in the RIWP were conducted and prepared pursuant to NYSDEC's Technical Guidance for Site Investigation and Remediation (DER-10). All the proposed work in this document will be conducted under the governing documents including the Health and Safety Plan, Quality Assurance Project Plan, and the Community Air Monitoring Plan, which were approved with the RIWP. Specifically, the SRIWP addresses the NYSDEC Remedial Investigation Report (RIR) comment letter, dated May 12, 2022 and Supplemental Remedial Investigation Workplan letter, dated July 11, 2022, and SESI response to DEC comments in a letter dated August 26, 2022.

This SRIWP has been prepared to achieve the following objectives:

- To complete the delineation of the nature and extent of contamination on the Site,
- To determine the remedial action needed to protect human health and the environment, and
- To collect sufficient data to advance the remediation of the Site.

2.0 COMPLETED REMEDIAL INVESTIGATION SUMMARY

2.1 FIELD REMEDIAL INVESTIGATION

The Remedial Investigation (RI) was conducted in November and December 2021 in accordance with SESI's RIWP, which was approved by the NYSDEC on October 13, 2021. The RI consisted of collecting 49 soil samples from 10 soil borings, eight (8) groundwater samples from seven (7) newly installed monitoring wells and one (1) existing monitoring well, six (6) soil/sub-slab vapor samples from six (6) vapor sampling points, one (1) ambient air sample and one (1) indoor air sample. SESI submitted a draft RIR in April 2022 that presented the findings of the RI and previous investigations conducted at the Site. A summary of these investigations is presented below.

2.2 REMEDIAL INVESTIGATION SAMPLING RESULTS SUMMARY

Based on the field investigation, soil petroleum hydrocarbon (PHC) SVOCs and metals were identified Sitewide at concentrations exceeding the restricted residential soil cleanup objectives (RRSCOs) and/or commercial soil cleanup objectives (CSCOs) to depths of 16 feet below ground surface (ft-bgs). PHC VOCs were identified at concentrations exceeding the RRSCOs to depths of 17 ft-bgs northwest of the eastern building. Pesticides exceeding the unrestricted use soil cleanup objectives (USCOs) were identified to depths of 9 ft-bgs and polychlorinated biphenyls (PCBs) to depths of 5 ft-bgs. Finally, the emerging contaminant perfluorooctanesulfonic acid (PFOS) was detected at concentrations exceeding the USCOs to depths of 5 ft-bgs.

In groundwater, the SVOCs benzo(a)anthracene, benzo(1)pyrene, benzo(b) fluoranthene, benzo(k)fluoranthene, bis(2-Ethylhexyl)phthalate, fluoranthene, chrysene, fluoranthene, ideno(1,2,3-cd)pyrene, pentachlorophenol, and phenol were detected at concentrations exceeding the NYSDEC Technical and Operational Guidance Series ,1.1.1 (TOGS) Class GA Ambient Water Quality Standards and Guidance Values (AWQS). The metals barium, chromium, copper, iron, lead, magnesium, manganese, nickel, selenium, sodium, and vanadium were detected in a least one (1) well at concentrations exceeding the AWQS. Finally, perfluorooctanoic acid (PFOA) and PFOS were detected at concentrations exceeding the NYSDEC groundwater screening level of 10 ppt (parts per trillion).

In soil vapor the highest concentration of PHC VOCs was detected north of the northeastern building (RI-SV4), with benzene at a concentration of 4.89 ug/m^3, toluene at a concentration of 36.9 ug/m^3, ethanol at a concentration of 237 ug/m^3, ethylbenzene at a concentration of 6.08

ug/m^3, 2-butanone at a concentration of 66.9 ug/m^3, tertiary butyl alcohol (TBA) at a concentration of 26.7 ug/m^3, and total xylene concentration of 30.03 ug/m^3.

The highest concentration of chlorinated VOCs was detected in sample RI-SV2, with cis-1,2 DCE at a concentration of 85.2 ug/m^3, and trichloroethene (TCE) detected at 216 ug/m^3. TCE was detected in RI-SV6 at a concentration of 8.33 ug/m^3, and carbon tetrachloride was detected in RI-SV3 at a concentration of 34.9 ug/m^3. These chlorinated VOCs exceed the Matrix A and B lower threshold levels. The concentration of the collocated indoor air sample RI-IA1 was below detection limits for cis-1,2 DCE and TCE, and 0.409 ug/m^3 for carbon tetrachloride. When compared to the New York State Department of Health (NYSDOH) Decision Matrices, the concentrations of cis-1,2 DCE and TCE detected in RI-SV2 fall within the “Mitigate” category.

In addition, the prior investigation conducted by SESI (September 2020) detected carbon tetrachloride, TCE, and tetrachloroethene (PCE) in soil vapor. Specifically, carbon tetrachloride was detected as high as 17.6 ug/m^3 (SV-9), PCE as high as 834 ug/m^3 (SV-8) and TCE as high as 4.13 ug/m^3 beneath the Site’s buildings and TCE as high as 8.55 ug/m^3 beneath the western parking lot. For the collocated indoor samples, the concentrations were below detection limits for TCE. When compared to the NYSDOH Decision Matrices, the concentrations of PCE detected in vapor samples SV-7 and SV-8 exceed the Matrix A and B lower threshold levels and fall within the “Mitigate” category.

3.0 PROPOSED SUPPLEMENTAL REMEDIAL INVESTIGATION

Soil borings and groundwater monitoring wells are proposed to complete the nature and extent delineation of contaminated soil and groundwater on the Site in accordance with the NYSDEC letter of May 12, 2022. The additional RI will consist of collecting 46 soil samples from 10 soil borings and collecting seven (7) groundwater samples from seven(7) new monitoring wells. The applicable standards criteria and guidance (SCGs) for the Site soil are the USCOs for the planned Track.1 cleanup. The applicable SCGs for the Site groundwater are the TOGS GA AWQS and the screening levels for PFOA and PFOS (NYSDEC Guidelines for Sampling and Analysis of PFAS, June 2021).

3.1 SUPPLEMENTAL SOIL REMEDIAL INVESTIGATION

A total of 10 soil borings will be performed on the Site to delineate impacts to soil previously identified in borings RI-SB4, RI-SB5, S-6, S-13, S-14 and S-20 The depth of each boring will extend to 20 ft-bgs. Soil samples will be collected at 5-foot depth intervals or at the depth intervals that appear to be most contaminated based on visual observations, photoionization detector (PID) readings and olfactory observations or based upon prior sampling results in nearby borings. The soil sampling will be conducted as described in the approved RIWP. Boring logs documenting soil classifications and PID readings will be provided in the final report.

The soil samples will be sent to a NYSDOH Environmental laboratory Accreditation Program (ELAP)-certified laboratory under chain-of-custody. The samples will be analyzed for SVOCs by EPA Method 8270D and lead in accordance with EPA Method 6010C . The proposed soil sample locations and the rationale for their locations are presented in **Table 3.1** below. The proposed soil boring locations are shown on **Figure 3.1A.**

Table 3.1: Soil Sampling Summary

Sample Name	Sample Depth	Boring Depth	Description	Sample Media	Sample Type	Analysis
RI-SB11	0-2-inch	20	Delineation of boring S-6	Soil	Grab	SVOCs, Lead
	4.5-5.'					
	7.5-8'					
	11-11.5'					
	16.5-17'					
RI-SB12	0-2-inch	20	Delineation of boring S-6	Soil	Grab	SVOCs, Lead
	4.5-5.'					
	7.5-8'					
	11-11.5'					
	16.5-17'					

Sample Name	Sample Depth	Boring Depth	Description	Sample Media	Sample Type	Analysis
RI-SB13	0-2-inch 4.5-5.' 7.5-8' 11-11.5' 16.5-17'	20	Delineation of boring RI-SB4	Soil	Grab	SVOCs, Lead
RI-SB14	0-2-inch 4.5-5.' 7.5-8' 11-11.5' 16.5-17'	20	Delineation of boring RI-SB4	Soil	Grab	SVOCs, Lead
RI-SB15	0-2-inch 4.5-5.' 7.5-8' 11-11.5' 16.5-17'	20	Delineation of boring RI-SB5	Soil	Grab	SVOCs, Lead
RI-SB16	0-2-inch 4.5-5.' 7.5-8' 11-11.5' 16.5-17'	20	Delineation of boring RI-SB5 and RI-SB6	Soil	Grab	SVOCs, Lead
RI-SB17	2-2.5 6.5-7.5 11-11.5' 16.5-17'	20	Delineation of boring S-19 and RI-SB6	Soil	Grab	SVOCs, Lead
RI-SB18	2-2.5 6.5-7.5 11-11.5' 16.5-17'	20	Delineation of boring S-14	Soil	Grab	SVOCs, Lead
RI-SB19	2-2.5 6.5-7.5 11-11.5' 16.5-17'	20	Delineation of boring S-14	Soil	Grab	SVOCs, Lead
RI-SB20	3-3.5 7.5-8 11-11.5' 16.5-17'	20	Delineation of boring S-13 and RI-SB8	Soil	Grab	SVOCs, Lead

3.2 SUPPLEMENTAL GROUNDWATER INVESTIGATION

Seven (7) additional monitoring wells will be installed at the Site (RI-MW7 through RI-MW13) for delineation of impacts identified in samples RI-MW3, RI-MW6, GW-3, GW-5, and TWP-CD-19. Groundwater samples will be collected from the and seven (7) new monitoring wells. The groundwater samples will be sent to a NYSDOH ELAP-certified laboratory under chain-of-custody. The samples collected from monitoring wells RI-MW7, RI-MW9, RI-MW11, RI-MW12, and RI-MW13 will be analyzed for PFAS by EPA Method 537 by EPA Method 8270D SIM. Sample collected from monitoring well RI-MW8 will be analyzed for VOC by EPA Method 8260

and SVOCs by EPA Method 8270D SIM. The proposed groundwater sample locations and the rationale for their locations are presented in **Table 3.2** below. The proposed groundwater sample locations are shown on **Figure 3.2A**.

Table 3.2: Summary of Groundwater Sampling

Well ID	Description	Total Depth (ft)	Screen Diameter (in.)	Screen length (ft)	Analysis
RI-MW7	Proposed New Well Downgradient of RI-MW6	20	1	10' (10-20')	PFAS
RI-MW8	Proposed New Well Downgradient of TWP-CD19	20	1	10' (10-20')	VOCs, SVOCs
RI-MW9	Proposed New Well Downgradient of MW-B15	20	1	10' (10-20')	PFAS
RI-MW10	Proposed New Well Downgradient of GW-5	20	1	10' (10-20')	Lead
RI-MW11	Proposed New Well Upgradient of RI-MW-5	25	1	10' (15-25')	PFAS
RI-MW12	Proposed New Well Upgradient of RI-MW-3	20	1	10' (10-20')	PFAS
RI-MW13	Proposed New Well Upgradient of MW-B-7	20	1	10' (10-20')	PFAS

In addition, SESI will present the off-site downgradient groundwater samples collected at the eastern adjacent 80 Westchester Avenue pending BCP Site to delineate groundwater impacts separately identified on that Site and will have the data from this pending BCP site validated (DUSR and EDDs), and provide boring logs for all sample locations. The groundwater data from both sites to date is presented on **Figure 3.2A**.

Figures

STANDARDS TABLE

	USCO (mg/kg)	RSCO (mg/kg)	RRSCO (mg/kg)	CSCO (mg/kg)
VOCs				
Acetone	0.05	100	100	500
Ethylbenzene	1	30	41	390
Xylenes	0.26	100	100	500
SVOCs				
Benzo(a)anthracene	1	1	1	5.6
Benzo(a)pyrene	1	1	1	1
Benzo(b)fluoranthene	1	1	1	5.6
Benzo(k)fluoranthene	0.8	1	3.9	56
Chrysene	1	1	3.9	56
Dibenzo(a,h)anthracene	0.33	0.33	0.33	0.56
Indeno(1,2,3-cd)pyrene	0.5	0.5	0.5	5.6
Pestides				
Delta-BHC	0.04	100	100	500
Alpha-BHC	0.02	0.097	0.48	3.4
4,4'-DDE	0.0033	1.8	8.9	60
4,4'-DDT	0.0033	2.6	13	47
Metals				
Barium, Total	350	350	400	400
Copper, Total	50	270	270	270
Chromium, Total	30	36	180	1500
Lead, Total	63	400	400	1000
Mercury, Total	0.18	0.81	0.81	2.8
Nickel, Total	30	140	310	310
Zinc, total	109	2200	10000	10000

FRANKLIN AVENUE

WESTCHESTER AVENUE

LOCATION	R1-SB1 (0-2")
SAMPLING DATE	11/23/2021
	Conc. (mg/kg) Q
4,4'-DDT	0.00664 P
LOCATION	**R1-SB1 (16.5-17)**
SAMPLING DATE	**11/23/2021**
	Conc. (mg/kg) Q
Chromium, Total	30.8

Sample No.	S-15 (2-2.5)
Date Collected	3/2/2021
ANALYTE	Conc. (mg/kg)
Nickel, Total	33.3
Chromium, Total	42.4
Sample No.	S-15 (6-6.5)
Date Collected	3/2/2021
ANALYTE	Conc. (mg/kg)
Lead, Total	85.6

SAMPLE ID:	S-4 (2.5-3)
DATE	9/10/2020
ANALYTE	Conc
Barium, Total	634
Lead, Total	474

Sample No.	S-17 (6.5-7.0)
Date Collected	3/2/2021
ANALYTE	Conc. (mg/kg)
Barium, Total	438
Copper, Total	54.7
Chromium, Total	58.6
Lead, Total	268
Zinc, Total	840

Sample No.	S-16 (2-2.5)
Date Collected	3/2/2021
ANALYTE	Conc. (mg/kg)
4,4'-DDT	0.0177

LOCATION	RI-SB2 (0-2")
SAMPLING DATE	11/30/2021
	Conc. (mg/kg) Q
4,4'-DDE	0.00809
4,4'-DDD	0.014
4,4'-DDT	0.00492
LOCATION	**RI-SB2 (4.5-5)**
SAMPLING DATE	**11/30/2021**
	Conc. (mg/kg) Q
Lead, Total	205
Zinc, Total	315
LOCATION	**RI-SB2 (12.5-13)**
SAMPLING DATE	**11/30/2021**
SAMPLE DEPTH (ft.)	**12.5-13**
	Conc. (mg/kg) Q
Copper, Total	105

Sample No.	S-18 (2.5-3.0)
Date Collected	3/2/2021
ANALYTE	Conc. (mg/kg)
Lead, Total	114
Sample No.	**S-18 (7-7.5)**
Date Collected	**3/2/2021**
ANALYTE	**Conc. (mg/kg)**
4,4'-DDT	0.00838
Lead, Total	677
Mercury, Total	0.262
Zinc, Total	482

LOCATION	RI-SB3 (0-2")
SAMPLING DATE	11/30/2021
	Conc. (mg/kg) Q
Copper, Total	173

SAMPLE ID:	S-5 (4.5-5)
DATE	9/10/2020
ANALYTE	Conc
Benzo(a)pyrene	1.4
Benzo(b)fluoranthene	1.9
Benzo(k)fluoranthene	1.2
Chrysene	1.2
Indeno(1,2,3-cd)pyrene	1.3

LOCATION	R1-SB5 (0-2")
SAMPLING DATE	11/22/2021
	Conc. (mg/kg) Q
Benzo(b)fluoranthene	1.3
Indeno(1,2,3-cd)pyrene	0.76
Chromium, Total	65.9
Lead, Total	68.6
Nickel, Total	61.9
LOCATION	**R1-SB5 (4.5-5')**
SAMPLING DATE	**11/22/2021**
SAMPLE DEPTH (ft.)	**4-4.5**
	Conc. (mg/kg) Q
4,4'-DDE	0.00625
4,4'-DDT	0.0394
PCBs, Total	0.178 J
Benzo(a)anthracene	1.4
Benzo(a)pyrene	1.4
Benzo(b)fluoranthene	1.9
Chrysene	1.3
Indeno(1,2,3-cd)pyrene	1
LOCATION	**R1-SB5 (6-6.5)**
SAMPLING DATE	**11/22/2021**
	Conc. (mg/kg) Q
4,4'-DDT	0.0128
Benzo(a)anthracene	1.2
Benzo(a)pyrene	1.1
Benzo(b)fluoranthene	1.5
Chrysene	1.1
Indeno(1,2,3-cd)pyrene	0.82
Copper, Total	57.6
Lead, Total	109
Zinc, Total	201

Sample No.	S-28 (3-3.5)
Date Collected	3/4/2021
ANALYTE	Conc. (mg/kg)
Delta-BHC	0.0422
Alpha-BHC	0.121
Lead, Total	94.3
Sample No.	S-28 (6.5-7)
Date Collected	3/4/2021
ANALYTE	Conc. (mg/kg)
Alpha-BHC	0.121

LOCATION	RI-SB6 (0-2")
SAMPLING DATE	11/19/2021
	Conc. (mg/kg) Q
Indeno(1,2,3-cd)pyrene	1.3
LOCATION	**RI-SB6 (4.5-5)**
SAMPLING DATE	**11/19/2021**
	Conc. (mg/kg) Q
Acetone	0.079
LOCATION	**RI-SB6 (8.5-9)**
SAMPLING DATE	**11/19/2021**
	Conc. (mg/kg) Q
4,4'-DDE	0.00474
4,4'-DDD	0.0052
Benzo(a)anthracene	4.1
Benzo(a)pyrene	3.7
Benzo(b)fluoranthene	5.3
Benzo(k)fluoranthene	1.6
Chrysene	4
Dibenzo(a,h)anthracene	0.66
Indeno(1,2,3-cd)pyrene	3

SAMPLE ID:	CD-19 (16.5-17)
DATE	7/2/2015
ANALYTE	
Ethylbenzene	55
Xylenes, Total	260

SAMPLE ID:	S-7 (1.5-2)
DATE	9/11/2020
ANALYTE	Conc
Copper, Total	970

LOCATION	RI-SB7 (0-2)
SAMPLING DATE	12/14/2021
	Conc. (mg/kg) Q
Lead, Total	172
Mercury, Total	0.269

LOCATION	RI-SB4 (0-2")
SAMPLING DATE	11/30/2021
	Conc. (mg/kg) Q
Acenaphthene	150
Fluoranthene	940
Naphthalene	120
Benzo(a)anthracene	350
Benzo(a)pyrene	330
Benzo(b)fluoranthene	390
Benzo(k)fluoranthene	150
Chrysene	320
Anthracene	200
Benzo(ghi)perylene	190
Fluorene	130
Phenanthrene	800
Dibenzo(a,h)anthracene	45
Indeno(1,2,3-cd)pyrene	220
Pyrene	750
Dibenzofuran	78
Mercury, Total	0.312
LOCATION	**RI-SB4 (4.5-5)**
SAMPLING DATE	**11/30/2021**
	Conc. (ug/kg) Q
Perfluorooctanesulfonic Acid (PFOS)	1.06
LOCATION	**RI-SB4 (4.5-5)**
SAMPLING DATE	**11/30/2021**
	Conc. (mg/kg) Q
Benzo(a)anthracene	12
Benzo(a)pyrene	10
Benzo(b)fluoranthene	14
Benzo(k)fluoranthene	4.2
Chrysene	10
Dibenzo(a,h)anthracene	1.6
Indeno(1,2,3-cd)pyrene	7.6
Lead, Total	449
Mercury, Total	0.347
Zinc, Total	360
LOCATION	**RI-SB4 (12-12.5)**
SAMPLING DATE	**11/30/2021**
	Conc. (mg/kg) Q
Lead, Total	129
Mercury, Total	0.239
Zinc, Total	127

Sample No.	S-19 (2-2.5)
Date Collected	3/2/2021
ANALYTE	Conc. (mg/kg)
Benzo(a)anthracene	1
Benzo(b)fluoranthene	1.1
Indeno(1,2,3-cd)pyrene	0.62
4,4'-DDE	0.00963
4,4'-DDD	0.00384
Lead, Total	458
Zinc, Total	278
Sample No.	S-19 (6.5-7)
Date Collected	3/2/2021
ANALYTE	Conc. (mg/kg)
4,4'-DDE	0.00484

Sample No.	S-20 (4.5-5)
Date Collected	3/4/2021
ANALYTE	Conc. (mg/kg)
Lead, Total	74.9
Mercury, Total	0.232
Zinc, Total	152

Sample No.	S-21 (2-2.5)
Date Collected	3/4/2021
ANALYTE	Conc. (mg/kg)
Chromium, Total	38.7

SAMPLE ID:	S-6 (2-2.5)
DATE	9/11/2020
ANALYTE	Conc
Benzo(a)pyrene	1.1
Benzo(b)fluoranthene	1.2
Indeno(1,2,3-cd)pyrene	0.69

LOCATION	RI-SB10 (0-2")
SAMPLING DATE	12/14/2021
	Conc. (mg/kg) Q
Lead, Total	152
Mercury, Total	0.394
Zinc, Total	111

Sample No.	S-14 (2.5-3.0)
Date Collected	3/2/2021
ANALYTE	Conc. (mg/kg)
Benzo(a)anthracene	1.6
Benzo(a)pyrene	1.4
Benzo(b)fluoranthene	1.9
Chrysene	1.5
Indeno(1,2,3-cd)pyrene	0.7
Lead, Total	86.3
Sample No.	**S-14 (6.5-7.0)**
Date Collected	**3/2/2021**
ANALYTE	**Conc. (mg/kg)**
Benzo(a)anthracene	2.5
Benzo(a)pyrene	2.3
Benzo(b)fluoranthene	3.1
Benzo(k)fluoranthene	0.91
Chrysene	2.4
Indeno(1,2,3-cd)pyrene	1.2
4,4'-DDE	0.018
4,4'-DDD	0.00484
Lead, Total	101

Sample No.	S-13 (3-3.5)
Date Collected	3/2/2021
ANALYTE	Conc. (mg/kg)
Acetone	0.067
Benzo(b)fluoranthene	1.2
Chrysene	1
Indeno(1,2,3-cd)pyrene	0.65
4,4'-DDE	0.00442
4,4'-DDD	0.0101
Lead, Total	74.9
Mercury, Total	0.232
Sample No.	**S-13 (7.5-8.0)**
Date Collected	**3/2/2021**
ANALYTE	**Conc. (mg/kg)**
Benzo(a)anthracene	6.2
Benzo(a)pyrene	5.8
Benzo(b)fluoranthene	7.2
Benzo(k)fluoranthene	2.4
Chrysene	5.3
Dibenzo(a,h)anthracene	0.72
Indeno(1,2,3-cd)pyrene	3.2
4,4'-DDE	0.0122

SAMPLE ID:	B-16 (5.5-6.5)
DATE	3/24/2014
ANALYTE	
Benzo(a)anthracene	6.8
Benzo(a)pyrene	6.8
Benzo(b)fluoranthene	8.1
Benzo(k)fluoranthene	3.3
Chrysene	6.1
Indeno(1,2,3-cd)Pyrene	5
Copper, Total	9

SAMPLE ID:	B-7 (5-6)
DATE	3/25/2014
ANALYTE	Conc
Indeno(1,2,3-cd)Pyrene	0.55

LOCATION	RI-SB8 (0-2")
SAMPLING DATE	11/18/2021
	Conc. (mg/kg) Q
4,4'-DDE	0.0175
4,4'-DDD	0.0252
cis-Chlordane	0.223
Benzo(a)anthracene	1.3
Benzo(a)pyrene	1.4
Benzo(b)fluoranthene	1.7
Chrysene	1.3
Indeno(1,2,3-cd)pyrene	1
Chromium, Total	37
Lead, Total	119
Zinc, Total	156
LOCATION	**RI-SB8 (6-6.5)**
SAMPLING DATE	**11/18/2021**
	Conc. (mg/kg) Q
4,4'-DDD	0.00354

LOCATION	RI-SB9 (0-2)
SAMPLING DATE	12/14/2021
	Results Q
Perfluorooctanoic Acid (PFOA)	0.109 J
Perfluorooctanesulfonic Acid (PFOS)	1.39
Lead, Total	84.6

NOTE:
THIS PLAN IS FOR LOCATING SOIL SAMPLING ONLY. OTHER SITE WORK SHOWN HERE IS NOT INTENDED FOR CONSTRUCTION.

NYS Education Law

Unauthorized alterations or additions to this plan are a violation of section 7209 (2) of the New York State Education Law. Copies of this map not having the seal of the engineer shall not be valid.

LEGEND:

- PROPERTY LINE
- B-1 - SOIL BORINGS COMPLETED BY OTHERS (MARCH 2014)
- CD-01 - SOIL BORINGS COMPLETED BY OTHERS (JANUARY 2015)
- S-1 - SOIL BORINGS COMPLETED BY SESI (SEPTEMBER 2020)
- S-13 - SOIL BORINGS COMPLETED BY SESI (MARCH 2021)
- RI-SB-8 - REMEDIAL INVESTIGATION SOIL BORINGS (NOVEMBER/DECEMBER 2021)
- RI-SB11 - PROPOSED SUPPLEMENTAL REMEDIAL INVESTIGATION BORING

- 0.0177 - USCO - UNRESTRICTED USE SOIL CLEANUP OBJECTIVES
- 1 - RSCO - RESIDENTIAL SOIL CLEANUP OBJECTIVES
- 438 - RRSCO - RESTRICTED RESIDENTIAL SOIL CLEANUP OBJECTIVES
- 534 - CSCO - COMMERCIAL SOIL CLEANUP OBJECTIVES

SCALE: 1"=60'
0 60 120

REFERENCE
AERIAL MAP TAKEN FROM BING MAPS, DATED 2020.

N:\CAD\11444\CAD\RIWP\11444 – FIG-3.1A – SOIL SAMPLE LOCATION & CONCENTRATION PLAN.DWG 06/08/22 04:47:37PM, alan.ward, LAYOUT:FIG-3.1A

dwg by: aas
chk by: SSG
scale: AS NOTED
date: 06/08/2022

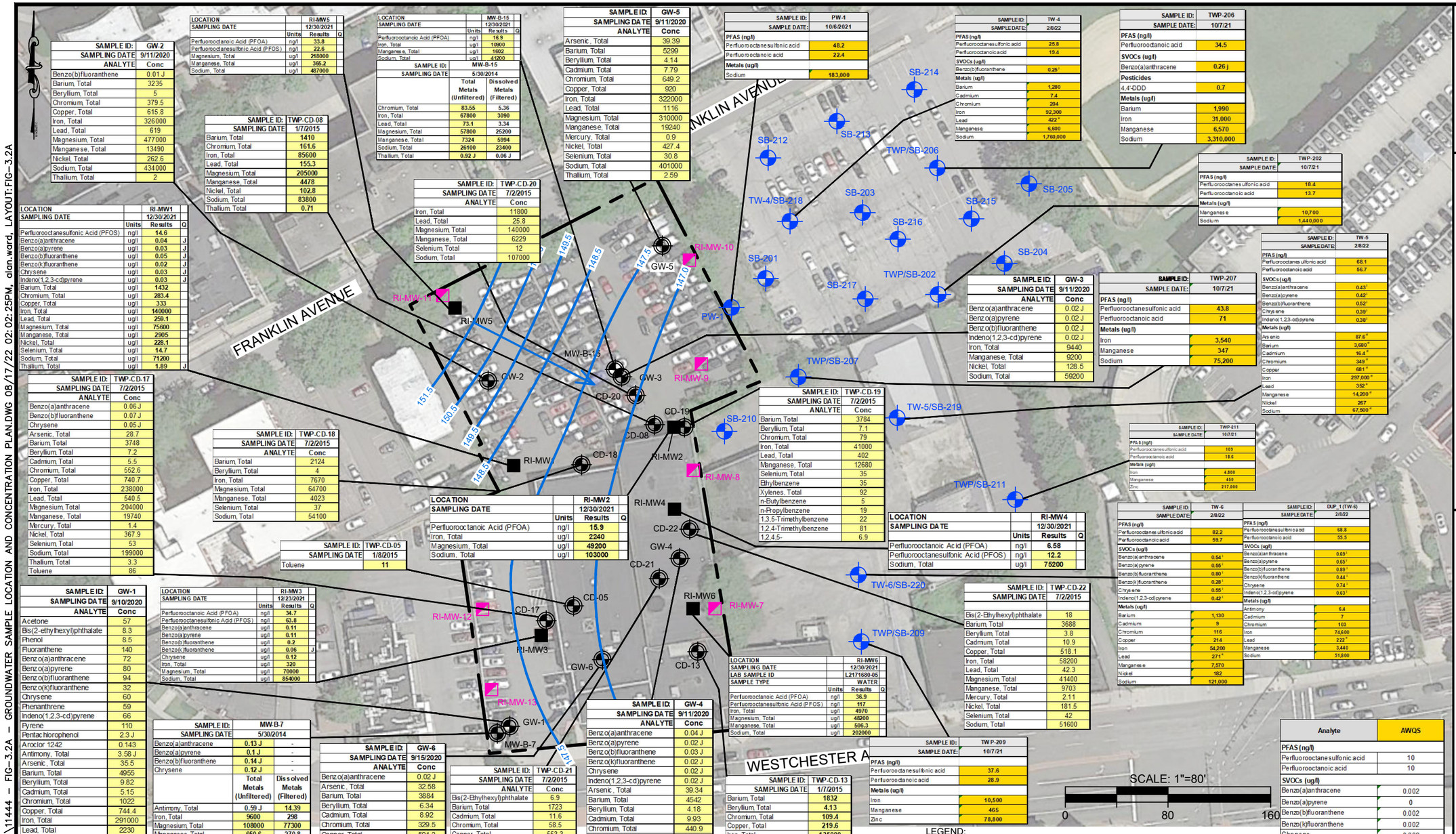
SESI CONSULTING ENGINEERS
SOILS / FOUNDATIONS
SITE DESIGN
ENVIRONMENTAL
12A MAPLE AVE. PINE BROOK, N.J. 07058 PH: 973-808-9050

project: WHITE PLAINS CHRYSLER CAR DEALERSHIP SITE (BCP #C360209) 70 WESTCHESTER AVENUE WHITE PLAINS, WESTCHESTER COUNTY, NY

title: PROPOSED SOIL SAMPLE LOCATION PLAN

job no: 11444
drawing no:

FIG-3.1A



SAMPLE ID:	GW-2
SAMPLING DATE	9/11/2020
ANALYTE	Conc
Benzo(b)fluoranthene	0.01 J
Barium, Total	3235
Beryllium, Total	5
Chromium, Total	379.5
Copper, Total	615.8
Iron, Total	326000
Lead, Total	619
Magnesium, Total	477000
Manganese, Total	13490
Nickel, Total	262.6
Sodium, Total	434000
Thallium, Total	2

LOCATION		RI-MW5	
SAMPLING DATE		12/30/2021	
	Units	Results	Q
Perfluorooctanoic Acid (PFOA)	ng/l	33.8	
Perfluorooctanesulfonic Acid (PFOS)	ng/l	22.6	
Magnesium, Total	ug/l	216000	
Manganese, Total	ug/l	365.2	
Sodium, Total	ug/l	487000	

SAMPLE ID:	TWP-CD-08
SAMPLING DATE	1/7/2015
Barium, Total	1410
Chromium, Total	161.6
Iron, Total	85600
Lead, Total	155.3
Magnesium, Total	205000
Manganese, Total	4478
Nickel, Total	102.8
Sodium, Total	83800
Thallium, Total	0.71

LOCATION		MW-B-15	
SAMPLING DATE		12/30/2021	
	Units	Results	Q
Perfluorooctanoic Acid (PFOA)	ng/l	16.9	
Iron, Total	ug/l	10900	
Manganese, Total	ug/l	1602	
Sodium, Total	ug/l	41200	

SAMPLE ID:	MW-B-15	
SAMPLING DATE	5/30/2014	
	Total Metals (Unfiltered)	Dissolved Metals (Filtered)
Chromium, Total	83.55	5.36
Iron, Total	67800	3090
Lead, Total	73.1	3.34
Magnesium, Total	57800	25200
Manganese, Total	7324	5994
Sodium, Total	26100	23400
Thallium, Total	0.92 J	0.06 J

SAMPLE ID:	GW-5
SAMPLING DATE	9/11/2020
ANALYTE	Conc
Arsenic, Total	39.39
Barium, Total	5299
Beryllium, Total	4.14
Cadmium, Total	7.79
Chromium, Total	649.2
Copper, Total	920
Iron, Total	322000
Lead, Total	1116
Magnesium, Total	310000
Manganese, Total	19240
Mercury, Total	0.9
Nickel, Total	427.4
Selenium, Total	30.8
Sodium, Total	401000
Thallium, Total	2.59

SAMPLE ID:	PW-1
SAMPLE DATE:	10/6/2021
PFAS (ng/l)	
Perfluorooctanesulfonic acid	48.2
Perfluorooctanoic acid	22.4
Metals (ug/l)	
Sodium	183,000

SAMPLE ID:	TW-4
SAMPLE DATE:	2/8/22
PFAS (ng/l)	
Perfluorooctanesulfonic acid	25.8
Perfluorooctanoic acid	19.4
SVOCs (ug/l)	
Benzo(b)fluoranthene	0.25 J
Metals (ug/l)	
Barium	1,280
Cadmium	7.4
Chromium	204
Iron	92,300
Lead	422
Manganese	6,600
Sodium	1,760,000

SAMPLE ID:	TWP-206
SAMPLE DATE:	10/7/21
PFAS (ng/l)	
Perfluorooctanoic acid	34.5
SVOCs (ug/l)	
Benzo(a)anthracene	0.26 J
Pesticides	
4,4'-DDD	0.7
Metals (ug/l)	
Barium	1,990
Iron	31,000
Manganese	6,570
Sodium	3,310,000

SAMPLE ID:	TWP-202
SAMPLE DATE:	10/7/21
PFAS (ng/l)	
Perfluorooctanesulfonic acid	18.4
Perfluorooctanoic acid	13.7
Metals (ug/l)	
Manganese	10,700
Sodium	1,440,000

SAMPLE ID:	TWP-5
SAMPLE DATE:	2/8/22
PFAS (ng/l)	
Perfluorooctanesulfonic acid	68.1
Perfluorooctanoic acid	56.7
SVOCs (ug/l)	
Benzo(a)anthracene	0.43 J
Benzo(a)pyrene	0.42 J
Benzo(b)fluoranthene	0.52 J
Chrysene	0.39 J
Indeno(1,2,3-cd)pyrene	0.38 J
Metals (ug/l)	
Arsenic	87.6
Barium	3,680
Cadmium	16.4
Chromium	349
Copper	681
Iron	297,000
Lead	352
Manganese	14,200
Nickel	267
Sodium	67,500

SAMPLE ID:	GW-3
SAMPLING DATE	9/11/2020
ANALYTE	Conc
Benzo(a)anthracene	0.02 J
Benzo(a)pyrene	0.02 J
Benzo(b)fluoranthene	0.02 J
Indeno(1,2,3-cd)pyrene	0.02 J
Iron, Total	9440
Manganese, Total	9200
Nickel, Total	128.5
Sodium, Total	59200

SAMPLE ID:	TWP-207
SAMPLE DATE:	10/7/21
PFAS (ng/l)	
Perfluorooctanesulfonic acid	43.8
Perfluorooctanoic acid	71
Metals (ug/l)	
Iron	3,540
Manganese	347
Sodium	75,200

SAMPLE ID:	TWP-211
SAMPLE DATE:	10/7/21
PFAS (ng/l)	
Perfluorooctanesulfonic acid	105
Perfluorooctanoic acid	18.6
Metals (ug/l)	
Iron	4,800
Manganese	450
Zinc	217,000

SAMPLE ID:	TW-6	DUP_1 (TW-6)
SAMPLE DATE	2/8/22	2/8/22
PFAS (ng/l)		
Perfluorooctanesulfonic acid	82.2	68.8
Perfluorooctanoic acid	59.7	55.5
SVOCs (ug/l)		
Benzo(a)anthracene	0.54 J	0.69 J
Benzo(a)pyrene	0.55 J	0.65 J
Benzo(b)fluoranthene	0.80 J	0.89 J
Benzo(k)fluoranthene	0.28 J	0.44 J
Chrysene	0.55 J	0.74 J
Indeno(1,2,3-cd)pyrene	0.42 J	0.63 J
Metals (ug/l)		
Barium	1,130	6.4
Cadmium	9	7
Chromium	116	103
Iron	214	74,600
Lead	54,200	222
Manganese	271	3,440
Nickel	7,570	51,800
Sodium	182	

SAMPLE ID:	TWP-CD-22
SAMPLING DATE	7/2/2015
Bis(2-Ethylhexyl)phthalate	18
Barium, Total	3688
Beryllium, Total	3.8
Cadmium, Total	10.9
Copper, Total	518.1
Iron, Total	58200
Lead, Total	42.3
Magnesium, Total	41400
Manganese, Total	9703
Mercury, Total	2.11
Nickel, Total	181.5
Selenium, Total	42
Sodium, Total	51600

SAMPLE ID:	TWP-209
SAMPLE DATE:	10/7/21
PFAS (ng/l)	
Perfluorooctanesulfonic acid	37.6
Perfluorooctanoic acid	28.9
Metals (ug/l)	
Iron	10,500
Manganese	465
Zinc	78,600

SAMPLE ID:	TWP-CD-19
SAMPLING DATE	7/2/2015
ANALYTE	Conc
Barium, Total	3784
Beryllium, Total	7.1
Chromium, Total	79
Iron, Total	41000
Lead, Total	402
Manganese, Total	12680
Selenium, Total	35
Ethylbenzene	35
Xylenes, Total	92
n-Butylbenzene	5
n-Propylbenzene	19
1,3,5-Trimethylbenzene	22
1,2,4-Trimethylbenzene	81
1,2,4,5-	6.9

LOCATION		RI-MW4	
SAMPLING DATE		12/30/2021	
	Units	Results	Q
Perfluorooctanoic Acid (PFOA)	ng/l	6.58	
Perfluorooctanesulfonic Acid (PFOS)	ng/l	12.2	
Sodium, Total	ug/l	75200	

SAMPLE ID:	TWP-CD-17
SAMPLING DATE	7/2/2015
ANALYTE	Conc
Benzo(a)anthracene	0.06 J
Benzo(b)fluoranthene	0.07 J
Chrysene	0.05 J
Arsenic, Total	28.7
Barium, Total	3748
Beryllium, Total	7.2
Cadmium, Total	5.5
Chromium, Total	552.6
Copper, Total	740.7
Iron, Total	238000
Lead, Total	540.5
Magnesium, Total	204000
Manganese, Total	19740
Mercury, Total	1.4
Nickel, Total	367.9
Selenium, Total	53
Sodium, Total	199000
Thallium, Total	3.3
Toluene	86

SAMPLE ID:	TWP-CD-18
SAMPLING DATE	7/2/2015
ANALYTE	Conc
Barium, Total	2124
Beryllium, Total	4
Iron, Total	7670
Magnesium, Total	64700
Manganese, Total	4023
Selenium, Total	37
Sodium, Total	54100

LOCATION		RI-MW2	
SAMPLING DATE		12/30/2021	
	Units	Results	Q
Perfluorooctanoic Acid (PFOA)	ng/l	15.9	
Iron, Total	ug/l	2240	
Magnesium, Total	ug/l	49200	
Sodium, Total	ug/l	103000	

SAMPLE ID:	TWP-CD-05
SAMPLING DATE	1/8/2015
Toluene	11

SAMPLE ID:	GW-1
SAMPLING DATE	9/10/2020
ANALYTE	Conc
Acetone	57
Bis(2-ethylhexyl)phthalate	8.3
Phenol	8.5
Fluoranthene	140
Benzo(a)anthracene	72
Benzo(a)pyrene	80
Benzo(b)fluoranthene	94
Benzo(k)fluoranthene	32
Chrysene	60
Phenanthrene	59
Indeno(1,2,3-cd)pyrene	66
Pyrene	110
Pentachlorophenol	2.3 J
Aroclor 1242	0.143
Antimony, Total	3.58 J
Arsenic, Total	35.5
Barium, Total	4955
Beryllium, Total	9.82
Cadmium, Total	5.15
Chromium, Total	1022
Copper, Total	744.4
Iron, Total	291000
Lead, Total	2230
Magnesium, Total	529000
Manganese, Total	7805
Mercury, Total	1.79
Nickel, Total	390.5
Selenium, Total	23.9
Sodium, Total	650000
Thallium, Total	3.55
Zinc, Total	2341

LOCATION		RI-MW3	
SAMPLING DATE		12/23/2021	
	Units	Results	Q
Perfluorooctanoic Acid (PFOA)	ng/l	34.7	
Perfluorooctanesulfonic Acid (PFOS)	ng/l	63.8	
Benzo(a)anthracene	ug/l	0.11	
Benzo(a)pyrene	ug/l	0.11	
Benzo(b)fluoranthene	ug/l	0.2	
Benzo(k)fluoranthene	ug/l	0.06	J
Chrysene	ug/l	0.12	
Iron, Total	ug/l	320	
Magnesium, Total	ug/l	70000	
Sodium, Total	ug/l	854000	

SAMPLE ID:	MW-B-7	
SAMPLING DATE	5/30/2014	
Benzo(a)anthracene	0.13 J	-
Benzo(a)pyrene	0.1 J	-
Benzo(b)fluoranthene	0.14 J	-
Chrysene	0.12 J	-
	Total Metals (Unfiltered)	Dissolved Metals (Filtered)
Antimony, Total	0.59 J	14.39
Iron, Total	9600	298
Magnesium, Total	108000	77300
Manganese, Total	650.6	270.8
Sodium, Total	377000	59300

LOCATION		MW-B-7	
SAMPLING DATE		12/30/2021	
	Units	Results	Q
Perfluorooctanoic Acid (PFOA)	ng/l	23.9	
Perfluorooctanesulfonic Acid (PFOS)	ng/l	34	
Magnesium, Total	ug/l	78100	
Sodium, Total	ug/l	656000	

SAMPLE ID:	GW-6
SAMPLING DATE	9/15/2020
ANALYTE	Conc
Benzo(a)anthracene	0.02 J
Arsenic, Total	32.58
Barium, Total	3884
Beryllium, Total	6.34
Cadmium, Total	8.92
Chromium, Total	329.5
Copper, Total	594.3
Iron, Total	142000
Lead, Total	216.5
Magnesium, Total	216000
Manganese, Total	30740
Nickel, Total	506.4
Selenium, Total	34
Sodium, Total	230000
Thallium, Total	1.95

SAMPLE ID:	TWP-CD-21
SAMPLING DATE	7/2/2015
ANALYTE	Conc
Bis(2-Ethylhexyl)phthalate	6.9
Barium, Total	1723
Cadmium, Total	11.6
Chromium, Total	58.5
Copper, Total	553.3
Iron, Total	25900
Lead, Total	39.4
Magnesium, Total	77100
Manganese, Total	8676
Mercury, Total	0.76
Nickel, Total	221
Selenium, Total	41
Sodium, Total	187000
Toluene	11

SAMPLE ID:	GW-4
SAMPLING DATE	9/11/2020
ANALYTE	Conc
Benzo(a)anthracene	0.04 J
Benzo(a)pyrene	0.02 J
Benzo(b)fluoranthene	0.03 J
Benzo(k)fluoranthene	0.02 J
Chrysene	0.02 J
Indeno(1,2,3-cd)pyrene	0.02 J
Arsenic, Total	39.34
Barium, Total	4542
Beryllium, Total	4.18
Cadmium, Total	9.93
Chromium, Total	440.9
Copper, Total	658
Iron, Total	411000
Lead, Total	1032
Magnesium, Total	162000
Manganese, Total	34120
Mercury, Total	1.4
Nickel, Total	485.6
Selenium, Total	32.7
Sodium, Total	112000
Thallium, Total	2.49

LOCATION		RI-MW6	
SAMPLING DATE		12/30/2021	
LAB SAMPLE ID		L2171680-05	
SAMPLE TYPE		WATER	
	Units	Results	Q
Perfluorooctanoic Acid (PFOA)	ng/l	36.9	
Perfluorooctanesulfonic Acid (PFOS)	ng/l	117	
Iron, Total	ug/l	4970	
Magnesium, Total	ug/l	48200	
Manganese, Total	ug/l	506.3	
Sodium, Total	ug/l	202000	

SAMPLE ID:	TWP-CD-13
SAMPLING DATE	1/7/2015
Barium, Total	1832
Beryllium, Total	4.13
Chromium, Total	109.4
Copper, Total	219.6
Iron, Total	135000
Lead, Total	93.06
Magnesium, Total	90000
Manganese, Total	13530
Nickel, Total	203
Selenium, Total	27.6
Sodium, Total	303000
Thallium, Total	1.07

Analyte	AWQS
PFAS (ng/l)	
Perfluorooctanesulfonic acid	10
Perfluorooctanoic acid	10
SVOCs (ug/l)	
Benzo(a)anthracene	0.002
Benzo(a)pyrene	0
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Indeno(1,2,3-cd)pyrene	0.002
Pesticides (ug/l)	
4,4'-DDD	0.3
Metals (ug/l)	
Antimony	3
Arsenic	25
Barium	1,000
Cadmium	5
Chromium	50
Copper	200
Iron	300
Lead	25
Mangenese	300
Nickel	100
Sodium	20,000

NOTES:

1. THIS PLAN IS FOR LOCATING GROUNDWATER SAMPLING ONLY. OTHER SITE WORK SHOWN HERE IS NOT INTENDED FOR CONSTRUCTION.
2. NY-AWQS: NEW YORK TOGS 111 AMBIENT WATER QUALITY STANDARDS CRITERIA REFLECTS ALL ADDENDUM TO CRITERIA THROUGH JUNE 2004.
3. J = PRESUMPTIVE EVIDENCE OF COMPOUND

REFERENCE

AERIAL MAP TAKEN FROM BING MAPS, DATED 2020.

LEGEND:

- PROPERTY LINE
- GW-1 - GROUNDWATER SAMPLE NUMBER & APPROX. LOCATION (SEPTEMBER 2020)
- 110 - CONCENTRATION EXCEEDS NY-AWQS
- RI-MW3 - REMEDIAL INVESTIGATION MONITORING WELL LOCATION (NOVEMBER/DECEMBER 2021)
- CD-13 - GROUNDWATER SAMPLE COLLECTED BY OTHERS (JANUARY 2015)
- RI-MW-7 - PROPOSED SUPPLEMENTAL REMEDIAL INVESTIGATION WELL
- TWP/SB-202 - APPROX. LOCATIONS OF TEMPORARY WELL POINT & SOIL BORING
- GROUNDWATER ELEVATION CONTOUR (FEET)
- GROUNDWATER ELEVATION DIRECTION

N:\ACAD\11444\CAD\RIWP\2021-08-19\11444 - FIG-3.2A - GROUNDWATER SAMPLE LOCATION AND CONCENTRATION PLAN.DWG 08/17/22 02:02:25PM, alan.ward, LAYOUT:FIG-3.2A

SESI CONSULTING ENGINEERS

SOILS / FOUNDATIONS
SITE DESIGN
ENVIRONMENTAL

12A MAPLE AVE. PINE BROOK, N.J. 07058 PH: 973-808-9050

dwg by: aas
chk by: SSG
scale: AS NOTED
date: 07/13/2022

project:
WHITE PLAINS CHRYSLER CAR DEALERSHIP SITE
(BCP #C360209)
70 WESTCHESTER AVENUE
WHITE PLAINS, WESTCHESTER COUNTY, NY

title:
GROUNDWATER SAMPLE LOCATION AND CONCENTRATION PLAN

job no: 11444
drawing no:

FIG-3.2A